

Draft Environmental Impact Report

September 2013

TECHNICAL APPENDICES

Z12-002

GP12-002

EIR12-002

SCH No. 2009072070



COUNTY OF NEVADA

Housing Element Rezone Program Implementation

**County of Nevada
Housing Element Rezone Implementation Program EIR
September 2013**

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**County of Nevada
Housing Element Rezone Implementation Program EIR
September 2013**

Technical Appendices

Appendix A

Notice of Preparation and Public Comments



**COUNTY OF NEVADA
COMMUNITY DEVELOPMENT AGENCY
PLANNING DEPARTMENT**

**950 MAIDU AVENUE NEVADA CITY, CA 95959-8617
(530) 265-1222 FAX (530) 265-9851 <http://new.nevadacounty.com>**

Steven L. DeCamp
Community Development Agency Director

Brian Foss
Planning Director

NOTICE OF PREPARATION

DATE: September 21, 2012

TO: Responsible Agencies, Organizations and Interested Parties

FROM: Tyler Barrington, Interim Principal Planner

SUBJECT: Notice of Preparation of an Environmental Impact Report (EIR) for the 2009-2014 Housing Element Rezone Program Implementation of Housing Element Programs HD-8.1.3 and HD-8.1.4, including the “RH” Zoning Combining District in Program HD-8.1.5 and a site analysis of 17 pre-selected properties as potential sites for high density residential zoning to accommodate the future development of high density housing units. The sites are located within three general areas of unincorporated Nevada County. These areas are generally defined as the Grass Valley Sphere of Influence (SOI), Penn Valley and the Lake of the Pines Areas.

In discharging its duties under Section 15021 of the California Environmental Quality Act (CEQA) Guidelines, the County of Nevada (as Lead Agency) intends to prepare an Environmental Impact Report (EIR), consistent with Article 9 and Section 15161 of the CEQA Guidelines for the implementation of Programs HD-8.1.3 and HD-8.1.4 of the County’s 2009-2014 Housing Element update and Section L-II 2.7.11 of the Nevada County Zoning Ordinance (Program HD-8.1.5). In accordance with Section 15082 of the CEQA Guidelines, the County of Nevada has prepared this Notice of Preparation (NOP) to provide Responsible Agencies and other interested parties with sufficient information describing the project and its potential environmental effects. To assist your evaluation, please review the following project description, listing of possible environmental effects and exhibits.

PROJECT LOCATION:

The candidate sites are located within three general areas of unincorporated Nevada County. These areas are generally defined as the Grass Valley SOI, Penn Valley, and the Lake of the Pines Areas. Please see Figures 1-4 to identify where the individual sites are located. The APNs for the selected sites are as follows:

Grass Valley SOI

Site 1: 07-380-17
Site 2: 09-270-04
Site 3: 29-350-12
Site 4: 35-412-15
Site 5: 35-412-17
Site 6: 35-412-18
Site 7: 35-412-19
Site 8: 35-412-21

Penn Valley

Site 9: 51-120-06
Site 10: 51-150-29
Site 11: 51-151-62
Site 12: 51-370-02

Lake of the Pines

Site 13: 57-141-29
Site 14: 57-270-02
Site 15: 57-270-03
Site 16: 57-270-06
Site 17: 11-181-03

PROJECT DESCRIPTION:

Project Background

The County of Nevada Board of Supervisors adopted the most recent update of its Housing Element on May 11, 2010 and received certification of the Element from the California Department of Housing and Community Development (HCD) on July 1, 2010. The Housing Element's vacant land inventory found that the County had a deficit in sites that had adequate zoning (R3 "High Density Residential") to accommodate lower income category of the County's Regional Housing Need Allocation. Recent State law requires jurisdictions to rezone property to accommodate their Regional Housing Need Allocation if that jurisdiction's vacant land inventory finds that there are not adequate vacant sites zoned for high density residential to accommodate the low and very low income categories. The State law requires that the rezoned sites provide for a minimum density of 16-units per acre and those sites allow the development of higher density housing as an allowed use (not subject to discretionary permits, e.g., conditional use permit, planned unit development plan). Depending on the site's existing General Plan designation, it is possible that some sites will also require a site specific General Plan amendment as well.

In addition to the lack of adequately zoned sites from the most recent planning cycle, the County's previous Housing Element also had a rezone program that was not implemented. At that time it was determined that the County had an unmet need of sites suitable for 571 low and very low income units. The current Housing Element determined an unmet need of sites suitable to accommodate 699 units affordable to low and very low income residents (1,270 units total).

To obtain certification from HCD, County staff was required to complete a vacant land inventory in which potential rezone candidate sites that could be suitable for higher density housing were identified. These sites were identified based on the relative lack of constraints and proximity to services. Additionally, County staff performed an extensive outreach process to ensure that the property owners of the candidate site would be willing participants in rezoning their land to higher density residential. As a result of the outreach effort, the County's list of potential rezone candidate sites was reduced to 17 properties consisting of approximately 146 acres.

A site analysis was prepared for each site to evaluate the physical and regulatory constraints of the property and determine if the 17 properties could collectively accommodate the required 1,270 units. The evaluation of each site consisted of a field visit, research and investigation regarding the existing land use conditions in the surrounding area of each site, a site specific biological reconnaissance, a cultural resources record search and field reconnaissance, and a general geotechnical investigation. The opportunities and constraints of each site were considered in a numerical scoring system that utilized seven sets of criteria that were created to assess the suitability of each candidate site.

Project Components

Zoning Amendments

To meet state housing requirements identified in the County's Housing Element, high density residential zoning (R3) for an additional 1,270 low and very low housing units are required to

meet the County's unmet housing needs. The project proposes to implement rezoning through the Zoning Map Amendment process to rezone sufficient acreage to higher density residential, or the equivalent of higher density residential, to meet the minimum low and very low income requirements. The specific rezoning process is proposed through the implementation of Housing Element Programs HD-8.1.3 and HD-8.1.4, including adding the "RH" Zoning Combining District to those sites included in Program HD-8.1.5.

The Housing Element Programs are described below:

Program HD-8.1.3: To accommodate the unmet housing need of 571 low and very-low income units identified in the 2003-2008 Nevada County Housing Element, the County would rezone at least 29-acres of property suitable and available for development.

Program HD-8.1.4: To accommodate the unmet housing need of 699 low and very-low income units identified in the 2009-2014 Nevada County Housing Element, the County would rezone at least 35-acres suitable and available for development.

The rezoning of property under Programs HD-8.1.3 and HD-8.1.4 will occur through one of the following scenarios:

1. Rezones within the cities' sphere of influence to a maximum density of 20 units per acre (R3-20) and a minimum density of 16 units per acre; or
2. Rezone a sufficient amount of land outside the cities' sphere of influence to a minimum density of 16 units per acre; or
3. A combination of rezoned land within and outside of the cities' sphere of influences at the identified densities may also be used to satisfy the unmet need of 571 and 699 units, respectively.

A minimum of 50 percent of the 1,270 units shall be accommodated on sites zoned exclusively for residential uses. Owner occupied and rental multi-family residential uses on these sites shall be allowed by right (without a conditional use permit, planned unit development plan, or other discretionary action) as required by Government Code Sections 65583.2(h) and (i). The rezoned sites shall provide for a minimum of 16-units per site and required a minimum density of 16-units per acre.

Program HD-8.1.5: Required the County to amend the Zoning Regulations to create a definition and development standards for a Regional Housing Need (RH) Overlay district that is to be attached to the rezoned sites to accommodate the new construction objectives under Programs HD-8.1.3 and HD-8.1.4. The overlay district was developed by County staff and adopted by the County Board of Supervisors in September 27, 2011.

Site Selection

To demonstrate that the required housing needs could be met through the implementation of the Housing Element Programs, the County selected 17 candidate properties as potential sites for development for affordable housing units. A site analysis was conducted for each of the

properties to determine if enough suitable land for the development of 1,270 affordable housing units could be achieved from the candidate sites.

The site analysis determined the sites to be suitable for development and implementation of the County's goal to rezone the properties to R3 (high density residential). Based on the site survey, a conceptual building envelope was identified for each site. A theoretical maximum unit count was calculated based on state mandated minimum default densities of 16-units minimum per acre. The analysis concluded of a total area of 146.25 acres from the 17 sites, approximately 101.6 acres would be available for development. At 16 units per acre, the maximum number of units would be 1,630 units. This number exceeds the 1,270 units the County currently needs to meet its housing element goals. The number of potential units (1,630) could increase or decrease depending on a variety of factors such as the County utilizing a higher density in the zoning overlay zone (e.g., 20 units per acre) or other physical constraints in the field that reduce the development potential of a site.

Establishment of Site Development Criteria for Rezoned Sites

As outlined in the "RH" Zoning Combining District Ordinance (Section L-II 2.7.11.C.3 of the Nevada County Land Use and Development Code), the project will result in the development of a Regional Housing Need Implementation Plan. This Plan will outline site specific development standards and any CEQA mitigation measures adopted for each site that must be adhered to in order for the site to develop consistent with the purpose of the rezone and to ensure that the development of the site does not result in a significant environmental impact.

PROJECT APPROVALS:

Rezone (Z12-002)
General Plan Amendment, if necessary (GP12-002)
Certification of the EIR (EIR12-002)

PROBABLE ENVIRONMENTAL EFFECTS:

The determination to prepare an EIR was made by the County of Nevada.

The following subject areas will be addressed in the EIR:

Aesthetics, Air Quality, Biological Resources, Cultural Resources, Geology/Soils, Greenhouse Gas Emissions, Hydrology/Water Quality, Land Use and Planning, and Transportation/Traffic.

PUBLIC SCOPING MEETING:

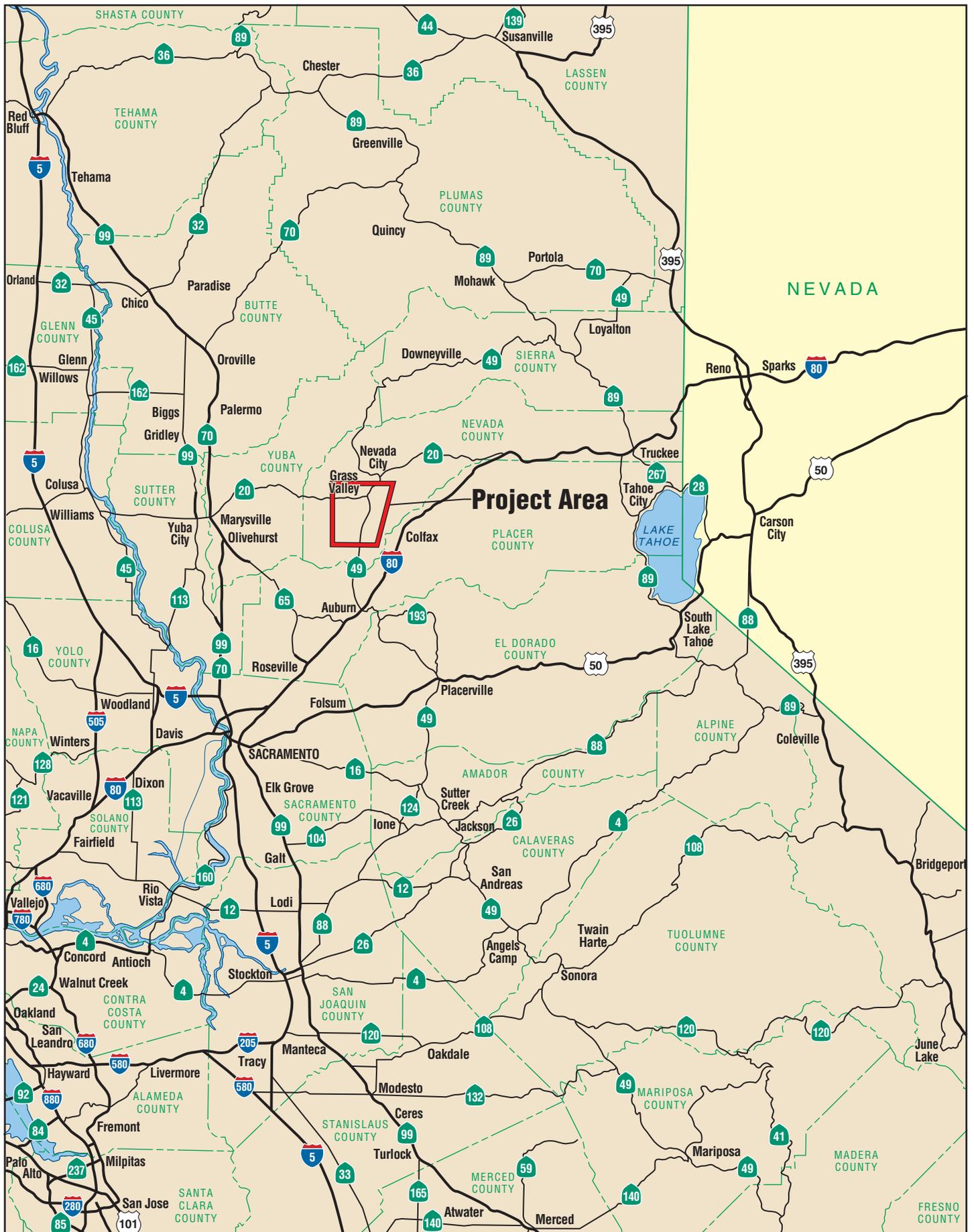
Consistent with Section 21083.9 of the CEQA Statues, a public scoping meeting will be held to solicit comments on the EIR. This meeting will be held on **October 3, 2012 at 5:30 p.m.** at the Providence Mine Room located on the second floor of the Eric Rood Center 950 Maidu Avenue Nevada City.

As specified in the CEQA Guidelines, the Notice of Preparation will be circulated for a 30-day review period. The County of Nevada welcomes public input during this review period on the scope of the EIR analysis. In the event that no response or request for additional time is received by any Responsible Agency by the end of the review period, the Lead Agency may presume that the Responsible Agency has no response. Comments may be submitted in writing during the review period and addressed to:

Tyler Barrington, Interim Principal Planner
Nevada County Community Development Agency
950 Maidu Avenue, Suite 170
Nevada City, CA 95959
Telephone: (530) 470-2723
Email: tyler.barrington@co.nevada.ca.us

The Notice of Preparation comment period closes on **October 26, 2012.**

Attachments:
Site and Vicinity Maps



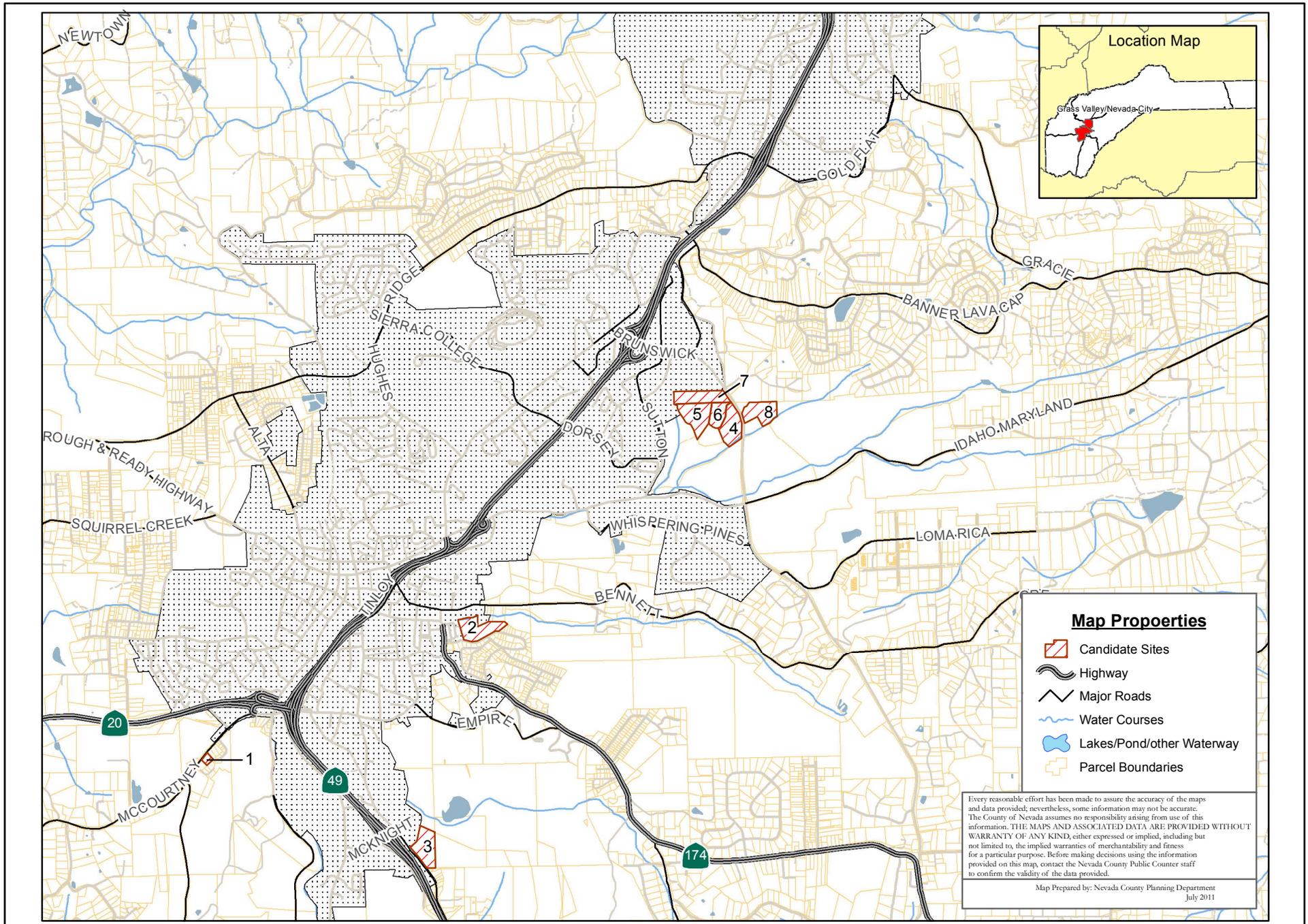
COUNTY OF NEVADA
 2019-2014 HOUSING ELEMENT REZONE PROGRAM IMPLEMENTATION NOP

Regional Vicinity

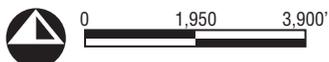
FIGURE 1



9/6/12 JN 60-100827-18668



Source: Nevada County GIS 2012; ESRI 2012.

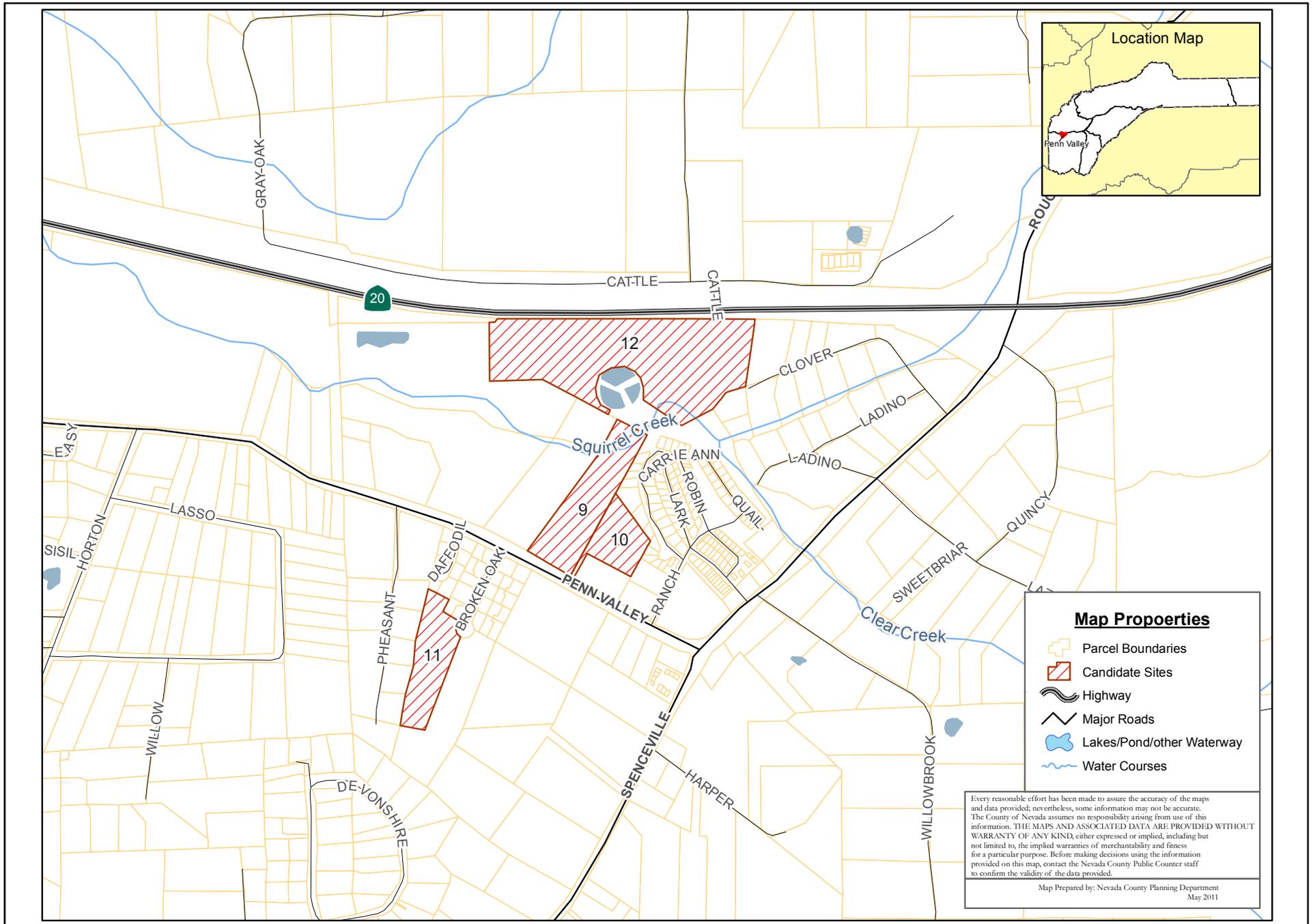


9/5/12 JN 60-100827-18668

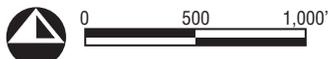
COUNTY OF NEVADA
2019-2014 HOUSING ELEMENT REZONE PROGRAM IMPLEMENTATION NOP

Grass Valley Area Sites

FIGURE 2



Source: Nevada County GIS 2012; ESRI 2012.

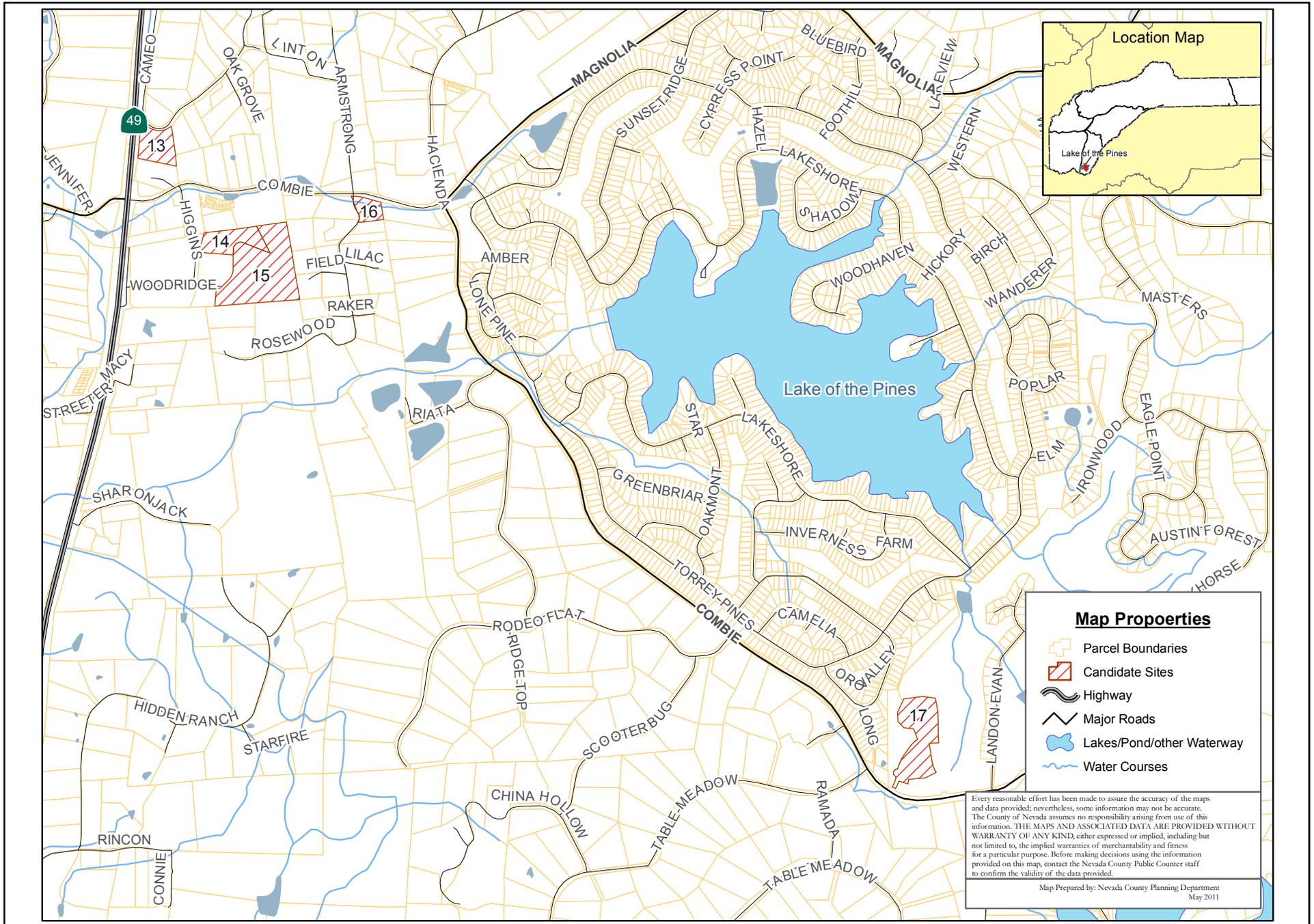


9/5/12 JN 60-100827-18668

COUNTY OF NEVADA
2019-2014 HOUSING ELEMENT REZONE PROGRAM IMPLEMENTATION NOP

Penn Valley Area Sites

FIGURE 3



Source: Nevada County GIS 2012; ESRI 2012.



9/5/12 JN 60-100827-18668

COUNTY OF NEVADA
2019-2014 HOUSING ELEMENT REZONE PROGRAM IMPLEMENTATION NOP

Lake of the Pines Area Sites

FIGURE 4

DEPARTMENT OF TRANSPORTATION

703 B STREET
MARYSVILLE, CA 95901
PHONE (530) 741-4004
FAX (530) 741-5346
TTY 711



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October 23, 2012

032012-NEV-0020
NEV-VAR
SCH# 2009072070

Mr. Tyler Barrington
Nevada County Community Development Agency
950 Maidu Avenue, Suite 170
Nevada City, CA 95959

2009-2014 Housing Element Rezone Program Implementation – Notice of Preparation (NOP)

Dear Mr. Barrington:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the project referenced above. Nevada County intends to prepare an Environmental Impact Report (EIR) for implementation of Program HD-8.1.3 and HD-8.1.4 of the County's 2009-2014 Housing Element update and Section L-II 2.7.11 of the Nevada County Zoning Ordinance. The project proposes to implement rezoning through the Zoning Map Amendment process to rezone sufficient acreage to higher density residential, or the equivalent of higher density residential, to meet the minimum low and very low income requirements. This housing element rezone has the potential to affect State Routes (SR) 20 and 49 within Nevada County. The following comments are based on the NOP.

Traffic Impact Study (TIS)

We recommend using the Department's *Guide for the Preparation of Traffic Impact Studies (TIS Guide)* for determining which scenarios and methodologies to use in the analysis. The *TIS Guide* is a starting point for collaboration between the lead agency and the Department in determining when a TIS is needed. The appropriate level of study is determined by the project, such as the highway conditions and forecasted traffic. The *TIS Guide* is available at the following website address: http://dot.ca.gov/hq/tpp/offices/ocp/igr_ceqa_files/tisguide.pdf

The TIS should include:

1. Vicinity map, regional location map, and a site plan clearly showing project access in relation to nearby State roadways. Ingress and egress for all project components should be clearly identified. The State right-of-way (ROW) should be clearly identified. The maps should also include project driveways, local roads and intersections, parking, and transit facilities.

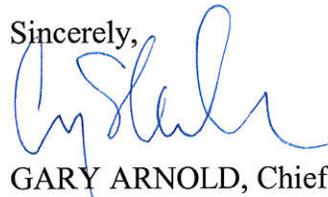
2. Project-related trip generation, distribution, and assignment. The assumptions and methodologies used to develop this information should be detailed in the study, and should be supported with appropriate documentation.
3. Average Daily Traffic, AM and PM peak hour volumes and levels of service (LOS) on all roadways where potentially significant impacts may occur, including crossroads and controlled intersections for existing, existing plus project, cumulative and cumulative plus project scenarios. Calculation of cumulative traffic volumes should consider all traffic-generating developments, both existing and future, that would affect study area roadways and intersections. The analysis should clearly identify the project's contribution to area traffic and any degradation to existing and cumulative performance.
4. Schematic illustration of traffic conditions including the project site and study area roadways, trip distribution percentages and volumes as well as intersection geometrics, i.e., lane configurations, for the scenarios described above.
5. The project site building potential as identified in the General Plan. The project's consistency with both the Circulation Element of the General Plan and the Congestion Management Agency's Congestion Management Plan should be evaluated.
6. Identification of mitigation for any roadway mainline section or intersection with insufficient capacity to maintain acceptable performance with the addition of project-related and/or cumulative traffic. As noted above, the project's fair share contribution, financing, scheduling, implementation responsibilities and lead agency monitoring should also be fully discussed for all proposed mitigation measures.

We request that you provide our office with the opportunity to review the draft Scope of Work for the TIS prior to beginning the study.

Please provide our office with copies of any further actions regarding this project including project approval documents and any conditions of approval, if applicable. We would appreciate the opportunity to review and comment on any changes related to this development.

If you have any questions regarding these comments or require additional information, please contact Josh Pulverman, Nevada County Regional Planning Liaison, at 530-634-7612 or by email at: josh_pulverman@dot.ca.gov

Sincerely,



GARY ARNOLD, Chief
Office of Transportation Planning – North

c: Scott Morgan, State Clearinghouse

DEPARTMENT OF TRANSPORTATION

DIVISION OF AERONAUTICS – M.S.#40
1120 N STREET
P. O. BOX 942874
SACRAMENTO, CA 94274-0001
PHONE (916) 654-4959
FAX (916) 653-9531
TTY 711



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October 2, 2012

Mr. Tyler Barrington
Nevada County
950 Maidu Avenue, Suite 170
Nevada City, CA 95959-8617

RECEIVED
OCT 05 2012
Nevada County Community
Development Agency

Dear Mr. Barrington:

Re: Notice of Preparation for the 2009-2014 Housing Element Rezone Program Implementation;
SCH# 2009072070

The California Department of Transportation (Caltrans), Division of Aeronautics (Division), reviewed the above-referenced document with respect to airport-related noise and safety impacts and regional aviation land use planning issues pursuant to the California Environmental Quality Act (CEQA). The Division has technical expertise in the areas of airport operations safety and airport land use compatibility. We are a funding agency for airport projects and we have permit authority for public-use and special-use airports and heliports. The following comments are offered for your consideration.

The proposal is for the Nevada County 2009-2014 Housing Element Rezone Program Implementation. It includes land use zoning amendments and a possible general plan amendment. Four of the potential sites for residential housing in the Grass Valley Area (sites 4, 5, 6 and 8) are approximately one mile, northwest, of Runway 7/25 at the Nevada County Air Park.

1. In accordance with California Public Utilities Code (PUC) Section 21676 *et seq.*, prior to the amendment of a general plan or specific plan, or the adoption or approval of a zoning ordinance or building regulation within the planning boundary established by the airport land use commission (ALUC), the local agency shall first refer the proposed action to the ALUC. The appropriate ALUC for this project is the Nevada County Transportation Commission.

If the ALUC determines that the proposed action is inconsistent with the airport land use compatibility plan, the referring agency shall be notified. The local agency may, after a public hearing, propose to overrule the ALUC by a two-thirds vote of its governing body after it makes specific findings. At least 45 days prior to the decision to overrule the ALUC, the local agency's governing body shall provide to the ALUC and Caltrans a copy of the proposed decision and findings. Caltrans reviews and comments on the specific findings a local government intends to use when proposing to overrule an ALUC. Caltrans specifically looks at the proposed findings to gauge their relationship to the overrule. Also, pursuant to the PUC 21670 *et seq.*, findings should show evidence that the local agency is minimizing "...the public's exposure to

Mr. Tyler Barrington

October 2, 2012

Page 2

excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses.”

2. The proposal should be coordinated with Nevada County Air Park staff to ensure its compatibility with future as well as existing airport operations.
3. Development within the vicinity of the airport is subject to the rules and requirements of the Nevada County Airport Land Use Compatibility Plan, which restricts residential development within certain airport safety zones and noise contours.

CEQA, Public Resources Code 21096, requires the California Airport Land Use Planning Handbook (Handbook) be utilized as a resource in the preparation of environmental documents for projects within airport land use compatibility plan boundaries or if such a plan has not been adopted, within two nautical miles of an airport. The Handbook is a resource that should be applied to all public use airports and is available on-line at:

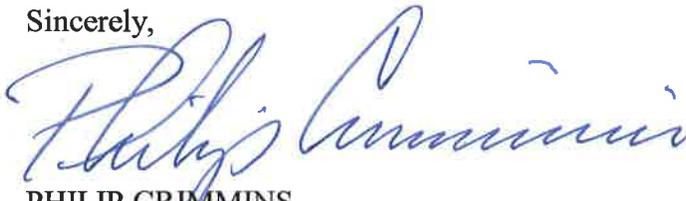
<http://www.dot.ca.gov/hq/planning/aeronaut/documents/alucp/AirportLandUsePlanningHandbook.pdf>

Business and Professions Code Section 11010 and Civil Code Sections 1102.6, 1103.4, and 1353 address buyer notification requirements for lands around airports and are available on-line at <http://www.leginfo.ca.gov/calaw.html>. Any person who intends to offer subdivided lands, common interest developments and residential properties for sale or lease within an airport influence area is required to disclose that fact to the person buying the property.

These comments reflect the areas of concern to the Division with respect to airport-related noise, safety, and regional land use planning issues. We advise you to contact our District 3 office concerning surface transportation issues.

Thank you for the opportunity to review and comment on this proposal. If you have any questions, please call me at (916) 654-6223, or by email at philip.crimmins@dot.ca.gov.

Sincerely,



PHILIP CRIMMINS

Aviation Environmental Specialist

c: State Clearinghouse, Nevada County ALUC, Nevada County Air Park

Jewell, Alex

From: Tyler Barrington <Tyler.Barrington@co.nevada.ca.us>
Sent: Friday, October 19, 2012 8:47 AM
To: Jewell, Alex
Subject: FW: 2009-2014 Housing Element Rezone

Alex,

See NOP Comments below.

From: Sam Longmire [<mailto:sam@myairdistrict.com>]
Sent: Thursday, October 18, 2012 11:33 AM
To: Tyler Barrington
Cc: Gretchen Bennitt, APCO
Subject: 2009-2014 Housing Element Rezone

Dear Mr. Barrington:

The Northern Sierra Air Quality Management District (NSAQMD) has reviewed the Notice of Preparation of an EIR for the Nevada County "2009-2014 Housing Element Rezone Program Implementation" project.

The NSAQMD appreciates that the proximity of candidate sites to services has been a consideration in site selection, since the ability of residents to walk, bike or drive short distances to obtain goods and services or employment opportunities minimizes the emission of air pollutants. All of the potential rezone sites selected except Candidate Sites 1, 12 and 17 are within easy walking distance of key services. The absence of a sidewalk is one limitation for Candidate Site 1. Candidate Site 12 is mainly across Squirrel Creek from the services available in Penn Valley. Candidate Site 17 (south of Lake of the Pines) is the most isolated of the candidate sites, as far as proximity to existing services is concerned. The NSAQMD recommends that the EIR evaluate pedestrian distances from each candidate site to frequently used services (including public schools/bus stops, grocery stores and pharmacies), taking into account the realistic feasibility of pedestrian access (considering the locations of sidewalks and bicycle trails and of flood plains, waterways and other potential barriers to public accessibility). Wherever feasible, site plans should incorporate pedestrian and bicycle access to bus stops, existing sidewalk networks and locations of goods and services.

The NSAQMD also recommends considering requiring the inclusion of laundry facilities in any subsequent high density, low and very-low income development plans, if that is legally possible.

The EIR should discuss options for residential heating at the candidate sites. The NSAQMD recommends alternatives to woodburning appliances for residential heating in the high density housing developments because of the likelihood of fine particulate matter health impacts from numerous smoke sources in small areas.

Note that none of the candidate sites are located in an area mapped as having (or known to the NSAQMD as having) ultramafic rock or naturally occurring asbestos, although the southern portion of Site 5 is only a few hundred feet north of an ultramafic mapping unit so special care should be taken to ensure that ultramafic rock is not present at this location. If ultramafic rock is encountered or discovered on any of the sites during grading or site assessment, the statewide Airborne Toxic Control Measures for Naturally Occurring Asbestos will apply.

The NSAQMD recommends that alternatives to open burning (chipping, hauling, firewood cutting, etc.) be used for disposal of waste vegetation from development of any of the candidate sites. In addition, the post-development prohibition of residential burning for waste vegetation disposal in high density developments (via CC&Rs or some other method) is strongly encouraged.

If a diesel fired generator or other source of air pollutants is anticipated at any of the sites, the NSAQMD should be contacted (530-274-9360) regarding the possible need for a Permit to Operate.

Please contact me with any questions regarding these comments.

Sincerely,

Samuel F. Longmire, APCS
Northern Sierra Air Quality Management District

Samuel F. Longmire, MSES
Air Pollution Control Specialist III
Northern Sierra Air Quality Management District
PO Box 2509, Grass Valley, CA 95945
Phone: (530) 274-9360 x106
Fax: (530) 274-7546

NATIVE AMERICAN HERITAGE COMMISSION

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(916) 653-4082
(916) 657-5390 - Fax



October 19, 2012



Tyler Barrington
Nevada County
950 Maidu Avenue, Suite 170
Nevada City, CA 95959-8617

RE: SCH# 2009072070, 2009-2014 Housing Element Rezone Program Implementation, Grass Valley, Nevada City, and Truckee; Nevada County

Dear Mr. Barrington:

The Native American Heritage Commission (NAHC) has reviewed the Notice of Preparation (NOP) referenced above. The California Environmental Quality Act (CEQA) states that any project that causes a substantial adverse change in the significance of an historical resource, which includes archeological resources, is a significant effect requiring the preparation of an EIR (CEQA Guidelines 15064(b)). To comply with this provision the lead agency is required to assess whether the project will have an adverse impact on historical resources within the area of project effect (APE), and if so to mitigate that effect. To adequately assess and mitigate project-related impacts to archeological resources, the NAHC recommends the following actions:

- ✓ Contact the appropriate regional archaeological Information Center for a record search. The record search will determine:
 - If a part or all of the area of project effect (APE) has been previously surveyed for cultural resources.
 - If any known cultural resources have already been recorded on or adjacent to the APE.
 - If the probability is low, moderate, or high that cultural resources are located in the APE.
 - If a survey is required to determine whether previously unrecorded cultural resources are present.
- ✓ If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
 - The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure.
 - The final written report should be submitted within 3 months after work has been completed to the appropriate regional archaeological Information Center.
- ✓ Contact the Native American Heritage Commission for:
 - A Sacred Lands File Check. **USGS 7.5-minute quadrangle name, township, range, and section required.**
 - A list of appropriate Native American contacts for consultation concerning the project site and to assist in the mitigation measures. **Native American Contacts List attached.**
- ✓ Lack of surface evidence of archeological resources does not preclude their subsurface existence.
 - Lead agencies should include in their mitigation plan provisions for the identification and evaluation of accidentally discovered archeological resources, per California Environmental Quality Act (CEQA) §15064.5(f). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all ground-disturbing activities.
 - Lead agencies should include in their mitigation plan provisions for the disposition of recovered artifacts, in consultation with culturally affiliated Native Americans.
 - Lead agencies should include provisions for discovery of Native American human remains in their mitigation plan. Health and Safety Code §7050.5, CEQA §15064.5(e), and Public Resources Code §5097.98 mandates the process to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery.

Sincerely,

Rob Wood
Associate Government Program Analyst

CC: State Clearinghouse

Native American Contacts

Nevada County
October 19, 2012

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11799 McCourtney Road Maidu
Grass Valley , CA 95949 Miwok
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akimmaidu@att.net
(530) 383-7234

United Auburn Indian Community of the Auburn Rancheria
David Keyser, Chairperson
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Auburn , CA 95603 Miwok
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530-883-2380 - Fax

United Auburn Indian Community of the Auburn Rancheria
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530-883-2320 - Fax

T si-Akim Maidu
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Grass Valley , CA 95945
(530) 477-0711

April Wallace Moore
19630 Placer Hills Road Nisenan - So Maidu
Colfax , CA 95713 Konkow
530-637-4279 Washoe

Washoe Tribe of Nevada and California
Wanda Batchelor, Chairperson
919 Highway 395 South Washoe
Gardnerville , NV 89410
ktrovato@washoetribe.us
775-265-4191
775-265-6240 Fax

Colfax-Todds Valley Consolidated Tribe
Judith Marks
1068 Silverton Circle Miwok
Lincoln , Cali 95648 Maidu
916-670-5714
916-434-7876 - home

Washoe Tribe of Nevada and California THPO
Darrel Cruz, Cultural Resources Coordinator
919 Highway 395 South Washoe
Gardnerville , NV 89410
darrel.cruz@washoetribe.us
(775) 265-4191 ext 1212
(775) 546-3421 - cell
775-265-6240 FAX

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed SCH# 2009072970: 2009-2014 Housing Element Rezone Program Implementation, Grass Valley, Nevada City, and Truckee.



CITY OF GRASS VALLEY
Community Development Department
Thomas Last, Community Development Director

Building Division
530-274-4340
Planning Division
530-274-4330
Fax 530-274-4399

125 East Main Street
Grass Valley, CA 95945

A CENTENNIAL CITY

October 10, 2012

Tyler Barrington
Nevada County Planning Department
950 Maidu Ave., Suite 170
Nevada City, CA 95959

Subject: Notice of Preparation to prepare an Environmental Impact report for the 2009-2014 Housing Element Rezone Program

Dear Mr. Barrington,

The City requests the County address the following environmental issues within the Environmental Impact Report for the above project:

1. The impacts of the project's proposed increased residential densities on local and regional air quality, and greenhouse gas emissions to global climate change.
2. The impact of the project's proposed increased residential densities on local roads and intersections. The City has particular concerns with the increased traffic on the intersections within the Glenbrook Basin.
3. The impact of the project's proposed increased residential densities on the City's sewer system. The City planned for residential densities of 4-8 dwelling units per acre on the properties along Brunswick Road. The proposed rezone allows for up to 20 units per acre. The EIR will need to address the impacts on the wastewater collection system and plant capacity since the proposed densities were not anticipated.
4. The proposed land use changes will result in land use conflicts with the City's General Plan. The EIR will need to address these land use conflicts. Additionally, the MOU between the City and County which created joint land use planning requires a collaborative planning process within the sphere of influence. The City has concerns with the proposed large concentration of high density residential in this area. The EIR needs to address the appropriateness of this proposal as it relates to the overall land use mix in the area, and the City's ability to provide urban services in light of the current tax share agreement. The demand for police and other City services, including road maintenance, and the taxes received to pay for the services to high density residential development are not adequate under the current tax share program.
5. As discussed previously with County staff, the EIR needs to look at alternative sites such as properties along Bennett Street. Some of these lands appear to be appropriate for some higher density residential uses.

6. As noted in 4 above, the EIR needs to address the City's ability to provide public services to the area due to the proposed increase in density.
7. The County must address the issue of transferring housing units to the City. Since the land must be annexed to provide sewer service, the City has concerns with the potential conflict in land use designations and how that impacts the Regional Housing Needs Allocation process. Board Resolution 12-106, established a process to transfer RHNA numbers to the City as it pertains to the Loma Rica Ranch annexation. The transferred units were based on the housing units anticipated by the County's General Plan. Should the proposed land use changes occur, this could result in a significant land use conflict which could penalize the City in the future (i.e. will the City be expected to assume a transfer of RHNA based on 20 units/acre, if so this may not be acceptable). The County needs to confirm expectations of any RHNA transfer process as part of this project.

In conclusion, the City requests the EIR include an analysis of the above issues. Overall, the City is very concerned with adding up to 540 additional housing units in one concentrated area of the City.

Please provide a copy of the Draft EIR when it becomes available.

If you have any questions, please contact me at 530-274-4711.

Sincerely,



Thomas Last
Community Development Director



NEVADA COUNTY TRANSPORTATION COMMISSION

Grass Valley • Nevada City • Nevada County • Truckee

October 23, 2012

Mr. Tyler Barrington, Interim Principal Planner
Nevada County Community Development Agency
950 Maidu Ave., Suite 170
Nevada City, CA 95959

Dear Mr. Barrington:

Subject: Notice of Preparation of an EIR for the 2009-2014 Housing Element Rezone Program Implementation

The Nevada County Transportation Commission (NCTC) administers the western Nevada County Regional Transportation Mitigation Fee program on behalf of Nevada County, Nevada City, and the City of Grass Valley. The RTMF program collects development impact fees to help fund construction of improvements to the regional system of roads, streets, and highways serving Western Nevada County. NCTC expects that the EIR for implementation of the 2009-2014 Housing Element Rezone Program will include analysis of the traffic impacts from increased residential development on projects included in the RTMF Capital Improvement Program (CIP), and determine if there is any need for additional improvements not currently anticipated. Copies of Table 3-1 RTMF Capital Improvement Program and Figure 3-1 RTMF CIP Tier 1 and Tier 2 Project Locations are attached to this letter.

If you have any questions or need additional information please feel free to contact me at 265-3202 or email dlandon@nccn.net.

Sincerely,

Daniel B. Landon
Executive Director

attachments

Table 3-1 RTMF Capital Improvement Program (CIP)

#	LOCATION	PROPOSED IMPROVEMENT	COST ESTIMATE ****	TIER NUMBER & PROJECT PRIORITY	
				Tier	Priority
1	Dorsey Drive Interchange	Construct new interchange.	\$34,950,000	Tier 1	1
2A	SR 49, south of McKnight Way	Widen highway consistent with design concepts approved by NCTC.	\$53,500,000	State Highway	15
2B	SR 49, south of La Barr Meadows Rd	Widen highway consistent with design concepts approved by NCTC.	\$27,700,000	State Highway	15
2C	SR 49, south of Alta Sierra	Widen highway consistent with design concepts approved by NCTC.	\$102,300,000	State Highway	15
2D	SR 49, south of Wolf Creek	Widen highway consistent with design concepts approved by NCTC.	\$26,200,000	State Highway	15
3	SR 49/ Combie Rd	Provide second southbound left-turn lane with receiving lane.	\$2,345,800	Tier 2	6
4A & 4B	SR 49 NB Ramps/ E McKnight Way & SR 49 SB Ramps/ W McKnight Way	Install roundabout.	\$5,499,457	Tier 2	8
6	SR 20 EB Ramps/ McCourtney Rd	Install single-lane roundabout or traffic signal.	\$1,290,215	Tier 2	11
10	SR 20/49 NB Ramps/ Idaho-Maryland Rd	Install signals.	\$1,143,935	Tier 2	10
11	SR 20/49 SB Ramps/ Idaho-Maryland Dr/ E Main St	Install two-lane roundabout.	\$2,600,000	Tier 1	2
12	SR 20/49 SB Ramps/ Brunswick Rd	Widen Brunswick Road and add second lane to on-ramp.	\$892,279	Tier 2	5
13A & 13B	Ridge Rd/ Gold Flat Rd/SR 20/49 NB Ramps; Ridge Rd/ Gold Flat Rd/ SR 20/49 SB Ramps; and Zion St/Ridge Rd	Install intersection improvements: roundabout or signals. Close spacing of intersections necessitates improvement at all three intersections.	\$4,000,000	Tier 1	4
14	SR 20/49 Golden Center Freeway, Bennett to Idaho-Maryland	Widen to improve capacity and safety and maintain acceptable LOS.	\$1,500,000	State Highway	15
15	SR 20/ SR 49/ Uren Street	Install signal with protected north-south phasing and eastbound right-turn overlap phasing.	\$902,400	State Highway	15
22 & 23	Brunswick Rd/ Loma Rica Dr & Brunswick Rd/ E Bennett St/ Greenhorn Rd	Provide solution for Loma Rica Dr/Brunswick Rd intersection future deficiency.	\$2,941,000	Tier 1	3
24	Brunswick Rd/ SR 174 Colfax Highway	Install signal and realign road.	\$4,269,200	Tier 2	12
29	E Main St/ Bennett St	Continue to collect for improvement constructed in original RTMF.	\$1,500,000	Tier 2	7
36	SR 20/ Rough and Ready Highway	Add an additional approach lane in both the WB and EB directions.	\$2,492,600	Tier 2	13
37	SR 20/ Pleasant Valley Rd	Reshape the SB approach to include a left-turn lane and a through/left-turn lane. Widen SR 20 to accommodate a second acceptor lane.	\$575,900	Tier 2	9
38	Dorsey Drive Extension	Extend two lane road from Sutton Way to Brunswick Rd.	\$4,529,602	Tier 2	14

**** Cost estimates per "Preliminary Cost Estimate Memo" prepared for NCTC by Mark Thomas & Company, Inc., April 10, 2008. Projects 11 and 38 (Dorsey Drive Extension) costs per City of Grass Valley Roadway Capital Improvement Program Update 2007. Projects 13A&13B and 22&23 updated per NCTC.

Figure 3-1 RTMF CIP Tier 1 and Tier 2 Project Locations

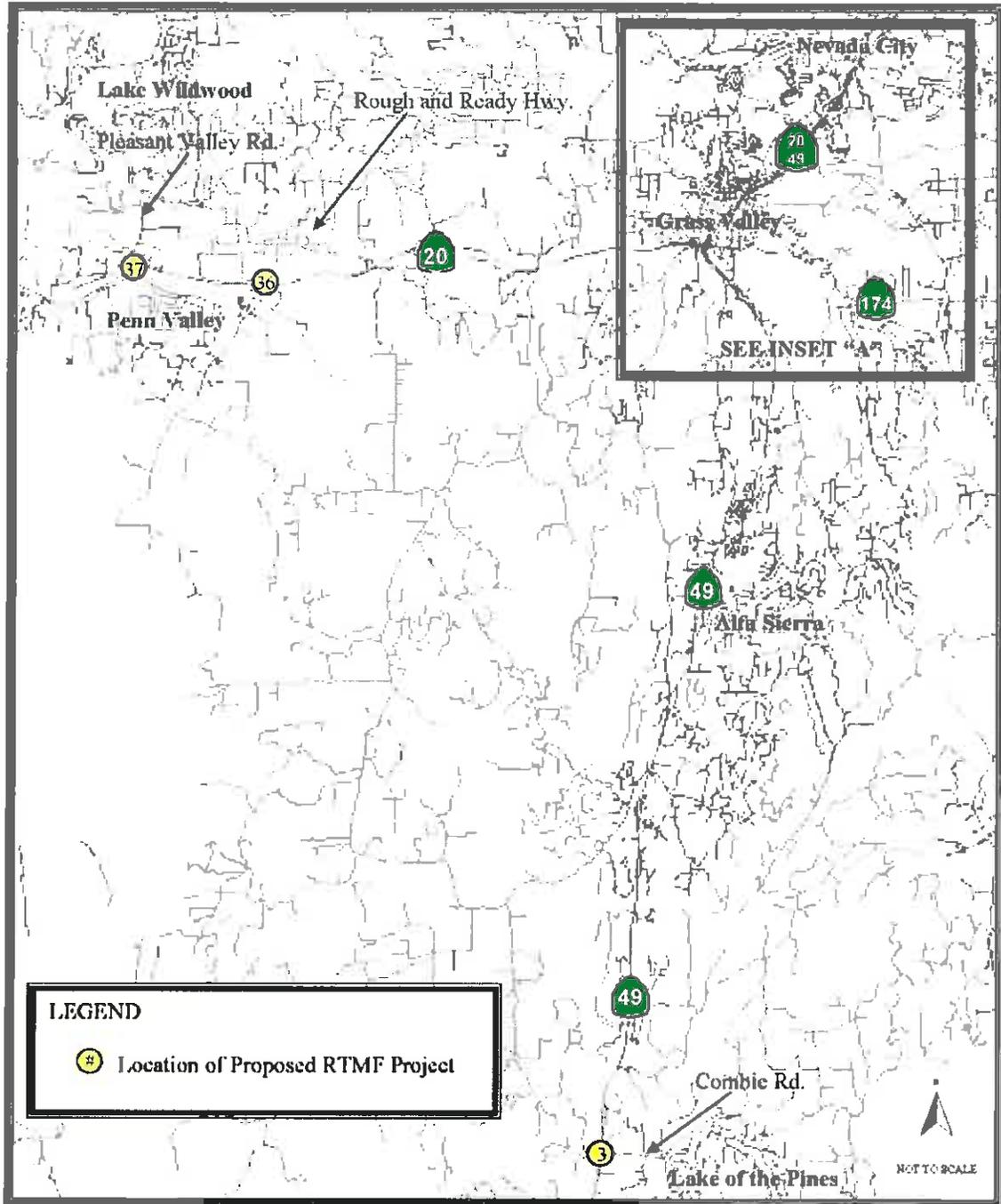
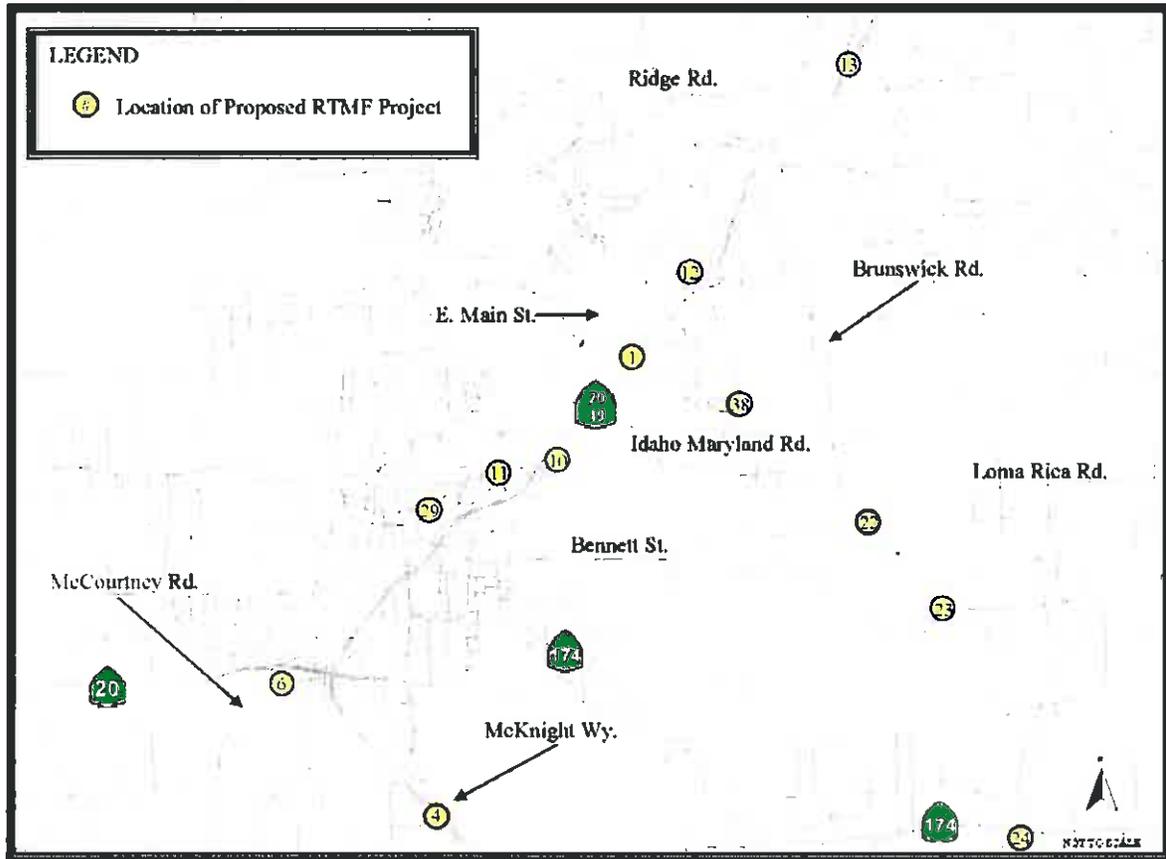


Figure 3-1 RTMF CIP Tier 1 and Tier 2 Project Locations (Continued – INSET A)





NEVADA COUNTY AIRPORT LAND USE COMMISSION

File: 40.1.4

October 22, 2012

Mr. Tyler Barrington
Nevada County Community Development Agency
950 Maidu Ave., Suite 170
Nevada City, CA 95959

Dear Mr. Barrington:

Subject: Notice of Preparation of an EIR for the 2009 - 2014 Housing Element Rezone Program Implementation

The Nevada County Airport Land Use Compatibility Plan (NCALUCP) states that, as required by state law, the adoption or approval of any amendment to a general plan, or approval of a zoning ordinance or building regulation, affecting property within the airport influence and involving impacts related to noise, safety, airspace protection, and overflight are actions that always require Nevada County Airport Land Use Commission (ALUC) review.

The sites within the Penn Valley and Lake of the Pines areas and three of the sites within the Grass Valley Sphere of Influence (sites 1, 2, and 3) are outside the Airport Influence Area and therefore require no review. Five of the sites within the Grass Valley Sphere of Influence (sites 4, 5, 6, 7, and 8) are within the Airport Influence Area. These sites are in the Urban Overlay Zone of Compatibility Zone D.

In Urban Overlay Zone D, the maximum residential density is 20 dwelling units per acre. A proposal for development having an average density of 21 or more residential dwelling units per acre would require ALUC review. Highly noise-sensitive uses are prohibited in Compatibility Zone D; however, the sites identified are outside of the 55 dB CNEL contour and therefore it is unlikely that aircraft noise will be an issue. Hazards to flight, which are defined as physical (e.g., tall objects), visual, and electronic forms of interference with the safety of aircraft operations, and land use development that may cause the attraction of birds to increase are also prohibited. Recorded overflight notification is a condition for local agency approval of residential land use development within Zone D. Children's schools, hospitals, and nursing homes are discouraged within this zone.

Thank you for the opportunity to review and comment on the Notice of Preparation. If you have any questions please call me at 265-3202 or contact me by email at dlandon@nccn.net.

Sincerely,

Daniel B Landon
Executive Director
Nevada County Airport Land Use Commission

cc: Nevada County Airport Manager



NEVADA IRRIGATION DISTRICT

1036 W. Main Street, Grass Valley, CA 95945-5424 ~ www.nidwater.com
(530) 273-6185 ~ Fax: (530) 477-2646 ~ Toll Free: (800) 222-4102

October 26, 2012

Tyler Barrington, Interim Principal Planner
Nevada County Community Development Agency
950 Maidu Avenue, Suite 170
Nevada City, CA 95959

Re: 2009-2014 Housing Element Rezone Program Implementation

To Whom It May Concern:

Thank you for the opportunity to review the Notice of Preparation for the 2009-2014 Housing Element Rezone Program Implementation. The referenced properties are within the boundaries of the Nevada Irrigation District and are entitled to water in accordance with Division 11 of the California Water Code. Water service and all rates and charges for service shall be subject to the regulations of the District and the laws of the State. Application shall be in compliance with State and county health departments.

The District would serve the proposed candidate site parcels from the E. George, Lake Wildwood, and Lake of the Pines Treatment Plants. However, treated water for domestic service is not presently available to all candidate site parcels. In some cases it will require an extension of the water system to front each parcel per the terms and conditions of Section 10 of the District's regulations.

Treated water supplies will be significantly impacted for all sites, therefore, amendment or additional Master Plan studies will be needed for the E. George, Lake Wildwood, and Lake of the Pines Treatment Plants. The District's current Treated Water Master Plans do not include all of the candidate site parcels; specifically, candidate site #'s 2, 9, 10, 12, 14, and 15 are not included in existing Master Plan documents.

To reiterate, treated water is not currently available to many of these candidate site parcels; the cost of installing infrastructure could be a burden to a developer. A Water Supply Assessment should be prepared for all sites under the conditions of SB 610.

It should be noted that the rezone may have a significant impact on existing groundwater supplies to neighboring parcels where treated water infrastructure is not provided.

Should there be any questions regarding any of the above information, I would encourage contact be made directly with the District to discuss and/or provide clarification.

Sincerely,

Shannon Matteoni
Business Coordinator

Jewell, Alex

From: Tyler Barrington <Tyler.Barrington@co.nevada.ca.us>
Sent: Friday, September 28, 2012 10:54 AM
To: Jewell, Alex
Subject: FW: 2009-2014 housing element rezone program implementation

Alex- Comment on the project.

From: mike meyer [<mailto:info@meyerlock.com>]
Sent: Thursday, September 27, 2012 11:35 AM
To: Tyler Barrington
Subject: Fw: 2009-2014 housing element rezone program implementation

From: [mike meyer](#)
Sent: Thursday, September 27, 2012 11:32 AM
To: tyler.barrington@co.nevada.ca.us
Subject: 2009-2014 housing element rezone program implementation

9/27/2012

concerning this 2009-2014 housing element rezone program implementation. Section 21083.9 of the CEQA statues.

Our names are Mike and Betty Meyer and we own four houses on Broken Oak ct. 10356,10403, 10363, 10368. Our concern is on your section [11] of your map. we are extremely concerned about more traffic on this dead end street it is dangerous already, along with the high incidence of crime already their, this will double both ! you can check into this by just asking any police officer wear the most crime is in Penn valley is, and they will tell you [broken oak ct.] without even having to think about it. do we really need more? [very low income housing !] spread out the people that don't work and we are already are supporting so that they don't effect us more then they already do. don't put them all in one place for god sakes, ---- please ! isn't it illegal or against the fire codes to have that many people living on a dead end street with only one way out anyway ? the economy has cut our property

value in half and now this, are you guys trying to sink the ship completely ?

thank you for reading this. Mike and Betty
Meyer 530-432-2445

Jewell, Alex

From: Tyler Barrington <Tyler.Barrington@co.nevada.ca.us>
Sent: Friday, October 26, 2012 3:26 PM
To: Jewell, Alex
Subject: FW: Rezoning in Penn Valley

Alex,

[More NOP Comments.](#)

From: lauren eason [<mailto:jpeason@yahoo.com>]
Sent: Friday, October 26, 2012 3:20 PM
To: Tyler Barrington
Subject: Rezoning in Penn Valley

October 26, 2012

Tyler Barrington, Interim Principal Planner
Nevada County Community Development Agency
950 Maidu Ave, Ste 170
Nevada City, CA 95959

Dear Mr. Barrington:

This letter is in reference to a letter our family received regarding the rezoning for low income housing in Penn Valley. We have downloaded the information and maps and have great concerns over the rezoning. We understand the need for low income and senior housing, however; when looking at the maps it appears Penn Valley has the vast majority of the rezoning possibly even 99% if the mapped areas in question are all developed. The letter states that Aesthetics, Air Quality, Biological Resources, Cultural Resources, Geology/Soils, Greenhouse Gas Emissions, Hydrology/Water Quality, Land Use and Planning, and Transportation/Traffic will all be addressed. Some of our concerns are as follows:

- We were required to take on a sewer bond for our residence and in our current tax bill for 2012/2013 we owe \$880.00 for Penn Valley sewer maintenance and \$\$115.00 for Penn Valley sewer zone-6 capital improvements. Will these apartments be required to be on the Penn Valley sewer system? Our understanding was the system does not have the capacity to handle this many hook ups. If they aren't on a sewer system then they have to be on a septic system. How will that affect the Squirrel Creek that they are in close proximity to in section 9 and 12? If our house was required to be on sewer how could they have a septic?
- Our home is on a well, we don't have the availability of treated Nevada Irrigation District water. Where will the water for these developments come from? How will that affect the current wells and water tables that we have in our neighborhood?
- This area is currently covered by the Nevada County Sheriff's Department who are understaffed and it covers all the way to the Yuba County line. Usually there is one deputy allocated for this entire area. If you are adding low cost housing, inheritably that requires more law enforcement. When checking with Grass Valley Police about the calls for service for the Sutton Way low housing they confirm that the calls for service in those complexes are much higher than other neighborhoods.
- How will site 12 be accessed? You will have to build a bridge over Squirrel Creek and how does that effect geology, soils,

the Squirrel Creek etc. The development cannot be accessed through Clover Rd and how will you prevent this? If it is approved there will need to be plans for a wall to not only stop the foot traffic but also for the aesthetics portion.

- We feel that all areas of Nevada County should be affected equally and Penn Valley should not be taking on the vast majority of the housing issues.
- We are concerned with the traffic this will create for Penn Valley Drive. How is this being addressed? If section 9 and 12 are developed and there is a fire with one way out what is your back up plan?

Respectfully,

Jerry & Lauren Eason

17259 Clover Rd. Penn Valley, CA 95946

jpeason@yahoo.com

(530) 615-1549

Submitted October 25, 2012 *EG*

Petition-R Comment allowed by State of California until October 26, 2012

Mr. Barrington,
Nevada County Supervisors,
City Council, Grass Valley

RECEIVED

OCT 25 2012

NEVADA COUNTY
COMMUNITY DEVELOPMENT AGENCY

Dear Government Officials:

I enjoyed speaking with Mr. Barrington. We are submitting this letter and the petitions even though we have been informed that the Orchard Way property is no longer being considered for low income high density housing, because it shows the concern of the people and that this concern reaches far beyond the Orchard Way neighborhood. Also, one never knows what future contemplation might be regarding the Orchard Way area and especially along South Wolf Creek. Consequently, I am submitting my original letter, as it applies.

There is concern in my Memorial Park neighborhood, the Orchard Way neighborhood, and Mill St. neighborhood about the proposed contemplation of rezoning Section 2 off Orchard Way to R 3. Though the community recognizes the need for low income housing, we feel that the Loma Rica Ranch area has already prepared itself for housing through adequate traffic improvements. There is also a lot of space in that area.

The Orchard Way property is located in a very congested area with many parking problems, traffic problems and pedestrian problems. Repaving Colfax Hwy and painting crosswalks has not solved traffic-speeding-congestion/parking problems or allowed for the residents of the Memorial Park, Race St. or Orchard Way neighborhoods a suitable sidewalk to access Empire Mine State Park's beautiful Magenta Drain trail. One takes one's life in one's hands walking up Colfax highway from Oak to Race St to the trail head access and from Race St west towards the trail access. The wooden boardwalk on Race St. has not been repaired in years, Colfax Hwy has speeding cars and huge trucks which I have had to nearly lean over the railing to avoid. This is *after* repaving and painting.

Why not just walk through Memorial Park? Because you do not allow dogs in Memorial Park and we walk our dogs on the trail!! I have seen up to eight people and four dogs at a time, walking in the middle of Race St. alongside the fenced off boardwalk on that blind curve at a time, to and from the Empire Mine St. Parks trail head access.

And now you want to zone Orchard Way property Section 2 with an R3 designation to build low income housing. Well, a lot of people wish to help the poor. How is it helping them to corner them in an area where it is dangerous to cross Colfax Hwy, impossible to access healthy exercising trails, creating ill will by increasing parking problems with neighbors, encouraging their bad habits with a Liquor Store and Smoke Shop in the neighborhood, and making it even more difficult for baseball players to access Memorial Park due to increased traffic, not to mention the potential for more flooding by ruining Orchard Way's fruit orchard's ten acres of water absorbing capacity? It is not even a healthy place for the bus stop!

Loma Rica Ranch has already had road improvements and has lots of space and traffic signals for easy access to stores.

We have no raised crosswalks at Central Ave. and Colfax Hwy., nor any stop sign on Colfax Hwy, no raised crosswalks at Oak and Colfax Hwy. and no rumble strip to slow traffic at Race St. and Colfax Hwy. Any access off Bennett St. would require a stop light at Ophir St. and Bennett St. There is also the problem of the bus garage and bus traffic. Any access through neighborhoods to the Orchard Way property brings down the quality of life for some very nice people who value their little homes, some of which have been improved to beyond cute, and whose owners and renters display a kindness over and above any neighborhood I have ever visited.

The Memorial Park/Orchard Way neighborhoods already have low income housing and host, not very willingly, Narcotics Anonymous meetings by Gumbas. They clog parking on Oak St and Colfax Hwy every day, sometimes erupt in fights and interrupt traffic on Colfax Hwy. We do more than our fair share in this town for the poor, the troubled and the sports fans!

Three acres by Orchard Way area have already been rezoned R3. Interested parties have not been notified except the Orchard Way neighborhood. Well, the Memorial Park neighborhood is also affected as we can hardly get onto Colfax Hwy as it is. The Mill St. neighborhood is affected by the increased water runoff into South Fork of Wolf Creek which runs into Wolf Creek. A dozen years ago, Wolf Creek flooded several garages along it that had to be completely rebuilt. Six inches or so more and Wolf would have overflowed last year. There is a drainage problem along Mill St. as it is. We also have a sewage treatment plant that seems to be in a never ending story of being fined due to impossible State requirements. How will burdening it more help?

10/25/12

A request to zone Section 2 R 3 was submitted to the government and withdrawn. That means someone was thinking about having it re-zoned and may take such action again in the near or distant future. We want our government to know what we in the community of Grass Valley think and feel about traffic, flood and quality of life issues in our town and we want to be kept informed about any low income housing being built so that we can request proper traffic, flood and other quality of life issues in time, before building occurs.

Building high density housing is a bad idea for the Orchard Way area. Please send the rest of us in Orchard Way, Memorial Park, and Mill St. neighborhoods notification of future intents for the Orchard Way area property or properties, or any building along Bennett St. We will also be interested in any future plans for the three acres already zoned R3.

I would consider similar issues for any other properties the County or the City is considering, especially the McKnight Way area. Certainly the intersection of McKnight and La Barr Meadows would need a lot of improvement to accommodate high density housing. It is also wise to note that crime occurs among people of all income brackets, even though each class of people likes to blame the other classes for crime. If 10% of the people are involved in petty to serious crime, from illegal skateboarding on sidewalks to grand theft auto, then that means 20 people out of 200 in a housing development will increase the crime in that area. Making it an environment with access to walking, shopping, fresh air, clean water and open spaces for relaxation, is important for the well-being of all peoples in any town or city. This will help to create a healthy environment which in turn will reduce crime and the burden on our police. Such things should be considered before building high density housing.

We are happy to have the opportunity to give you these concerns.

Sincerely,



See petitions enclosed

Submitted October 25, 2012
by Elsie J. Kaugesen

Petition to the Planning Department/Zoning Department of Grass Valley, CA

Objective:

Opposing R3 zoning change to Parcel #2 off Orchard Way.

Reasons:

1. Potential gridlock traffic conditions.
2. Escalated sensitive parking issues.
3. Elevated noise levels.
4. Lower air quality.
5. Higher potential for pedestrian/car accidents.
6. Intensifying dangerous flooding in and around South Fork Wolf Creek (which can only accommodate three feet of water).

NAME BETTY PARSONS

ADDRESS

Print BETTY J. PARSONS

109 KENDALL ST. G.V. 95945

Signature

B. Parsons

Print

GARY PARSONS

Signature

Gary Parsons

109 Kendall St G.V.

Print

Mark Epperly

12 Kendall St CV

Signature

Mark Epperly

Print SHARON BREHM

113 KENDALL ST G.V.

Signature

Sharon Brehm

Print ALBERT BREHM

113 KENDALL ST G.V.

Signature

Albert Brehm

NAME Robin Twork ADDRESS 110 Kendall St GV
Print ROBIN TWORK 95945

Signature Kristi Johnson

Print Kristi Johnson

Signature Kristi Johnson 116 Kendall St GV 95945

Print Erica Morris 123 Kendall St GV 95945

Signature Erica Morris

Print Penny Lane Cull 291 Race St GV CA 95945

Signature [Signature]

Print WAYNE A. GIBSON 225 RACE ST GV, CA 95945

Signature Wayne A. Gibson

Print CORAM KETCHAM 219 RACE ST GV CA 95945

Signature Coram M. Ketcham

Print LOUISE PRESTON 207 RACE ST GV CA 95945

Signature Louise Preston

Print Erin Byers 161 Race St.

Signature Erin Byers

Print Sandra Seaman 159 Race St

Signature Sandra Seaman

Print Michele Rigg

Signature Michele Rigg

Print ADAM COWDLY 206 RACE ST

Signature Adam Cowdly

Submitted October 25, 2012
by Elsie J. Hougson

Petition to the Planning Department/Zoning Department of Grass Valley, CA
AND Nevada County Planning Department.

Objective:

Opposing R3 zoning change to Parcel #2 off Orchard Way.

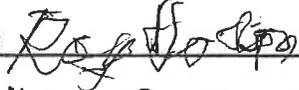
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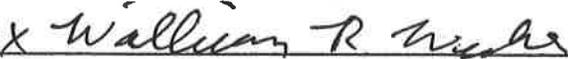
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ADDRESS

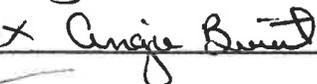
Print Roy Hudson 102 Kendell St, Grass Valley Ca 95945

Signature 

Print William R. Weeks 120 Kendell st Grass Valley, Ca 95945

Signature 

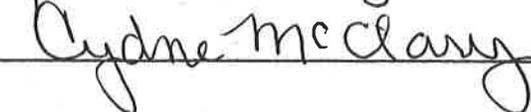
Print Angie Buist 105 Colfax East GV. Ca. 95945

Signature 

Print Josh Buist

Signature 

Print Cydne McClary 119 STENNETT ST GV Ca 95945

Signature 

NAME Judy Uchida ADDRESS 105 Stennett St. G.V.

Print Judy Uchida

Signature Judy Uchida

Print DONNA MCGINNIS 127 Stennett St.

Signature Donna McGinnis

Print Elisha Lutz 119 Stennett St.

Signature Elisha Lutz

Print Jailyn Tafolla 112 Kendall St.

Signature Jailyn Tafolla

Print Amanda Dixon 101 Kendall St.

Signature Amanda Dixon

Print GUIBUE BARLETTA 123 COLFAX AVE. E.

Signature Guibue Barletta

Print Nancy Barron 127 E COLFAX AVE

Signature Nancy Barron

Print Susan Floyd 115 Colfax Ave E, Grass Valley, Ca 95945

Signature Susan Floyd

Print Jennifer Hale

Signature Jennifer Hale 104 Park St, GV

Print Jeff Malsberry

Signature Jeff Malsberry 104 Park St, GV

Print Debbie Green 119 E. Colfax Ave.

Signature Debbie Green Grass Valley, Ca.
95945

Submitted October 25, 2012
by Elise S. Hougren

Petition to the Planning Department/Zoning Department of Grass Valley, CA
And Nevada County Planning Dept.

Objective:

Opposing R3 zoning change to Parcel #2 off Orchard Way.

Reasons:

1. Potential gridlock traffic conditions.
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5. Higher potential for pedestrian/car accidents.
6. Intensifying dangerous flooding in and around South Fork Wolf Creek (which can only accommodate three feet of water).

NAME

ADDRESS

1. Print Elise S. Hougren 418 Oak St. CA 95945
Signature Elise S. Hougren
2. Print Mary Ann Crabbe 435 Mill St.
Signature Mary Ann Crabbe Grass Valley, CA 95945
3. Print Collin Fisher 455 Mill St.
Signature Collin Fisher Grass Valley CA 95945
4. Print Melissa Hill 455 Mill St
Signature Melissa Hill Grass Valley, CA 95945
5. Print STEVE WEED 515 MILL ST GRASS VALLEY
Signature Steve Weed

NAME

ADDRESS

6. Print ANA Gutierrez 423 Henderson St

Signature Ana M. Gutierrez

7. Print Cerenda Faust 363 Clark St GV. CA

Signature Cerenda Faust

8. Print ~~Cerenda Faust~~ Jason Penfold 1444 Sigsworth way #12 gv CA

Signature Jason Penfold

9. Print Sean Ward 379 Clark St

Signature Sean Ward

10. Print Valerie Padilla 380 Clark St.

Signature Valerie Padilla

11. Print David Poilla 380 Clark St

Signature David Poilla

12. Print Robert E. Granville 413 Central Grass Valley

Signature Robert E. Granville

13. Print Brenna Angove 206 Race St Grass Valley 95945

Signature Brenna Angove

14. Print Allison Massam 216 Race St, Grass Valley, CA 95945

Signature Allison Massam

15. Print Esther Wierner 220 Race St, Grass Valley, CA 95945

Signature Esther Wierner

16. Print

Signature

Although I received no notice in reference to the enclosed matter, I am a property owner in Penn Valley proper, very close to the parcel which is being proposed for low-income housing/apartments. Consider this a complaint for lack of notification.

My husband and I moved here almost thirteen (13) years ago from Long Beach. We were drawn to Penn Valley largely due to what we saw as community values which closely matched what we were looking for; we planned to live here for the rest of our lives. We bought here in "Ladino Meadows", Penn Valley proper, with the commitment of enhancing property in central Penn Valley and supporting the local community.

The first we heard of development on the land behind the Post Office in Penn Valley was shortly after we arrived. A developer presented a public meeting held in our community and told us he was interested in building as many high-density dwellings as possible on the land because he wanted to make as much money as he possibly could. At least he was honest. I've also heard that a hotel was proposed for this same piece of land at one time.

THE PLACE TO BUILD HIGH-DENSITY, LOW-INCOME HOUSING IS NOT WHERE NOW PROPOSED. The area I call Penn Valley proper, the area where the Post Office, school, Tru Value Hardware, the nursery, and local businesses are located, is my community. If anything is built on the proposed property, I would urge you to make it something that **enhances** the value of the properties, and is beneficial to the community and those of us who have invested here. Low-income housing and a percentage of the resident element that comes with it would not be people YOU would welcome to your neighborhood...neither do we. The chances for more drug-related activity, more loitering, more foot traffic on our private roads, to name a few things, is not welcomed. We already have a trailer park, a large percentage of rental properties, and two gas stations surrounding our homes. Plus the questionable designation of "commercial property" directly adjacent to our gravel roads which we property owners must maintain; this property is proposed for a shopping center.

As you can tell, I feel the people making designations and decisions about my home and community have no stake in either one. My property value has taken a hit due to the economy which I have no control over, now someone who doesn't live among us wants to further negatively impact my property value, as well as my security and

enjoyment, by building low-income, high-density apartments. Because my family has invested in Penn Valley, I want to be heard.

I believe most of the residents here would welcome many living situations and new people. I'm equally certain that all of us want to protect our homes, our enjoyment of our surroundings, our property values, and our community. I don't want to regret buying an actual home here. I also wonder why I cannot count on my community to look out for my best interest. I invest in you and you turn your back on me. Who is it that benefits here?

As I stated when opening this letter, I did not receive the enclosed notice; my neighbor shared this with me. I feel that I should have been notified in time to attend the October 3 meeting so that I could hear the proposal, and respond. Sadly, since I've lived here, everything that happens within my community seems to be conducted in secret, with little opportunity to discuss the proposals.

My position is that this county may need low-income housing because of the economy, but not on the proposed parcel. There must be other properties more suitable for this project. And, there must a viable use for this land that would not negatively impact my investment and quality of life.

The government mandating this high-density, low-income project must listen to the negative impact it has on those of us who will suffer from it. We live here!

Thank you for your time and consideration.

Thomas and Sharon Chester

P. O. Box 485

Penn Valley, CA 95046

(530) 432-8296

**County of Nevada
Housing Element Rezone Implementation Program EIR
September 2013**

Technical Appendices

Appendix B

Site Analysis Report

FINAL
September 2012



County of Nevada
**Housing Element Rezone
Site Analysis Report**





County of Nevada Housing Element Rezone

Site Analysis Report

September 2012

Prepared For:



County of Nevada
Community Development Agency
Planning Department
950 Maidu Avenue
Nevada City, California 95959
Contact: Tyler Barrington, Interim Principal Planner

Prepared By:



4540 Duckhorn Drive, Suite 202
Sacramento, CA 95834-2597
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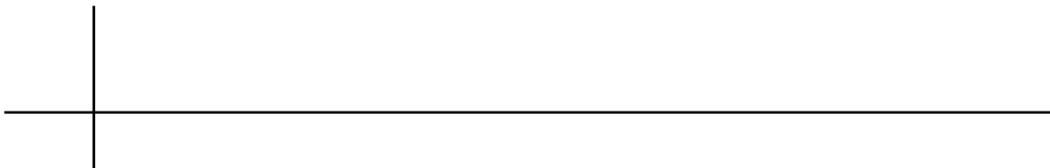
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- Appendix A – Field Reports and Aerial Photos
- Appendix B – Biological Survey Results (under separate cover)
- Appendix C – Cultural Resource Inventory Report (under separate cover)
- Appendix D – Preliminary Geotechnical Investigation (under separate cover)





Summary

The County of Nevada has selected 17 candidate properties as potential sites for development for affordable housing units. To meet state housing requirements identified in the County's Housing Element, an additional 1,270 low and very low housing units are required to meet unmet housing needs. If these candidate sites are determined to be suitable for development, the County's goal is to rezone the site to R3 (high density residential) and will utilize the newly adopted overlay zone on these sites to permit increased housing densities at state mandated minimum default densities of 16-units minimum per acre to meet the policy objectives of the County of Nevada Housing Element.

The County completed a vacant land inventory process in which potential rezone candidate sites that could be suitable for higher density housing were identified. These sites were identified based on the relative lack of constraints and proximity to community services.

To determine if enough suitable land for the development of 1,270 affordable housing units could be achieved from the candidate site, a site analysis was conducted for each of the properties. The evaluation of each site consisted of a field visit, research and investigation regarding the existing land use conditions in the surrounding area of each site, a site specific biological reconnaissance, a cultural resources record search and field reconnaissance, and a general geotechnical investigation. The opportunities and constraints of each site were considered in a numerical scoring system that utilized seven sets of criteria that were created to assess the suitability of each candidate site.

Based on the site survey, a conceptual building envelope was identified for each site. A theoretical maximum unit count was calculated based on state mandated minimum default densities of 16-units minimum per acre. The analysis concluded of a total acreage of 146.25 from the 17 sites, approximately 101.6 acres would be available for development. At 16 units per acre, the maximum number of units would be 1,630 units. This number exceeds the 1,270 units the County currently needs to meet its housing element goals. The number of potential units (1,630) could increase or decrease depending on a variety of factors such as the County utilizing a higher density in the zoning overlay zone (e.g., 20 units per acre) or other physical constraints in the field that reduce the development potential of a site. A summary of the unit count is provided in Table 1, *Theoretical Yield of Candidate Sites*.

Table 1
Theoretical Yield of Candidate Sites

Site	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	TOTAL
Parcel Area (Acres)	1.15	10.9	10.48	10.11	10.48	5.61	8.94	6.81	6.58	3.08	4.56	19.94	5.13	5.23	18.86	2.46	11.03	146.25
Building Footprint (Acres)	1.15	4.14	10.48	7.64	8.09	5.61	8.94	6.81	3.49	1.46	3.98	11.49	1.31	4.20	14.99	1.49	6.33	101.61
Maximum Yield at 16 Units per Acre (Units)	18	66	168	122	129	90	143	109	56	23	64	184	21	67	240	29	101	1,630



Introduction

The County of Nevada has selected 17 candidate properties as potential sites for development for affordable housing units. To meet state housing requirements identified in the County's Housing Element, an additional 1,270 low and very low housing units are required to meet unmet housing needs. If these candidate sites are determined to be suitable for development, the County's goal is to rezone the site to R3 (high density residential) and will utilize the newly adopted overlay zone on these sites to permit increased housing densities at state mandated minimum default densities of 16-units minimum per acre to meet the policy objectives of the County of Nevada Housing Element. In certain circumstances, base zoning of candidate sites could be maintained, but add the Regional Housing Need combining district, if it is determined that keeping the base zoning provides for the highest and best use of the property while maintaining the ability to achieve the County's Housing Element policy objectives.

Site Selection Process

The County of Nevada initiated a process to identify areas where affordable housing could be located to meet the County's unmet need of sites suitable for 1,270 affordable to low income and very low income housing units. The County completed a vacant land inventory process in which potential rezone candidate sites that could be suitable for higher density housing were identified. These sites were identified based on the relative lack of constraints and proximity to services. It should be noted that the review was preliminary in nature, utilizing the County GIS data. Based on the direction from the Board of Supervisor's during the Housing Element adoption process, the County has performed an extensive outreach process to ensure that the property owners of the candidate site would be willing participants in rezoning their land to higher density residential. As a result of this outreach, the County's list of potential rezone candidate sites has been reduced from the original 39 identified in the Housing Element to 17 properties consisting of approximately 143 acres.

Candidate Site Locations

The candidate sites are located within three general areas of unincorporated Nevada County. Figures 1-4 show the locations of each site.

Site Evaluation Criteria

The following site analysis criteria have been developed to provide an understanding of the physical and regulatory opportunities and constraints that would affect future development of the properties.

Criteria #1: Site Location and Jurisdictional Issues

These criteria are included because of the influence of the surrounding development will have on the feasibility of developing affordable housing on the property. Jurisdictional influences such as annexation requirements may play a significant part in the permitting of the proposed housing.



Scoring Factor #1a - Is it located within the Sphere of Influence of another jurisdiction (e.g., City of Grass Valley, Nevada City, etc.)?

Scoring Factor #1b - Is the site in the vicinity of an existing concentration of development?

Scoring Factor #1c – Is site compatible with adjacent jurisdiction’s land use plans?

Scoring Factor #1d- Is High Density Housing compatible with surrounding land uses?

Criteria #2: Site Accessibility

The criteria for Project Accessibility were included in the site selection process because accessibility is a key component to the viability of any affordable housing project. The ability of residents to have access to public transportation and community services is an important element of affordable housing units. Residents need access to alternative modes of transportation, and access to local services that are located close to home.

Scoring Factor #2a- Is the site accessible to transportation facility (bus, highway, trail, bike path etc.)?

Scoring Factor #2b – Does the site require construction of roadways or access?

Scoring Factor #2b.1- Is the site access/roadway encroachment suitable in terms of safety (site distances, turning movements)

Scoring Factor #2c – Will the site require improvements to existing roadway system (curbs, intersections, stop lights, etc.)?

Scoring Factor #2d - Does the site provide reasonable access to persons with mobility limitations?

Scoring Factor #2e – Is the site located adjacent to one or more community facilities (e.g., grocery stores, schools, employment areas, laundromats, day care, medical services, etc.).

Criteria #3: Public Services and Utilities

The criteria for the public services is included in the site selection process because access to public services and utilities is an important factor in determining whether a particular site is suitable for development. The availability of public services will have a direct impact on the cost to develop the site and whether the site is suitable to support the increased density of the proposed project.

Scoring Factor #3a - Is the property currently served by water and sewer services?

Scoring Factor #3b - Distance for water/sewer pipeline have to be extended to serve the property?

Scoring Factor #3c – Will sewer/storm drain require pumping? (gravity fed highest score)



Scoring Factor #3d - Is the site reasonably accessible to sanitation facilities (trash service, etc.)?

Criteria #4: Natural Resources

Criteria regarding the presence of the natural resources are included because sensitive natural resources may affect the developable area of the property. Sensitive natural resources may affect the feasibility of development on the site due to preservation and avoidance requirements and additional mitigation costs.

Scoring Factor #4a – Are sensitive biological resources currently located on the property?

Scoring Factor #4b – Are potentially jurisdictional wetlands present on the property?

Scoring Factor #4c - Are any special status species present or are any special-status species likely to occur on the site?

Scoring Factor #4d - If yes, is avoidance a possibility?

Scoring Factor #4e – Do any oak woodlands, Landmark Groves, or Landmark Trees occur on the site?

Criteria #5: Cultural/Historical Resources

Criteria for cultural or historical resources are included in the site selection process because the presence of cultural or historical resources may severely limit the building area or feasibility of developing the site.

Scoring Factor #5a - Are there any known cultural resources on the property or in the immediate vicinity?

Scoring Factor #5b - Existing buildings that are over 50 years in age?

Criteria #6: Physical Site Conditions

Criteria for physical site conditions have been developed for the site selection process because physical constraints associated with the physical condition of the property may limit how much development can occur on the property. If physical constraints limit the developable area of the site, the development of higher density affordable housing units may not be feasible. Additionally, significant physical site constraints may make construction costs too high for an affordable housing project.

Scoring Factor #6a - Excessive slope conditions on the site?

Scoring Factor #6b – Is the parcel of adequate size to accommodate a minimum 16 units per site?



Scoring Factor #6c – Does the site provide sufficient size and shape to accommodate parking, usable open space, site access?

Scoring Factor #6d- Do features exist that may result in a substantial amount of grading?

Scoring Factor #6e - Are there any geotechnical constraints?

Scoring Factor #6f – Is the site located within 100 year flood plain?

Scoring Factor #6g – Does site require extensive fuel modification or site preparation to mitigate exposure to hazards?

Scoring Factor #6h – Does the site have any hazardous materials or hazardous historical uses (mining, dumping, sewage disposal) that will require remediation prior to development?

Criteria #7: Regulatory Conditions

The site selection process includes criteria for assess regulatory conditions because conflicts with land use regulations may limit or preclude development of affordable housing limits on the property.

Scoring Factor #7a- Existing development on site (any improvements)?

Scoring Factor #7b – Does the site meet minimum lot size, setbacks, height limitations, that apply the property?

Scoring Factor #7c – Does the site require any special permits or environmental clearances?

Scoring Factor #7d – Is the site located in a State Responsibility Area (SRA) fire protection area?

Scoring Factor #7e – Would the site convert important farmlands to a non-agricultural use?

Weighted Scoring Factors

The scoring criteria are used as a tool to determine if the proposed locations are suitable for implementing a zoning overlay zone that would increase the density of the site to a minimum of 16 dwelling units per acre. To help emphasize criteria that may be more critical to developing the site than others, a weighting factor has been applied to each criteria. Each site is given a score between 1 and 5 for each scoring factor. A score of 1 is the lowest score meaning the result is the least favorable for development and a score of 5 is the highest score meaning it is the most favorable for development. The score for each criteria is then summed up and then multiplied by the scoring factor. In this analysis, the criteria are assigned a weighted factor of 0.1, 0.15, or 0.25. The more critical criteria are assigned a weighting factor of 0.25, and the least critical criteria are assigned a weighting factor of 0.1. Among the seven criteria, the weighting factors add up to 1 or 100%.

For example, if a site was evaluated under Criteria #1 above, and received a total score of 10 among the four scoring factors, the weighted score would be 1 ($10 \times 0.1 = 1$).



A complete breakdown of the scores for each site is provided in Table 2, *Site Analysis Scoring Sheet*.

The following is an explanation of the how the weighting factors were applied to each set of criteria:

Criteria #1 - Project Location and Jurisdictional Uses: This set of criteria is assigned a weighting factor of 0.1. The project location within a sphere of influence and compatibility with surrounding land uses are important for planning purposes, but is not a significant constraint on developing the site. Therefore, these criteria are assigned a weighting factor on the low end.

Criteria #2 – Project Accessibility: This set of criteria is assigned a weighting factor of 0.15. Project accessibility is an important factor in considering if necessary services are readily available to residents of affordable housing. These criteria are given a mid-range weighting factor because accessibility is important to the success of the affordable housing, but it does not represent a physical constraint to development.

Criteria #3 Public Services and Utilities: This set of criteria is assigned a weighting factor of 0.15. The availability of public services and utilities is critical to the feasibility of developing a specific site. If water and sewer lines are not available or require upgrades to the existing system, it may result in a critical constraint to developing the site in terms of cost and limiting the amount of units that can be developed onsite. These criteria are assigned a mid-range weighting factor because although the availability is necessary and expanding utility lines can affect the cost of development, utility extension can most often be accommodated within existing roadways or right-of-way areas, with minimal adverse environmental effects.

Criteria #4 Natural Resources: This set of criteria is assigned a weighting factor of 0.25. Most of the candidate sites evaluated in this analysis are undeveloped and undisturbed properties. The presence of sensitive natural resources on a site may be a significant constraint to developing the site. Sensitive biological habitats or wildlife may restrict development on a site to certain areas, add mitigation costs to developing the site, or add additional permitting requirements if wetland areas or special status species are adversely impacted through development. For these reasons, these criteria are assigned the highest weighting factor.

Criteria #5 Cultural Resources: This set of criteria is assigned a weighting factor of 0.1. The presence of cultural resources onsite could present a constraint to development. Although most of the sites are currently undeveloped, the majority of the sites are surrounded by existing development and record searches indicate that no previously recorded site have been found on the proposed sites. For these reasons, these criteria are assigned a weighting factor on the low end.

Criteria #6 Physical Site Conditions: This set of criteria is assigned a weighting factor of 0.15. The physical characteristics of the site may influence how the site is developed and how much area of the site can be used for development. For example, a site with slopes over 30% may not be able to utilize those areas. These criteria are given a mid-range weighting factor because of the influence the site



characteristics have over the site design. Some constraints such as geotechnical constraints can be overcome with standard building practices.

Criteria #7 Regulatory Conditions: These criteria are assigned a weighting factor of 0.1. These criteria address consistency of the proposed affordable housing project with existing land use regulations that affect development. Much of the zoning consistency will be addressed with the proposed overlay zone, and other regulations will require analysis and compliance, but is not as significant of a constraint on developing the site as other criteria. Therefore, these criteria are assigned a weighting factor on the low end.

Candidate Site Characteristics

To determine if enough suitable land for the development of 1,270 affordable housing units could be achieved from the candidate site, a site analysis was conducted for each of the properties. The evaluation of each site consisted of field visit, research and investigation regarding the existing land use conditions in the surrounding area of each site, a site specific biological reconnaissance, a cultural resources record search and field reconnaissance, and a general geotechnical investigation. The opportunities and constraints of each site were considered in a numerical scoring system described above and found in Table 2, Site Analysis Scoring Sheet.

The results of the field visit analysis and an aerial exhibit showing the project site and a conceptual building envelope¹ based on the opportunities and constraints of each site can be found in Appendix A. Based on the conceptual building envelope, a theoretical maximum unit count was calculated based on state mandated minimum default densities of 16-units minimum per acre. The analysis concluded of a total acreage of 146.25 from the 17 sites, approximately 101.6 acres would be available for development. At 16 units per acre, the maximum number of units would be 1,630 units. This number exceeds the 1,270 units the County currently needs to meet its housing element goals. The number of potential units (1,630) could increase or decrease depending on a variety of factors such as the County utilizing a higher density in the zoning overlay zone (e.g., 20 units per acre) or other physical constraints in the field that reduce the development potential of a site. A summary of the unit count is provided in Table 1, Theoretical Maximum Yield.

A summary of the site characteristics, including the scoring results for each site are listed individually below.

Site 1

Total Area: 1.15

Point Total: 153

Final Weighted Score: 23.4

Rank: 1

Estimated Building area: 1.15

¹ The estimated building envelope is conceptual and should not be considered for construction purposes. The building envelope lines have not been surveyed in the field.



Estimated number of units at (16 du/ac): 18

Notes: Not many physical constraints on this site, and as such, the entire parcel is identified as the building envelope. This site is within the Sphere of Influence for the City of Grass Valley and annexation into the City will be required. This site ranked No. 1 in the site analysis due to the lack of constraints, but only has approximately one acre of developable area.

Site 2

Total Area: 10.9
Point Total: 131
Final Weighted Score: 19.7
Rank: 15
Estimated Building area: 4.14
Estimated number of units at (16 du/ac): 66

Notes: This site has sensitive natural habitat on site that will likely constrain future development. The site is also within a mapped flood plain. Roadway improvements may be required to access the site. It is located in an area adjacent to high density development. This site is within the Sphere of Influence for the City of Grass Valley and annexation into the City will be required.

Site 3

Total Area: 10.48
Point Total: 145
Final Weighted Score: 22
Rank: 4
Estimated Building area: 10.48
Estimated number of units at (16 du/ac): 168

Notes: This site has few physical constraints and the entire site was identified as a potential building area. This site has the potential for 168 units. If that many units were developed on this site, potential traffic impacts could occur at the surrounding roadways and intersections. This site is within the Sphere of Influence for the City of Grass Valley and annexation into the City will be required.

Site 4

Total Area: 10.11
Point Total: 138
Final Weighted Score: 21.1
Rank: Tied 12
Estimated Building area: 7.64
Estimated number of units at (16 du/ac): 122

Notes: This site has few physical constraints with the exception of a riparian habitat along the southern boundary. Some of the site was left out of the building envelope to provide a wetland buffer. This site is under the same ownership as Sites 5 and 6 and it is anticipated that these site could be developed together. If Sites 4-8 were all developed according the allowable density, it could result in 450-500 units



being developed on these lots. If that many units were developed on these sites, potential traffic impacts could occur at the surrounding roadways and intersections. This site is within the Sphere of Influence for the City of Grass Valley and annexation into the City will be required.

Site 5

Total Area: 11.48
Point Total: 141
Final Weighted Score: 21.7
Rank: Tied 5
Estimated Building area: 8.09
Estimated number of units at (16 du/ac): 129

Notes: This site has few physical constraints. Some of the slope area along the western portion of the site was excluded from the building envelope to minimize grading and preserve trees that would screen the development from view from the west. This site is under the same ownership as Sites 4 and 6 and it is anticipated that these site could be developed together. If Sites 4-8 were all developed according the allowable density, it could result in 450-500 units being developed on these lots. If that many units were developed on these sites, potential traffic impacts could occur at the surrounding roadways and intersections. This site is within the Sphere of Influence for the City of Grass Valley and annexation into the City will be required.

Site 6

Total Area: 5.61
Point Total: 141
Final Weighted Score: 21.7
Rank: Tied 5
Estimated Building area: 5.61
Estimated number of units at (16 du/ac): 90

Notes: This site has few physical constraints and as such the whole area was included within the building envelope. This site is under the same ownership as Sites 4 and 5 and it is anticipated that these site could be developed together. If Sites 4-8 were all developed according the allowable density, it could result in 450-500 units being developed on these lots. If that many units were developed on these sites, potential traffic impacts could occur at the surrounding roadways and intersections. This site is within the Sphere of Influence for the City of Grass Valley and annexation into the City will be required.

Site 7

Total Area: 10.06
Point Total: 141
Final Weighted Score: 21.7
Rank: Tied 5
Estimated Building area: 8.94
Estimated number of units at (16 du/ac): 143



Notes: This site has few physical constraints. Some of the slope area along the western portion of the site was excluded from the building envelope to minimize grading and preserve trees that would screen the development from view from the west. If Sites 4-8 were all developed according the allowable density, it could result in 450-500 units being developed on these lots. If that many units were developed on these sites, potential traffic impacts could occur at the surrounding roadways and intersections. This site is within the Sphere of Influence for the City of Grass Valley and annexation into the City will be required.

Site 8

Total Area: 9.6
Point Total: 138
Final Weighted Score: 21.1
Rank: Tied 12th
Estimated Building area: 6.81
Estimated number of units at (16 du/ac): 109

Notes: A tributary to Wolf Creek runs along the extreme southeast parcel boundary. An intermittent stream bisects the west side of the parcel parallel with Brunswick Road. This may make access onto the site a challenge. If Sites 4-8 were all developed according the allowable density, it could result in 450-500 units being developed on these lots. If that many units were developed on these sites, potential traffic impacts could occur at the surrounding roadways and intersections. This site is within the Sphere of Influence for the City of Grass Valley and annexation into the City will be required.

Site 9

Total Area: 6.58
Point Total: 143
Final Weighted Score: 21.45
Rank: 9
Estimated Building area: 3.49
Estimated number of units at (16 du/ac): 56

Notes: This site is located in Penn Valley and connection to the existing sanitation system may be a challenge as there is no more capacity in this area. This site also has a riparian habitat that traverses the northern portion of the site. Avoidance of this habitat plus a 100-foot buffer reduces the potential building envelope. Currently, two 36-inch culverts convey surface water runoff onto the site from developed areas to the south. Sites 9-12 are located in proximity to each other. If Sites 9-12 were all developed according the allowable density, it could result in 300-350 units being developed on these lots. If that many units were developed on these sites, potential traffic impacts could occur at the surrounding roadways and intersections. This site is under the same ownership as Sites 10 and 12.

Site 10

Total Area: 3.08
Point Total: 148
Final Weighted Score: 22.05
Rank: 3



Estimated Building area: 1.46
Estimated number of units at (16 du/ac): 23

Notes: The development area on this site was reduced due to some Landmark Oaks present on the eastern portion of the site. This site is located in Penn Valley and connection to the existing sanitation system may be a challenge as there is no more capacity in this area. Sites 9-12 are located in proximity to each other. If Sites 9-12 were all developed according the allowable density, it could result in 300-350 units being developed on these lots. If that many units were developed on these sites, potential traffic impacts could occur at the surrounding roadways and intersections. This site is under the same ownership as Sites 10 and 12.

Site 11

Total Area: 4.56
Point Total: 152
Final Weighted Score: 23.2
Rank: 2
Estimated Building area: 3.98
Estimated number of units at (16 du/ac): 64

Notes: This site has few physical constraints. There are some Landmark Oaks onsite, but they are spaced far enough apart that avoidance should not be a significant constraint. This site is located in Penn Valley and connection to the existing sanitation system may be a challenge as there is no more capacity in this area. Sites 9-12 are located in proximity to each other. If Sites 9-12 were all developed according the allowable density, it could result in 300-350 units being developed on these lots. If that many units were developed on these sites, potential traffic impacts could occur at the surrounding roadways and intersections.

Site 12

Total Area: 19.94
Point Total: 142
Final Weighted Score: 21.35
Rank: Tied 10th
Estimated Building area: 11.49
Estimated number of units at (16 du/ac): 184

Notes: The development area on this site is reduced due intermittent steams and tributaries to Squirrel Creek that run across the eastern portion of this site. Access to this site will most likely need to come through Site 9 as it is anticipated that Caltrans will not want direct access on SR 20. This site is located in Penn Valley and connection to the existing sanitation system may be a challenge as there is no more capacity in this area. Sites 9-12 are located in proximity to each other. If sites 9-12 were all developed according the allowable density, it could result in 300-350 units being developed on these lots. If that many units were developed on these sites, potential traffic impacts could occur at the surrounding roadways and intersections. This site is under the same ownership as Sites 9 and 10.



Site 13

Total Area: 5.13
Point Total: 121
Final Weighted Score: 18.25
Rank: 17
Estimated Building area: 1.31
Estimated number of units at (16 du/ac): 21

Notes: This site has some physical challenges that pose a significant constraint to development. The site is steep and visible from SR 49 and Combie Road. This site has a Scenic Corridor overlay district attached to it. The site has sensitive blue oak woodland which covers approximately 80 percent of the site. Potential impacts to oak woodlands and Landmark Oaks can be reduced or avoided through the implementation of an Oak Management Plan. Impacts resulting in the loss of landmark oak trees or oak woodlands would require mitigation at a 3:1 ratio. Access to the site may be a challenge due to the lack of improvements on the existing access roads. It is expected that some intersection improvements would be required either at SR 49 or Combie Road. In proximity to the site, the Higgins Center developed a small individual community wastewater treatment on a 12-acre site, however; the facility does not have sufficient wastewater treatment capacity to serve the units proposed on this site. Wastewater from the proposed project would be conveyed to and treated at the expanded Lake of the Pines Wastewater Treatment Plant (LOP WWTP) located approximately 1.2 miles east and south of the project site off Combie Road. The treatment system at the WWTP is specifically designed to allow for expansion by increasing the number of filter units known as a cassette. Each cassette will enable an incremental increase in the treatment capacity of the WWTP, but would not result in an expansion of the existing footprint of the treatment plant. This site was ranked last in the site analysis.

Site 14

Total Area: 5.23
Point Total: 142
Final Weighted Score: 21.55
Rank: 8
Estimated Building area: 4.20
Estimated number of units at (16 du/ac): 67

Notes: This site has oak woodland habitat which may present a constraint to development. There is a narrow band of blue oak woodland along the western boundary. Currently the property takes access directly off of SR 49 from Woodridge Drive. If these properties are built-out, Caltrans may require the access to go through Higgins Road. In proximity to the site, the Higgins Center developed a small individual community wastewater treatment on a 12-acre site, however; the facility does not have sufficient wastewater treatment capacity to serve the units proposed on this site. Wastewater from the proposed project would be conveyed to and treated at the expanded Lake of the Pines Wastewater Treatment Plant (LOP WWTP) located approximately 1.2 miles east and south of the project site off Combie Road. The treatment system at the WWTP is specifically designed to allow for expansion by increasing the number of filter units known as a cassette. Each cassette will enable an incremental



increase in the treatment capacity of the WWTP, but would not result in an expansion of the existing footprint of the treatment plant.

Site 15

Total Area: 18.86
Point Total: 141
Final Weighted Score: 21.35
Rank: Tied 10th
Estimated Building area: 14.99
Estimated number of units at (16 du/ac): 240

Notes: Approximately 30 percent of the site supports oak woodland habitat, which may be a constraint to development of the site. Currently the property takes access directly off of SR 49 from Woodridge Drive. If these properties are built-out, Caltrans may require the access to go though Higgins Road. In proximity to the site, the Higgins Center developed a small individual community wastewater treatment on a 12-acre site, however; the facility does not have sufficient wastewater treatment capacity to serve the units proposed on this site. Wastewater from the proposed project would be conveyed to and treated at the expanded Lake of the Pines Wastewater Treatment Plant (LOP WWTP) located approximately 1.2 miles east and south of the project site off Combie Road. The treatment system at the WWTP is specifically designed to allow for expansion by increasing the number of filter units known as a cassette. Each cassette will enable an incremental increase in the treatment capacity of the WWTP, but would not result in an expansion of the existing footprint of the treatment plant.

Site 16

Total Area: 2.46
Point Total: 124
Final Weighted Score: 18.65
Rank: 16
Estimated Building area: 1.49
Estimated number of units at (16 du/ac): 29

Notes: This site is substantially constrained for development due to the presence of riparian habitat along the project frontage and black oak habitat on other portions of the site. In proximity to the site, the Higgins Center developed a small individual community wastewater treatment on a 12-acre site, however; the facility does not have sufficient wastewater treatment capacity to serve the units proposed on this site. Wastewater from the proposed project would be conveyed to and treated at the expanded Lake of the Pines Wastewater Treatment Plant (LOP WWTP) located approximately 1.2 miles east and south of the project site off Combie Road. The treatment system at the WWTP is specifically designed to allow for expansion by increasing the number of filter units known as a cassette. Each cassette will enable an incremental increase in the treatment capacity of the WWTP, but would not result in an expansion of the existing footprint of the treatment plant.



Site 17

Total Area: 11.03

Point Total: 134

Final Weighted Score: 20.35

Rank: 14

Estimated Building area: 6.33

Estimated number of units at (16 du/ac): 101

Notes: The southern half of the site is oak woodland dominated by blue oaks. Scattered larger oaks within the oak woodland could qualify as Landmark Oaks. The southern half of the project is the portion closest to Combie road, so access to the site could prove to be difficult. This site is the most isolated of the candidate sites with regard to access to community services. This site is Phase IV of the Darkhorse Subdivision and is currently slated to accommodate up to 30 units of affordable housing as a condition of approval. Wastewater from the proposed project would be conveyed to and treated at the expanded Lake of the Pines Wastewater Treatment Plant (LOP WWTP) located approximately 1.5 miles north of the project site off Combie Road. The treatment system at the WWTP is specifically designed to allow for expansion by increasing the number of filter units known as a cassette. Each cassette will enable an incremental increase in the treatment capacity of the WWTP, but would not result in an expansion of the existing footprint of the treatment plant.

Conclusion

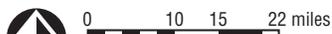
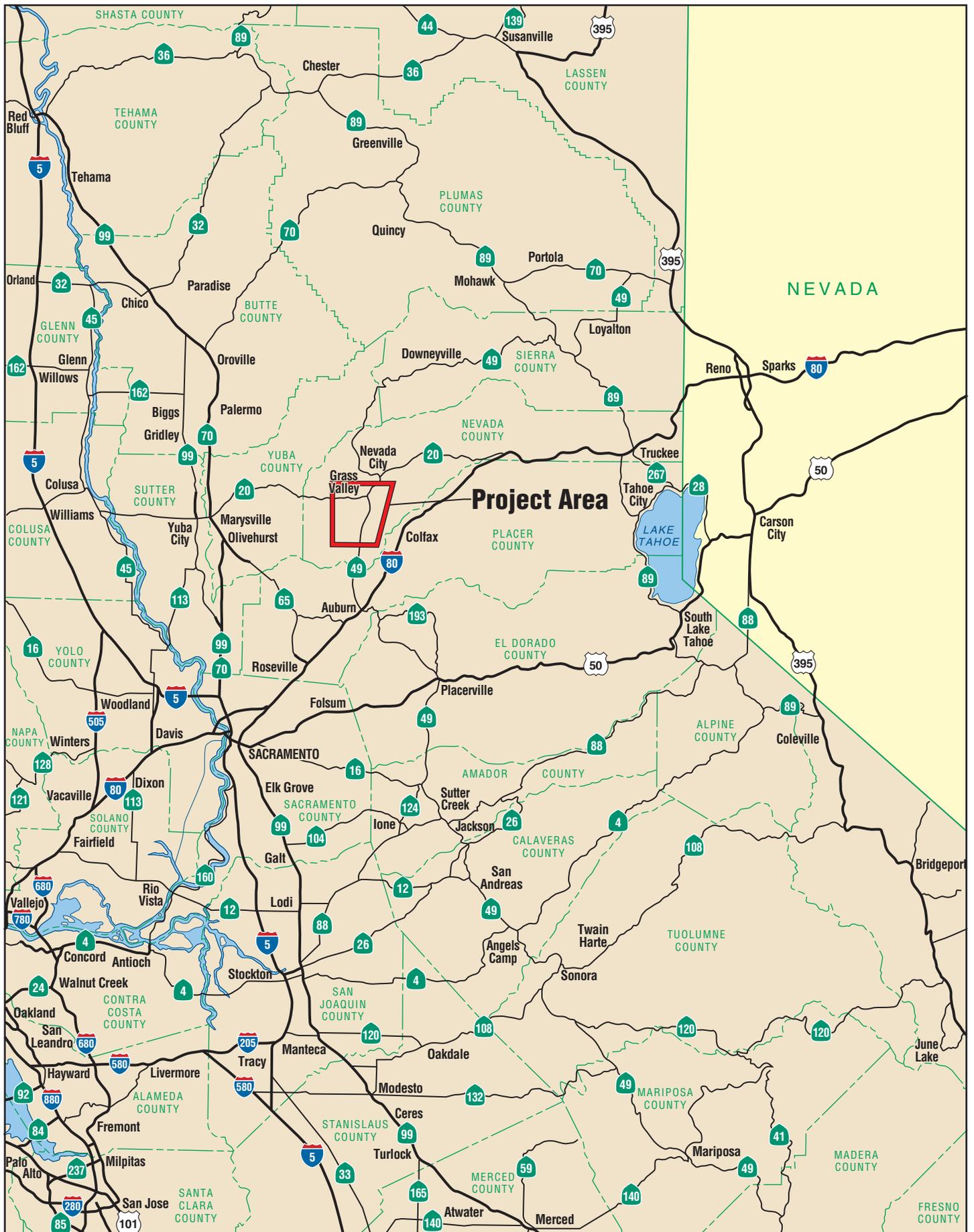
In preparing the site analysis, it appears that of the 17 candidate sites, there is enough developable area to meet the County's goal of identifying 1,270 affordable housing units in order to implement the mandated housing requirements. Based on the information gathered for the site analysis, approximately 1,630 units could be developed based on the known opportunities and constraints of the candidate sites. This number could increase or decrease depending on additional property surveys or if an increased zoning designation, such as R3 High Density Residential (20 units per acre), were to be applied to the sites.

Overall, the biggest constraint to development on the candidate sites appears to be the presence of sensitive biological habitats. As the majority of the sites are undeveloped, habitats such as riparian woodlands, oak woodlands, and landmark trees limit the areas that can be developed. Preservation and avoidance of these habitats, as well as mitigation costs, may limit the amount of development on each site. These factors as well as roadway and utility improvements will all be factored into whether development on a particular site is feasible.

Generally speaking the sites located within the Grass Valley Sphere of Influence represent the best sites for affordable housing development. This is because these sites are located in areas where higher density development already exists. The sites in these locations are generally closer to services such as supermarkets, medical centers, and bus stops.



The Penn Valley sites have a few constraints, including obtaining connection to the existing sanitation system. The sites located in the Higgins Center and Lake of the Pines area have the greatest number of constraints as it relates to sensitive biological habitats. All of the sites in this area have oak woodland habitat that may present a significant constraint on development. The sites in this area also have the fewest number of services to support affordable housing developments.

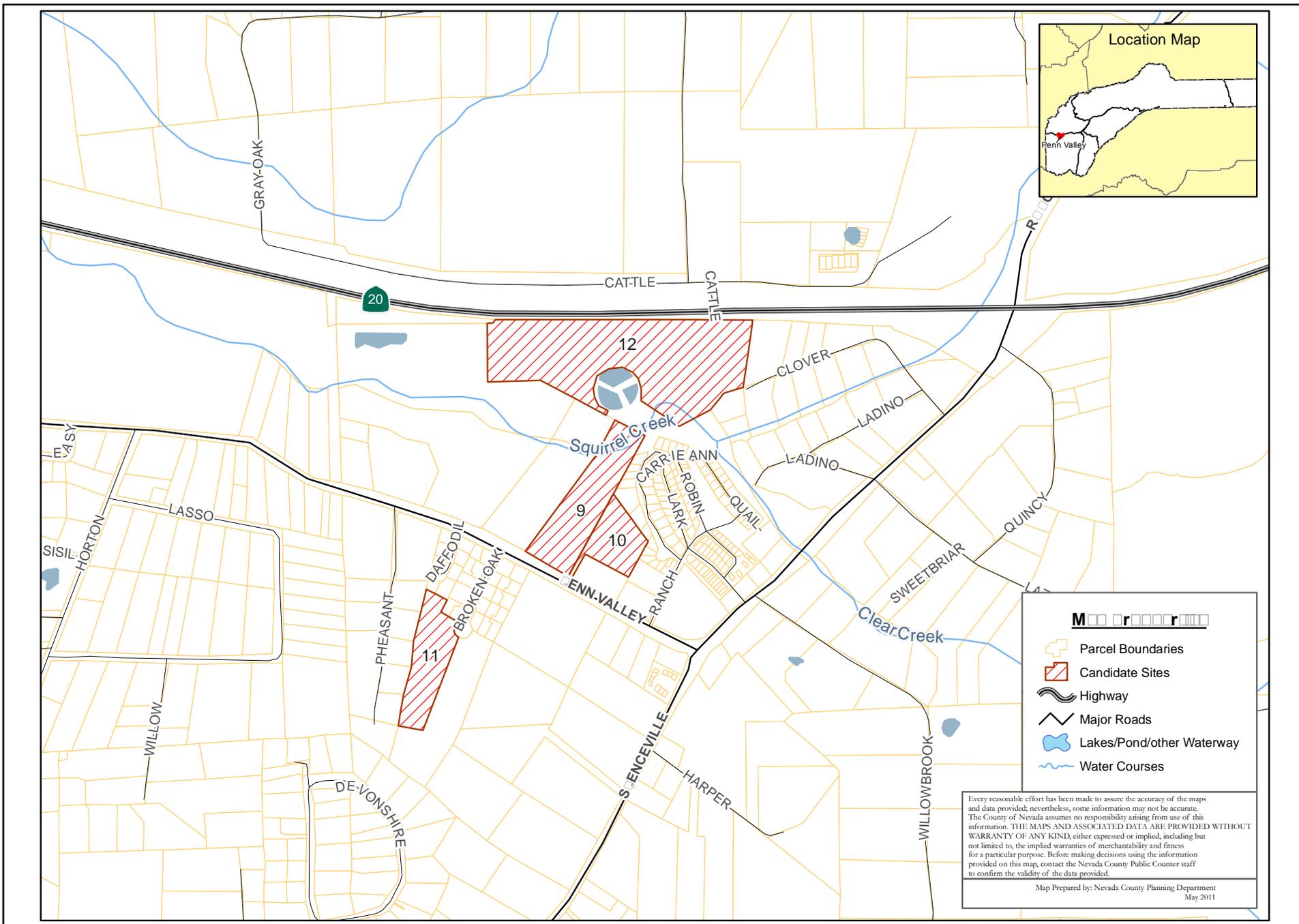


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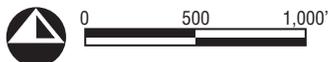
COUNTY OF NEVADA
HOUSING ELEMENT REZONE SITE ANALYSIS

Regional Vicinity

FIGURE 1



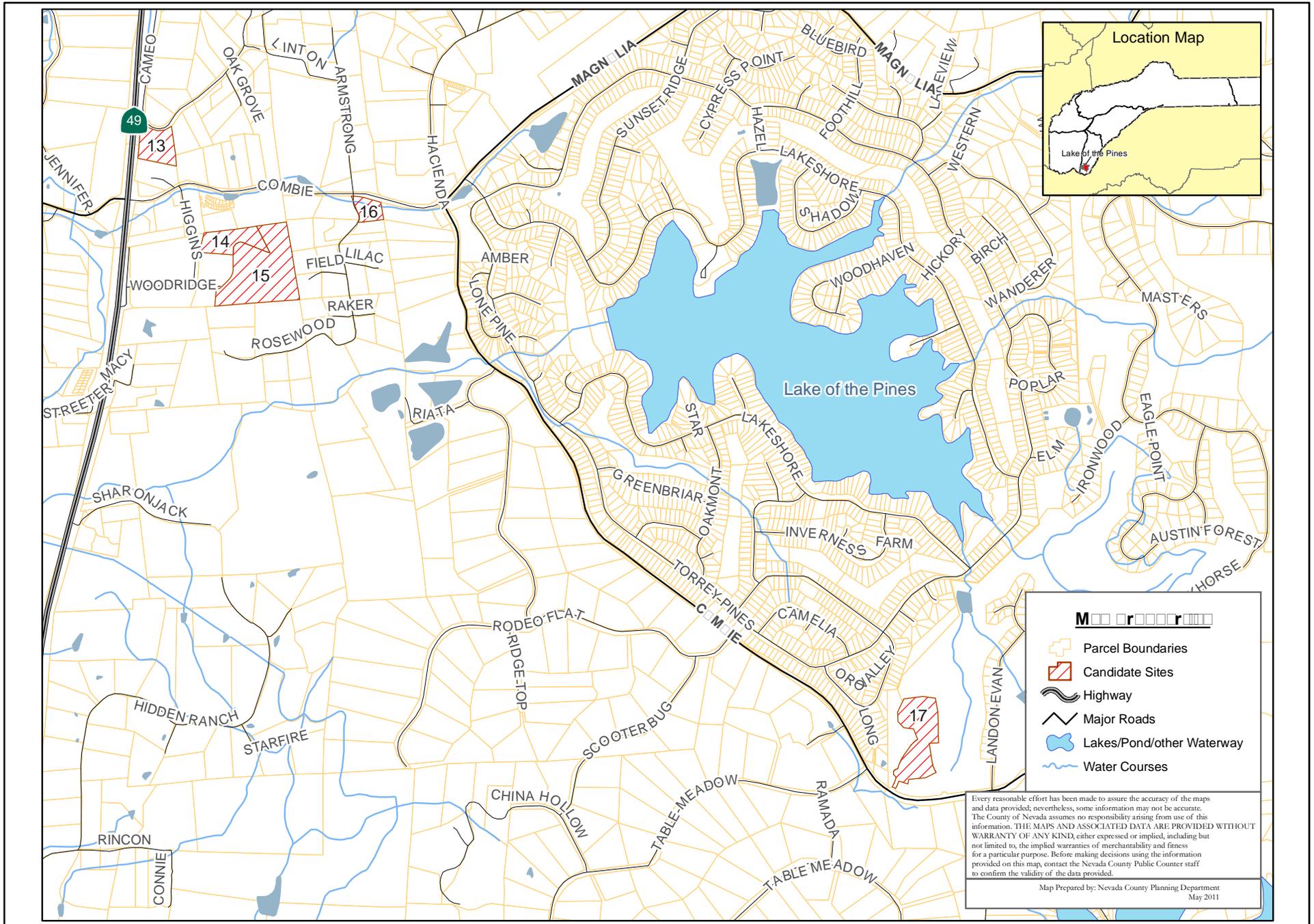
Source: Nevada County GIS 2012; ESRI 2012.



9/20/12 JN 60-100827-18457

COUNTY OF NEVADA
HOUSING ELEMENT REZONE SITE ANALYSIS
Penn Valley Area Sites

FIGURE 3



Source: Nevada County GIS 2012; ESRI 2012.



9/20/12 JN 60-100827-18457

COUNTY OF NEVADA
HOUSING ELEMENT REZONE SITE ANALYSIS
Lake of the Pines Area Sites

FIGURE 4

Table 2 - Site Analysis Scoring Sheet

Site Evaluation Criteria	Criteria Weighting Factor	Candidate Site #																
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Criteria #1 Project Location and Jurisdictional Issues	0.1																	
Scoring Factor #1a - Located in Sphere of Influence?		3	3	3	3	3	3	3	3	5	5	5	5	5	5	5	5	5
Scoring Factor #1b - Near existing development?		5	5	5	3	3	3	3	3	5	5	5	5	2	5	5	3	4
Scoring Factor #1c - Compatible with land use plans?		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Scoring Factor #1d - Compatible with existing land use?		5	5	5	4	4	4	4	4	5	5	5	5	3	5	5	3	4
Subtotal		16	16	16	13	13	13	13	13	18	18	18	18	13	18	18	14	16
Weighted Score		1.6	1.6	1.6	1.3	1.3	1.3	1.3	1.3	1.8	1.8	1.8	1.8	1.3	1.8	1.8	1.4	1.6
Criteria #2 Project Accessibility	0.15																	
Scoring Factor #2a - Accessible to transportation facility?		3	4	2	3	3	3	3	3	5	5	5	5	3	3	3	2	1
Scoring Factor #2b - Require new roadways or access?		5	2	5	3	3	3	3	3	4	4	5	2	2	3	3	5	3
Scoring Factor #2b.1 - Is site access safe?		5	3	4	4	4	4	4	4	5	5	5	5	2	3	3	2	3
Scoring Factor #2c - Roadway or intersection improvements?		4	3	3	2	2	2	2	2	2	2	2	2	1	2	2	2	2
Scoring Factor #2d - Access for people with limited mobility?		3	2	4	2	2	2	2	2	3	3	3	3	2	3	3	2	2
Scoring Factor #2e - Proximity to community facilities?		4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	2	2
Subtotal		24	18	22	18	18	18	18	18	23	23	24	21	13	17	17	15	13
Weighted Score		3.6	2.7	3.3	2.7	2.7	2.7	2.7	2.7	3.45	3.45	3.6	3.15	1.95	2.55	2.55	2.25	1.95
Criteria #3 Public Services and Utilities	0.15																	
Scoring Factor #3a - Water and sewer service?		3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2
Scoring Factor #3b - Water and sewer pipeline extension?		5	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2
Scoring Factor #3c - Sewer/stormdrain pumping required?		5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Scoring Factor #3d - Accessible to sanitation services?		5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Subtotal		18	16	16	16	16	16	16	16	14	14	14	14	14	14	14	14	14
Weighted Score		2.7	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Criteria #4 Natural Resources	0.2																	
Scoring Factor #4a - Sensitive biological resources present?		5	2	5	3	4	4	4	3	2	3	5	2	2	2	2	2	3
Scoring Factor #4b - Jurisdictional wetlands?		5	2	3	3	4	4	4	3	2	3	3	2	5	5	5	2	5
Scoring Factor #4c - Special status species?		5	5	5	5	5	5	5	5	2	5	5	3	4	5	5	5	5
Scoring Factor #4d - Is avoidance possible?		5	5	3	5	5	5	5	5	4	5	5	5	5	5	5	5	5
Scoring Factor #4e - Oak Woodlands, Landmark Trees?		5	3	3	5	5	5	5	5	5	3	5	5	2	5	5	5	5
Subtotal		25	17	19	21	23	23	23	21	16	18	23	17	18	22	22	19	23
Weighted Score		5	3.4	3.8	4.2	4.6	4.6	4.6	4.2	3.2	3.6	4.6	3.4	3.6	4.4	4.4	3.8	4.6
Criteria #5 Cultural/Historical Resources	0.1																	
Scoring Factor #5a - Cultural resources present?		5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Scoring Factor #5b - Buildings older than 50 years?		5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Subtotal		10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Weighted Score		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Criteria #6 Physical Site Conditions	0.2																	
Scoring Factor #6a - Excessive slopes?		5	3	4	5	5	5	5	5	5	5	5	5	3	5	4	4	5
Scoring Factor #6b - Parcel of adequate size?		2	5	5	5	5	5	5	5	5	4	4	5	3	5	5	3	3
Scoring Factor #6c - Sufficient size for parking, open space, etc?		3	5	5	5	5	5	5	5	5	4	4	5	2	3	3	3	3
Scoring Factor #6d - Substantial grading required?		5	4	4	3	3	3	3	3	5	5	5	5	2	3	3	2	2
Scoring Factor #6e - Geotechnical constraints?		5	3	4	3	3	3	3	3	5	5	5	5	5	5	5	5	5
Scoring Factor #6f - Located in 100-year floodplain?		5	2	5	4	5	5	5	4	2	5	5	2	5	5	5	2	5
Scoring Factor #6g - Extensive fuel modification?		5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Scoring Factor #6h - Hazardous materials?		5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Subtotal		35	32	37	35	36	36	36	35	37	38	38	37	30	36	35	29	33
Weighted Score		7	6.4	7.4	7	7.2	7.2	7.2	7	7.4	7.6	7.6	7.4	6	7.2	7	5.8	6.6
Criteria #7 Regulatory Conditions	0.1																	
Scoring Factor #7a - Existing development on site?		5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Scoring Factor #7b - Meet existing zoning restrictions?		5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Scoring Factor #7c - Special permits required?		5	3	5	5	5	5	5	5	5	5	5	5	3	5	5	3	5
Scoring Factor #7d - Located with fire protection area?		5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Scoring Factor #7e - Convert agricultural lands?		5	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Subtotal		25	22	25	25	25	25	25	25	25	25	25	25	23	25	25	23	25
Weighted Score		2.5	2.2	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.3	2.5	2.5	2.3	2.5
Point Total		153	131	145	138	141	141	141	138	143	146	152	142	121	142	141	124	134
Final Weighted Score		23.4	19.7	22	21.1	21.7	21.7	21.7	21.1	21.45	22.05	23.2	21.35	18.25	21.55	21.35	18.65	20.35
Rank*		1	15	4	T12	T5	T5	T5	T12	9	3	2	T10	17	8	T10	16	14

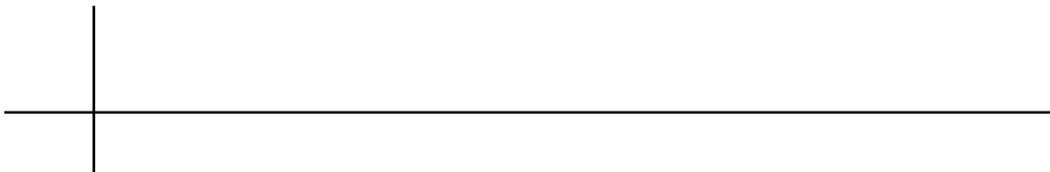
A score of 1 is the lowest score, meaning the result is the least favorable for development, and a score of 5 is the highest score; meaning it is the most favorable for development.

* T= Tied



APPENDIX A

Field Reports and Aerial Photos





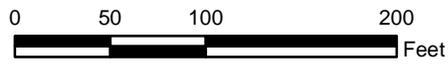
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- L □□□□ d
- Development Footprint
- Potential Rezone Sites
- Parcels
- C □□□□□ r □
- Index (100')
- Major (20')
- Depressions
- City Limits
- Sphere of Influence

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Source: Nevada County GIS 2012; ESRI 2012.



9/6/12 JN 60-100827-18669

COUNTY OF NEVADA
 2019-2014 HOUSING ELEMENT REZONE PROGRAM IMPLEMENTATION EIR

Rezone Candidate Sites

County of Nevada

Housing Element Rezone Site Analysis

Field Visit Analysis

Site #1
APN: 07-380-17



Figure 1 - Site 1: Looking east across McCourtney Road.

Site Evaluation Criteria

The following site analysis criteria have been developed to provide an understanding of the physical and regulatory opportunities and constraints that would affect future development of the properties.

Criteria #1: Site Location and Jurisdictional Issues

Scoring Factor #1a - Is it located within the Sphere of Influence of another jurisdiction (e.g., City of Grass Valley, Nevada City, etc.)?

The site is located within the Sphere of Influence for the City of Grass Valley.

Scoring Factor #1b - Is the site in vicinity of existing concentration of development?

Existing residential and commercial development is located in the vicinity of the site. Nearby uses include commercial uses such as a computer repair shop, a jujitsu studio, a fire station and the Nevada County fairgrounds located across McCourtney Road.

Scoring Factor #1c – Is the site compatible with adjacent jurisdiction’s land use plans?

Yes. No land use conflicts have been identified.

Scoring Factor #1d- Is High Density Housing compatible with surrounding land uses?

Yes, given the mix of existing development in the surrounding area, development of higher density affordable housing would be compatible with the surrounding land uses.

Criteria #2: Site Accessibility

Scoring Factor #2a- Is the site accessible to transportation facility (bus, highway, trail, bike path etc.)?

The site has nearby access to both SR 20 and SR 49 located just to the northeast of the property. No bike paths or trails were observed.

Nevada County administers a door-to-door paratransit service for persons with disabilities for trips within the Grass Valley/Nevada City area and nearby communities. The service is provided by Gold Country Telecare, a private non-profit organization, under a contract with the County of Nevada. All paratransit vehicles are equipped with wheelchair lifts and other accessibility features.

Gold Country Stage Route 3 has a bus stop on Brighton Street at the Fair Grounds Gate 8. This is approximately 0.3 mile from the site. Route 3 brings passengers to the Church and Neal stop which allows riders to connect with other routes including Route 5. Route 5 travels to the Auburn Station which connects with Placer County Transit (which serves Auburn, Rocklin, Sierra College, Roseville Galleria and Sacramento Light Rail), Auburn Transit and Amtrak Thruway bus service as connecting schedules allow.

Scoring Factor #2b – Does the site require construction of roadways or access?

An access driveway from McCourtney onto the site would be required. No offsite roadways or driveways would be needed or required.

Scoring Factor #2b.1- Is the site access/roadway encroachment suitable in terms of safety (site distances, turning movements)

The site has direct access to McCourtney Road. No constraints to site distance or turning movements have been identified at this time.

Scoring Factor #2c – Will the site require improvements to existing roadway system (curbs, intersections, stop lights, etc.)?

None are anticipated at this time.

Scoring Factor #2d - Does site provide reasonable access to persons with mobility limitations?

McCourtney Road is a two lane road with an improved shoulder. An existing sidewalk is located on the north side of the street that extends east to the SR 20 freeway ramps and intermittently to the west along the fairground frontage.

Scoring Factor #2e – Is site located adjacent to one or more community facilities (e.g., grocery stores, schools, employment areas, laundromats, day care, medical services, etc.)

The site is located approximately 1 mile east of Sierra Mountain High School /Earle Jamieson High School. The Tall Pines nursery school is located less than 0.5 mile from the site.

Criteria #3: Public Services and Utilities

Scoring Factor #3a - Is the property currently served by water and sewer services?

There is no existing development onsite, therefore, it is assumed that there is no water and sewer service to the site. Existing facilities are located within McCourtney Road.

Scoring Factor #3b - Distance for water/sewer pipeline have to be extended to serve the property?

No offsite water or sewer extensions appear to be required at this time.

Scoring Factor #3c – Will sewer/storm drain require pumping? (gravity fed highest score)

No pumping will be required.

Scoring Factor #3d - Is the site reasonably accessible to sanitation facilities (trash service, etc.)?

Future development on the site would be able to utilize the same sanitation services as the surrounding properties.

Criteria #4: Natural Resources

Scoring Factor #4a – Are sensitive biological resources currently located on the property?

Most of the site has been cleared from previous activities on the property. No sensitive biological resources that would preclude development have been identified.

Scoring Factor #4b – Are potentially jurisdictional wetlands present on the property?

No jurisdictional wetlands have been identified onsite.

Scoring Factor #4c - Are any special status species present or are any special-status species likely to occur on the site?

None have been identified on site.

Scoring Factor #4d - If yes, is avoidance a possibility?

N/A

Scoring Factor #4e – Do any oak woodlands, Landmark Groves, or Landmark Trees occur on the site?

None have been identified on site.

Criteria #5: Cultural/Historical Resources

Scoring Factor #5a - Are there any known cultural resources on the property or in the immediate vicinity?

None have been identified on site. Record searches show that some cultural resources have been found in the surrounding area. It should be assumed that monitoring during any grading activities will be required during construction.

Scoring Factor #5b - Existing buildings that are over 50 years in age?

No buildings over 50 years old were identified onsite.

Criteria #6: Physical Site Conditions

Scoring Factor #6a - Excessive Slope conditions on the site?

The site is flat.

Scoring Factor #6b – Is the parcel of adequate size to accommodate a minimum 16 units per site?

Yes, the site is approximately one acre, which enough area to accommodate 16 units.

Scoring Factor #6c – Does the site provide sufficient size and shape to accommodate parking, usable open space, site access?

The site is of sufficient size for sixteen units, site access, and parking. Usable open space onsite will depend on how the buildings are ultimately designed.

Scoring Factor #6d- Do features exist that may result in a substantial amount of grading?

A significant amount of grading is not anticipated.

Scoring Factor #6e - Are there any geotechnical constraints?

No extraordinary geotechnical constraints have been identified. Typical construction measures common to all development in the area will be required.

Scoring Factor #6f – Is the site located within 100 yr flood plain?

No.

Scoring Factor #6g – Does the site require extensive fuel modification or site preparation to mitigate exposure to hazards?

No fuel modification requirements beyond what is typically required for residential development are anticipated for this site.

Scoring Factor #6h – Does the site have any hazardous materials or hazardous historical uses (mining, dumping, sewage disposal) that will require remediation prior to development?

The site is previously undeveloped, no hazardous materials have been identified onsite that would result in a constraint to developing the site. Based on a records check with ENVIROSTOR database maintained by the California Department of Toxics Control, no records of hazardous spills or clean-ups have occurred on the site.

Criteria #7: Regulatory Conditions

Scoring Factor #7a- Existing development on the site (any improvements)?

There site is undeveloped.

Scoring Factor #7b – Does the site meet minimum lot size, setbacks, height limitations, that apply the property.

Currently, the site is undeveloped. The site is zoned OP (Office & Professional), with a residential density of 4 dwelling per units per acre. The implementation of the R3-RH housing overlay zone, would permit an increase in density for affordable housing on this site, and would provide specific designations for setbacks, and height limitations.

Scoring Factor #7c – Does site require any special permits or environmental clearances?

No special permits or environmental clearances have been identified at this time.

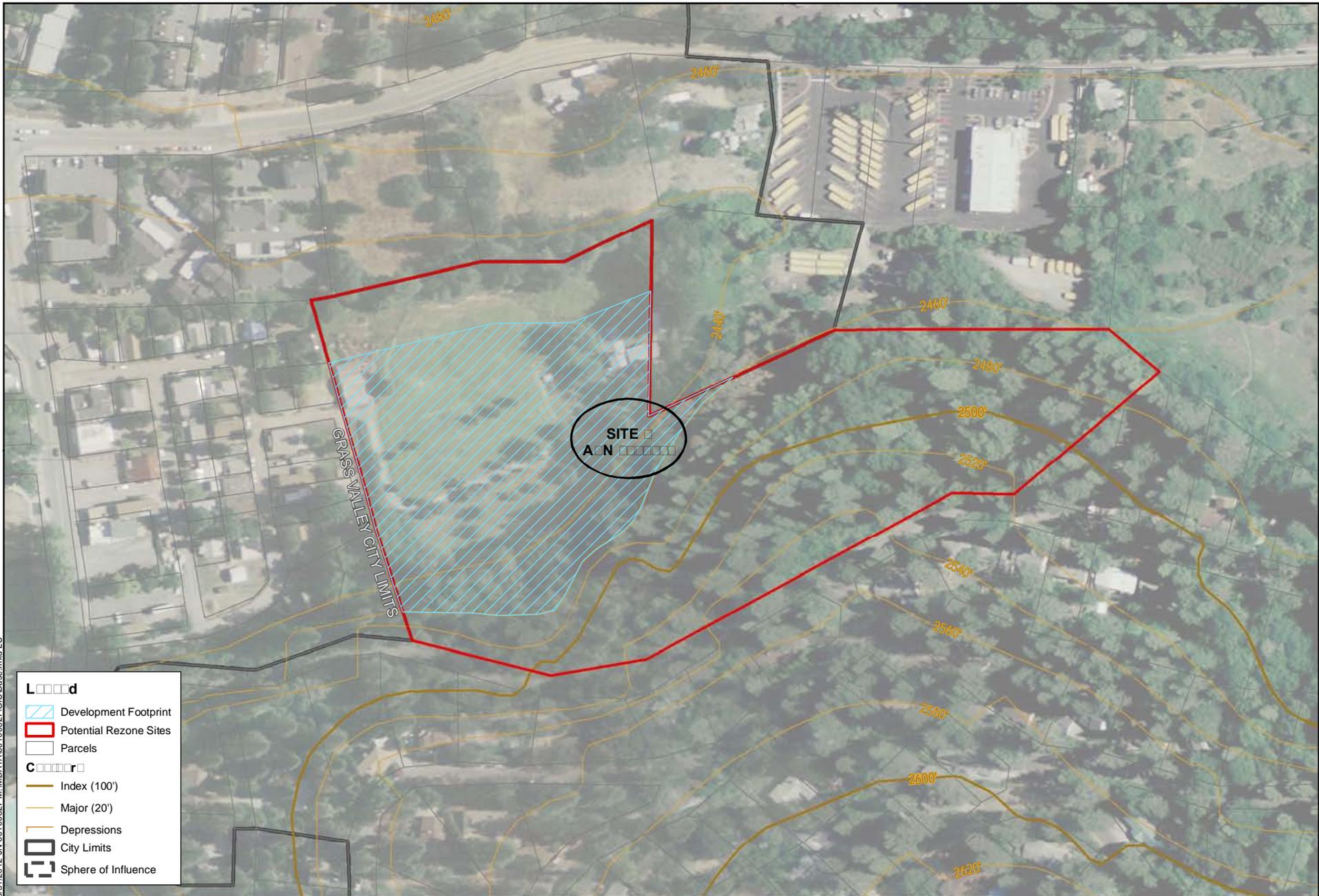
Scoring Factor #7d – Is the site located in a State Responsibility Area (SRA) fire protection area (SLA/LRA)?

The site will be required to comply with standard fire protection requirements applicable to all development in this area. No constraints to developing the site have been identified.

Scoring Factor #7e– Would the site convert important farmlands to a non-agricultural use?

No agricultural land uses are currently onsite and no Prime Farmland or Farmland of statewide or local importance has been identified based on the Department of Conservation Farmland Mapping.

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- L d
- Development Footprint
- Potential Rezone Sites
- Parcels
- C r
- Index (100')
- Major (20')
- Depressions
- City Limits
- Sphere of Influence



Source: Nevada County GIS 2012; ESRI 2012.

COUNTY OF NEVADA
HOUSING ELEMENT REZONE SITE ANALYSIS
Rezone Candidate Sites

County of Nevada

Housing Element Rezone Site Analysis

Field Visit Analysis

Site #2
APN: 09-270-04

The owner of Site 2 has elected to withdraw from the Housing Element Rezone Program subsequent to the analysis being completed. This site remains in the document in the event the property becomes available in the future.



Figure 1 - Site 2: Looking northeast from Orchard Way.

Site Evaluation Criteria

The following site analysis criteria have been developed to provide an understanding of the physical and regulatory opportunities and constraints that would affect future development of the properties.

Criteria #1: Site Location and Jurisdictional Issues

Scoring Factor #1a - Is it located within the Sphere of Influence of another jurisdiction (e.g., City of Grass Valley, Nevada City, etc.)?

The site is located within the Sphere of Influence of the City of Grass Valley.

Scoring Factor #1b - Is the site in vicinity of an existing concentration of development?

The site is located adjacent to a mix of residential, commercial, and office professional uses to the north and east. Larger lot single-family residential uses are located to the south and east. The site is located south of Bennett Street and east of Colfax Avenue.

Scoring Factor #1c – Is site compatible with adjacent jurisdiction’s land use plans?

Yes. No land use conflicts have been identified.

Scoring Factor #1d- Is High Density Housing compatible with surrounding land uses?

Yes, given the mix of existing development in the surrounding area, development of higher density affordable housing would be compatible with the surrounding land uses.

Criteria #2: Site Accessibility

Scoring Factor #2a- Is the site accessible to transportation facility (bus, highway, trail, bike path etc.)?

The site has nearby access to SR-49 located just north of the site. No bike paths or public trails were observed.

Nevada County administers a door-to-door paratransit service for persons with disabilities for trips within the Grass Valley/Nevada City area and nearby communities. The service is provided by Gold Country Telecare, a private non-profit organization, under a contract with the County of Nevada. All paratransit vehicles are equipped with wheelchair lifts and other accessibility features.

The Gold Country Stage Route 3 has a bus stop at Colfax Street and Ophir Street, approximately 0.1 mile from the site. Route 3 brings passengers to the Church and Neal stop which allows riders to connect with other routes including Route 5. Route 5 travels to the Auburn Station which connects with Placer County Transit (which serves Auburn, Rocklin, Sierra College, Roseville Galleria and Sacramento Light Rail), Auburn Transit and Amtrak Thruway bus service as connecting schedules allow.

Scoring Factor #2b – Does the site required construction of roadways or access?

A driveway to an existing single family residence currently serves the site. The driveway would need to be improved for a multi-family development.

Scoring Factor #2b.1- Is the site access/roadway encroachment suitable in terms of safety (site distances, turning movements)

The site has direct access onto Orchard Way. Future development will have to demonstrate that adequate site distance can be provided. No substantial obstacles to achieving the required site distance were identified.

Scoring Factor #2c – Will the site require improvements to existing roadway system (curbs, intersections, stop lights, etc.)?

None are anticipated at this time.

Scoring Factor #2d - Does the site provide reasonable access to persons with mobility limitations?

Some constraints to people with limited mobility have been identified. The streets adjacent to the property are undersized and have no sidewalks or improved shoulders. Existing sidewalks are present west of the site on Colfax heading west.

Scoring Factor #2e – Is the site located adjacent to one or more community facilities (e.g., grocery stores, schools, employment areas, laundromats, day care, medical services, etc.)

The site has a variety of services that are located within a quarter mile of the property including a medical center, a local grocery store, and a preschool. Additional services are located approximately 0.5 mile away on South Auburn Boulevard, and the Historic Core of Grass Valley is located approximately 0.7 mile away.

Criteria #3: Public Services and Utilities

Scoring Factor #3a - Is the property currently served by water and sewer services?

An existing single-family house is currently on the property and it is expected that water service is currently on the property. It is unknown whether the house is connected to sewer or is on a septic system.

Scoring Factor #3b - Distance for water/sewer pipeline have to be extended to serve the property?

These sites are located within the City of Grass Valley Sphere of Influence and will require annexation into the Grass Valley sanitation district. As the sites are currently undeveloped, it is anticipated that some extension or upgrade of sewer lines will be required to connect with the existing Grass Valley sewer lines. Sewer line extensions could be accommodated within Brunswick Road.

Scoring Factor #3c – Will sewer/storm drain require pumping? (gravity fed highest score)

No pumping will be required.

Scoring Factor #3d - Is the site reasonably accessible to sanitation facilities (trash service, etc.)?

Future development on the site would be able to utilize the same trash services as the surrounding properties.

Criteria #4: Natural Resources

Scoring Factor #4a – Are sensitive biological resources currently located on the property?

The site has large trees in southern portion of site provide excellent nesting habitat for a variety of birds and possibly bats. However, this is not considered to represent a significant constraint to development.

Scoring Factor #4b – Are potentially jurisdictional wetlands present on the property?

The site has potential to support wetlands on the property. The flat remnant orchard area supports wetland species. High water table resulting from watercourse along northern boundary.

Scoring Factor #4c - Are any special status species present or are any special-status species likely to occur on the site?

None have been identified onsite.

Scoring Factor #4d - If yes, is avoidance a possibility?

N/A

Scoring Factor #4e – Do any oak woodlands, Landmark Groves, or Landmark Trees occur on the site?

The southern portion of the site contains Sierran mixed forest on areas with steep slope areas onsite. Several large diameter oaks within mixed forest would qualify as Landmark Oaks (any oak 36 inches or greater in diameter at breast height). Potential impacts to oak woodlands and Landmark Oaks can be reduced or avoided through the implementation of an Oak Management Plan. An Oak Management Plan would allow the County to review proposed development prior to construction to ensure that sensitive oak trees and habitat are incorporated into the project design and that potential impacts are minimized to the maximum extent practicable. Impacts

resulting in the loss of landmark oak trees or oak woodlands would require mitigation at a 3:1 ratio.

Criteria #5: Cultural/Historical Resources

Scoring Factor #5a - Are there any known cultural resources on the property or in the immediate vicinity?

None have been identified on site. Record searches show that some cultural resources have been found in the surrounding area. It should be assumed that monitoring during any grading activities will be required during construction.

Scoring Factor #5b - Existing buildings that are over 50 years in age?

No buildings over 50 years old were identified onsite.

Criteria #6: Physical Site Conditions

Scoring Factor #6a - Excessive Slope conditions on the site?

The southern portion of the site has areas with slopes 30% or greater. These areas also support dense mixed forest areas and would likely be avoided.

Scoring Factor #6b – Is the parcel of adequate size to accommodate a minimum 16 units per site?

The parcel is approximately 11 acres in size and is anticipated to have sufficient area to accommodate 16 units per acre density development.

Scoring Factor #6c – Does the site provide sufficient size and shape to accommodate parking, usable open space, site access?

The site is of a sufficient size to accommodate parking, site access, and usable open space for an affordable housing development with a density of 16 dwelling units per acre.

Scoring Factor #6d- Do features exist that may result in a substantial amount of grading?

The site does have areas of steep slope which would require more grading than portions of the site that are relatively flat. However, it is anticipated that these steeper areas will be avoided to minimize impacts to biological resources and minimize grading.

Scoring Factor #6e - Are there any geotechnical constraints?

No extraordinary geotechnical constraints have been identified based on a preliminary geotechnical investigation of the site. Typical construction measures to address geotechnical conditions common to all development in the area will be required.

Scoring Factor #6f – Is the site located within 100 year flood plain?

The northern portion of the site is located within a 100-year floodplain. A portion of the site is Mapped Zone A on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map. Future development on the site will have to consider the floodplain constraints and raise the development above the floodplain elevation.

Scoring Factor #6g – Does the site require extensive fuel modification or site preparation to mitigate exposure to hazards?

No fuel modification requirements beyond what is typically required for residential development is anticipated for this site.

Scoring Factor #6h – Does the site have any hazardous materials or hazardous historical uses (mining, dumping, sewage disposal) that will require remediation prior to development?

The site is previously undeveloped, no hazardous materials have been identified onsite that would result in a constraint to developing the site. Based on a records check with ENVIROSTOR database maintained by the California Department of Toxics Control, no records of hazardous spills or clean-ups have occurred on the site.

Criteria #7: Regulatory Conditions

Scoring Factor #7a- Existing development on site (any improvements)?

The site has one existing single family residence and some out buildings.

Scoring Factor #7b – Does the site meet minimum lot size, setbacks, height limitations, that apply the property.

The site is zoned R3 High Density Residential (3.62 acres) and R1 Single Family Residential (approximately 7.5 acres) with a residential density of 20 dwelling units per acre and 4 dwelling units per units per acre, respectively. The implementation of the R3-RH housing overlay zone, would permit an increase in density for affordable housing on this site, and would provide specific designations for setbacks, and height limitations.

Scoring Factor #7c – Does the site require any special permits or environmental clearances?

No special permits or environmental clearance would be required if future development avoids the wetland areas and builds outside of the floodplain elevation.

Scoring Factor #7d – Is the site located in a State Responsibility Area (SRA) fire protection area?

The site will be required to comply with standard fire protection requirements applicable to all development in this area. No constraints to developing the site have been identified.

Scoring Factor #7e – Would the site convert important farmlands to a non-agricultural use?

The property appears to have remnants of a former orchard. However, no agricultural land uses are currently onsite and no Prime Farmland or Farmland of statewide or local importance has been identified based on the Department of Conservation Farmland Mapping.



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Source: Nevada County GIS 2012; ESRI 2012.



9/6/12 JN 60-100827-18669

COUNTY OF NEVADA
2019-2014 HOUSING ELEMENT REZONE PROGRAM IMPLEMENTATION EIR

Rezone Candidate Sites

County of Nevada

Housing Element Rezone Site Analysis

Field Visit Analysis

Site #3
APN: 29-350-12



Figure 1 - Site 3: Looking north from La Barr Meadows Road at the southwest corner of the property.

Site Evaluation Criteria

The following site analysis criteria have been developed to provide an understanding of the physical and regulatory opportunities and constraints that would affect future development of the properties.

Criteria #1: Site Location and Jurisdictional Issues

Scoring Factor #1a - Is it located within the Sphere of Influence of another jurisdiction (e.g., City of Grass Valley, Nevada City, etc.)?

The site is located within the Sphere of Influence of the City of Grass Valley.

Scoring Factor #1b - Is the site in vicinity of an existing concentration of development?

The site is located adjacent to a mix of commercial office professional uses to the north and light industrial uses to the south. State Route 49 is located just to the west of the site. To the northeast is the Empire Mine State Historic Park.

Scoring Factor #1c – Is the site compatible with adjacent jurisdiction’s land use plans?

No land use conflicts have been identified.

Scoring Factor #1d- Is High Density Housing compatible with surrounding land uses?

Yes, given the mix of existing development in the surrounding area, development of higher density affordable housing would be compatible with the surrounding land uses.

Criteria #2: Site Accessibility

Scoring Factor #2a- Is the site accessible to transportation facility (bus, highway, trail, bike path etc.)?

The site has nearby access to SR-49 located just north of the site. No bike paths or public trails were observed.

Nevada County administers a door-to-door paratransit service for persons with disabilities for trips within the Grass Valley/Nevada City area and nearby communities. The service is provided by Gold Country Telecare, a private non-profit organization, under a contract with the County of Nevada. All paratransit vehicles are equipped with wheelchair lifts and other accessibility features.

No Gold Country Stage routes were identified within 0.5 mile of the site.

Scoring Factor #2b – Does the site require construction of roadways or access?

An access driveway from La Barr Meadows Road onto the site would be required. No offsite roadways or driveways would be needed or required.

Scoring Factor #2b.1- Is the site access/roadway encroachment suitable in terms of safety (site distances, turning movements)

The site has direct access onto La Barr Meadows Road. Future development will have to demonstrate that adequate site distance can be provided. La Barr Meadows Road does have some horizontal curves along the site frontage, but no substantial obstacles to achieving the required site distance were identified.

Scoring Factor #2c – Will the site require improvements to existing roadway system (curbs, intersections, stop lights, etc.)?

None are anticipated at this time.

Scoring Factor #2d - Does the site provide reasonable access to persons with mobility limitations?

Some constraints to people with limited mobility have been identified. La Barr Meadows Road is a two lane road with no improved shoulders. Existing sidewalks are present north of the site extending to the McKnight Way intersection. Sidewalks and cross-walks are present on McKnight Way to the west towards the existing retail center located between SR 49 and Freeman Lane.

Scoring Factor #2e – Is the site located adjacent to one or more community facilities (e.g., grocery stores, schools, employment areas, laundromats, day care, medical services, etc.)

The site is located less than 0.5 mile to stores and other retail services such as a Kmart store, Wells Fargo bank, and other retail shops and restaurants.

Criteria #3: Public Services and Utilities

Scoring Factor #3a - Is the property currently served by water and sewer services?

There is no existing development onsite, therefore, it is assumed that there is no water and sewer service to the site. Existing facilities are located within La Barr Meadows Road.

Scoring Factor #3b - Distance for water/sewer pipeline have to be extended to serve the property?

A water line extension would be required to develop this site. The closest water main is located with McKnight Way.

This site is located with the City of Grass Valley Sphere of Influence and will require annexation into the Grass Valley sanitation district. As the sites are currently undeveloped, it is anticipated that some extension of sewer lines will be required to connect with the existing Grass Valley sewer lines. Sewer line extensions could be accommodated within La Barr Meadows Road.

Scoring Factor #3c – Will sewer/storm drain require pumping? (gravity fed highest score)

No pumping will be required.

Scoring Factor #3d - Is the site reasonably accessible to sanitation facilities (trash service, etc.)?

Future development on the site would be able to utilize the same trash services as the surrounding properties.

Criteria #4: Natural Resources

Scoring Factor #4a – Are sensitive biological resources currently located on the property?

No sensitive biological resources that would preclude development have been identified. The large trees and low shrubs provide suitable nesting habitat for nesting raptors and songbirds. Standard pre-construction survey mitigation measure would apply. Several large diameter oaks that would qualify as Landmark Oaks were identified. This is not considered to represent a significant constraint to development.

Scoring Factor #4b – Are potentially jurisdictional wetlands present on the property?

The southwest portion of site along La Barr Meadows Road supports a small area with a mix of upland and wetland species – a potential wetland seep. If jurisdictional, it would represent a minor constraint to development and could be avoided.

Scoring Factor #4c - Are any special status species present or are any special-status species likely to occur on the site?

None have been identified onsite.

Scoring Factor #4d - If yes, is avoidance a possibility?

N/A

Scoring Factor #4e – Do any oak woodlands, Landmark Groves, or Landmark Trees occur on the site?

The site has Sierran mixed forest on the elevations. Several large diameter oaks within the mixed Sierran forest would qualify as Landmark Oaks (any oak 36 inches or greater in diameter at breast height). Potential impacts to oak woodlands and Landmark Oaks can be reduced or avoided through the implementation of an Oak Management Plan. An Oak Management Plan would allow the County to review proposed development prior to construction to ensure that sensitive oak trees and habitat are incorporated into the project design and that potential impacts are minimized to the maximum extent practicable. Impacts resulting in the loss of landmark oak trees or oak woodlands would require mitigation at a 3:1 ratio.

Criteria #5: Cultural/Historical Resources

Scoring Factor #5a - Are there any known cultural resources on the property or in the immediate vicinity?

None have been identified on site. Record searches show that some cultural resources have been found in the surrounding area. In the undisturbed portion of the property, 13 prospect pits were observed, but no prehistoric period resources were identified. Based on the field survey, cultural resources do not present a constraint to development. It should be assumed that monitoring during any grading activities will be required during construction.

Scoring Factor #5b - Existing buildings that are over 50 years in age?

No buildings over 50 years old were identified onsite.

Criteria #6: Physical Site Conditions

Scoring Factor #6a - Excessive Slope conditions on Site?

The site is of moderate slope, but no substantial constraints to development were identified.

Scoring Factor #6b – Is the parcel of adequate size to accommodate a minimum 16 units per site?

The parcel is approximately 11.4 acres in size and is anticipated to have sufficient area to accommodate 16 units per acre density development.

Scoring Factor #6c – Does the site provide sufficient size and shape to accommodate parking, usable open space, site access?

The site is of a sufficient size to accommodate parking, site access, and usable open space for an affordable housing development with a density of 16 dwelling units per acre.

Scoring Factor #6d- Do features exist that may result in a substantial amount of grading?

The site does have a moderate slope which will require more grading than a site that is relatively flat. However, the site does not require a substantial amount of grading that will significantly constrain development of the site.

Scoring Factor #6e - Are there any geotechnical constraints?

No extraordinary geotechnical constraints have been identified based on a preliminary geotechnical investigation of the site. Because of the site's proximity to the Empire Mine site, some soil remediation activities may be required on the surrounding properties. This is not considered a significant constraint on development for this site. Typical construction measures to address geotechnical conditions common to all development in the area will be required.

Scoring Factor #6f – Is the site located within 100 year flood plain?

No.

Scoring Factor #6g – Does the site require extensive fuel modification or site preparation to mitigate exposure to hazards?

No fuel modification requirements beyond what is typically required for residential development is anticipated for this site.

Scoring Factor #6h – Does the site have any hazardous materials or hazardous historical uses (mining, dumping, sewage disposal) that will require remediation prior to development?

The site is previously undeveloped, no hazardous materials have been identified onsite that would result in a constraint to developing the site. Based on a records check with ENVIROSTOR database maintained by the California Department of Toxics Control, no records of hazardous spills or clean-ups have occurred on the site.

Criteria #7: Regulatory Conditions

Scoring Factor #7a- Existing development on site (any improvements)?

The site is undeveloped.

Scoring Factor #7b – Does the site meet minimum lot size, setbacks, height limitations, that apply the property.

Currently, the site is undeveloped. The site is zoned BP (Business Park), with a residential density of 4 dwelling units per units per acre. The implementation of the R3-RH housing overlay zone, would permit an increase in density for affordable housing on this site, and would provide specific designations for setbacks, and height limitations.

Scoring Factor #7c – Does the site require any special permits or environmental clearances?

No special permits or environmental clearances have been identified at this time.

Scoring Factor #7d – Is the site located in a State Responsibility Area (SRA) fire protection area ?

The site will be required to comply with standard fire protection requirements applicable to all development in this area. No constraints to developing the site have been identified.

Scoring Factor #7e – Would the site convert important farmlands to a non-agricultural use?

No agricultural land uses are currently onsite and no Prime Farmland or Farmland of statewide or local importance has been identified based on the Department of Conservation Farmland Mapping.



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Source: Nevada County GIS 2012; ESRI 2012.



9/6/12 JN 60-100827-18669

COUNTY OF NEVADA
2019-2014 HOUSING ELEMENT REZONE PROGRAM IMPLEMENTATION EIR

Rezone Candidate Sites

County of Nevada

Housing Element Rezone Site Analysis

Field Visit Analysis

Sites #4-8

APNs: 4) 35-412-15, 5) 35-412-17, 6) 35-412-18, 7) 35-412-19, 8) 35-412-21

These five sites are being evaluated together because the sites 4-7 are contiguous and site 8 is located directly across Brunswick Road from site 4. Because of their proximity, the sites have very similar characteristics and have the potential to be developed as one site. Sites 4-7 are under the same ownership.



Figure 1 – Site 4 Looking west from Brunswick Road In the background are sites 5 and 6.



Figure 2 – Site 7 Looking northeast from Brunswick Road.



Figure 3 – Site 8 Looking east from Brunswick Road.

Site Evaluation Criteria

The following site analysis criteria have been developed to provide an understanding of the physical and regulatory opportunities and constraints that would affect future development of the properties.

Criteria #1: Site Location and Jurisdictional Issues

Scoring Factor #1a - Is it located within the Sphere of Influence of another jurisdiction (e.g., City of Grass Valley, Nevada City, etc.)?

Site 7 is located on the City of Grass Valley City limits. All properties are within the City of Grass Valley Sphere of Influence.

Scoring Factor #1b - Is the site in vicinity of an existing concentration of development?

Existing development in the vicinity of the sites includes office and professional uses including medical offices located north of the sites. Further north along Brunswick road are a wide range of commercial and retail uses. To the east of the sites are multi-family residences along Sutton Way. To the south and east are a mix of large lot single family residences with some equestrian uses.

Scoring Factor #1c – Is the site compatible with adjacent jurisdiction’s land use plans?

Yes. No land use conflicts have been identified.

Scoring Factor #1d- Is High Density Housing compatible with surrounding land uses?

Yes, given the mix of existing development in the surrounding area, development of higher density affordable housing would be compatible with the surrounding land uses.

Criteria #2: Site Accessibility

Scoring Factor #2a- Is the site accessible to transportation facility (bus, highway, trail, bike path etc.)?

The site has nearby access to SR-49 located just north of the site. No bike paths or public trails were observed. The site is close to the central area of Grass Valley.

Nevada County administers a door-to-door paratransit service for persons with disabilities for trips within the Grass Valley/Nevada City area and nearby communities. The service is provided by Gold Country Telecare, a private non-profit organization, under a contract with the County of Nevada. All paratransit vehicles are equipped with wheelchair lifts and other accessibility features.

Gold Country Stage Route 4 has a stop that at Glenbrook Shopping Center that connects with Sierra College and the Stage Coach Depot in Grass Valley. Route 4 brings passengers to the Church and Neal stop which allows riders to connect with other routes including Route 5. Route 5 travels to the Auburn Station which connects with Placer County Transit (which serves Auburn, Rocklin, Sierra College, Roseville Galleria and Sacramento Light Rail), Auburn Transit and Amtrak Thruway bus service as connecting schedules allow.

Scoring Factor #2b – Does the site require construction of roadways or access?

An access driveway from Brunswick Road onto the site would be required. All sites have frontage on Brunswick Road except of Site 6. However, Site 6 is under the same ownership as Sites 4 and 5 so it is assumed access from those lots to Brunswick Road can be accommodated. No offsite roadways or driveways would be needed or required.

Scoring Factor #2b.1- Is the site access/roadway encroachment suitable in terms of safety (site distances, turning movements)

The sites have direct access onto Brunswick Road. Future development will have to demonstrate that adequate site distance can be provided. Brunswick Road does have some horizontal curve along the frontage of Sites 4 and 8, but no substantial obstacles to achieving the required site distance were identified. It is anticipated that Sites 4 through 7 will need to have a shared driveway to minimize the number of driveways coming off Brunswick Road.

Scoring Factor #2c – Will the site require improvements to existing roadway system (curbs, intersections, stop lights, etc.)?

No physical improvements are required with regard to site access. However, it should be noted that given the collective size of these sites (approximately 45 acres), it is possible that a large number of units could be developed on these sites (450 to 500 units). If these sites were to be developed with that many units, it may require some traffic improvements along Brunswick Road and at intersections (including freeway ramps at SR 49) to the north at Sutton Way.

Scoring Factor #2d - Does the site provide reasonable access to persons with mobility limitations?

Some constraints to people with limited mobility have been identified. Brunswick Road is a two lane road with some improved shoulders. Existing sidewalks are present north of the site extending from Town Talk Road north to the Sutton Way intersection. Sidewalks and cross-walks are present on Sutton Way to the west towards the existing retail centers located on the north and south sides of Brunswick Road.

Scoring Factor #2e – Is the site located adjacent to one or more community facilities (e.g., grocery stores, schools, employment areas, laundromats, day care, medical services, etc.)

The site is located less than 0.5 mile from a Safeway grocery store and other retail establishments and restaurants that are located along Brunswick Road just north of the sites as well as the Glenbrook Shopping Center located at 720 Sutton Way. Other services include banking facilities, and the Grass Valley Department of Motor Vehicles office. Nearby services also include CVS and Rite drug stores that are also within 0.5 mile from the site. Medical offices are located less than 0.25 mile to the north of the sites.

Criteria #3: Public Services and Utilities

Scoring Factor #3a - Is the property currently served by water and sewer services?

There is no existing development on the sites, therefore, it is assumed there is no water and sewer service to the sites. Existing facilities are located within Brunswick Road.

Scoring Factor #3b - Distance for water/sewer pipeline have to be extended to serve the property?

These sites are located with the City of Grass Valley Sphere of Influence and will require annexation into the Grass Valley sanitation district. As the sites are currently undeveloped, it is anticipated that some extension of sewer lines will be required to connect with the

existing Grass Valley sewer lines. Sewer line extensions could be accommodated within Brunswick Road.

All sites have frontage on Brunswick Road except of Site 6. However, Site 6 is under the same ownership as Sites 4 and 5 so it is assumed access from those sites to Brunswick Road can be accommodated.

Scoring Factor #3c – Will sewer/storm drain require pumping? (gravity fed highest score)

No pumping will be required.

Scoring Factor #3d - Is the site reasonably accessible to sanitation facilities (trash service, etc.)?

Future development on the site would be able to utilize the same trash services as the surrounding properties.

Criteria #4: Natural Resources

Scoring Factor #4a – Are sensitive biological resources currently located on the property?

No sensitive biological resources that would preclude development have been identified. Sites 4 through 8 have large trees and understory shrubs that provide suitable nesting habitat for raptors and songbirds. Standard pre-construction survey mitigation measures would apply to avoid impacts. This is not considered to represent a significant constraint to development.

Scoring Factor #4b – Are potentially jurisdictional wetlands present on the property?

Site 4 – A tributary to Wolf Creek runs along extreme southeast parcel boundary; this is considered a minimal constraint to use of site.

Site 8 – A tributary to Wolf Creek runs along the extreme southeast parcel boundary; intermittent stream bisects the west side of the site parallel with Brunswick and has associated riparian vegetation. Field observations noted wet areas (potential seeps) at the center of the site that support hydrophytic vegetation and bisect site northeast to northwest. The source of seep hydrology should be investigated to determine if it is natural or manmade.

Scoring Factor #4c - Are any special status species present or are any special-status species likely to occur on the site?

None have been identified onsite.

Scoring Factor #4d - If yes, is avoidance a possibility?

N/A

Scoring Factor #4e – Do any oak woodlands, Landmark Groves, or Landmark Trees occur on the site?

None have been identified onsite.

Criteria #5: Cultural/Historical Resources

Scoring Factor #5a - Are there any known cultural resources on the property or in the immediate vicinity?

No prehistoric resources have been identified on sites 4-7. One prehistoric site (a boulder with 17 surface mortar cups) was identified on Site 8. No other artifacts associated with the mortar feature were observed during the field visit. Avoidance of this feature recommended. This is not considered a significant constraint on development. Record searches show that some cultural resources have been found in the surrounding area. It should be assumed that monitoring during any grading activities will be required during construction.

Scoring Factor #5b - Existing buildings that are over 50 years in age?

No buildings over 50 years old were identified onsite.

Criteria #6: Physical Site Conditions

Scoring Factor #6a - Excessive Slope conditions on Site?

The site is of moderate slope, but no substantial constraints to development were identified.

Scoring Factor #6b – Is the parcel of adequate size to accommodate a minimum 16 units per site?

Combined the five sites have a total acreage of approximately 49 acres, with parcels sizes ranging from 5.6 to 11.5 acres in size. The sites individually and collectively are anticipated to have sufficient area to accommodate 16 units per acre density development.

Scoring Factor #6c – Does the site provide sufficient size and shape to accommodate parking, usable open space, site access?

The sites are of a sufficient size to accommodate parking, site access, and usable open space for an affordable housing development with a density of 16 dwelling units per acre.

Scoring Factor #6d- Do features exist that may result in a substantial amount of grading?

The site does have a moderate slope which will require more grading than a site that is relatively flat. However, the site does not require a substantial amount of grading that will significantly constrain development of the site.

Scoring Factor #6e - Are there any geotechnical constraints?

No extraordinary geotechnical constraints have been identified based on a preliminary geotechnical investigation of the site. Typical construction measures to address geotechnical conditions common to all development in the area will be required.

Scoring Factor #6f – Is the site located within 100 year flood plain?

No.

Scoring Factor #6g – Does the site require extensive fuel modification or site preparation to mitigate exposure to hazards?

No fuel modification requirements beyond what is typically required for residential development is anticipated for this site.

Scoring Factor #6h – Does the site have any hazardous materials or hazardous historical uses (mining, dumping, sewage disposal) that will require remediation prior to development?

The sites are previously undeveloped, no hazardous materials have been identified on any of the sites that would result in a constraint to developing the site. Based on a records check with ENVIROSTOR database maintained by the California Department of Toxics Control, no records of hazardous spills or clean-ups have occurred on any of the sites.

Criteria #7: Regulatory Conditions

Scoring Factor #7a- Existing development on site (any improvements)?

The sites are undeveloped.

Scoring Factor #7b – Does the site meet minimum lot size, setbacks, height limitations, that apply the property.

Currently, the sites are undeveloped. Sites 4-7 are zoned R2-PD (Medium Density Residential – Planned Development) with a residential density of 6 dwelling units per acre and Site 8 is zoned RA-1.5 (Residential Agriculture), with a residential density of 1.5 dwelling units per acre. The implementation of the R3-RH housing overlay zone, would permit an increase in density for affordable housing on this site, and would provide specific designations for setbacks, and height limitations.

Scoring Factor #7c – Does the site require any special permits or environmental clearances?

No special permits or environmental clearances have been identified at this time.

Scoring Factor #7d – Is the site located in a State Responsibility Area (SRA) fire protection area?

The site will be required to comply with standard fire protection requirements applicable to all development in this area. No constraints to developing the site have been identified.

Scoring Factor #7e – Would the site convert important farmlands to a non-agricultural use?

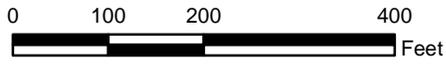
No agricultural land uses are currently onsite and no Prime Farmland or Farmland of statewide or local importance has been identified based on the Department of Conservation Farmland Mapping.



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- [Blue Hatched Box] Development Footprint
- [Red Outline Box] Potential Rezone Sites
- [White Box] Parcels
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- [Yellow Line] Index (100')
- [Orange Line] Major (20')
- [Brown Line] Depressions
- [Black Outline Box] City Limits
- [Dashed Box] Sphere of Influence

Source: Nevada County GIS 2012; ESRI 2012.



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COUNTY OF NEVADA
2019-2014 HOUSING ELEMENT REZONE PROGRAM IMPLEMENTATION EIR

Rezone Candidate Sites



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- Development Footprint
- Potential Rezone Sites
- Parcels
- C** □ □ □ □ □ **r** □
- Index (100')
- Major (20')
- Depressions
- City Limits
- Sphere of Influence

Source: Nevada County GIS 2012; ESRI 2012.



9/6/12 JN 60-100827-18669

COUNTY OF NEVADA
2019-2014 HOUSING ELEMENT REZONE PROGRAM IMPLEMENTATION EIR

Rezone Candidate Sites

County of Nevada

Housing Element Rezone Site Analysis

Field Visit Analysis

Sites #9-12

APNs: 9) 51-120-06, 10) 51-150-29, 11) 51-151-62, 12) 51-370-02

These four sites are being evaluated together because the sites are contiguous or very close together. Because of their proximity, the sites have very similar characteristics and have the potential to be developed as one site. Sites 9, 10, and 12 are under the same ownership.



Figure 1 - Site 9 Looking north northeast from Penn Valley Drive.



Figure 2 - Site 10 Looking north from the southwest property corner.



Figure 3 - Site 11 Looking northeast from the end of Broken Oak Court.



Figure 4 - Site 12 Looking southeast from SR 20.

Site Evaluation Criteria

The following site analysis criteria have been developed to provide an understanding of the physical and regulatory opportunities and constraints that would affect future development of the properties.

Criteria #1: Site Location and Jurisdictional Issues

Scoring Factor #1a - Is it located within the Sphere of Influence of another jurisdiction (e.g., City of Grass Valley, Nevada City, etc.)?

These sites are located in the community of Penn Valley in the unincorporated area of Nevada County and not within a Sphere of Influence of another jurisdiction.

Scoring Factor #1b - Is the site in vicinity of an existing concentration of development?

The sites are located adjacent to an existing mobile home park, post office, and self storage business. Other uses in the area include a mix of single family residential, civic, commercial and light industrial businesses.

Scoring Factor #1c – Is the site compatible with adjacent jurisdiction’s land use plans?

The sites are not located next to an adjacent jurisdiction’s plans.

Scoring Factor #1d- Is High Density Housing compatible with surrounding land uses?

Yes, given the mix of existing development in the surrounding area, development of higher density affordable housing would be compatible with the surrounding land uses.

Criteria #2: Site Accessibility

Scoring Factor #2a- Is the site accessible to transportation facility (bus, highway, trail, bike path etc.)?

These sites have nearby access to SR-20 located just north of the properties. A separated pedestrian and bicycle path runs on the northern side of Penn Valley Drive from Western Gateway Park east to just east of Pheasant Lane where it crosses to the south side of the Penn Valley Drive. The path continues east to Spenceville Road where it continues in both north and south directions. The path is with 0.25 mile of Sites 9-12.

Nevada County administers a door-to-door paratransit service for persons with disabilities for trips within the Grass Valley/Nevada City area and nearby communities. The service is provided by Gold Country Telecare, a private non-profit organization, under a contract with the County of Nevada. All paratransit vehicles are equipped with wheelchair lifts and other accessibility features.

Gold Country Stage Route 6 has a bus stop at Penn Valley Drive and Spenceville Road (approximately 0.2 mile from the sites) and connects to the main depot in Grass Valley, which provides access to other destinations such as Sierra College and other businesses in Grass Valley and provides a connection to Route 5. Route 5 travels to Auburn Station which connects with Placer County Transit (which serves Auburn, Rocklin, Sierra College, Roseville

Galleria and Sacramento Light Rail), Auburn Transit and Amtrak Thruway bus service as connecting schedules allow.

Scoring Factor #2b – Does the site require construction of roadways or access?

An access driveway from Penn Valley Drive onto the site would be required. Sites 9 and 10 have frontage Penn Valley Drive. It is anticipated that Sites 9 and 10 will need to have a shared driveway to minimize the number of driveways coming off Penn Valley Drive. Site 12 will likely need to be accessed from Sites 10 and 11 or an alternative access as it is anticipated that Caltrans will not accept a direct access point on SR 20. Site 11 is located at the terminus of Broken Oak Court which connects to Penn Valley Drive to the north. No offsite roadways or driveways would be needed or required.

Scoring Factor #2b.1- Is the site access/roadway encroachment suitable in terms of safety (site distances, turning movements)

Site 10 has direct access onto Penn Valley Drive, as does Site 10 though a panhandle driveway. Future development will have to demonstrate that adequate site distance can be provided. Site 12 is expected to take access from Sites 9 or 10 and not onto SR 20. Penn Valley Drive has few if any horizontal curve in this section of roadway, and no substantial obstacles to achieving the required site distance were identified. Site 11 will take access from Broken Oak Court and will not require any frontage improvements to Penn Valley Drive.

Scoring Factor #2c – Will the site require improvements to existing roadway system (curbs, intersections, stop lights, etc.)?

No physical improvements are required with regard to site access. However, it should be noted that given the collective size of these sites (approximately 23 developable acres), it is possible that up to 300-350 units could be developed at these sites. If these sites were to be developed with that many units, it may require some traffic improvements along Penn Valley Drive and at intersections to the east at Spencerville Road and at the freeway ramps at SR 20.

Scoring Factor #2d - Does the site provide reasonable access to persons with mobility limitations?

Some constraints to people with limited mobility have been identified. Penn Valley Drive is a two lane road with no improved shoulders. No sidewalks were identified in the surrounding area.

Scoring Factor #2e – Is the site located adjacent to one or more community facilities (e.g., grocery stores, schools, employment areas, laundromats, day care, medical services, etc.)

The sites are located next to community facilities. The sites are located adjacent to a US Post Office. The Penn Valley Shopping Center, Wells Fargo Bank, and a bus stop are located approximately 0.25 mile from the sites to the east. The Western Gateway Regional Park is located approximately 0.5 mile to the west. The Ready Springs Elementary School is located 0.63 mile to the southeast.

Criteria #3: Public Services and Utilities

Scoring Factor #3a - Is the property currently served by water and sewer services?

There is no existing development on the sites, therefore, it is assumed that currently there is no water and sewer service to the sites. This area is provided water service by the Nevada Irrigation District. Sanitation service is provided by the County of Nevada. Currently there is no capacity in sanitation system for these sites. A Module Unit would need to be constructed to provide additional capacity

Scoring Factor #3b - Distance for water/sewer pipeline have to be extended to serve the property?

Sites 9 and 10 have frontage along Penn Valley Road and no offsite extension of water or sewer pipelines is required. Site 12 would have to extend water or sewer pipelines through Sites 9 or 10. Site 11 would extend water and sewer lines onsite from Broken Oak Court. The County of Nevada has identified the extension of the Wildwood sewer line as the preferred alternative to provide additional wastewater treatment capacity to the Penn Valley Area. The County is currently seeking funding sources for the project. Site 12 is currently outside of the sanitation district and would be required to be annexed into the site prior to development of any affordable housing.

Scoring Factor #3c – Will sewer/storm drain require pumping? (gravity fed highest score)

No pumping will be required.

Scoring Factor #3d - Is the site reasonably accessible to sanitation facilities (trash service, etc.)?

Future development on the sites would be able to utilize the same sanitation services as the surrounding properties.

Criteria #4: Natural Resources

Scoring Factor #4a – Are sensitive biological resources currently located on the property?

Sites 9 and 12 have a portion of Squirrel Creek that runs across a portion of the property. These areas would have to be avoided. No drainages are present on Sites 10 and 11.

Site 9 - – Elderberries growing in the stream zone could provide habitat for valley elderberry longhorn beetle (VELB), but most stems are less than 1” diameter.

Scoring Factor #4b – Are potentially jurisdictional wetlands present on the property?

Sites 9 and 12 have potentially jurisdictional wetlands associated with Squirrel Creek that traverse the northern portion of Site 9 and the south eastern portion of Site 12.

Site 9 – This site has an extensive wetland swale complex covers the south half of site and is a significant constraint to development. Site 10 receives stormwater from developed areas to south and west. There are dual 36-inch culverts that convey water into stream channel at Penn Valley Drive.

Site 10 – There is a small wet area in the southwest corner; approximately half of the site is of marginal potential and could be jurisdictional. This site receives drainage from developed areas to the south.

Site 11 – This site contains a possible small seasonal wetland at north-center of site. A drainage basin runs along northern boundary of site, but is likely isolated, so not likely in US Army Corps jurisdiction (it may be considered waters of the state, and under Regional Water Quality Control Board jurisdiction). These features represent a minor constraint to development.

Site 12 – There is a low to moderate potential for seasonal wetlands in several locations. Intermittent stream channel and wetland swale bisect the site north-south following woodland bands.

Scoring Factor #4c - Are any special status species present or are any special-status species likely to occur on the site?

None have been identified onsite.

Scoring Factor #4d - If yes, is avoidance a possibility?

Jurisdictional areas on Sites 9 and 12 can be avoided.

Scoring Factor #4e – Do any oak woodlands, Landmark Groves, or Landmark Trees occur on the site?

No oak woodlands or Landmark Oaks were identified on Site 9. Site 12 is the only site of this group with an oak woodland oak woodlands (hardwood tree groves with 33+% canopy closure), which covers approximately 25% of the site. Sites 10, 11, and 12 have scattered Landmark Oaks onsite. A Landmark Oak is any oak 36 inches or greater in diameter at breast height. Potential impacts to oak woodlands and Landmark Oaks can be reduced or avoided through the implementation of an Oak Management Plan. An Oak Management Plan would allow the County to review proposed development prior to construction to ensure that sensitive oak trees and habitat are incorporated into the project design and that potential impacts are minimized to the maximum extent practicable. Impacts resulting in the loss of landmark oak trees or oak woodlands would require mitigation at a 3:1 ratio.

Criteria #5: Cultural/Historical Resources

Scoring Factor #5a - Are there any known cultural resources on the property or in the immediate vicinity?

None have been identified on Sites 9-11 during the field investigation. A small granitic boulder with a single mortar cup was identified on Site 13 during the field investigation. There were not artifacts found in association of the bedrock mortar feature. Additional surveys or avoidance of the site are recommended. This is not considered to be a significant constraint on development. Record searches show that some cultural resources have been found in the surrounding area. It should be assumed that monitoring during any grading activities will be required during construction.

Scoring Factor #5b - Existing buildings that are over 50 years in age?

No buildings over 50 years old were identified onsite.

Criteria #6: Physical Site Conditions

Scoring Factor #6a - Excessive Slope conditions on Site?

All of the sites are relatively flat with little to no slope onsite.

Scoring Factor #6b – Is the parcel of adequate size to accommodate a minimum 16 units per site?

Combined the four sites have a total acreage of approximately 34 acres, with parcels sizes ranging from 3 to 20 acres in size. The sites individually and collectively are anticipated to have sufficient area to accommodate 16 units per acre density development.

Scoring Factor #6c – Does the site provide sufficient size and shape to accommodate parking, usable open space, site access?

The sites are of a sufficient size to accommodate parking, site access, and usable open space for an affordable housing development with a density of 16 dwelling units per acre.

Scoring Factor #6d- Do features exist that may result in a substantial amount of grading?

The sites have very little slope which will require minimal grading. However, the site does not require a substantial amount of grading that will significantly constrain development of the site.

Scoring Factor #6e - Are there any geotechnical constraints?

No extraordinary geotechnical constraints have been identified based on a preliminary geotechnical investigation of the site. Typical construction measures to address geotechnical conditions common to all development in the area will be required.

Scoring Factor #6f – Is the site located within 100 year flood plain?

A portion of Sites 9 and 12 are within the 100-year flood plain in the areas where Squirrel Creek traverses the site. Site 9 is mapped as Zones X, A and D on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps. Site 12 is mapped Zones X and A. Sites 10 and 11 are not within a 100-year flood plain.

Scoring Factor #6g – Does the site require extensive fuel modification or site preparation to mitigate exposure to hazards?

No fuel modification requirements beyond what is typically required for residential development is anticipated for this site.

Scoring Factor #6h – Does the site have any hazardous materials or hazardous historical uses (mining, dumping, sewage disposal) that will require remediation prior to development?

The sites are previously undeveloped, no hazardous materials have been identified on any of the sites that would result in a constraint to developing the site. Based on a records check with ENVIROSTOR database maintained by the California Department of Toxics Control, no records of hazardous spills or clean-ups have occurred on any of the sites.

Criteria #7: Regulatory Conditions

Scoring Factor #7a- Existing development on site (any improvements)?

The sites are undeveloped.

Scoring Factor #7b – Does the site meet minimum lot size, setbacks, height limitations, that apply the property.

Currently, the sites are undeveloped. Sites 9 and 10 are zoned C2-SP (Community Commercial) with a residential density of 4 dwelling units per acre and Site 11 is zoned R2-SP (Medium Density Residential), with a residential density of 6 dwelling units per units per acre. Site 12 is zoned IDR-SP (Interim Development Reserve) with a density of one dwelling unit per acre. The implementation of the R3-RH housing overlay zone, would permit an increase in density for affordable housing on this site, and would provide specific designations for setbacks, and height limitations.

Scoring Factor #7c – Does the site require any special permits or environmental clearances?

No special permits or environmental clearances have been identified at this time. Wetland permits may be required from the US Army Corps of Engineers, California Department of fish and Game, and Regional Water Quality Control Board if impacts to jurisdictional wetland are not avoided.

Scoring Factor #7e – Is the site located in a State Responsibility Area (SRA) fire protection area?

The site will be required to comply with standard fire protection requirements applicable to all development in this area. No constraints to developing the site have been identified.

Scoring Factor #7f – Would the site convert important farmlands to a non-agricultural use?

No agricultural land uses are currently onsite and no Prime Farmland or Farmland of statewide or local importance has been identified based on the Department of Conservation Farmland Mapping.



5/31/2012 JN 60100827 M:\MIDATA\60100827\GIS\Bases.mxd L5

- L** Legend
- Development Footprint
 - Potential Rezone Sites
 - Parcels
 - C** Contours
 - Index (100')
 - Major (20')
 - Depressions
 - City Limits
 - Sphere of Influence

Source: Nevada County GIS 2012; ESRI 2012.



9/6/12 JN 60-100827-18669

COUNTY OF NEVADA
2019-2014 HOUSING ELEMENT REZONE PROGRAM IMPLEMENTATION EIR

Rezone Candidate Sites

SITE 13

County of Nevada

Housing Element Rezone Site Analysis

Field Visit Analysis

Site #13
APN: 57-141-29



Figure 1 - Site 13 Looking south from Cameo Drive.

Site Evaluation Criteria

The following site analysis criteria have been developed to provide an understanding of the physical and regulatory opportunities and constraints that would affect future development of the properties.

Criteria #1: Site Location and Jurisdictional Issues

Scoring Factor #1a - Is it located within the Sphere of Influence of another jurisdiction (e.g., City of Grass Valley, Nevada City, etc.)?

The site is located in the unincorporated area of Nevada County and is not located within a Sphere of Influence of another jurisdiction.

Scoring Factor #1b - Is the site in vicinity of an existing concentration of development?

Most of the existing development immediately adjacent to the parcel to the north is single family residential development. To the west is SR 49. To the east is an electrical substation and some other utility infrastructure. South of the site is some commercial businesses that

include some professional office uses and retail commercial area, including a commercial shopping center (Higgins Village) with a drugstore anchor tenant.

Scoring Factor #1c – Is the site compatible with adjacent jurisdiction’s land use plans?

The site is not located adjacent to another jurisdiction.

Scoring Factor #1d- Is High Density Housing compatible with surrounding land uses?

Yes, given the mix of existing development in the surrounding area, development of higher density affordable housing would be compatible with the surrounding land uses.

Criteria #2: Site Accessibility

Scoring Factor #2a- Is the site accessible to transportation facility (bus, highway, trail, bike path etc.)?

The site has nearby access to SR-49 located just west of the site. No bike paths or public trails were observed.

Nevada County administers a door-to-door paratransit service for persons with disabilities for trips within the Grass Valley/Nevada City area and nearby communities. The service is provided by Gold Country Telecare, a private non-profit organization, under a contract with the County of Nevada. All paratransit vehicles are equipped with wheelchair lifts and other accessibility features.

Gold Country Stage Route 5 connects with Placer County Transit (which serves Auburn, Rocklin, Sierra College, Roseville Galleria and Sacramento Light Rail), Auburn Transit and Amtrak Thruway bus service as connecting schedules allow. A Route 5 bus stop is located at SR 49 and Combie at Higgins Village. Route 5 provides connection to the other Gold Country Stage routes in Grass Valley.

Scoring Factor #2b – Does the site require construction of roadways or access?

An access driveway from Cameo Drive onto the site would be required. No offsite roadways or driveways would be needed or required.

Scoring Factor #2b.1- Is the site access/roadway encroachment suitable in terms of safety (site distances, turning movements)

The site has direct access onto Cameo Drive. Future development will have to demonstrate that adequate site distance can be provided. Cameo Drive does have a significant horizontal

curve along the site frontage, achieving the required site distance will need to be confirmed with the County of Nevada prior to development.

Scoring Factor #2c – Will the site require improvements to existing roadway system (curbs, intersections, stop lights, etc.)?

Access to the site is from Cameo Drive. Cameo Drive connects to SR 49 to the north and to Combie Road via Armstrong Road to the southeast. A high density development would likely require upgrades (e.g., traffic signals, restriping, or turn lanes) to one of these intersections. Improvements to the Cameo Drive/SR 49 intersection would require approval from Caltrans. As an alternative, access to the southern portion of the site from Combie Road might be possible for the development to utilize the intersection at Combie Road and Higgins Road. This route would require access rights through the Higgins Fire District property to access Combie Road.

Scoring Factor #2d - Does the site provide reasonable access to persons with mobility limitations?

Some constraints to people with limited mobility have been identified. Cameo Drive is an un-striped two lane road with no improved shoulders. No existing sidewalks are present on Cameo Drive. No sidewalks were observed along Combie Road between SR 49 and Armstrong Road.

Scoring Factor #2e – Is the site located adjacent to one or more community facilities (e.g., grocery stores, schools, employment areas, laundromats, day care, medical services, etc.).

The site is located approximately 0.9 mile to Higgins Village which is the closest commercial area. Services there include a drugstore, gas station, restaurants and other retail services. The site is approximately 1.3 miles from Bear Creek High School and Pioneer Continuation School. The site is approximately 2 miles from Cottage Hill Elementary School.

Criteria #3: Public Services and Utilities

Scoring Factor #3a - Is the property currently served by water and sewer services?

There is no existing development onsite, therefore, it is assumed there is no water and sewer service to the site.

Scoring Factor #3b - Distance water/sewer pipeline would have to be extended to serve the property?

A water line would have to be extended to the site. The closest water main is located in Cameo Drive. It is estimated that a water line would have to be extended approximately 500 feet.

A sewer line would also have to be extended to the property. It is estimated that a sewer line would have to be extended approximately 500 feet.

In proximity to the site, the Higgins Center developed a small individual community wastewater treatment on a 12-acre site, however; the facility does not have sufficient wastewater treatment capacity to serve the units proposed on this site. Wastewater from the proposed project would be conveyed to and treated at the expanded Lake of the Pines Wastewater Treatment Plant (LOP WWTP) located approximately 1.2 miles east and south of the project site off Combie Road. The treatment system at the WWTP is specifically designed to allow for expansion by increasing the number of filter units known as a cassette. Each cassette will enable an incremental increase in the treatment capacity of the WWTP, but would not result in an expansion of the existing footprint of the treatment plant.

Scoring Factor #3c – Will sewer/storm drain require pumping? (gravity fed highest score)

No pumping will be required.

Scoring Factor #3d - Is the site reasonably accessible to sanitation facilities (trash service, etc.)?

Future development on the site would be able to utilize the same trash services as the surrounding properties.

Criteria #4: Natural Resources

Scoring Factor #4a – Are sensitive biological resources currently located on the property?

This site contains a mature blue oak woodland which covers an estimated 80% of the site. The remainder of the site is covered with mixed interior live oak and blue oak. The presence of this sensitive oak woodland represents a constraint to development which would require design measures and mitigation to reduce or avoid potential impacts.

The Oak woodland provides good nesting habitat for protected songbirds and potential nest sites for raptors. Standard pre-construction survey mitigation measure would apply.

Scoring Factor #4b – Are potentially jurisdictional wetlands present on the property?

No jurisdictional wetlands have been identified onsite.

Scoring Factor #4c - Are any special status species present or are any special-status species likely to occur on the site?

None have been identified onsite.

Scoring Factor #4d - If yes, is avoidance a possibility?

N/A

Scoring Factor #4e – Do any oak woodlands, Landmark Groves, or Landmark Trees occur on the site?

. A field survey of this site identified that the site may have sensitive oak woodlands (hardwood tree groves with 33+% canopy closure) or trees identified as Landmark Oaks (any oak 36+” at diameter breast height). The site supports oak woodland on the majority of the site. At least one Landmark Oak was identified near Cameo Drive. Potential impacts to oak woodlands and Landmark Oaks can be reduced or avoided through the implementation of an Oak Management Plan. An Oak Management Plan would allow the County to review proposed development prior to construction to ensure that sensitive oak trees and habitat are incorporated into the project design and that potential impacts are minimized to the maximum extent practicable. Impacts resulting in the loss of landmark oak trees or oak woodlands would require mitigation at a 3:1 ratio.

Criteria #5: Cultural/Historical Resources

Scoring Factor #5a - Are there any known cultural resources on the property or in the immediate vicinity?

None have been identified on site during a field reconnaissance of the site. Record searches show that some cultural resources have been found in the surrounding area. It should be assumed that monitoring during any grading activities will be required during construction.

Scoring Factor #5b - Existing buildings that are over 50 years in age?

No buildings over 50 years old were identified onsite.

Criteria #6: Physical Site Conditions

Scoring Factor #6a - Excessive Slope conditions on Site?

The site is of moderate slope, but no substantial constraints to development were identified.

Scoring Factor #6b – Is the parcel of adequate size to accommodate a minimum 16 units per site?

The parcel is approximately 5.1 acres in size and is anticipated to have sufficient area to accommodate 16 units per acre density development.

Scoring Factor #6c – Does the site provide sufficient size and shape to accommodate parking, usable open space, site access?

The site is of a sufficient size to accommodate parking, site access, and usable open space for an affordable housing development with a density of 16 dwelling units per acre.

Scoring Factor #6d- Do features exist that may result in a substantial amount of grading?

The site does have a moderate slope which will require more grading than a site that is relatively flat. However, the site does not require a substantial amount of grading that will significantly constrain development of the site. It should be noted that the site is adjacent to SR 49, and that portions of the site could be visible to northbound traffic. It should be noted that this site has a Scenic Corridor overlay district attached to it. Development of this site would likely require additional design considerations to protect scenic views. Substantial grading on the site could make the development as well as manufactured fill slopes visible to highway travelers and travelers on Combie Road. The current access is off of Cameo Road to the north of the site, which is also the highest elevation. It is possible that access could be granted next to the adjacent fire station property and development could occur at the lower elevations of the site which may reduce the visibility of the site.

Scoring Factor #6e - Are there any geotechnical constraints?

No extraordinary geotechnical constraints have been identified based on a preliminary geotechnical investigation of the site. Typical construction measures to address geotechnical conditions common to all development in the area will be required.

Scoring Factor #6f – Is the site located within 100 year flood plain?

No.

Scoring Factor #6g – Does the site require extensive fuel modification or site preparation to mitigate exposure to hazards?

No fuel modification requirements beyond what is typically required for residential development is anticipated for this site.

Scoring Factor #6h – Does the site have any hazardous materials or hazardous historical uses (mining, dumping, sewage disposal) that will require remediation prior to development?

The site is previously undeveloped, no hazardous materials have been identified onsite that would result in a constraint to developing the site. Based on a records check with ENVIROSTOR database maintained by the California Department of Toxics Control, no records of hazardous spills or clean-ups have occurred on the site.

Criteria #7: Regulatory Conditions

Scoring Factor #7a- Existing development on site (any improvements)?

The site is undeveloped.

Scoring Factor #7b – Does the site meet minimum lot size, setbacks, height limitations, that apply the property.

Currently, the site is undeveloped. The site is zoned OP-SC-SP (Office Professional), with a residential density of 4 dwelling units per units per acre. The implementation of the R3-RH housing overlay zone, would permit an increase in density for affordable housing on this site, and would provide specific designations for setbacks, and height limitations.

Scoring Factor #7c – Does the site require any special permits or environmental clearances?

No special permits or environmental clearances have been identified at this time.

Scoring Factor #7e – Is the site located in a State Responsibility Area (SRA) fire protection area?

The site will be required to comply with standard fire protection requirements applicable to all development in this area. No constraints to developing the site have been identified.

Scoring Factor #7f – Would the site convert important farmlands to a non-agricultural use?

No agricultural land uses are currently onsite and no Prime Farmland or Farmland of statewide or local importance has been identified based on the Department of Conservation Farmland Mapping.

County of Nevada

Housing Element Rezone Site Analysis

Field Visit Analysis

Sites #14-15
APN: 14) 57-270-02, 15) 57-270-02

These two sites are being evaluated together because the sites are contiguous. Because of their proximity, the sites have very similar characteristics and have the potential to be developed as one site. These sites are under the same ownership.



Figure 1 - Site 14 Looking north from the center of the property.



Figure 2 - Site 15 looking south from the northwestern property line.

Site Evaluation Criteria

The following site analysis criteria have been developed to provide an understanding of the physical and regulatory opportunities and constraints that would affect future development of the properties.

Criteria #1: Site Location and Jurisdictional Issues

Scoring Factor #1a - Is it located within the Sphere of Influence of another jurisdiction (e.g., City of Grass Valley, Nevada City, etc.)?

The sites are located in the unincorporated area of Nevada County and are not located within a Sphere of Influence of another jurisdiction.

Scoring Factor #1b - Is the site in vicinity of an existing concentration of development?

Most of the existing development immediately adjacent to the parcels to the south and east is single family residential development. To the west is a retail commercial area, including a commercial shopping center (Higgins Village) with a drugstore anchor tenant. A self storage building is to the east of Site 16. To the north are commercial businesses that include some professional office uses.

Scoring Factor #1c – Is site compatible with adjacent jurisdiction’s land use plans?

The site is not located adjacent to another jurisdiction.

Scoring Factor #1d- Is High Density Housing compatible with surrounding land uses?

Yes, given the mix of existing development in the surrounding area, development of higher density affordable housing would be compatible with the surrounding land uses.

Criteria #2: Site Accessibility

Scoring Factor #2a- Is site accessible to transportation facility (bus, highway, trail, bike path etc.)?

The sites have nearby access to SR-49 located just west of the site. No bike paths or public trails were observed.

Nevada County administers a door-to-door paratransit service for persons with disabilities for trips within the Grass Valley/Nevada City area and nearby communities. The service is provided by Gold Country Telecare, a private non-profit organization, under a contract with the County of Nevada. All paratransit vehicles are equipped with wheelchair lifts and other accessibility features.

Gold Country Stage Route 5 connects with Placer County Transit (which serves Auburn, Rocklin, Sierra College, Roseville Galleria and Sacramento Light Rail), Auburn Transit and Amtrak Thruway bus service as connecting schedules allow. A Route 5 bus stop is located at SR 49 and Combie at Higgins Village. Route 5 provides connection to the other Gold Country Stage routes in Grass Valley.

Scoring Factor #2b – Does the site require construction of roadways or access?

Woodbridge Drive is an improved road that provides access to both sites from SR 49. No offsite roadways or driveways would be needed or required.

Scoring Factor #2b.1- Is the site access/roadway encroachment suitable in terms of safety (site distances, turning movements)

The site has direct access onto Woodridge Drive. It is anticipated that future access from these site would be from Higgins Road, which would require an extension of Higgins Road from its current terminus at the commercial development. Future development will have to demonstrate that adequate site distance can be provided.

Scoring Factor #2c – Will the site require improvements to existing roadway system (curbs, intersections, stop lights, etc.)?

No physical improvements are required with regard to site access. However, it should be noted that given the collective size of these sites (approximately 24 acres), it is possible that a large number of units could be developed on these sites (350 to 400 units). If these sites were to be developed with that many units, It should be noted that Sites 15 and 16 would utilize the same roadways and intersections as Sites 14 and 17, which are also being considered for an increase in density. Roadway and traffic improvements should consider of all the sites in this area.

Scoring Factor #2d - Does the site provide reasonable access to persons with mobility limitations?

Some constraints to people with limited mobility have been identified. Woodbridge Drive is an un-striped two lane road with no improved shoulders. No existing sidewalks are present on Woodbridge. No sidewalks were observed along Combie Road between SR 49 and Higgins Road.

Scoring Factor #2e – Is the site located adjacent to one or more community facilities (e.g., grocery stores, schools, employment areas, laundromats, day care, medical services, etc.).

These sites are located adjacent to Higgins Village which is the closest commercial area. Series there include a drugstore, gas station, restaurants and other retail services. The site is approximately 1.3 miles from Bear Creek High School and Pioneer Continuation School. The site is approximately 2 miles from Cottage Hill Elementary School.

Criteria #3: Public Services and Utilities

Scoring Factor #3a - Is the property currently served by water and sewer services?

There is no existing development onsite, therefore, it is assumed that currently there is no water and sewer service to the site.

Scoring Factor #3b - Distance water/sewer pipeline would have to be extended to serve the property?

A water line would have to be extended to the site. The closest water main is located in Combie Road. It is estimated that a water line would have to be extended approximately 500 feet.

A sewer line would also have to be extended to the property. It is estimated that a sewer line would have to be extended approximately 500 feet.

Adjacent to the site, the Higgins Center developed a small individual community wastewater treatment on a 12-acre site, however; the facility does not have sufficient wastewater treatment capacity to serve the units proposed on this site. Abandonment of this wastewater treatment plant is part of the long term wastewater management plan for this area, and it is contingent on the proposed shopping center development on the property west of the Sites 14 and 15. Future wastewater from the proposed project would be conveyed to and treated at the expanded Lake of the Pines Wastewater Treatment Plant (LOP WWTP) located approximately 1.2 miles east and south of the project site off Combie Road. The treatment system at the LOP WWTP is specifically designed to allow for expansion by increasing the number of filter units known as a cassette. Each cassette will enable an incremental increase in the treatment capacity of the WWTP, but would not result in an expansion of the existing footprint of the treatment plant.

Scoring Factor #3c – Will sewer/storm drain require pumping? (gravity fed highest score)

No pumping will be required.

Scoring Factor #3d - Is the site reasonably accessible to sanitation facilities (trash service, etc.)?

Future development on the site would be able to utilize the same sanitation services as the surrounding properties.

Criteria #4: Natural Resources

Scoring Factor #4a – Are sensitive biological resources currently located on the property?

Site 14 – This site contains a narrow band of blue oak woodland along western boundary of parcel. Remainder of parcel is oak woodland dominated by black oak. The presence of these oak woodlands represents a constraint to development. There is potential for Landmark Oaks to present within the woodland, but most of the oaks are of a small diameter within the dense woodland.

Site 15 – This site is estimated to have 30 percent of site, the area along western boundary, as supporting oak woodland (interior live oak). Some larger oaks scattered throughout site.

Scoring Factor #4b – Are potentially jurisdictional wetlands present on the property?

No jurisdictional wetlands have been identified onsite.

Scoring Factor #4c - Are any special status species present or are any special-status species likely to occur on the site?

None have been identified onsite.

Scoring Factor #4d - If yes, is avoidance a possibility?

N/A

Scoring Factor #4e – Do any oak woodlands, Landmark Groves, or Landmark Trees occur on the site?

A field survey of these sites identified that the sites may have sensitive oak woodlands (hardwood tree groves with 33+% canopy closure) or trees identified as Landmark Oaks (any oak 36+” at diameter breast height). Potential impacts to oak woodlands and Landmark Oaks can be reduced or avoided through the implementation of an Oak Management Plan. An Oak Management Plan would allow the County to review proposed development prior to

construction to ensure that sensitive oak trees and habitat are incorporated into the project design and that potential impacts are minimized to the maximum extent practicable. Impacts resulting in the loss of landmark oak trees or oak woodlands would require mitigation at a 3:1 ratio.

Criteria #5: Cultural/Historical Resources

Scoring Factor #5a - Are there any known cultural resources on the property or in the immediate vicinity?

None have been identified on site during a field reconnaissance of the two sites. Record searches show that some cultural resources have been found in the surrounding area. It should be assumed that monitoring during any grading activities will be required during construction.

Scoring Factor #5b - Existing buildings that are over 50 years in age?

No buildings over 50 years old were identified onsite.

Criteria #6: Physical Site Conditions

Scoring Factor #6a - Excessive Slope conditions on Site?

The site is of moderate slope, but no substantial constraints to development were identified.

Scoring Factor #6b – Is the parcel of adequate size to accommodate a minimum 16 units per site?

The parcel is approximately 5.1 acres in size and is anticipated to have sufficient area to accommodate 16 units per acre density development.

Scoring Factor #6c – Does the site provide sufficient size and shape to accommodate parking, usable open space, site access?

The site is of a sufficient size to accommodate parking, site access, and usable open space for an affordable housing development with a density of 16 dwelling units per acre.

Scoring Factor #6d- Do features exist that may result in a substantial amount of grading?

The site does have a moderate slope which will require more grading than a site that is relatively flat. However, the site does not require a substantial amount of grading that will significantly constrain development of the site. These sites are visible from SR 49, would likely be visible to northbound traffic. It should be noted that this site has a Scenic Corridor overlay district attached to it. Development of this site would likely require additional design considerations to protect scenic views. Substantial grading on the site could make the development as well as manufactured fill slopes visible to highway travelers and travelers on Combie Road.

Scoring Factor #6e - Are there any geotechnical constraints?

No extraordinary geotechnical constraints have been identified based on a preliminary geotechnical investigation for the sites. Typical construction measures to address geotechnical conditions common to all development in the area will be required.

Scoring Factor #6f – Is the site located within 100 yr flood plain?

No.

Scoring Factor #6g – Does the site require extensive fuel modification or site preparation to mitigate exposure to hazards?

No fuel modification requirements beyond what is typically required for residential development is anticipated for this site.

Scoring Factor #6h – Does the site have any hazardous materials or hazardous historical uses (mining, dumping, sewage disposal) that will require remediation prior to development?

The site is previously undeveloped, no hazardous materials have been identified onsite that would result in a constraint to developing the site. Based on a records check with ENVIROSTOR database maintained by the California Department of Toxics Control, no records of hazardous spills or clean-ups have occurred on the site.

Criteria #7: Regulatory Conditions

Scoring Factor #7a- Existing development on site (any improvements)?

The site is undeveloped.

Scoring Factor #7b – Does the site meet minimum lot size, setbacks, height limitations, that apply the property.

Currently, the site is undeveloped. The site is zoned IDR-SC-SP (Interim Development Reserve-Scenic Corridor –Site Performance), with a residential density of 4 dwelling units per units per acre. The implementation of the R3-RH housing overlay zone, would permit an increase in density for affordable housing on this site, and would provide specific designations for setbacks, and height limitations.

Scoring Factor #7c – Does the site require any special permits or environmental clearances?

No special permits or environmental clearances have been identified at this time.

Scoring Factor #7e – Is the site located in a State Responsibility Area (SRA) fire protection area?

The site will be required to comply with standard fire protection requirements applicable to all development in this area. No constraints to developing the site have been identified.

Scoring Factor #7f – Would the site convert important farmlands to a non-agricultural use?

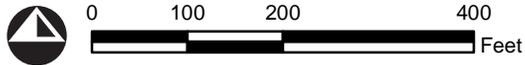
No agricultural land uses are currently onsite and no Prime Farmland or Farmland of statewide or local importance has been identified based on the Department of Conservation Farmland Mapping.



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- L** □ □ □ □ **d**
- Development Footprint
- Potential Rezone Sites
- Parcels
- C** □ □ □ □ **r** □
- Index (100')
- Major (20')
- Depressions
- City Limits
- Sphere of Influence

Source: Nevada County GIS 2012; ESRI 2012.



9/6/12 JN 60-100827-18669

COUNTY OF NEVADA
2019-2014 HOUSING ELEMENT REZONE PROGRAM IMPLEMENTATION EIR

Rezone Candidate Sites

County of Nevada

Housing Element Rezone Site Analysis

Field Visit Analysis

Site #16
APN: 57-270-06



Figure 1 - Site 16 Looking east from the western property line on Rosewood Road.

Site Evaluation Criteria

The following site analysis criteria have been developed to provide an understanding of the physical and regulatory opportunities and constraints that would affect future development of the properties.

Criteria #1: Site Location and Jurisdictional Issues

Scoring Factor #1a - Is it located within the Sphere of Influence of another jurisdiction (e.g., City of Grass Valley, Nevada City, etc.)?

The site is located in the unincorporated area of Nevada County and are not located within a Sphere of Influence of another jurisdiction.

Scoring Factor #1b - Is the site in vicinity of an existing concentration of development?

Most of the existing development immediately adjacent to the parcel to the west, south, and east is single family residential development. To the north is Combie Road and a small strip mall with commercial businesses that include some professional office uses.

Scoring Factor #1c – Is the site compatible with adjacent jurisdiction’s land use plans?

The site is not located adjacent to another jurisdiction.

Scoring Factor #1d- Is High Density Housing compatible with surrounding land uses?

Yes, given the mix of existing development in the surrounding area, development of higher density affordable housing would be compatible with the surrounding land uses.

Criteria #2: Site Accessibility

Scoring Factor #2a- Is the site accessible to transportation facility (bus, highway, trail, bike path etc.)?

The site has nearby access to SR-49 located just west of the site. No bike paths or public trails were observed.

Nevada County administers a door-to-door paratransit service for persons with disabilities for trips within the Grass Valley/Nevada City area and nearby communities. The service is provided by Gold Country Telecare, a private non-profit organization, under a contract with the County of Nevada. All paratransit vehicles are equipped with wheelchair lifts and other accessibility features.

Gold Country Stage Route 5 connects with Placer County Transit (which serves Auburn, Rocklin, Sierra College, Roseville Galleria and Sacramento Light Rail), Auburn Transit and Amtrak Thruway bus service as connecting schedules allow. A Route 5 bus stop is located at SR 49 and Combie at Higgins Village. Route 5 provides connection to the other Gold Country Stage routes in Grass Valley.

Scoring Factor #2b – Does the site require construction of roadways or access?

Rosewood Road is located adjacent to the site. Rosewood Road is an improved road that provides access to Combie Road. No offsite roadways or driveways would be needed or required.

Scoring Factor #2b.1- Is the site access/roadway encroachment suitable in terms of safety (site distances, turning movements)

The site has direct access onto Rosewood Road. Future development will have to demonstrate that adequate site distance can be provided. Rosewood Drive does have some horizontal curve along the site frontage; however, no substantial obstacles to achieving the required site distance were identified.

Scoring Factor #2c – Will the site require improvements to existing roadway system (curbs, intersections, stop lights, etc.)?

No physical improvements are required with regard to site access. However, it should be noted that Sites 14, 15, and 16, which are also being considered for an increase in density, would utilize the same roadways and intersections as Site 17. Roadway and traffic improvements should consider all of the sites in this area.

Scoring Factor #2d - Does the site provide reasonable access to persons with mobility limitations?

Some constraints to people with limited mobility have been identified. Rosewood Road is an un-striped two lane road with no improved shoulders. No existing sidewalks are present on Rosewood. No sidewalks were observed along Combie Road between SR 49 and Armstrong/Rosewood Road.

Scoring Factor #2e – Is the site located adjacent to one or more community facilities (e.g., grocery stores, schools, employment areas, laundromats, day care, medical services, etc.)

The site is located approximately 0.55 mile to Higgins Village which is the closest commercial area. Services there include a drugstore, gas station, restaurants and other retail services. The site is approximately 0.6 mile from Bear Creek High School and Pioneer Continuation School. The site is approximately 1.2 miles from Cottage Hill Elementary School.

Criteria #3: Public Services and Utilities

Scoring Factor #3a - Is the property currently served by water and sewer services?

There is no existing development onsite, therefore, it is assumed that currently there is no water and sewer service to the site.

Scoring Factor #3b - Distance water/sewer pipeline would have to be extended to serve the property?

A water line would have to be extended to the site. The closest water main is located in Combie Road. It is estimated that a water line would have to be extended approximately 50 feet.

A sewer line would also have to be extended to the property. It is estimated that a sewer line would have to be extended approximately 50 feet. In proximity to the site, the Higgins Center developed a small individual community wastewater treatment on a 12-acre site, however; the facility does not have sufficient wastewater treatment capacity to serve the units proposed on this site. Wastewater from the proposed project would be conveyed to and treated at the expanded Lake of the Pines Wastewater Treatment Plant (LOP WWTP) located approximately 1.2 miles east and south of the project site off Combie Road. The treatment system at the WWTP is specifically designed to allow for expansion by increasing the number of filter units known as a cassette. Each cassette will enable an incremental increase in the treatment capacity of the WWTP, but would not result in an expansion of the existing footprint of the treatment plant.

Scoring Factor #3c – Will sewer/storm drain require pumping? (gravity fed highest score)

No pumping will be required.

Scoring Factor #3d - Is the site reasonably accessible to sanitation facilities (trash service, etc.)?

Future development on the site would be able to utilize the same trash services as the surrounding properties.

Criteria #4: Natural Resources

Scoring Factor #4a – Are sensitive biological resources currently located on the property?

This site contains black oak dominated oak woodland outside of riparian zone. Most of the oaks are smaller diameter oaks, but there is potential for landmark oaks.

The oak woodland and riparian area provide good nesting habitat for protected songbirds and potential nest sites for raptors. Standard pre-construction survey mitigation measures would apply. Ragsdale Creek is potential habitat for sensitive aquatic species. Majority of site is either oak woodland or riparian. The presence of these habitats represent a moderate to high potential constraint to development.

Scoring Factor #4b – Are potentially jurisdictional wetlands present on the property?

A portion of Ragsdale Creek traverses the northern portion of the site. The creek supports riparian habitat. The proposed development can limit the development footprint to avoid the creek. A 100-foot setback from the development to provide wetland buffer would be required.

Scoring Factor #4c - Are any special status species present or are any special-status species likely to occur on the site?

None have been identified onsite.

Scoring Factor #4d - If yes, is avoidance a possibility?

N/A

Scoring Factor #4e – Do any oak woodlands, Landmark Groves, or Landmark Trees occur on the site?

A field survey of this site identified that the site may have sensitive oak woodlands (hardwood tree groves with 33+% canopy closure) or trees identified as Landmark Oaks (any oak 36+” at diameter breast height). Potential impacts to oak woodlands and Landmark Oaks can be reduced or avoided through the implementation of an Oak Management Plan. An Oak Management Plan would allow the County to review proposed development prior to construction to ensure that sensitive oak trees and habitat are incorporated into the project design and that potential impacts are minimized to the maximum extent practicable. Impacts resulting in the loss of landmark oak trees or oak woodlands would require mitigation at a 3:1 ratio.

Criteria #5: Cultural/Historical Resources

Scoring Factor #5a - Are there any known cultural resources on the property or in the immediate vicinity?

None have been identified during a field reconnaissance of the site. Record searches show that some cultural resources have been found in the surrounding area. It should be assumed that monitoring during any grading activities will be required during construction.

Scoring Factor #5b - Existing buildings that are over 50 years in age?

No buildings over 50 years old were identified onsite.

Criteria #6: Physical Site Conditions

Scoring Factor #6a - Excessive Slope conditions on Site?

The site is of moderate slope, but no substantial constraints to development were identified.

Scoring Factor #6b – Is the parcel of adequate size to accommodate a minimum 16 units per site?

The parcel is approximately 2.5 acres in size and is anticipated to have sufficient area to accommodate 16 units per acre density development.

Scoring Factor #6c – Does the site provide sufficient size and shape to accommodate parking, usable open space, site access?

The site is of a sufficient size to accommodate parking, site access, and usable open space for an affordable housing development with a density of 16 dwelling units per acre.

Scoring Factor #6d- Do features exist that may result in a substantial amount of grading?

The site does have a moderate slope which will require more grading than a site that is relatively flat. However, the site does not require a substantial amount of grading that will significantly constrain development of the site.

Scoring Factor #6e - Are there any geotechnical constraints?

No extraordinary geotechnical constraints have been identified based on a preliminary geotechnical investigation of the site. Typical construction measures to address geotechnical conditions common to all development in the area will be required.

Scoring Factor #6f – Is the site located within 100 year flood plain?

No.

Scoring Factor #6g – Does the site require extensive fuel modification or site preparation to mitigate exposure to hazards?

No fuel modification requirements beyond what is typically required for residential development is anticipated for this site.

Scoring Factor #6h – Does the site have any hazardous materials or hazardous historical uses (mining, dumping, sewage disposal) that will require remediation prior to development?

The site is previously undeveloped, no hazardous materials have been identified onsite that would result in a constraint to developing the site. Based on a records check with ENVIROSTOR database maintained by the California Department of Toxics Control, no records of hazardous spills or clean-ups have occurred on the site.

Criteria #7: Regulatory Conditions

Scoring Factor #7a- Existing development on site (any improvements)?

The site is undeveloped.

Scoring Factor #7b – Does the site meet minimum lot size, setbacks, height limitations, that apply the property.

Currently, the site is undeveloped. The site is zoned are zoned R2-SC-SP (Medium Density Residential – Planned Development) with a residential density of 6 dwelling units per acre. The implementation of the R3-RH housing overlay zone, would permit an increase in density for affordable housing on this site, and would provide specific designations for setbacks, and height limitations.

Scoring Factor #7c – Does the site require any special permits or environmental clearances?

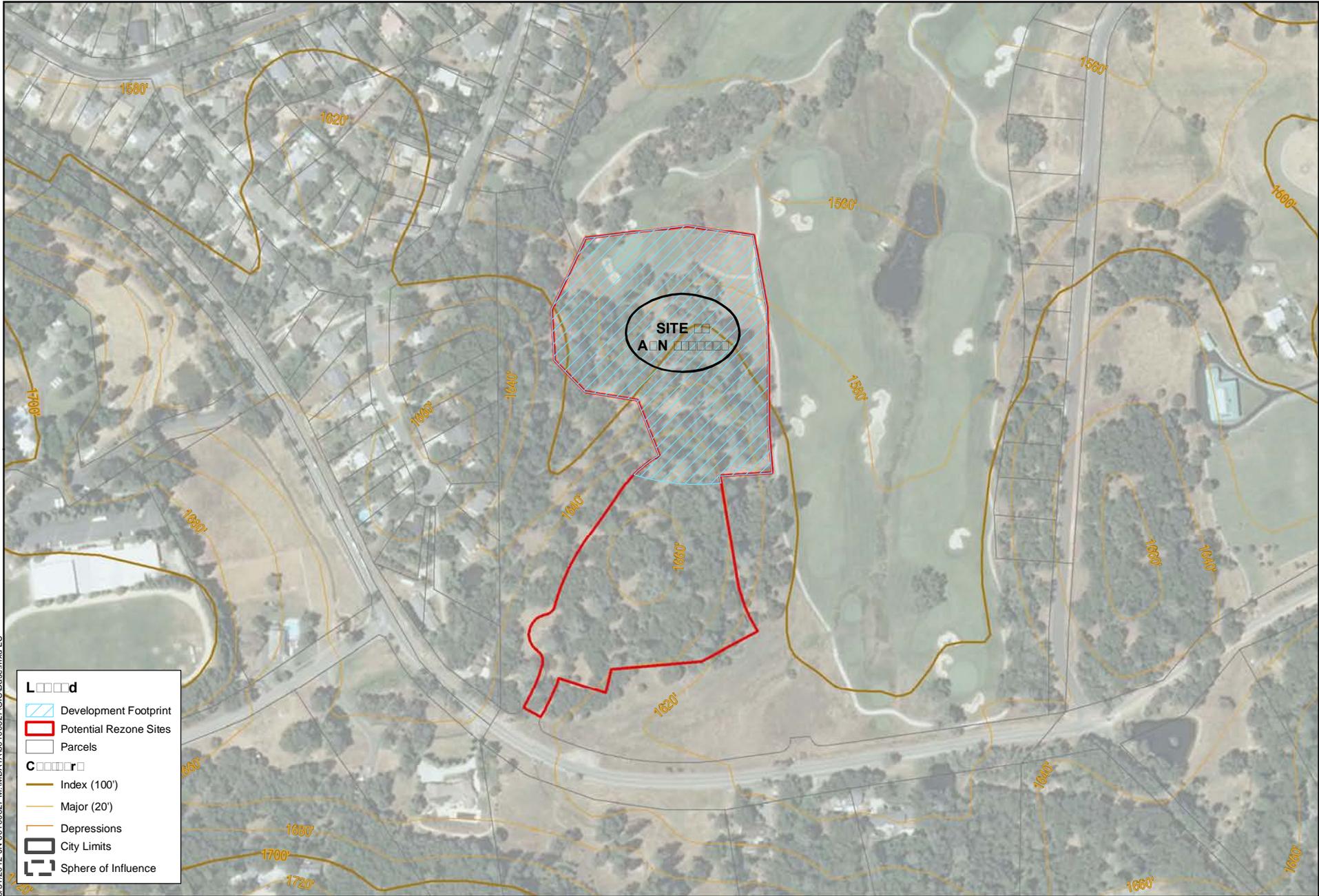
No special permits or environmental clearances have been identified at this time.

Scoring Factor #7e – Is the site located in a State Responsibility Area (SRA) fire protection area?

The site will be required to comply with standard fire protection requirements applicable to all development in this area. No constraints to developing the site have been identified.

Scoring Factor #7f – Would the site convert important farmlands to a non-agricultural use?

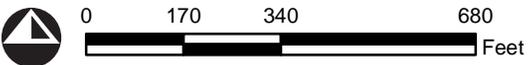
No agricultural land uses are currently onsite and no Prime Farmland or Farmland of statewide or local importance has been identified based on the Department of Conservation Farmland Mapping.



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- L** d
- Development Footprint
- Potential Rezone Sites
- Parcels
- C** r d
- Index (100')
- Major (20')
- Depressions
- City Limits
- Sphere of Influence

Source: Nevada County GIS 2012; ESRI 2012.



9/6/12 JN 60-100827-18669

Rezone Candidate Sites

County of Nevada

Housing Element Rezone Site Analysis

Field Visit Analysis

Site #17
APN: 11-181-03



Figure 1 - Site 17 Looking southeast from Peninsular Drive.

Site Evaluation Criteria

The following site analysis criteria have been developed to provide an understanding of the physical and regulatory opportunities and constraints that would affect future development of the properties.

Criteria #1: Site Location and Jurisdictional Issues

Scoring Factor #1a - Is it located within the Sphere of Influence of another jurisdiction (e.g., City of Grass Valley, Nevada City, etc.)?

The site is located in the unincorporated area of Nevada County and are not located within a Sphere of Influence of another jurisdiction.

Scoring Factor #1b - Is the site in vicinity of an existing concentration of development?

Most of the existing development immediately adjacent to the parcel to the west and south is single family residential development. To the north and east are fairways of the Dark Horse Golf Club. Combie Road borders the property to the south. This site is Phase IV of

the Darkhorse Subdivision and is currently slated to accommodate up to 30-units of affordable housing as a condition of approval.

Scoring Factor #1c – Is the site compatible with adjacent jurisdiction’s land use plans?

The site is not located adjacent to another jurisdiction.

Scoring Factor #1d- Is High Density Housing compatible with surrounding land uses?

Yes, given the mix of existing development in the surrounding area, development of higher density affordable housing would be compatible with the surrounding land uses.

Criteria #2: Site Accessibility

Scoring Factor #2a- Is the site accessible to transportation facility (bus, highway, trail, bike path etc.)?

The site has nearby access to SR-49 located just west of the site. No bike paths or public trails were observed.

Nevada County administers a door-to-door paratransit service for persons with disabilities for trips within the Grass Valley/Nevada City area and nearby communities. The service is provided by Gold Country Telecare, a private non-profit organization, under a contract with the County of Nevada. All paratransit vehicles are equipped with wheelchair lifts and other accessibility features.

No Gold Country Stage routes were identified within 0.5 mile of the site.

Scoring Factor #2b – Does the site require construction of roadways or access?

There is currently no access to the site. An access road from Combie Road would be required. No offsite roadways or driveways would be needed or required.

Scoring Factor #2b.1- Is the site access/roadway encroachment suitable in terms of safety (site distances, turning movements)

The site has frontage access onto Combie Road. Future development will have to demonstrate that adequate site distance can be provided. Combie does have some horizontal curve along the site frontage; however, no substantial obstacles to achieving the required site distance were identified.

Scoring Factor #2c – Will the site require improvements to existing roadway system (curbs, intersections, stop lights, etc.)?

A new access road from Combie road onto the site will be required. This will result in a new “T” intersection on Combie Road.

Scoring Factor #2d - Does the site provide reasonable access to persons with mobility limitations?

Some constraints to people with limited mobility have been identified. Combie Road is a striped two lane road with no improved shoulders in this area. No existing sidewalks are present on this segment of Combie Road.

Scoring Factor #2e – Is the site located adjacent to one or more community facilities (e.g., grocery stores, schools, employment areas, laundromats, day care, medical services, etc.)

The site is located approximately 1.9 miles to a small commercial center with a local grocery store located at the intersection of Combie Road and Magnolia Road. Higgins Village which is the next closest commercial area is 2.8 miles. Services there include a drugstore, gas station, restaurants and other retail services. The site is approximately 2.4 miles from Bear Creek High School and Pioneer Continuation School. The site is approximately 3 miles from Cottage Hill Elementary School.

Criteria #3: Public Services and Utilities

Scoring Factor #3a - Is the property currently served by water and sewer services?

There is no existing development onsite, therefore, it is assumed that currently there is no water and sewer service to the site.

Scoring Factor #3b - Distance water/sewer pipeline would have to be extended to serve the property?

A water line would have to be extended to the site. The closest water main is located in Combie Road. It is estimated that a water line would have to be extended approximately 200-300 feet.

A sewer line would also have to be extended to the property. It is estimated that a sewer line would have to be extended approximately 200-300 feet. Wastewater from the proposed project would be conveyed to and treated at the expanded Lake of the Pines Wastewater Treatment Plant (LOP WWTP) located approximately 1.5 miles north of the

project site off Combie Road. The treatment system at the WWTP is specifically designed to allow for expansion by increasing the number of filter units known as a cassette. Each cassette will enable an incremental increase in the treatment capacity of the WWTP, but would not result in an expansion of the existing footprint of the treatment plant.

Scoring Factor #3c – Will sewer/storm drain require pumping? (gravity fed highest score)

No pumping will be required.

Scoring Factor #3d - Is the site reasonably accessible to sanitation facilities (trash service, etc.)?

Future development on the site would be able to utilize the same trash services as the surrounding properties.

Criteria #4: Natural Resources

Scoring Factor #4a – Are sensitive biological resources currently located on the property?

The southern half of the site is blue oak dominated oak woodland. Scattered larger oaks within oak woodland could qualify as Landmark Oaks. The presence of these oak woodlands represents a high potential for constraints on development of the site.

Oak woodland and Sierran mixed conifer forest provide good nesting habitat for protected songbirds and potential nest sites for raptors. Preconstruction surveys would be required prior to construction activities on the site.

Scoring Factor #4b – Are potentially jurisdictional wetlands present on the property?

No jurisdictional wetlands have been identified onsite.

Scoring Factor #4c - Are any special status species present or are any special-status species likely to occur on the site?

None have been identified onsite.

Scoring Factor #4d - If yes, is avoidance a possibility?

N/A

Scoring Factor #5d – Do any oak woodlands, Landmark Groves, or Landmark Trees occur on the site?

A field survey of this site identified that the site may have sensitive oak woodlands (hardwood tree groves with 33+% canopy closure) or trees identified as Landmark Oaks (any oak 36+” at diameter breast height). Potential impacts to oak woodlands and Landmark Oaks can be reduced or avoided through the implementation of an Oak Management Plan. An Oak Management Plan would allow the County to review proposed development prior to construction to ensure that sensitive oak trees and habitat are incorporated into the project design and that potential impacts are minimized to the maximum extent practicable. Impacts resulting in the loss of landmark oak trees or oak woodlands would require mitigation at a 3:1 ratio.

Criteria #5: Cultural/Historical Resources

Scoring Factor #5a - Are there any known cultural resources on the property or in the immediate vicinity?

None have been identified during a field reconnaissance of the site . Record searches show that some cultural resources have been found in the surrounding area. It should be assumed that monitoring during any grading activities will be required during construction.

Scoring Factor #5b - Existing buildings that are over 50 years in age?

No buildings over 50 years old were identified onsite.

Criteria #6: Physical Site Conditions

Scoring Factor #6a - Excessive Slope conditions on Site?

The site is of moderate slope, but no substantial constraints to development were identified.

Scoring Factor #6b – Is the parcel of adequate size to accommodate a minimum 16 units per site?

The parcel is approximately 11 acres in size and is anticipated to have sufficient area to accommodate 16 units per acre density development.

Scoring Factor #6c – Does the site provide sufficient size and shape to accommodate parking, usable open space, site access?

The site is of a sufficient size to accommodate parking, site access, and usable open space for an affordable housing development with a density of 16 dwelling units per acre.

Scoring Factor #6d- Do features exist that may result in a substantial amount of grading?

The site does have a moderate slope which will require more grading than a site that is relatively flat. However, the site does not require a substantial amount of grading that will significantly constrain development of the site.

Scoring Factor #6e - Are there any geotechnical constraints?

No extraordinary geotechnical constraints have been identified based on a preliminary geotechnical investigation of the site. Typical construction measures to address geotechnical conditions common to all development in the area will be required.

Scoring Factor #6f – Is the site located within 100 year flood plain?

No.

Scoring Factor #6g – Does the site require extensive fuel modification or site preparation to mitigate exposure to hazards?

No fuel modification requirements beyond what is typically required for residential development is anticipated for this site.

Scoring Factor #6h – Does the site have any hazardous materials or hazardous historical uses (mining, dumping, sewage disposal) that will require remediation prior to development?

The site is previously undeveloped, no hazardous materials have been identified onsite that would result in a constraint to developing the site. Based on a records check with ENVIROSTOR database maintained by the California Department of Toxics Control, no records of hazardous spills or clean-ups have occurred on the site.

Criteria #7: Regulatory Conditions

Scoring Factor #7a- Existing development on site (any improvements)?

The site is undeveloped.

Scoring Factor #7b – Does the site meet minimum lot size, setbacks, height limitations, that apply the property.

Currently, the site is undeveloped. The site is zoned are zoned R1-PD-SP (Single Family Residential – Planned Development) with a residential density of 4 dwelling units per acre. The implementation of the R3 or RH housing overlay zone, would permit an increase in density for affordable housing on this site, and would provide specific designations for setbacks, and height limitations.

Scoring Factor #7c – Does the site require any special permits or environmental clearances?

No special permits or environmental clearances have been identified at this time.

Scoring Factor #7e – Is the site located in a State Responsibility Area (SRA) fire protection area?

The site will be required to comply with standard fire protection requirements applicable to all development in this area. No constraints to developing the site have been identified.

Scoring Factor #7f – Would the site convert important farmlands to a non-agricultural use?

No agricultural land uses are currently onsite and no Prime Farmland or Farmland of statewide or local importance has been identified based on the Department of Conservation Farmland Mapping.

**County of Nevada
Housing Element Rezone Implementation Program EIR
September 2013**

Technical Appendices

Appendix C

Biological Resources Report

BIOLOGICAL RESOURCES INVENTORY REPORT
FOR THE
**HOUSING ELEMENT REZONE
STUDY AREA**
NEVADA COUNTY, CALIFORNIA



Prepared for:



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Prepared by:

DUDEK

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FEBRUARY 6, 2013

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Appendix A. Special-Status Species Known to Occur in the Study Area Region
Appendix B. Species Observed Within the Study Area
Appendix C. Study Area Soils Maps
Appendix D. Habitat Maps

BIOLOGICAL RESOURCES INVENTORY REPORT FOR THE HOUSING ELEMENT REZONE STUDY AREA

INTRODUCTION

Study Area Parcels

The 18 pre-selected candidate sites associated with the Housing Element Rezone project are located in the western portion of Nevada County, approximately 50 miles northeast of Sacramento and about 50 miles west of Lake Tahoe (refer to Figure 1 - Site & Vicinity Map). The study area sites are irregularly shaped properties ranging in size from 1.08 acres to 20.1 acres and make up a total area of total area of ±149 acres. The candidate sites are generally clustered within three areas, the Grass Valley Sphere of Influence (Sites 1-9), Penn Valley area (Sites 10-13), and the Lake of the Pines area (Sites 14-18). Figure 1 shows the location of each site on a U.S. Geological Survey 7.5 minute quadrangle. Aerial photos of each site are included in Figures 2a through 2g. The sites are also identified by Assessor's Parcel Number in Table 1, below. Table 2 provides the latitude and longitude of the approximate center of each site and site acreage.

Table 1
Study Area Assessor's Parcel Numbers

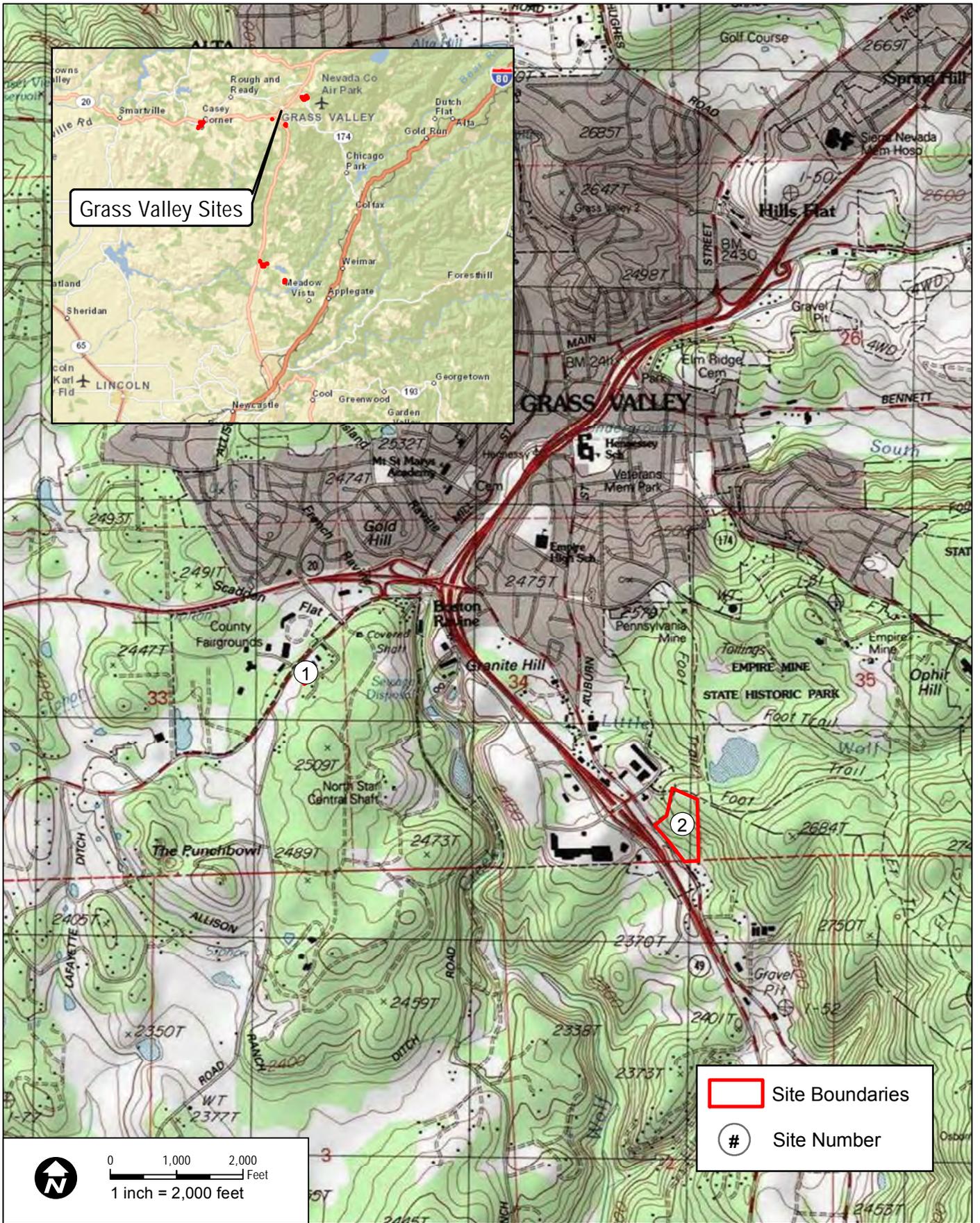
Grass Valley SOI	Penn Valley Area	Lake of the Pines Area
Site 1: 07-380-17	Site 10: 51-120-06	Site 14: 57-141-29
Site 2: 29-350-12	Site 11: 51-150-29	Site 15: 57-270-02
Site 3: 35-412-15	Site 12: 51-151-62	Site 16: 57-270-03
Site 4: 35-412-17	Site 13: 51-370-02	Site 17: 57-270-06
Site 5: 35-412-18		Site 18: 11-181-03
Site 6: 35-412-19		
Site 7: 35-412-21		
Site 8: 35-550-15, and 35-412-20		
Site 9: 35-412-16		

**Table 2
Study Area Parcel Location and Size**

Site	Latitude	Longitude	Area (Acres)
Site 1	39.206113	-121.076031	1.08
Site 2	39.199927	-121.056057	11.36
Site 3	-121.027693	39.229399	9.15
Site 4	-121.030705	39.230186	11.35
Site 5	-121.028872	39.230425	4.5
Site 6	-121.030294	39.231567	9.7
Site 7	-121.024948	39.230597	9.9
Site 8	-121.025972	39.232056	10.43
Site 9	-121.029533	39.228844	6.49
Site 10	-121.179690	39.199741	5.95
Site 11	-121.179006	39.199101	3.1
Site 12	-121.183313	39.197108	4.37
Site 13	-121.179578	39.202567	20.1
Site 14	-121.093437	39.044641	5.0
Site 15	-121.089722	39.041133	5.0
Site 16	-121.088566	39.040082	18.12
Site 17	-121.083233	39.042138	2.36
Site 18	-121.056880	39.022511	11.03

Setting

The 18 selected sites are located in the western foothills of the Sierra Nevada at elevations ranging from ±1,400 feet (Penn Valley sites) to ±2,700 feet (Grass Valley sites). The majority of the rezoning areas are undeveloped and surrounded by a variety of existing development, including single-family residential, rural residential, commercial agricultural, recreational, and utility uses. Major roadways, including State Route 49, Brunswick Road, and State Route 20 abut or are in close proximity to each of the sites. Habitat types on the 18 sites include disturbed, annual grassland, blue oak woodland, valley oak woodland, montane hardwood, Sierran mixed conifer, foothill riparian, blue oak-foothill pine, and mixed chaparral. Perennial and intermittent streams and wetland areas occur on several of the sites. Specific site characteristics for each of the 18 sites, including topography, habitat



DUDEK

Nevada County Housing Element Rezone

FIGURE 1a

Nevada County, CA

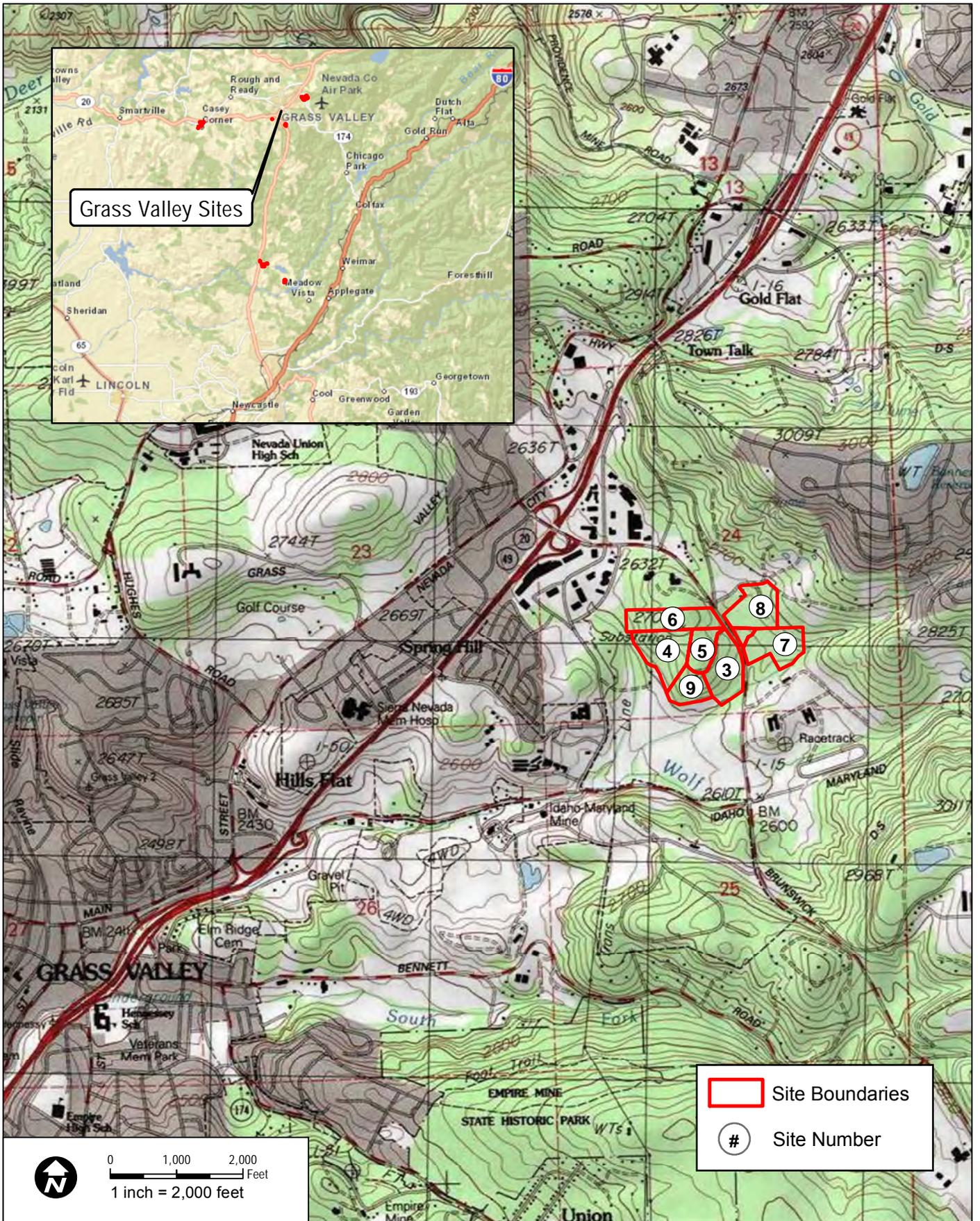
Site & Vicinity Map

7397

February 2013

BASEMAP: USA Topo Maps

Grass Valley Sites - South



DUDEK

Nevada County Housing Element Rezone

FIGURE 1b

Nevada County, CA

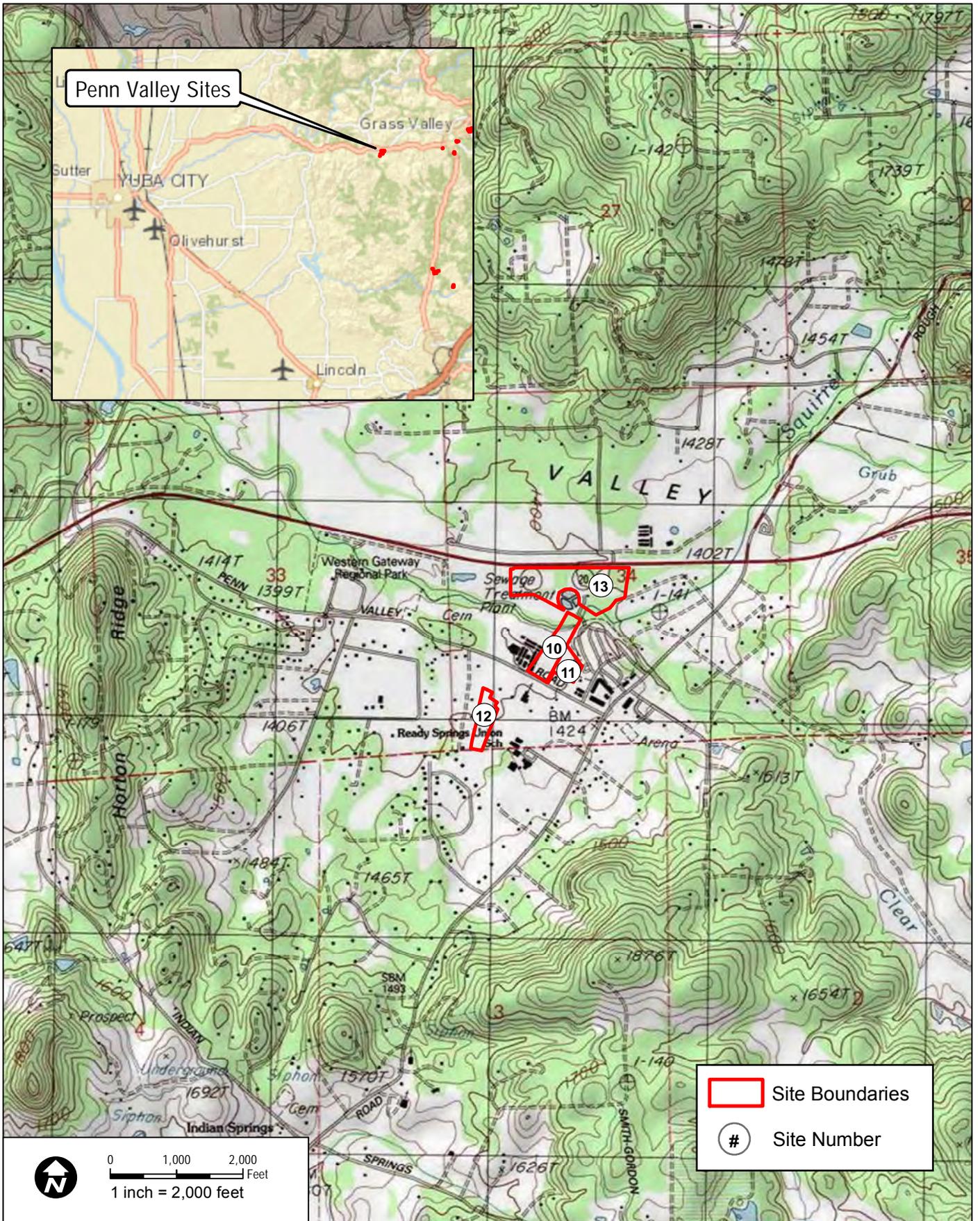
Site & Vicinity Map

7397

February 2013

BASEMAP: USA Topo Maps

Grass Valley Sites - North



DUDEK

Nevada County Housing Element Rezone

FIGURE 1c

Nevada County, CA

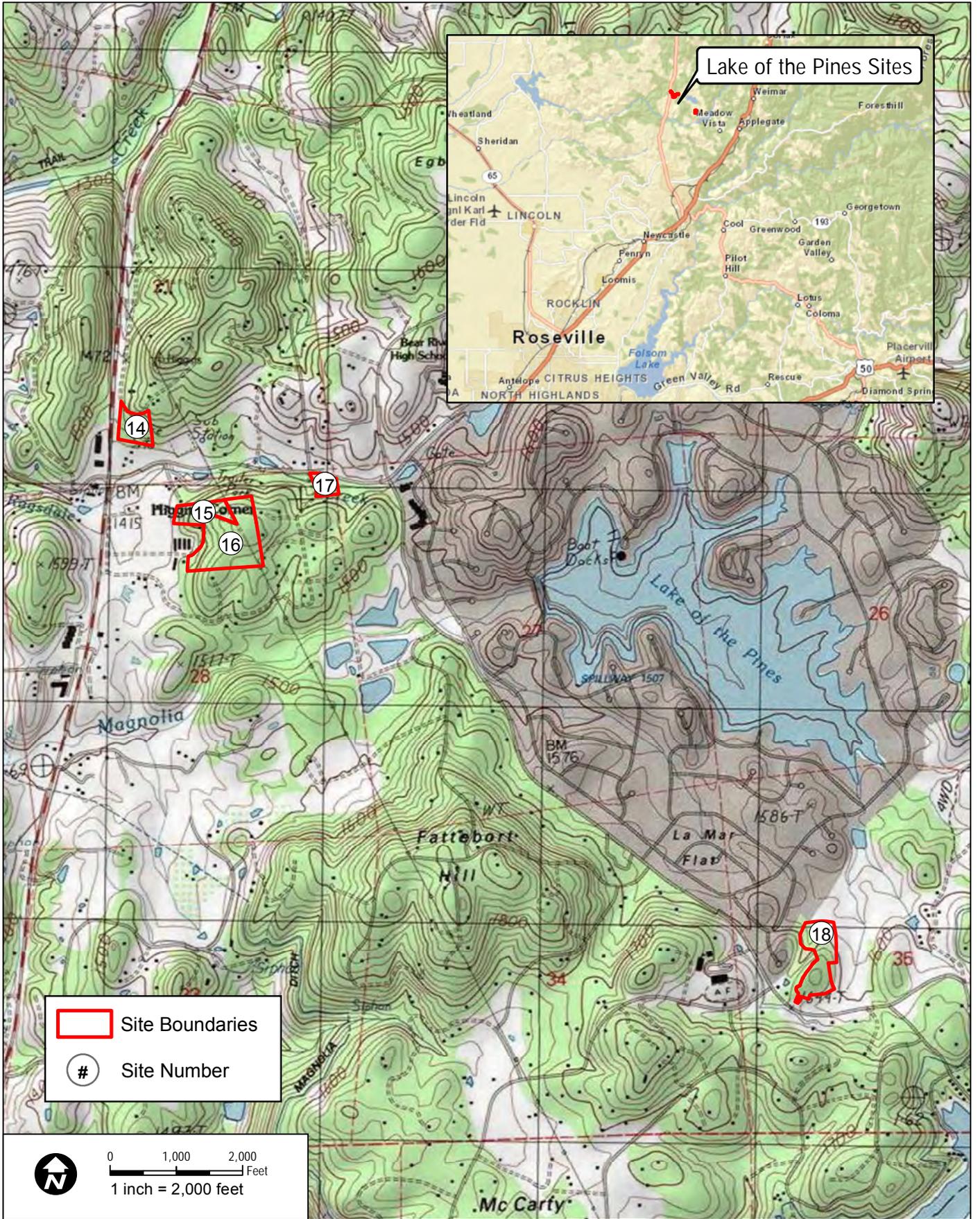
Site & Vicinity Map

7397

February 2013

BASEMAP: USA Topo Maps

Penn Valley Sites



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Nevada County Housing Element Rezone

FIGURE 1d

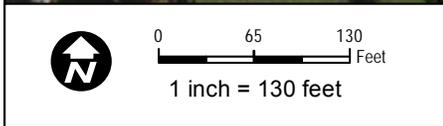
Nevada County, CA

Site & Vicinity Map

7397
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BASEMAP: USA Topo Maps

Lake of the Pines Sites



	Site Boundaries
	Site Number

DUDEK

Nevada County Housing Element Rezone

FIGURE 2a

Nevada County, CA

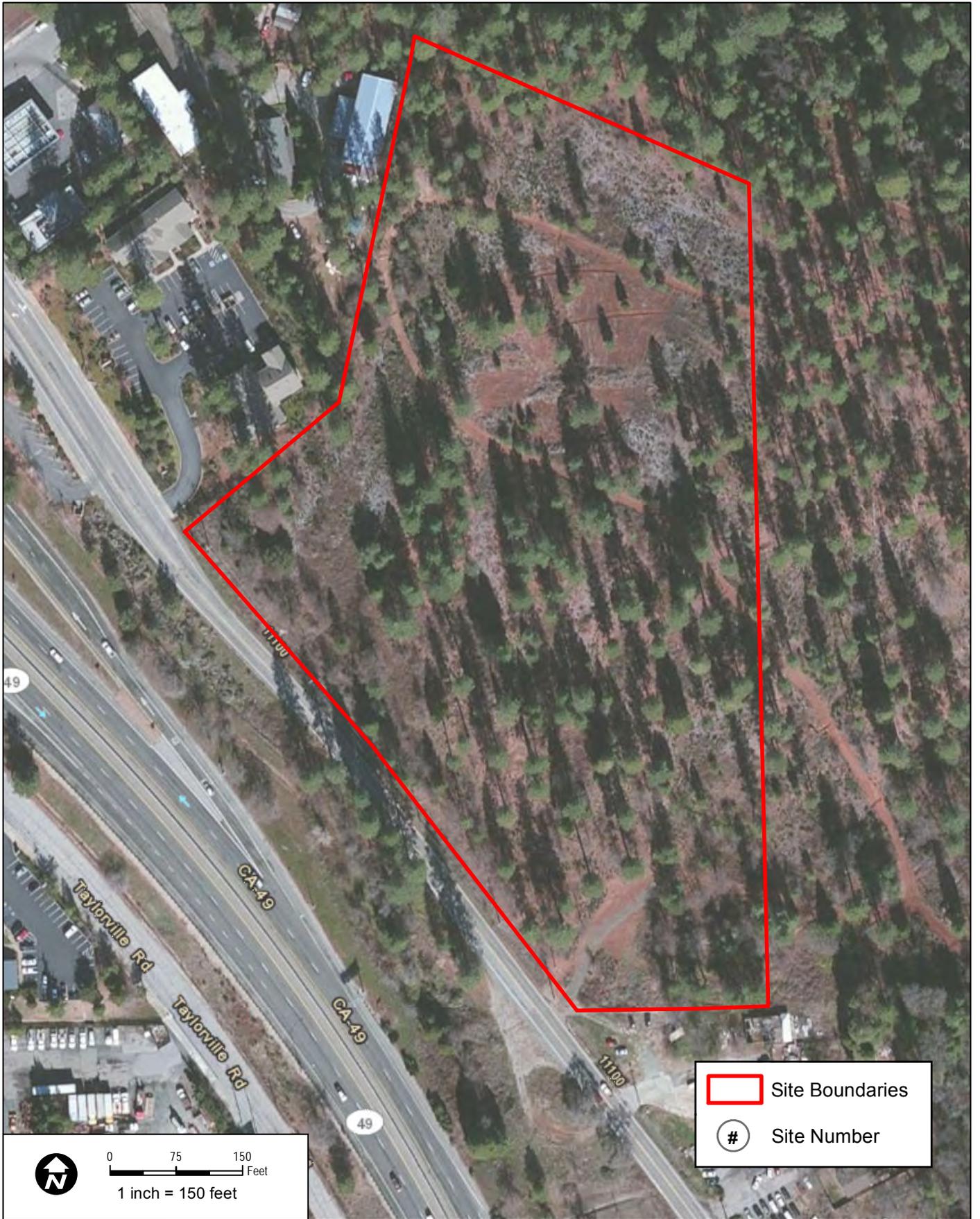
Aerial Photo

7397

February 2013

IMAGERY: ESRI World Imagery

Grass Valley Site 1



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Nevada County Housing Element Rezone

FIGURE 2b

Nevada County, CA

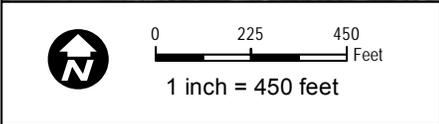
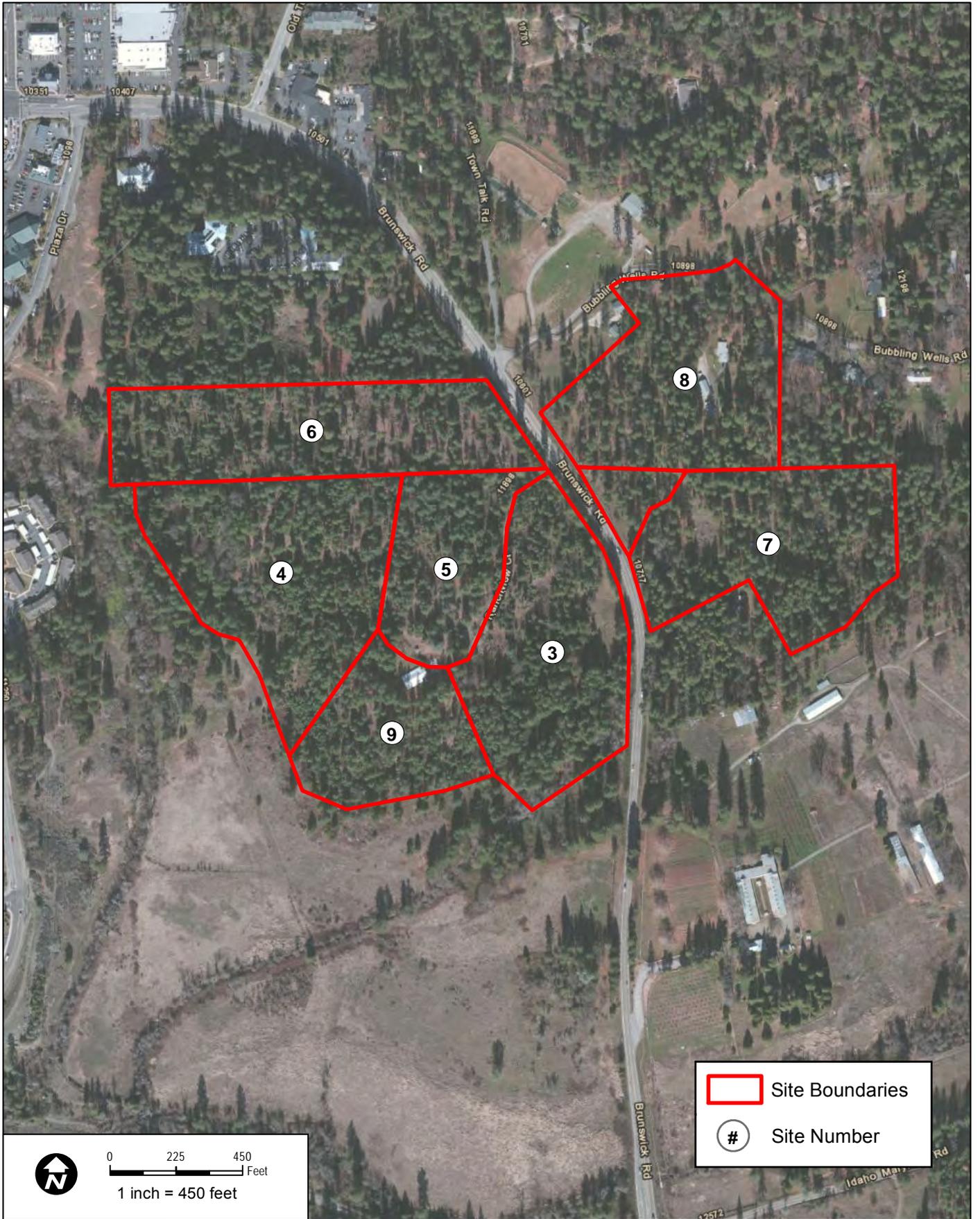
Aerial Photo

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February 2013

IMAGERY: ESRI World Imagery

Grass Valley Site 2



	Site Boundaries
	Site Number

DUDEK

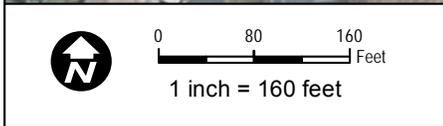
Nevada County Housing Element Rezone
 Nevada County, CA

FIGURE 2c
Aerial Photo

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 February 2013

IMAGERY: ESRI World Imagery

Grass Valley Sites 3-9



	Site Boundaries
	Site Number

DUDEK

Nevada County Housing Element Rezone
 Nevada County, CA

FIGURE 2d
Aerial Photo

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 February 2013

IMAGERY: ESRI World Imagery

Penn Valley Sites 10, 11



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Nevada County Housing Element Rezone
 Nevada County, CA

FIGURE 2e
Aerial Photo

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IMAGERY: ESRI World Imagery

Penn Valley Site 12



DUDEK

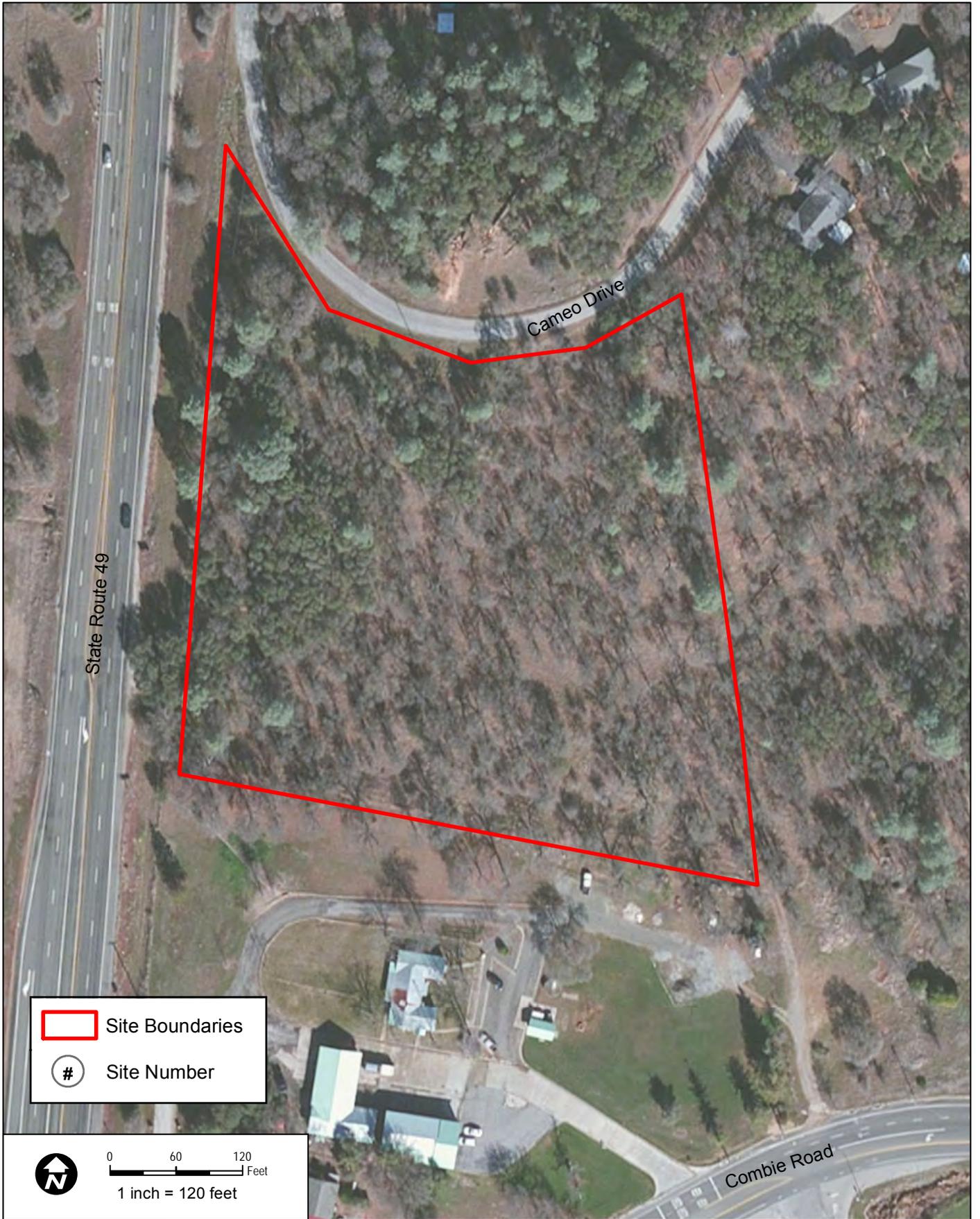
Nevada County Housing Element Rezone
 Nevada County, CA

FIGURE 2f
Aerial Photo

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 February 2013

IMAGERY: ESRI World Imagery

Penn Valley Site 13



DUDEK

Nevada County Housing Element Rezone
Nevada County, CA

FIGURE 2g
Aerial Photo

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 February 2013

IMAGERY: ESRI World Imagery

Lake of the Pines Site 14



Site Boundaries
Site Number

0 125 250
 Feet
 1 inch = 250 feet



DUDEK

Nevada County Housing Element Rezone

FIGURE 2i

Nevada County, CA

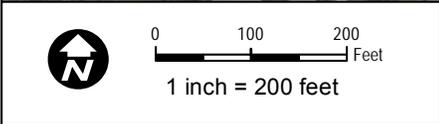
Aerial Photo

7397

February 2013

IMAGERY: ESRI World Imagery

Lake of the Pines Site 17



	Site Boundaries
	Site Number

DUDEK

Nevada County Housing Element Rezone
 Nevada County, CA

FIGURE 2j
Aerial Photo

7397
 February 2013

IMAGERY: ESRI World Imagery

Lake of the Pines Site 18

types, and hydrologic features, are provided in descriptions of the sites, figures, and in tables, below. Representative photos of several of the sites are provided in Figures 3a through 3c.

Proposed Project Description

To meet the County's unmet housing need as determined by the Regional Housing Needs Assessment performed by the California Department of Housing and Community Development, and as identified in the County's Housing Element, Nevada County needs to have enough vacant land zoned for high density residential (R3) development to accommodate an additional 1,270 low and very-low income housing units. For additional information, refer to the County's 2009-2014 Housing Element, which was adopted by the County in May of 2010.

The project proposes to rezone sufficient acreage to higher density residential, or the equivalent of higher density residential, to meet the minimum low and very low income requirements. The 18 sites under consideration are candidates for rezoning based on the outcome of preliminary constraints analyses and outreach to property owners. No development of the candidate sites is planned at the present time; future development would occur on these sites as market conditions allow and at the discretion of the individual property owners and developers.

METHODS

The objectives of this Biological Resources Inventory Report include the following:

- Identify and describe the biological communities present in the study area
- Record plant and animal species observed in the study area
- Evaluate and identify sensitive resources and special-status plant and animal species that could be affected by project activities
- Provide conclusions and recommendations

The following describes the methods employed for background data collection and field work conducted for this report.

Data Sources

For this assessment, RBF Consulting provided digital base files for each of the project parcels. The Nevada County GIS department provided the County's hydrologic layer and deer migration maps. Aerial imagery was obtained from Environmental Systems Research Institute (ESRI) world imagery data. Soils information was obtained from the SSURGO soils database and from the United States Department of Agriculture, Natural Resources Conservation Service (NRCS) and from NRCS's online Soil Data Mart (NRCS 2012). Habitats are classified according to the California Wildlife Habitat Relationships (CWHR) habitat classification scheme (CWHR 2013). Previous wetland delineation and biological inventory reports prepared for some of the sites and made available by the Nevada County Planning Department were also reviewed.

Special-Status Species Reports

The California Department of Fish and Wildlife (CDFW) maintains a database containing the locations of special-status species and sensitive biological communities. This database is known as the California Natural Diversity Data Base (CNDDDB) and it can be searched for those species and habitats occurring on specific USGS quadrangles. Dudek queried the CNDDDB for location records for special-status species known to occur in the region surrounding the project sites. Separate queries were performed for the Lake of the Pines sites and for those in the Penn Valley and Grass Valley areas to ensure that appropriate occurrence data for each of the site cluster areas was obtained. Quadrangles included in the query for the Lake of the Pines sites included Lake Combie, Auburn, Gold Hill, Chicago Park, Colfax, Greenwood, Grass Valley, Rough and Ready, and Wolf. Quadrangles included in the query for the Grass Valley and Penn Valley sites included Rough and Ready, French Corral, Nevada City, Smartville, Camp Far West, Oregon House, Grass Valley, Wolf, and Lake Combie. These quads were also included in a search of the California Native Plant Society (CNPS) inventory of rare plant species. Dudek biologists also reviewed the special-status species lists for the nine-quad areas created by the U.S. Fish and Wildlife Service (USFWS) and the CNPS Electronic Inventory of special-status plants in the region. The resulting lists of special-status species, and corresponding habitat requirements, were used to evaluate the potential for special-status species to occur within the study area. Appendix A includes the results returned from each database search as well as a table that evaluates the potential for each species to occur within the study area.

For the purposes of this report, special-status species are those that fall into one or more of the following categories, including those:

- listed as endangered or threatened under the federal Endangered Species Act (including candidates and species proposed for listing),
- listed as endangered or threatened under the California Endangered Species Act (including candidates and species proposed for listing),
- designated as rare, protected, or fully protected pursuant to California Fish and Game Code,
- designated a Species of Concern by CDFW,
- defined as rare or endangered under Section 15380 of the California Environmental Quality Act (CEQA), or
- Rank 1 or 2 species as designated by the CNPS Electronic Inventory of rare plant species.

Field Surveys

Each of the sites was visited by Dudek Senior Biologist Barry Anderson and Natural Resources Specialist Markus Lang. Reconnaissance-level surveys were conducted at each of the sites to determine habitat types, to record typical plant species, to identify potential constraints, and to determine if conditions are suitable to support special-status species. Reconnaissance surveys were conducted on May 9, May 14, and November 27, 2012. Focused rare plant surveys were not conducted, though surveys focused on habitats likely to support special-status plant species and, to the extent possible given the season the

survey was conducted, each plant taxon observed were identified to the taxonomic level necessary to determine rarity and listing status.

While no intensive survey of trees was conducted for the candidate sites as part of this inventory, Dudek field staff noted general tree species composition, estimated percent canopy cover for oak woodlands, and noted exceptionally large trees, as well as general size characteristics of oak woodlands on the subject sites. This information was used in the site constraints analysis provided to RBF Consulting and the County.

Appendix B is a list of plants and wildlife observed onsite for each of the three candidate site areas. Plant names follow *The Jepson Manual* (Baldwin et al. 2012). Standard field guides were used to identify wildlife.

SURVEY AND LITERATURE SEARCH RESULTS

Site Descriptions

Grass Valley Sphere of Influence

Sites 1 through 9 are located within the City of Grass Valley SOI (Figure 1), and are situated generally along the southern and western boundaries of the City. The area identified as the Grass Valley SOI is within unincorporated Nevada County and abuts the existing Grass Valley city limits. It has been identified in the City of Grass Valley General Plan as an area that could be annexed into the City in the future. Sites 1 and 2 are within areas of existing commercial development. Sites 3 through 9 are in a more transitional setting along Brunswick road where urban development along Sutton Way gives way to parcels that are undeveloped or sparsely developed with rural residential uses. Grass Valley area sites are shown on Figures 1a and 1b, Figures 2a through 2C, and in habitat maps provided in Appendix D.

Site 1

Site 1, a rectangular shaped parcel, is located on the southeastern side of McCourtney Road between Personeni Road and Genes Road. The site is generally undeveloped and nearly flat with only a gentle slope to the northwest. This site was previously cleared, graded and surfaced with gravel and is used for overflow parking during fairgrounds events. The entire site is in a disturbed condition and supports no natural plant communities. Vegetation onsite includes sparse weeds growing at the edge of the parking area and ponderosa pines (*Pinus ponderosa*) along the perimeter of the site. Stormwater from the site infiltrates or flows off of the site via sheetflow; no defined drainage features occur on the site. Land uses adjacent to the site include the Nevada County Fairgrounds to the north, commercial development on the southwest and northeast, and large lot single family residential to the southeast.

Site 2

Site 2 is located on La Barr Meadows Road just south of the La Barr Meadows Road/McKnight Way intersection. Site 2 is bound by commercial and residential land uses on the northwest and south, La Barr Meadows Road and State Route 49 on the southwest,



Site 10: View to north. Annual grassland community. Wetland swale is visible in foreground. Squirrel Creek riparian zone is tree band in background. Large valley oaks visible at left. Grassland community is contiguous with Site 11.



Site 12: Looking east along constructed drainage basin at north end of property. Annual grassland (mowed) is visible at right and is dominant community on this site. Landmark oaks were noted on this site.



Site 13: Looking south into property near shallow swale and within valley oak woodland. Oak woodlands occur within annual grassland community.



Site 7: View to southeast into riparian area along eastern boundary of site. This stream flows into the site from Site 8 and joins with a larger tributary to Wolf Creek near the southwest corner of the parcel.



Site 7: Looking east across recently harvested area. Most conifers in upland areas were harvested from the site. Black oaks and madrones are scattered within harvested area.



Site 6: Looking east from near high point of site. Photo shows regeneration of area recently disturbed by timber operations in foreground; intact Sierran mixed conifer forest in background. Common species include ponderosa pine, douglas-fir, incense cedar, and sugar pine, as well as black oak.



Site 14: View to southwest into blue oak woodland.



Site 15: View to north into mixed oak woodland. Dominant species is black oak.



Site 17: View to southeast into site from Rosewood Court. Dense riparian vegetation associated with Ragsdale Creek abuts road edge. Oak woodland is visible in background.

the Empire Mine State Historic Park on the north, and a portion of the approximately 45-acre La Barr Meadows property on the east, of which Site 2 comprises the western portion.

Site 2 is undeveloped; however, past uses of Site 2 include hard rock gold mining and there is evidence of past soil disturbance on the site. A single dirt access road winds through the property, accessing La Barr Meadows Road at the southeast corner of the site and passes through the site generally from west to east into the Empire Mine property. The plant community throughout the site can best be described as Sierran mixed conifer forest, but it has been heavily modified by past timber harvest and/or fuels modification treatments resulting in an open canopy and sparse understory condition. Dominant trees onsite include ponderosa pine and California black oak (*Quercus kelloggii*), with subdominants being incense cedar (*Calocedrus decurrens*) and madrone (*Arbutus menziesii*). Dominant understory species include whiteleaf manzanita, hollyleaf redberry (*Rhamnus illicifolia*), pinemat manzanita (*Arctostaphylos nevadensis*), poison oak (*Toxicodendron diversilobum*), buckbrush (*Ceanothus cuneatus*), toyon (*Heteromeles arbutifolia*), French broom (*Genista monspessulana*), and mountain misery (*Chamaebatia foliolosa*). The site slopes moderately to steeply to the southwest. A blackberry patch grows near the northernmost corner of the site frontage along La Barr Meadows Road and could indicate a small seep or seasonally wet area and should be further investigated prior to development. No other defined hydrologic features are onsite.

Sites 3 through 9

Sites 3 through 9 are located on Brunswick Road, north of Idaho Maryland Road and south of Bubbling Wells Road. Sites 3, 4, 5, 6, and 9 are on the west side of Brunswick Road and are accessed by Triple Crown Drive. Sites 3, 4, 5, 6, and 9 are contiguous parcels with an irregular shape. Site 9 is partially developed with a single family home and outbuildings on the northern portion of the site. All of the other sites in this cluster are undeveloped. Sites 7 and 8 are contiguous and irregularly shaped parcels located across Brunswick Road to the east of Sites 3, 4, 5, 6, and 9. These parcels are gently to steeply sloped.

Sites 3 through 6, and 9 are on a low, forested hilltop with variable stand density and several small openings in the canopy. Evidence of homeless encampments, including tents and other debris, is scattered throughout this cluster of sites. Some of these sites exhibit evidence of past mining activities, including mine waste piles and small excavations. The plant community on these sites is Sierran mixed conifer forest that has been modified in varying degrees by historical timber harvesting and forest fuels modification treatments. Dominant tree species onsite include ponderosa pine and douglas-fir (*Pseudotsuga menziesii*); subdominants include sugar pine (*Pinus lambertiana*), incense cedar, and madrone. California black oak are sparsely scattered under the conifers. Service-berry (*Amelanchier utahensis*), bracken fern (*Pteridium aquilinum*), whiteleaf manzanita (*Arctostaphylos viscida*), French broom, poison oak, Himalayan blackberry, and creeping snowberry (*Symphoricarpos mollis*) are well represented in the understory. A perennial tributary to Wolf Creek bisects the southern portion of Site 3 and is the only defined hydrologic feature on any of these sites. Riparian vegetation is associated with this stream. Representative species in the riparian zone include white alder (*Alnus rhombifolia*), red willow (*Salix laevigata*), arroyo willow (*Salix lasiocarpa*), Himalayan blackberry, California wild rose (*Rosa californica*), cutleaf blackberry (*Rubus laciniatus*), and California blackberry

(*Rubus ursinus*). Surrounding land uses include undeveloped land, rural residential, and commercial development off of Sutton Way west of this cluster of sites.

Site 3 contains an abandoned wood structure in the eastern, downslope portion of the site. Except for a narrow riparian strip along the site's southern boundary, the site is Sierran mixed conifer forest. A small meadow occurs in a forest clearing in the east-central portion of the site and contains non-native upland species of grasses and forbs. The site slopes moderately to the southeast. An unnamed perennial tributary to Wolf Creek bisects the parcel along its southernmost boundary and supports a riparian vegetation community. Brunswick Road forms the eastern site boundary; rural residential and undeveloped land is adjacent to this site to the west and the south.

Sites 4 is undeveloped and supports a Sierran mixed conifer forest community. The site slopes moderately to steeply to the southwest. No notable hydrologic features occur on this site, though a broad and shallow swale occurs in the southern half of the parcel. This swale follows the slope to the southwest. Aerial imagery and topography indicates that surface water may be present at the base of this swale near the western site boundary. This area was not investigated due to steep slopes and dense brush. If hydrology is present in this area it would represent a negligible constraint to site development. Adjacent land uses include rural residential and undeveloped parcels. Commercial development along Sutton Way is less than 300 feet west of the western site boundary of this parcel.

Site 5 is an undeveloped property that is completely surrounded by other properties within the study area (Sites 3, 4, 6, and 9). This site is situated on a low hilltop knoll and supports a Sierran mixed conifer forest type. The site slopes in all directions away from the top of the knoll. No defined hydrologic features occur on this site. The northeast corner of this site abuts Brunswick Road.

Site 6 is an undeveloped parcel that supports Sierran mixed conifer forest that has been heavily modified by thinning activities. Access roads occur throughout the site and appear to have at one time been surfaced with gravel. Haul roads, cut stumps, and tree and shrub stature, as well as a lower stand density and canopy closure than the other sites in this area indicate that the forest on Site 6 was thinned relatively recently. The understory has been thinned, likely during harvesting, and soils exhibit evidence of disturbance associated with timber operations. Seedling and sapling-sized California black oak are sparsely distributed in open, thinned areas. Open areas recently disturbed by forest thinning support grasses and herbaceous species, including *Iris sp.*, *Fritillaria sp.*, and *Calochortus sp.* Site 6 occurs on a small knoll and slopes gently in all directions away from the high point at the center of the site. No defined hydrologic features occur on Site 6. Adjacent land uses include rural residential to the north, Brunswick Road to the east, undeveloped forest to the south, and commercial development along Sutton Way to the west.

Site 7 abuts the east side of Brunswick Road across from the cluster of candidate sites abutting Brunswick Road from the west. The site is accessed via a culverted crossing of a small drainage, and slopes gently to moderately toward Brunswick Road to the southwest. Small shed structures and abandoned equipment are scattered throughout upland portions of this site and there is evidence of historical grading on the site. The majority of the site supports Sierran mixed conifer forest, albeit heavily modified by timber operations. The site is substantially disturbed as a result of timber harvesting conducted in 2012, which

cleared most of the understory vegetation and merchantable timber from the site. Trees remaining on the site are mostly madrone and California black oak. . Well-developed riparian corridors associated with perennial tributaries to Wolf Creek occur along the western and southern site boundaries. Shallow swales that could be the result of past mining disturbance also occur on this site. Several small wetland seeps are scattered around the site and support hydrophytic species. The source of the hydrology in these wet areas is unclear. Surrounding land uses include agricultural development and rural residential to the south, Brunswick Road to the west, and rural residential to the north and east.

Site 8 abuts the northern parcel boundary of Site 7 and consists of two separate parcels. This site is partially developed with two existing structures on site, one single family residence and one outbuilding. The existing development is accessed from Bubbling Wells Road via a gravel surfaced road that crosses a small perennial drainage over culverts. A secondary access to the site is provided by a gate off of Brunswick Road that accesses a dirt ranch road that crosses the same drainage over culverts. The site shows evidence of past mining disturbance in the form of waste piles and small depressions where soil has been excavated. The majority of the site is Sierran mixed conifer forest that has been thinned and in which the understory has been largely cleared. Ponderosa pine is the dominant species and some large specimens grow on this property. An intermittent stream runs parallel to Brunswick Road along the southwestern boundary of the site and supports sparse riparian vegetation and a grouping of willows at the northern parcel boundary. A perennial stream runs in a narrow ditch that bisects the site generally north-south and accepts runoff from a small intermittent tributary ditch to the west. This stream supports riparian vegetation, including white alder, willows, and Himalayan blackberry within a corridor that ranges from about 10 feet to up to 100 feet wide. Other hydrologic features include small depressions from past mining activities in which wetland plant species were observed. These features could be jurisdictional pursuant to Section 404 of the Clean Water Act. The site slopes gently to the west and the area between the perennial and intermittent streams is nearly level. Adjacent land uses include rural residential to the north and east, Brunswick Road to the west, and Site 7 to the south.

Site 9 is contiguous with Sites 3, 4, and 5 and contains one existing residence in the northern half of the site. The site slopes moderately to the south. The site supports Sierran mixed conifer forest. The forest has been thinned and the understory cleared for defensible space within an approximately 100 foot radius of the residence. The remaining forest has a higher stem density and a more developed understory, though it has been harvested in the past. One patch of blackberry grows incongruously southeast of the residence and could be associated with the septic leach field. No defined hydrologic features occur onsite. Vacant land occurs on all sides of this parcel. The forest onsite transitions to open annual grassland just beyond the southern boundary of the parcel.

Penn Valley Area

The community of Penn Valley is in unincorporated western Nevada County, approximately six miles west of the City of Grass Valley. Penn Valley has grown in recent years with several commercial and community development project. These sites are at a lower elevation than those in the Grass Valley area, approximately 1,500 feet, and occur

within areas of existing development. Penn Valley area sites are shown on Figure 1c and Figures 2d through 2f, and in habitat maps provided in Appendix D.

Sites 10 and 11

Sites 10 and 11 are undeveloped contiguous parcels located in the Penn Valley Area south of State Route 20, on the north side of Penn Valley Drive, east of the intersection with Broken Oak Court. Site 10 is undeveloped and nearly level with only a gradual slope to the northeast toward Squirrel Creek. Small, intermittent drainages meander across the site and join with an intermittent stream that flows in an eroded and incised channel along the western boundary of the property. Stormwater is delivered onto the site via three 36-inch culverts under Penn Valley Drive and a large culvert discharging to the central west portion of the site from the adjacent self-storage facility. Runoff from Site 11 is also delivered onto the site from the east.

Site vegetation consists primarily of non-native annual and perennial pasture grasses, though wetland species and blackberry grow within the drainages. Common species in the grassland community include wild oat (*Avena fatua*), riggut brome (*Bromus diandrus*), Mediterranean barley (*Hordeum marinum ssp. gussoneanum*), yellow star-thistle (*Centaurea solstitialis*), wild carrot (*Daucus carota*), bull thistle (*Cirsium vulgare*), orchard grass (*Dactylis glomerata*), and Italian ryegrass (*Festuca perennis*). Common species observed in drainages onsite include rushes (*Juncus xiphioides*, *Juncus sp.*) and sedges (*Carex sp.*), Himalayan blackberry, curly dock (*Rumex crispus*), English plantain (*Plantago lanceolata*), Harding grass (*Phalaris aquatica*), mugwort (*Artemisia douglasiana*), and willowherb (*Epilobium densiflorum*). Squirrel Creek bisects the northern end of the site and supports a foothill riparian plant community. Species representative of the riparian community along Squirrel Creek include valley oak (*Quercus lobata*), Oregon ash (*Fraxinus latifolia*), white alder, willows, cherry plum (*Prunus cerasifera*), and blue elderberry (*Sambucus nigra ssp. caerulea*). Several elderberry bushes, the unique habitat of the valley elderberry longhorn beetle, were noted growing along the banks of Squirrel Creek. Adjacent land uses include Site 11, the post office, and the Creekside Village mobile home park to the east, a self-storage facility and vacant land on the west, and wastewater percolation ponds to the north.

Site 11 is undeveloped and supports annual grassland. The site has a mild slope to the west. Three large valley oaks with a dbh of greater than 36 inches grow around the perimeter of this site and qualify as Landmark Oaks. An abandoned concrete house foundation is located near the eastern boundary of the site and a few ornamental trees grow in this area. A wetland swale receives stormwater runoff from the post office development south of the site and delivers it west into the wetland swale complex on Site 10. Adjacent land uses include a mobile home park to the east and north, Site 10 to the west, and commercial development to the south.

Site 12

Site 12 is southwest of Sites 10 and 11 across Penn Valley Road on Broken Oak Court. This site is undeveloped and generally flat. An unpaved drive traverses the northern part of the site and appears to provide access to recently developed areas west and north of the site. This site supports an annual grassland community. Three valley oaks with diameters in excess of 36 inches occur on this site and qualify as Landmark Oaks. Two of these large

trees are in fair to good condition; one is in declining health and has dropped most of its large limbs. A man-made drainage basin with wetland species is present on the north end of the site and generally follows the northern boundary . It appears maintenance of this area includes periodic vegetation removal. This feature appears to be isolated and to serve as a retention basin for stormwater runoff from the residential properties north of the site. The only other hydrologic feature is a small concave depression in the north central portion of the site that supports some hydrophytic species that are indicative of wetland conditions. Adjacent land uses include multifamily residential development across Broken Oak Court to the east and south, and small lot and rural residential development to the north and west.

Site 13

Site 13 is an undeveloped parcel bordered by State Route 20 to the north, residential development to the east, Squirrel Creek, wastewater percolation ponds, a mobile home park to the south, and undeveloped land to the west. Vegetation communities onsite include annual grassland, valley oak woodland, Sierran mixed conifer, and foothill riparian. Valley oaks occur sparsely throughout the annual grassland community and likely were more uniformly distributed on the site prior to historical clearing activities. Two areas of the valley oak woodland vegetation type are mapped on the site. The eastern woodland area is comprised of a mix of oak species including interior live oak (*Quercus wislizenii*), valley oak, and blue oak (*Quercus douglasii*). Several large oak trees occur on this parcel and likely qualify as Landmark Oak trees. The oak woodland community intergrades with the Sierran mixed conifer habitat type at the site's eastern margin where some valley oaks and interior live oaks grow in a forest dominated by ponderosa pine with a subcanopy of scattered California black oaks. A remnant walnut orchard grows in the southeastern corner of the site. Foothill riparian vegetation occurs where Squirrel Creek runs through the southeast portion of the site. Species representative of this riparian zone include valley oak, white alder, willow, blackberry, and wild grape (*Vitis californica*)(also see riparian species for Site 10). Elderberry shrubs were observed near Squirrel Creek.

Topography onsite is gently rolling with a slight slope toward Squirrel Creek to the south. A wetland swale runs in a general north-south alignment within the western band of valley oak woodland and supports some wetland plant species. A small intermittent stream enters the site at the northern boundary near the edge of pavement on SR 20 and bisects the site, splitting into at least two shallowly incised channels through most of the site, and connects to Squirrel Creek at the south end of the site. Vegetation in this area is dominated by a narrow band of blackberry bushes that grow under a dense canopy of mixed oak species. Hydrophytic species grow within the intermittent stream channel in places. The only other hydrologic feature onsite is a small depression in the southwest corner of the site that supports blackberry bushes. Circular wastewater percolation ponds are located just south of Site 13, near Squirrel Creek. All vegetation is cleared around the ponds, which are surrounded by an earthen berm. Access to Site 13 from the south is provided by a concrete stream crossing over Squirrel Creek.

Lake of the Pines

Sites 14 through 18 are located near Lake of the Pines, which is an unincorporated and gated community located within the southern portion of Nevada County approximately 12

miles north of Auburn. Sites 14, 15, and 16 are situated near the Combie Road / State Route 49 intersection. Site 17 is located at the southeast corner of the Rosewood Road / Combie Road intersection and Site 18 is located northeast of the Table Meadows Road / Combie Road intersection. Land uses surrounding these parcels include commercial, rural and medium-density residential, undeveloped land, and golf course facilities. Perennial Ragsdale Creek bisects Site 17 and is the only defined hydrologic feature on these sites. Lake of the Pines area sites are shown on Figure 1d and Figures 2g through 2j, and in habitat maps provided in Appendix D.

Site 14

Cameo Drive forms the northern boundary of this undeveloped site, while State Route 49 forms the western boundary of this site. This site slopes moderately to the south and west. Adjacent land uses include rural residential to the north and east, a fire station to the south, and State Route 49 to the east. This site supports an oak woodland plant community comprised of a nearly homogenous stand of blue oaks on most of the site, intergrading with an area of mixed blue oaks and interior live oaks on the steeper western portion of the site. Some foothill pine (*Pinus sabiniana*) also occurs within the mixed oak woodland area. The mixed oak area is densely stocked with an understory dominated by poison oak, while non-native annual grasses, including soft chess (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), and dogtail grass (*Cynosurus echinatus*) make up the understory under blue oaks on the remainder of the site. Canopy cover is 80 to 90 percent over most of the site and approaches 100 percent within the mixed oak woodland area. The oak woodland onsite qualifies as a Landmark Grove per section L-II 4.3.15 of the Nevada County Zoning Ordinance. No defined hydrologic features occur on the site.

Sites 15 and 16

Sites 15 and 16 are contiguous parcels located southeast of the intersection of State Route 49 and Combie Road. Access to these sites from State Route 49 is via Woodridge Drive, which runs along the boundary of the two parcels and terminates under powerlines near a small wastewater facilities building on Site 16. The site is moderately to steeply sloped to the northeast and east. Land uses surrounding these parcels include vacant land and a trailer park to the north, vacant land and a storage facility to the west, and rural residential to the south and east. Site 15 is partially developed with rural residential uses and a horse corral, while Site 16 contains a small shed-like structure housing wastewater facilities and an associated leach field downslope of this building. Undeveloped portions of Site 15 are characterized by a montane hardwood woodland community dominated by California black oak. Sub-dominant species include interior live oak and foothill pine. Trees are closely spaced and generally of small diameter. Canopy cover ranges from 80 to 100 percent and the woodland on this site qualifies as a Landmark Grove. Dominant species in the understory of the woodland area include poison oak, whiteleaf manzanita, hoary coffeeberry (*Frangula californica ssp tomentella*), and small diameter trees. No defined hydrologic features were noted on this site.

Site 16 is undeveloped, except for a wastewater disposal field and associated groundwater monitoring well network and pump building. The site slopes steeply to the west along the access road, but is more moderately sloped toward the interior and eastern portions of the site. The western half of this site supports a montane hardwood woodland community

dominated by interior live oak with scattered California black oaks. A mixed chaparral community occurs in the central portion of the site, likely the result of defined past disturbances on this parcel. Dominant species observed in this small chaparral community include whiteleaf manzanita, buckbrush, yerba santa (*Eriodictyon californica*), coyote brush (*Baccharis pilularis ssp. consanguinea*), and coffeeberry. The remainder of the site supports a low density mixed blue-oak foothill pine community. On Site 16 this habitat is characterized by a low density mix of tree species interspersed with groups of shrubs and non-native annual grasslands. Representative tree species in this community include interior live oaks, foothill pine, and ponderosa pine. Representative shrubs include whiteleaf manzanita and poison oak. No defined hydrologic features were noted on Site 16.

Site 17

Site 17 is an undeveloped, densely vegetated parcel. The site slopes moderately to the north down to Ragsdale Creek, and bisects the site east-west along the site's northern boundary and supports a dense foothill riparian corridor. Ragsdale Creek is the only substantial hydrologic feature on the site. Himalayan blackberry, willows, and valley oak are dominant species in the riparian corridor on this site. The remainder of the site supports a densely wooded montane hardwood community of mostly smaller diameter trees. California black oak is the dominant species in this community, with interior live oak as a subdominant species and valley oak intergrading along the riparian corridor. Canopy cover of this woodland is 90 – 100 percent, qualifying the woodland onsite as a Landmark Grove. Scattered ponderosa pine and foothill pine also occur. Site 17 is bound by single family residential property on the south, Rosewood Road and undeveloped land to the east, undeveloped land to the west, and commercial development across Combie Road to the north.

Site 18

Site 18 is adjacent to the Hole 6 green of the adjacent Darkhorse Golf Course, which abuts the site on the north and east. Single family residential development and open space are east and south of the site. A small knoll occurs within the southern half of the site and the site slopes moderately away from this high point in all directions. A rock outcrop occurs at the high point of the site. Vegetation onsite is split between two plant communities. The southern half of the site supports a montane hardwood woodland community in which blue oak is the dominant species, and interior live oak and California black oak also occur. Trees on this site are generally of larger diameter and well-spaced. Some large diameter blue and black oak specimens grow on this property and likely meet County criteria for Landmark Oak status. The canopy cover in this oak woodland is 80 to 90 percent, which exceeds the County's criteria for a Landmark Grove. Understory throughout this site is primarily non-native grasses and forbs. Species recorded in the understory include gray ripgut brome, dogtail grass, blue wildrye (*Elymus glaucus*), mule ears (*Wyethia helenoides*), whiteleaf manzanita, arrowleaf balsamroot (*Balsamorhiza sagittata*), crimson clover (*Trifolium incarnatum*), and yellow star tulip (*Calochortus monophyllus*). The northern half of the site supports a Sierran mixed forest community and is dominated by well-spaced, mature ponderosa pines. No significant hydrologic features occur on this site, though a small ephemeral drainage occurs in the northwest portion of the property. Stormwater entering this drainage traverses through the site to the northeast.

Soils

Seventeen soil units are mapped within the sites under consideration. Soil types mapped on each of the sites are shown in Table 3, below. Three of these soils meet hydric criteria: Alluvial land, loamy; Alluvial land, clayey; and Placer Diggings. These soils typically occur in drainageways, depressions, and floodplains. No serpentine or gabbro soils (which are known to support special status plant species) occur on any of the candidate sites. Appendix C contains soil maps for each of the sites.

**Table 3
Study Area Soils**

Site	Soils Unit
1	Sites loam, 2 to 9 percent slopes
2	Alluvial land, clayey Musick sandy loam, 5 to 15 percent slopes Musick sandy loam, 15 to 50 percent slopes Sites loam, 15 to 30 percent slopes Sites very stony loam, 15 to 50 percent slopes
3	Sites loam, 15 to 30 percent slopes Sites loam, 2 to 9 percent slopes Alluvial land, clayey
4	Sites loam, 15 to 30 percent slopes Sites loam, 2 to 9 percent slopes Alluvial land, clayey
5	Sites loam, 15 to 30 percent slopes Sites loam, 2 to 9 percent slopes
6	Sites very stony loam, 2 to 15 percent slopes Sites loam, 15 to 30 percent slopes Sites loam, 2 to 9 percent slopes
7	Sites loam, 15 to 30 percent slopes Alluvial land, clayey Sites loam, 9 to 15 percent slopes
8	Alluvial land, clayey Mariposa-Rock outcrop complex, 2 to 50

	percent slopes Sites loam, 2 to 9 percent slopes Sites loam, 9 to 15 percent slopes Sites loam, 15 to 30 percent slopes
9	Sites loam, 2 to 9 percent slopes Sites loam, 15 to 30 percent slopes
10	Alluvial land, loamy Sierra sandy loam, 2 to 9 percent slopes
11	Alluvial land, loamy Sierra sandy loam, 2 to 9 percent slopes
12	Sierra sandy loam, 2 to 9 percent slopes
13	Ahwahnee sandy loam, 2 to 9 percent slopes Aiken loam, 9 to 15 percent slopes Alluvial land, loamy Placer diggings
14	Boomer loam, 5 to 15 percent slopes Boomer-Rock outcrop complex, 5 to 30 percent slopes
15	Boomer loam, 5 to 15 percent slopes Boomer-Rock outcrop complex, 5 to 30 percent slopes
16	Boomer-Rock outcrop complex, 5 to 30 percent slopes
17	Boomer loam, 5 to 15 percent slopes Boomer-Rock outcrop complex, 5 to 30 percent slopes
18	Auburn-Argonaut complex, 2 to 15 percent slopes Boomer loam, 5 to 15 percent slopes Rescue-Rock outcrop complex, 5 to 30 percent slopes Sites very stony loam, 15 to 50 percent slopes

Hydrology/Potential Wetlands and waters of the U.S. and California

Hydrologic features on the study sites include perennial, intermittent, and ephemeral streams, wetland swales, seeps, and seasonally wet depressions, as described in descriptions of the sites above. The primary perennial drainages associated with the study sites are Squirrel Creek (Sites 10 and 13), Ragsdale Creek (Site 17), and perennial tributaries to Wolf Creek (Sites 3, 7, 8). Ragsdale Creek flows into Wolf Creek approximately 1.4 miles west of Site 17. Squirrel Creek is a tributary to Deer Creek, which flows into the main stem of the Yuba River downstream of Englebright dam. The Yuba River eventually delivers flows to the Feather River near Yuba City. Wolf Creek drains to the Bear River, which flows into Camp Far West Reservoir before reaching the Feather River south of Yuba City. The Feather River is a tributary to the Sacramento River. Sites clustered in Penn Valley are in the Upper Yuba watershed (HUC 18020125), while sites in the Grass Valley and Lake of the Pines area are within the Upper Bear River watershed (HUC 18020126).

Table 4, below, provides a summary of the features identified on each of the sites. Maps included in Appendix D show the general location of these features. No formal wetland delineation was conducted as part of this analysis and the locations and areas of all hydrologic features identified in tables and figures are approximate and provided only to assist in a preliminary analysis of constraints on each site. A revised wetland delineation was prepared in 2010 for the Penn Valley Oaks project site, which includes Sites 10 and 11, and was submitted to the Corps for verification. This delineation revised and updated a delineation prepared for the sites and previously verified by the Corps in 2000 and 2001. The 2010 delineation mapped a total of 1.02 acres of wetlands and other waters of the U.S. on Sites 10 and 11, including 0.42 acres of palustrine emergent wetlands and 0.60 acres of other waters, including Squirrel Creek and a small tributary. It is unknown whether the 2010 delineation has been verified by the Corps.

A formal wetland delineation verified by the Corps is required to ascertain the extent of waters of the U.S. and the actual area subject to Corps jurisdiction under Section 404 of the Clean Water Act. Any impact to waters of the U.S. requires a permit from the Corps issued under Section 404 of the Clean Water Act. Section 401 of the Clean Water Act requires the State to provide a water quality certification to condition the issuance of federal permits under Section 404 to ensure protection of State waters. The Regional Water Quality Control Board (RWQCB) has jurisdiction for the issuance of 401 water quality certifications.

An area that exhibits a predominance of hydrophytic vegetation, where associated with a stream or pond, may be regulated by the Regional Water Quality Control Board as waters of the State of California. In some cases the Regional Board will take jurisdiction over areas not regulated by the Corps, such as isolated hydrologic features.

The CDFW regulates activities affecting the bed, bank, or channel of creeks, rivers, lakes, ponds, and other water bodies pursuant to Section 1602 of the California Fish and Game Code. This permit is commonly called a Streambed Alteration Agreement and typically specifies measures to mitigate the impacts of a proposed project, including compensatory mitigation or project design modifications.

**Table 4
Hydrologic Features**

Site	Feature Type	Estimated Size (Acres/Linear Ft.)	Location
1	--	--	--
2	potential seep	0.14/--	southwest margin of site
3	perennial stream	--/448	southeast site boundary
4	--	--	--
5	--	--	--
6	--	--	--
7	perennial stream	--/462	southeast site boundary
	perennial stream	--/391	western portion of site
	intermittent stream	--/96	bisects western portion of site
	potential seep	0.02/--	central portion of site - scattered
	wetland swale	0.06/--	eastern third of site
	wetland swale	--/356	southeast corner, area not defined
8	intermittent stream	--/538	southwest site boundary
	intermittent stream	--/277	northwest corner
	wetlands	<0.10/--	northwest corner and scattered in western third of site in past mining disturbance areas
	perennial stream/vegetated ditch	--/932	bisects site north to south; has riparian corridor up to 100 feet wide
9	--	--	--
10	isolated wetland	0.17/--	southern half of site
	wetland swale	0.53/--	southern half of site
	intermittent stream	--/755	western site boundary
	perennial stream (Squirrel Creek)	--/323	bisects north end of site
11	seasonal wetland	0.27/--	southwest corner of site
12	constructed drainage basin	0.11/--	northern site boundary.

	seasonal wetland	0.04/--	north-central portion of site
13	wetland	0.01/--	southwestern corner of site
	intermittent stream	--/646	bisects center of site north-south
	intermittent stream	--/407	bisects center of site north-south, channel splits from other intermittent channel
	wetland swale	0.16/--	center of site, north of offsite wastewater ponds
	perennial stream (Squirrel Creek)	--/248	southeast corner of site
14	--	--	--
15	--	--	--
16	--	--	--
17	perennial stream (Ragsdale Creek)	--/390	bisects site E-W and has wide associated riparian zone
18	--	--	--

Biological Communities

Seven habitat types were mapped within the 18 candidate sites: disturbed, annual grassland, blue oak woodland, montane hardwood, Sierran mixed conifer, foothill riparian, and mixed chaparral. The Northern Sierra Nevada Foothills Vegetation Project (NSNFVP) (Menke et al 2011) mapped plant communities in the foothills and assigned classifications according to the Manual of California Vegetation 2nd Edition (MCVII). Mapping included the rezone candidate sites under consideration in the Penn Valley and Lake of the Pines area. Review of the NSNFVP mapping and accompanying report determined that vegetation classifications and mapping are particularly unreliable as they apply to mixed conifer and California black oak communities. While the mapping and habitat classifications assigned by the NSNFVP were consulted, we decided conditions on each of the sites were better represented by assigning classifications according to the CWHR habitat classification scheme. Habitat maps included in Appendix D use the CWHR system to map habitat types for each of the candidate sites. Table 5 provides the area of each habitat type mapped within each project site. Figures 3a through 3c provide representative photographs of habitat conditions encountered. Each of these biological communities is described in greater detail below Table 5.

**Table 5
Vegetation Communities***

Site	Disturbed (Acres)	Annual Grassland (Acres)	Valley Oak Woodland (Acres)	Blue Oak Woodland (Acres)	Montane Hardwood (Acres)	Sierran Mixed Conifer (Acres)	Foothill Riparian (Acres)	Mixed Chaparral (Acres)	Blue Oak-Foothill Pine (Acres)
1	1.15	-	-	-	-	-	-	--	
2	-	-	-	-	-	10.48	-	--	
3	-	-	-	-	-	9.28	0.83	-	-
4	-	-	-	-	-	11.48	-	--	
5	-	-	-	-	-	5.61	-	--	
6	-	-	-	-	-	10.06	-	--	
7	-	-	-	-	-	8.23	1.37	-	-
8	-	-	-	-	-	11.00	1.48	-	-
9	-	-	-	-	-	5.81	-	--	
10	-	5.55	-	-	-	-	1.03	-	-
11	-	3.08	-	-	-	-	-	--	
12	-	4.56	-	-	-	-	-	--	
13	-	10.81	6.52	-	-	1.29	1.31	-	-
14	-	-	-	5.13	-	-	-	-	-
15	1.37	-	-	-	3.86	-	-	--	
16	-	-	-	-	5.25	-	-	1.68	11.93
17	-	-	-	-	1.43	-	1.04	-	-
18	2.42	-	-	-	4.82	3.80	-	--	
Total Acreage									
4.94	24	6.52	5.13	15.36	77.04	7.06	1.68	11.93	

*Acreage total for all habitats on a parcel may vary slightly from County parcel size data due to mapping.

Disturbed/Developed

This is not a CWHR habitat classification, but is applied to developed or substantially disturbed areas where vegetation cover is largely absent. This designation is applied to one Nevada County property. It is best described as a habitat that has severe disturbance, such as grading or other activities that removes much of the vegetation. Plant species that do occur in these areas typically occur around the edges of cleared or developed areas and are non-native, ornamental or ruderal species that are adapted to high levels of disturbance.

Site 1 is primarily a disturbed habitat.

Annual Grassland

Annual grasslands are dominated by annual, non-native grasses and forbs. Common species include bromes (*Bromus* spp.), Italian ryegrass, wild oat, orchard grass, Mediterranean barley, filarees (*Erodium* spp.), and others. Nevertheless, native species do occur in this grassland, including bulbs, legumes, and some grasses, including blue wildrye. Ruderal species often occur scattered at grassland edges and in areas that have been historically disturbed and include yellow star-thistle, wild carrot, and hedge parsley (*Torilis arvensis*). All of the grass species are dormant during the dry summer months.

Sites 10, 11, 12, and 13 are grasslands or have large grassland components.

Valley Oak Woodland

Valley oak is the dominant species in this habitat, though other oak species may also occur. Valley oaks in this habitat type grow in a mosaic with annual grasslands and more dense groupings of forest-like stands. Dispersed stands are generally on upland soils while a more dense woodlands generally are along streams or on more fertile soils. Shrubs and grasses make up the understory, with a more dense shrub layer typically occurring along drainages. Poison oak, toyon, and coffeeberry are common understory species. On the candidate sites, understory species in this habitat type are non-native grasses, poison oak, Oregon ash, and Himalayan blackberry. Associate trees include blue oak and interior live oak.

Site 13 supports a valley oak woodland community in groupings among non-native annual grassland.

Blue Oak Woodland

The dominant species in blue oak woodland is the blue oak. Other trees found in blue oak woodland include interior live oak, California buckeye (*Aesculus californica*), and foothill or gray pine. The understory in blue oak woodlands is often herbaceous, but can include a number of shrubs. Non-native grasses form the most common understory plants, but buckbrush, poison oak, and white-leaf manzanita may be common.

Site 14 supports blue oak woodland with a small patch of interior live oak on the west side.

Montane Hardwood

Montane hardwood habitats can have a variety of tree species depending on the elevation and location in the state. The dominant species are hardwood trees, mostly oaks. Conifers may be present in small amounts and vary by location, but typically make up less than a third of the trees in this community. On the Nevada County sites, Montane Hardwood is dominated by interior live oak, California black oak, and blue oak. Ponderosa pines and foothill pines may be present in this community. Montane Hardwood habitats often have a shrubby understory because of the lack of fire.

Sites 15, 16, and 17 support Montane Hardwood habitat units.

Sierran Mixed Conifer

Sierran Mixed Conifer habitat supports a variety of coniferous tree species and often includes several hardwood species. On the Nevada County sites this habitat is dominated by ponderosa pine, but incense cedar, Douglas-fir, and sugar pine are also present on most sites. Hardwoods include California black oak and madrone. The understory is often shrubby and common species are toyon, white-leaf manzanita, and coffeeberry (*Frangula californica*). Many of these shrubs would be absent in the presence of periodic fires. Many of these sites exhibit evidence of recent or historic timber harvesting or fuels reduction treatments that have reduced tree stem density or cleared the understory shrub layer.

Sites 13, 2, and 3 through 9 support Sierran Mixed Conifer habitat.

Foothill Riparian

Foothill Riparian habitat occurs along creeks, streams, and rivers in the foothills of California. This habitat is composed of hardwood species that include Fremont cottonwood (*Populus fremontii*), white alder, and willows (*Salix* spp.). The willows may be trees or shrubs, depending on the level of disturbance in the stream system. Valley oaks are common along the edges of some riparian habitats. American dogwood or red osier (*Cornus sericea*), California rose, and Himalayan blackberry are common shrubby species.

Sites 3, 7, 8, 10, 13, and 17 have a riparian component embedded in the primary habitat.

Mixed Chaparral

Mixed chaparral supports a variety of shrub species that typically grow in dense groupings. In the foothills area this community sometimes is early successional on recovering disturbance areas within other communities. This community was observed on one of the study area parcels in the Lake of the Pines area. Species that occur in the mixed chaparral community on this parcel include whiteleaf manzanita, buckbrush, yerba santa, coyote brush, and hoary coffeeberry.

Site 16 supports a small unit of this habitat type.

Blue Oak-Foothill Pine Woodland

This habitat type differs from blue oak woodland by having a greater proportion of foothill pines intermixed with blue oak and interior live oak. The blue oak-foothill pine woodland community occurs on one of the candidate sites in the Lake of the Pines area. This habitat typically has mixed species tree and shrub groupings with annual grassland in small openings. Canopy cover is generally low and trees are mature. Overstory is dominated by foothill pine and blue oak, but interior live oak and California buckeye may also be present. The shrub layer, where present, is comprised of white-leaf manzanita, poison oak, and buckbrush. Non-native annual grasses and forbs occur in a small-scale mosaic of openings.

Site 16 supports a small area of the blue oak-foothill pine community.

Special-Status Species

The California Natural Diversity Data Base (CNDDDB) search recorded occurrences of 14 special-status plant species and 14 special-status wildlife species within the 9-quad regions

searched around the Lake of the Pines and Penn Valley and Grass Valley site clusters. One additional plant species was added from the CNPS list for the 9-quad search area and two additional wildlife species were added from the list returned by the USFWS database search for Nevada County. Field surveys and the best professional judgment of Dudek biologists were used to further refine this list of species based on habitat requirements and occurrence location data.

Several of the special-status species of plants that are known to occur near some of the sites are known only from serpentinite or gabbro soil units, which do not occur on any of the candidates sites. The USFWS list for Nevada County includes species that only occur at elevations far below the study area like Delta smelt, and that occur only at higher elevation in the Sierra Nevada or east of the Sierra crest, such as Lahontan cutthroat trout,. Species known only from much lower or higher elevations are not considered in this analysis. Of the 31 species considered, four plants and seven wildlife species have some potential to occur on the project site and are included in Table 6. One additional plant species, Pine Hill flannelbush, is included in Table 6 because it is federally listed as endangered and there are occurrences in proximity to some of the sites near Grass Valley. Similarly, though California red-legged frog is considered unlikely to occur, it is included in the table because there are occurrences of this species in the project region and it is a listed species. Complete lists of all special-status plant and wildlife species identified by database queries for the project region, as well as a discussion of habitat requirements and potential to occur on the candidate sites, are presented in Appendix A. A discussion of those species considered possible or likely to occur within the study area is provided following the table.

**Table 6
Special-Status Species that Could Occur Within the Candidate Sites**

Species	Federal	State	CNP S	Habitat	Potential for Occurrence**
Plants					
Western viburnum <i>Viburnum ellipticum</i>	none	none	2.3	Chaparral; cismontane woodland; lower montane coniferous forest. North facing, shaded slopes.	Possible - Suitable habitat on several forested sites. (Sites 3, 4, 7, 8, 9, 17 most suitable)
Brownish beaked-rush <i>Rhynchospora capitellata</i>	none	none	2.2	Lower montane coniferous forest, meadows and seeps, marshes and swamps, upper montane coniferous forest / mesic; elevation range 455 - 2000 meters (approx. 1,493 - 6,652 feet).	Possible - Potentially suitable habitat occurs near seeps, wetlands, and along the margins of drainages on several of the sites. (Sites 3, 7, 8, 10, 11, 12, 13, 17)
Finger rush <i>Juncus digitatus</i>	none	none	1B.1	Vernal pools (cismontane woodland; lower montane coniferous forest). 660-790 meters.	Possible - Wet, open areas on several sites provide marginally suitable habitat. (Sites 3, 7, 8, 10, 11, 12, 13)

Species	Federal	State	CNP S	Habitat	Potential for Occurrence**
Scadden Flat checkerbloom <i>Sidalcea stipularis</i>	none	CE	1B.1	Marshes and swamps (montane freshwater).	Possible - Potentially suitable habitat occurs near seeps, wetlands, and along the margins of drainages on several of the sites. Recorded in Nevada County growing with <i>Rhynchospora capitellata</i> . (Sites 3, 7, 8, 10, 11, 12, 13, 17)
Pine Hill flannelbush <i>Fremontodendron decumbens</i>	FE	CR	1B.2	Chaparral; cismontane woodland; [gabbroic or serpentinite].	Unlikely – Not observed during surveys. Typically occurs on serpentinite or gabbro substrates that do not occur on any of the candidate sites.
Invertebrates					
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	FT***	none	--	Elderberry shrubs, found in riparian corridors and oak woodland.	Possible - Elderberry shrubs were observed in Squirrel Creek drainage and could occur along other drainages and in woodlands (occurs on Sites 10 and 13; possible on Sites 3-10, 15-18).
Amphibians					
California red legged frog <i>Rana draytonii</i>	FT	none	--	Ponds or slow moving water with overhanging vegetation	Unlikely. Aquatic habitat on sites is flowing streams or shallow and intermittent. Wastewater ponds near Site 13 lack vegetation. Nearest occurrence is over 6 miles northeast of Grass Valley sites.

Species	Federal	State	CNP S	Habitat	Potential for Occurrence**
Foothill yellow-legged frog <i>Rana boylei</i>	none	CSC	--	Shaded streams with rocky substrate. Needs some cobble-sized rocks as a substrate for egg laying. Requires water for 15 weeks for larval transformation.	Likely - Squirrel Creek, Ragsdale Creek, and a perennial tributary to Wolf Creek provide suitable habitat. Species reported from Squirrel Creek and known from Bear River in Nevada County. (Sites 3, 7, 10, 13, 17)
Reptiles					
Western pond turtle <i>Emys marmorata</i>	none	CSC	--	Inhabits ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Needs suitable basking sites and upland habitat for egg laying.	Possible – Aquatic habitat on some sites is marginally suitable. Moderate flows and lack of basking sites make available aquatic habitat suboptimal. (Sites 3, 7, 10, 13, 17)
Birds					
California black rail <i>Laterallus jamaicensis coturniculus</i>	none	CT	--	Salt and freshwater marshes with dense cover. Interior populations known from Sierra Nevada foothills. Typical inland habitat is irrigation-fed wetlands >0.25-acre.	Possible - Dense vegetation in riparian corridors are marginally suitable habitat. (Sites 3, 7, 8, 10, 13, 17)
Long-eared owl <i>Asio otus</i>	none	CSC	--	Dense, mixed forests and tall shrublands, usually next to open spaces. Often nests in an abandoned crow, magpie, or hawk nest, occasionally in a natural tree cavity.	Possible - Riparian and oak woodland communities, especially near open grassland areas, provide suitable nesting habitat.
Yellow warbler <i>Dendroica petechia</i>	none	CSC	--	Breeds in riparian vegetation throughout California; populations in Sacramento and San Joaquin valleys are declining. Common in eastern Sierran riparian habitats below 8,000 feet.	Possible - Riparian corridors provide suitable habitat for this species. (Sites 3, 7, 8, 10, 13, 17)

Species	Federal	State	CNPS	Habitat	Potential for Occurrence**
Grasshopper sparrow <i>Ammodramus savannarum</i>	none	CSC	--	Breeds in grasslands and savannahs in rolling hills and lower mountain hillsides up to 5000 feet elevation.	Possible - Suitable grassland habitat occurs on some of the sites, though the project area is considered outside the typical range of this species. This species and other migratory songbirds could nest within candidate sites.
Nesting Raptors****	none	CFP	--	Grasslands, large trees in woodland/forest/riparian communities.	Likely - Suitable habitat is present on all sites.

*Status Codes:

Federal

- FE Federal Endangered
- FT Federal Threatened
- FP Federal Proposed Species

State

- CE California Endangered
- CT California Threatened
- CR California Rare (plants only)
- CSC California Species of Concern
- CFP California Fully Protected

CNPS

- Rank 1B Rare, Threatened, or Endangered in California
- Rank 2 R, T, or E in California, more common elsewhere
 - 1- Seriously threatened in California
 - 2- Fairly threatened in California
 - 3- Not very threatened in California

**Definitions for the Potential to Occur:

- **None.** Habitat does not occur.
- **Unlikely.** Some habitat may occur, but disturbance or other activities may restrict or eliminate the possibility of the species occurring. Habitat may be very marginal, or the study area may be outside the range of the species.
- **Possible.** Marginal to suitable habitat occurs, and the study area occurs within the range of the species.
- **Likely.** Good habitat occurs, but the species was not observed during surveys.
- **Occurs:** Species was observed during surveys.

***Proposed for de-listing by USFWS in 2012.

****Protected under Fish & Game Codes and Federal Migratory Bird Treaty Act.

Special-Status Plants

Our assessment did not include conducting floristic, special-status plant surveys to agency guidelines, which would have included a comprehensive botanical survey and identification of each plant species to determine any listing/rarity status. Nevertheless, our surveys in May were conducted when many of the special-status plant species with potential to occur would have been identifiable by flowers or foliage and we focused on habitats likely to support special-status species in order to determine whether rare plant species were or could be present on each site. Below is a discussion of the species that could occur on the sites reviewed.

Western viburnum (*Viburnum ellipticum*) is a three to 12 foot shrub in the honeysuckle family (Adoxaceae). It has no state or federal status. It is a CNPS Rank 2 species, meaning that it is rare in California, but more common elsewhere. It is differentiated from other members of the family by its simple, coarsely dentate leaves. It grows in chaparral, foothill woodlands, and lower montane forests at widely scattered locations in the Sierra Nevada

and northern Coast Ranges of California. Viburnum is much more common and widespread from Oregon north. Oval-leaved viburnum blooms in May and June. This plant was not observed during surveys, and no occurrences are known from within five miles of any of the sites, but suitable habitat occurs on several forested sites. Sites 3, 4, 7, 8, 9, and 17 provide shaded slopes that would be most suitable for this species.

Brownish beaked-rush (*Rhynchospora capitellata*) is not listed pursuant to the federal or state ESAs; however, it is designated as a CNPS Rank 2 species. This species is an herbaceous perennial that occurs in montane coniferous forest in meadows, seeps, marshes, swamps, and moist areas. Brownish-beaked rush blooms from July to August and it is known to occur at elevations ranging from $\pm 1,500$ to $\pm 6,500$ feet. There are recorded occurrences of this species from Nevada County. The CNDDDB documents one occurrence of brownish-beaked rush approximately two miles northwest of Site 2. Wetlands and riparian areas provide potential habitat for this species.

Finger rush (*Juncus digitatus*) is an annual monocot in the rush family (Juncaceae). It has no state or federal status, but is a CNPS Rank 1B.1 species. It forms dense clumps of thin stems that are red in color and short relative to other common rushes. The fruit is a red, one to two centimeter long, curved, linear-oblong capsule. Finger rush grows in vernal pools, swales, and seeps at elevations ranging from $\pm 2,100$ to $\pm 2,700$ feet. In California this species is known from occurrences in the foothills of the Cascade Range in Shasta County and from the Sierra Nevada foothills in Nevada County. A large population of this species is recorded from just southeast of the intersection of Idaho Maryland Road and Brunswick Road, less than a half of a mile south of the Brunswick candidate site cluster. Wet, open areas on Sites 3, 7, and 8 provide marginally suitable habitat for this species.

Scadden Flat checkerbloom (*Sidalcea stipularis*) is a perennial member of the mallow family (Malvaceae). It is a California endangered species and is a Rank 1B CNPS species. The leaves of this checkerbloom are spread evenly along the stems rather than being crowded at the base of the stems, a feature that separates it from most other checkerblooms. Two other species have similar leaves, but only the Scadden Flat checkerbloom occurs in the Sierra Nevada. It occurs at only three locations in Nevada County near Grass Valley where it occurs in wetlands. It blooms in July and August.

Special-Status Wildlife

The 18 candidate sites provide habitat components that could support a variety of wildlife species. Aquatic habitats and associated riparian corridors on several of the sites provide habitat for aquatic-dependent species and important cover for wildlife movement in the area. Forest and woodland communities that occur on many of the sites, particularly those with a nearby water source or close to open foraging habitat, provide important cover for wildlife and provide high quality roosting and nesting opportunities for songbirds and shelter for mammals. Though few were noted on the surveyed parcels, standing dead snags on forested sites provide nesting cavities for birds such as owls and woodpeckers and den or nest cavities for small mammals. Taller trees located near open areas could provide good nesting sites for raptors such as red-tailed hawk and other species.

Common wildlife observed on the sites included mule deer (*Odocoileus hemionus*), American crow (*Corvus brachyrhynchos*), European starling (*Sturnus vulgaris*), chipping sparrow (*Spizella passerina*), California quail (*Callipepla californica*), and Brewer's blackbird (*Euphagus cyanocephalus*). Common wildlife expected to occur on or move through the site includes red

tail hawk (*Buteo jamaicensis*), great horned owl (*Bubo virginianus*), common raven (*Corvus corax*), California ground squirrel (*Otospermophilus beecheyi*), black-tailed hare (*Lepus californicus*), striped skunk (*Mephitis mephitis*), Pacific treefrog (*Pseudacris regilla*), western gray squirrel (*Sciurus griseus*), coyote (*Canis latrans*), and mule deer. Riparian communities associated with the various drainages crossing the study corridor are expected to provide important seasonal nesting habitat for numerous migratory songbirds, including some special-status species. No known established deer migration routes or critical habitat is known to occur on any of the sites.

Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (VELB) is listed as threatened under the Federal ESA, though the USFWS formally proposed to de-list the species in October 2012 following a lawsuit brought against USFWS by a coalition of flood control agencies, reclamation districts, and farm bureaus. The proposed de-listing is currently under public review.

This species is associated with elderberry shrubs (*Sambucus sp.*) during its entire life cycle. Thus, these shrubs are typically protected as a means of avoiding impacts to the beetle. It appears that in order to serve as habitat, elderberry shrubs must have stems one inch or greater in diameter at ground level. The beetles are not found in elderberry above 3,000 feet in elevation. The adults emerge from pupation inside the stems of the elderberry shrubs in the spring, as the flowers on the shrubs begin to open. The exit holes made by the emerging adults are distinctive small oval openings. Often these holes are the only clue that the beetles occur in an area. The adults feed on the elderberry foliage until the onset of mating in June. The females lay eggs in crevices in the bark before dying a short time later. Upon hatching, the larvae tunnel into the stem of the elderberry shrub where they spend one to two years eating the interior wood, which constitutes their sole food source while in the stem.

Elderberry shrubs were observed on Sites 10 and 13 near Squirrel Creek and could be found on others, particularly those with a riparian component. Sites in the Grass Valley area are near the upper elevation range of this species.

Foothill yellow-legged frog (*Rana boylei*) is a California Species of Special Concern and a U.S. Forest Service and Bureau of Land Management sensitive species. This species is found in the drainages on the western slope of the Sierra Nevada up to about 6,000 feet. They are found in or near rocky perennial streams with cobble-sized or larger gravels and rocks. They prefer partially shaded habitats and shallow riffles but are occasionally found in vegetated backwater pools and slow moving rivers with mud substrate. This species is reported from Squirrel Creek and known from the Bear River in Nevada County in several locations less than five miles from some of the candidate sites. Squirrel Creek, Ragsdale Creek, and a perennial tributary to Wolf Creek provide suitable habitat for this species on Sites 3, 7, 10, 13, and 17.

Western pond turtle (*Emys marmorata*) is a California Species of Special Concern. This species is found in quiet waters in a wide variety of aquatic habitats, including ponds, marshes, lakes, streams, and irrigation ditches and may occur in water that ranges in salinity content from fresh to brackish to seawater. This species prefers habitats with abundant cover (logs, algae, vegetation) and exposed basking sites (logs, boulders). Females build nests along wetland margins or in adjacent uplands in April and May. Egg-laying occurs in July and August and requires soils that are at least 10 cm deep, usually with southern exposure. Females leave the watercourse in late afternoon and evening, and

travel into adjacent wetland margins or uplands to build nests. Aquatic habitat on some sites is marginally suitable for this turtle. Moderate flow rates and lack of basking sites make available aquatic habitat suboptimal; nevertheless, there is some potential for this species to occur on Sites 3, 7, 10, 13, and 17.

California black rail (*Laterallus jamaicensis coturniculus*) is a State listed threatened species that inhabits salt, fresh, and brackish water marshes. In freshwater habitats, their preference is for dense bulrush and cattails. They require marshes with little daily and/or annual water fluctuations in order to provide adequate cover from predators and to conceal nest sites. Their nests are concealed in dense vegetation, usually consisting of herbaceous wetland species. Since 1994 populations of the California black rail have been documented in several counties in the foothills of the Sierra Nevada. Typical inland habitat consists of persistent irrigation-fed wetlands over 0.25-acre that support dense riparian and wetland vegetation, including cattails, rushes, and Himalayan blackberry. The CNDDDB documents several occurrences of California black rail within less than five miles of several of the candidate sites. While no high quality habitat for this species occurs within any of the proposed rezone sites, there is some potential for this species to utilize dense vegetation associated with perennial and intermittent streams on Sites 3, 7, 8, 10, 13, and 17.

Long-eared owl (*Asio otus*) Long-eared owl is a California Species of Special Concern. This owl nests in the Sierra Nevada foothills, northeastern California, and scattered locations in the Coast Range and desert region. Winter range includes the Central Valley. Long-eared owl forages in open areas near woodlands and nests and roosts within riparian woodland and live oak thickets near foraging habitat. The most suitable habitat for this species occurs on sites with an oak woodland or riparian component, though all candidate sites except for Site 1 could provide nesting habitat for this species.

Yellow warbler (*Dendroica petechia*) and other nesting migratory songbirds: Yellow warbler is an uncommon to common, summer resident in the northern Sierra Nevada. It primarily breeds in riparian woodlands up to 8,000 feet, but is also known to breed in montane chaparral, open ponderosa pine and mixed conifer habitats with substantial amounts of shrub cover. During migration, this species is found in a variety of forest and woodland habitats. Nests consist of an open cup placed approximately 2 to 16 feet above the ground in a deciduous tree or shrub. Breeding generally takes place from mid-April to early-August with peak activity occurring in June. Incubation is approximately 11 days. Young fledge at about 9 to 12 days following hatching. Young yellow warblers breed the following year after hatching.

The CNDDDB documents one occurrences of yellow warbler approximately 7 miles southwest of the Penn Valley site cluster. Riparian corridors on Sites 3, 7, 8, 10, 13, and 17 provide suitable nesting habitat for this species and it is considered likely that yellow warbler nesting could occur on these sites.

Riparian, woodland, grassland, and chaparral habitats occurring on the candidate sites could provide suitable nesting habitat for many species of migratory birds species afforded protection under the MBTA, including grasshopper sparrows and other species.

Raptors: While no listed species of raptor is considered likely to occur on any of the candidate sites, large trees on, or adjacent to, all eighteen of the sites could be used for nesting by raptors, including common species such as red-tailed hawk and red-shouldered hawk, and raptors designated as California Species of Special Concern, such as sharp-

shinned hawk and Cooper's Hawk. All raptors are protected under the Migratory Bird Treaty Act and by the California Fish and Game Code.

Oak Woodland, Oaks and Other Trees

Section L-II 4.3.15 of the Nevada County Zoning Ordinance requires projects to minimize impacts to trees, and to maximize the long-term preservation of trees in their natural setting. The ordinance calls for avoidance of impacts to Landmark Trees or Landmark Groves. Landmark Trees are defined as any oak with a diameter at breast height (dbh) of at least 36 inches, or any tree whose size, visual impact, or association with a historically significant structures or event has caused it to be marked for preservation by the county, state, or federal governments. Landmark Groves are defined as hardwood tree groves with at least 33 percent canopy closure, or groves whose size, visual impact, or association with a historically significant structure or event has caused it to be marked for preservation by the county, state, or federal government.

The Nevada County Code discourages removal of Landmark Trees or trees within Landmark Groves and requires that a Management Plan be prepared to identify impacts to Landmark Trees or Groves and specify measures that would avoid or reduce such impacts. The Code further specifies that a Tree Protection Plan be prepared to identify measures for the protection of designated trees or groves that will remain onsite following improvements.

Landmark Trees

Oak trees meeting the size standard to be considered Landmark Trees were observed on Sites 11, 12, 13, 14, and 18. It is considered possible that Landmark Trees could also occur within forested areas on Sites 15, 16, and 17.

Landmark Groves

Oak woodlands meeting the Nevada County Code definition of a Landmark Grove were observed within Sites 13, 14, 15, 16, 17, and 18. See mapping of habitat types for each site provided in Appendix D. Landmark Groves observed included a fine example of a blue oak woodland on Site 14, as well as mixed oak woodlands and oak woodlands dominated by interior live oak and black oak. The oak woodlands on the subject sites are considered moderately degraded according to the definition provided in Giusti (2008). Moderately degraded oak woodlands have been altered from a pristine state by limited roads or development, but natural regeneration still occurs and wildlife habitat values remain. Woodlands on the candidate sites are somewhat fragmented by surrounding development and roads, and many have been modified by past land use practices. Impacts within these woodlands are considered mitigable.

RECOMMENDATIONS & CONCLUSIONS

Waters of the United States Including Wetlands

Sites 2, 3, 7, 8, 10, 11, 12, 13, and 17 have hydrologic features that may be considered waters of the U.S. No potential waters of the U.S. were identified on Sites 1, 4, 5, 6, 9, 14, 15, 16, and 18. Only the Corps can determine the extent of its jurisdiction over hydrologic features onsite. Prior to development of sites containing potential jurisdictional features, a formal

wetland delineation should be prepared to the standards required by the Corps' Sacramento District office and submitted to the Corps to be verified. Project design should avoid impacts to the delineated features to the extent feasible.

Activities that propose fill in or would affect hydrology in any waters of the U.S. shown on a verified delineation map would require a permit from the U.S. Army Corps of Engineers pursuant to Section 404 of the federal Clean Water Act. Any project affecting these areas would also need to obtain a water quality certification from the Regional Water Quality Control Board pursuant to Section 401 of the federal Clean Water Act. The Corps and the Regional Board would add conditions to the permits that would stipulate required mitigation for the proposed impacts to waters of the U.S. and waters of the State of California, which could include one or more of the following: onsite creation, offsite creation, purchase of credits in a mitigation bank, or payments to an in-lieu fund. The precise mitigation and monitoring requirements would depend on the extent of impacts and the types of jurisdictional waters affected.

Streams, Ponds, and Riparian Habitat

Sites 2, 3, 7, 8, 10, 11, 12, 13, and 17 have features that could be subject to regulation under Section 1602 of the Fish and Game Code. For any impacts to the bed, bank, or channel of perennial and intermittent creeks or other water bodies subject to regulation under Section 1602 of the Fish and Game Code, the project developer must apply for and obtain a Streambed Alteration Agreement from the CDFW. All mitigation measures for impacts to waters of the state must be implemented in accordance with the terms and conditions of the Streambed Alteration Agreement.

Special-Status Plants

- 1) **Floristic Surveys:** Prior to approval of a Site Plan, grading plan, or any permit authorizing construction for any of the candidate sites, the project sponsor shall provide, to the Director of the County Planning Department, the results of a floristic survey for special-status plant species. The floristic survey should be carried out within habitats suitable to support species that could occur on the subject site and should be timed to coincide with the blooming periods of those species. Should any special-status plant species be identified during the surveys, the applicant shall retain a qualified botanist to develop and oversee implementation of a management plan to reduce impacts to the species. Depending on the species identified, appropriate measures could include avoidance, impact minimization, transplanting, and soil/seed salvage and must incorporate measures to satisfy regulatory requirements of agencies with jurisdiction over the species at issue. Where onsite avoidance is feasible, barrier fencing, stakes, flagging or other measures shall be implemented prior to site disturbance to ensure impact avoidance. (Sites 2, 3, 4, 7, 8, 9, 10, 11, 12, 13, and 17)

Special-Status Wildlife

- 1) **VELB.** Prior to approval of a Site Plan, grading plan, or any permit authorizing construction for any of the candidate sites, surveys for elderberry shrubs shall be conducted. The results of the survey shall be submitted to the Director of the County Planning Department for review and approval. Any elderberry shrubs

measuring 1.0 inch or greater in diameter shall be mapped and clearly marked in the field. At all times during development of the project, developers shall comply with the conservation guidelines set forth in USFWS's *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (July 9, 1999), which guidelines generally require a buffer of 100 feet around each elderberry shrub with stems measuring 1.0 inch or greater in diameter at ground level. If encroachments into this buffer are required, consultation with the USFWS shall be required. Mitigation for impacts on VELB habitat shall be determined via consultation with USFWS pursuant to Section 7, Section 10, or USFWS 1999 Guidelines, as applicable, and may include onsite mitigation planting or the purchase of mitigation credits from an approved conservation bank. If necessary, agency-approved mitigation developed through the permitting process would establish the appropriate and required mitigation for impacts to this species. (Sites 3 through 10, and 15 through 18)

Note: This species was proposed for de-listing by USFWS in 2012. Public comments are currently being accepted on the proposed rule for de-listing.

- 2) **Foothill yellow-legged frog. Suitable breeding, aestivation, and dispersal habitat for the foothill yellow-legged frog is present along perennial waterways within** several of the proposed rezone sites. Prior to any disturbance within 100 feet of known or potential habitat for foothill yellow-legged frog (i.e., riparian areas), pre-construction surveys shall be conducted to determine if this species is present within the disturbance area. If surveys determine that foothill yellow-legged frogs is present, consultation with CDFG should be initiated to determine if the proposed disturbance would adversely impact this species and what measures should be implemented to avoid impacts to this species. (Sites 3, 7, 10, 13, and 17)
- 3) **Western pond turtle.** Potential basking, foraging, and dispersal habitat for the western pond turtle is present along perennial waterways within some of the candidate sites. Construction activities within 200 feet of perennial streams should be conducted outside the nesting season for this species, which is typically from May 1 through July. Where disturbance would occur within 200 feet of perennial streams during the nesting season, pre-construction surveys shall be conducted to determine whether the proposed disturbance could adversely affect this species. This determination shall be made by a qualified biologist based on the suitability of the affected habitat for this species and/or the presence or absence of this species in the affected area as determined by surveys of suitable habitat. If pond turtles are observed, a determination shall be made in consultation with CDFW as to whether or not construction will adversely impact this species and what measures shall be implemented to mitigate adverse impacts. (Sites 3, 7, 10, 13, and 17)
- 4) **Nesting Raptors and other species of birds.** Take of any active raptor nest is prohibited under California Fish and Game Code Section 3503.5. Take of other nesting migratory birds is prohibited under the Federal Migratory Bird Treaty Act. To avoid take of any active raptor nest or disturbance of other protected native birds, to the extent feasible, site disturbance shall be avoided from March 1 through August 31, which coincides with the typical nesting season for most common bird species in the region.

If construction, grading or other project-related activities will occur during the typical nesting season, a pre-construction nesting survey shall be conducted by a qualified wildlife biologist to determine if any raptors or protected native birds are nesting in or in the immediate vicinity of vegetation that will be removed. The survey shall be conducted within 15 days prior to the start of work from March through May (since there is higher potential for birds to initiate nesting during this period), and within 30 days prior to the start of work from June through August. If active nests are found in the work area, the biologist shall determine an appropriately-sized buffer around the nest in which no work shall be allowed until the young have successfully fledged. The size of the nest buffer shall be determined by the biologist, and if necessary, in consultation with the CDFW (and USFWS as appropriate). Buffer widths shall be determined based on the nesting species and its sensitivity to disturbance. The no-work buffer zone shall be delineated by highly visible temporary construction fencing.

Monitoring of nest activity by a qualified biologist may be required if the project-related construction activity has potential to adversely affect the nest or nesting behavior of the bird. No project-related construction activity shall commence within the no-work buffer area until a qualified biologist confirms that the nest is no longer active.

Oak Woodland, Oaks and Other Trees

Landmark Trees

In accordance with the Nevada County Code, prior to approval of a site plan, grading plan, or any permit authorizing construction for any of the candidate sites with potential to support Landmark Trees, a survey shall be conducted to identify the location of all Landmark Trees. The provisions of the County Code, including preparation of a Management Plan and Tree Protection Plan shall be implemented to identify mitigation measures to reduce impacts to Landmark Trees and protect any that would remain following site development. (Sites 11, 12, 13, 14, and 18)

Landmark Groves

In accordance with the Nevada County Code, prior to approval of a site plan, grading plan, or any permit authorizing construction for any of the candidate sites that support Landmark Groves, a Management Plan and Tree Protection Plan shall be prepared and implemented to identify mitigation measures to reduce impacts to Landmark Groves. Mitigation measures should be included in the Management Plan that ensures no net loss of oak woodland habitat. This could be accomplished through preservation of onsite oak woodlands in a conservation easement, purchase of offsite oak woodlands, on or offsite enhancement of degraded oak woodlands, or by paying in-lieu fees used to purchase and preserve comparable oak woodland communities offsite. The Tree Protection Plan should include measures for the protection of individual trees and Landmark Groves that would remain on a site following improvements. These plans should be prepared in accordance with Nevada County Code and should include measures to protect trees during and following construction activities. Measures could include specifications for protective fencing and construction buffers, project modifications, woodland maintenance prescriptions for fuel reduction and forest health, and specifications for appropriate uses of

the woodland area following site development, and identify financial responsibility for all measures. (Sites 13, 14, 15, 16, 17, and 18)

Deer Habitat and Migration Routes

No critical deer habitat or deer migration routes are present within any of the candidate sites. Sites 3 through 9 are at the western edge of winter range according to deer habitat mapping obtained from Nevada County. While deer may move through these sites, these sites are within or adjacent to developed areas and are not considered important to the continued viability of migrating deer in Nevada County.

REFERENCES AND OTHER RESOURCES

- Baldwin et al. (2012). *The Jepson Manual: Vascular Plants of California*, 2nd edition. 2012. University of California Press. Berkeley, California.
- Barbour, M.G. and J. Major (eds). 1998. *Terrestrial Vegetation of California*, Expanded Edition. California Native Plant Society Special Publication Number 9. Sacramento, California.
- Calflora, 2013. *Calflora: Information on California plants for education, research and conservation*. [web application]. 2013. Berkeley, California: The Calflora Database. Available: <http://www.calflora.org/>
- California Department of Conservation, Division of Mines and Geology. 1987. *Geologic Map of the Sacramento Quadrangle (1:250,000)*. Sacramento, California.
- California Department of Fish and Game. 1988. *A Guide to Wildlife Habitats of California*. Sacramento, California. 166 pp.
- California Department of Fish and Game. 2010. *List of Vegetation Alliances and Associations. Vegetation Classification and Mapping Program*, California Department of Fish and Game. Sacramento, CA. September 2010
- California Department of Fish and Wildlife Biogeographic Data Branch GIS Unit. 2011. *Northern Sierra Nevada Foothills Vegetation Project: Vegetation Mapping Report [and GIS files]*. State of California, the Resources Agency, Department of Fish and Wildlife, Sacramento, California.
- California Department of Fish and Wildlife, Wildlife and Habitat Data Analysis Branch. 2013. *Natural Diversity Data Base Report (CNDDDB)*. Sacramento, California.
- California Native Plant Society. 2013. *Inventory of Rare and Endangered Plants*. An online database maintained by the Native Plant Society.
- Clark, W.S. and B.K. Wheeler. 1987. *The Peterson Field Guide to Hawks of North America*. Houghton Mifflin Company, Boston, Massachusetts.
- Giusti, Gregory A.; McCreary, Douglas D. 2008. *Determining significance within CEQA: a new UC program to assist planners in conserving oak woodlands*. In: Merenlender, Adina; McCreary, Douglas; Purcell, Kathryn L., tech. eds. 2008. *Proceedings of the sixth California oak symposium: today's challenges, tomorrow's opportunities*. Gen. Tech. Rep. PSW-GTR-217. Albany, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station: p. 185-194.
- Holland, Robert F. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California*. State of California, the Resources Agency, Department of Fish and Game, Sacramento, California.
- Jameson, E.W., Jr. and H.J. Peeters. 2004. *Mammals of California*. University of California Press. Berkeley, California.
- Menke, J. et al. 2011. *Northern Sierra Nevada Foothills Vegetation Project: Vegetation Mapping Report*. State of California, the Resources Agency, Department of Fish and Game, Sacramento, California.

- National Geographic Society. 1999. *Field Guide to the Birds of North America*, Third Edition. Washington D.C.
- Nevada County. 2007. *Nevada County Land Use Development Code, Chapter II, Zoning Regulations*. Nevada County, California. Adopted 10-23-07.
- Pierson, E.D., W.E. Rainey, and C. Corben. 2004. *Distribution and Status of Western Red Bats (Lasiurus blossevillii) in California*. State of California, the Resources Agency, Department of Fish and Game, Sacramento, California.
- Sawyer, Keeler-Wolf and Evens. 2009. *A Manual of California Vegetation*, 2nd Edition. California Native Plant Society. Sacramento, California.
- Shuford, W. D., and Gardali, T., editors. 2008. *California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California*. *Studies of Western Birds 1*. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.
- Sibley, D.A. 2003. *The Sibley Field Guide to Birds of Western North America*. Alfred A. Knopf. New York.
- Stebbins, R.C. 1985. *A Field Guide to Western Reptiles and Amphibians*. Houghton Mifflin Company. Boston, Massachusetts.
- United States Department of Agriculture, Natural Resources Conservation Service, Soil Data Mart: Soil Survey Geographic (SSURGO) Database. Available URL: "<http://soildatamart.nrcs.usda.gov>" [Accessed 12/2012].
- United States Fish and Wildlife Service 2012. *Endangered and Threatened Wildlife and Plants; Removal of the Valley Elderberry Longhorn Beetle From the Federal List of Endangered and Threatened Wildlife; Proposed Rule*. Federal Register Vol. 77, No. 191, October 2, 2012.
- United States Fish and Wildlife Service. 2013. *Endangered Species Program Species List*. http://www.fws.gov/sacramento/es/spp_lists/auto_list_form.cfm. January 2013.
- The University and Jepson Herbaria. 2013. *The Jepson Interchange*. An online database that updates *The Jepson Manual*.
- Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White. 1988. *California's Wildlife, Volume I. Amphibians and Reptiles*. State of California, the Resources Agency, Department of Fish and Game, Sacramento, California.
- Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White. 1990a. *California's Wildlife, Volume II: Birds*. State of California, the Resources Agency, Department of Fish and Game, Sacramento, California.
- Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White. 1990b. *California's Wildlife, Volume III: Mammals*. State of California, the Resources Agency, Department of Fish and Game, Sacramento, California.

Appendix A.
Special-Status Species Known to Occur in the Study Area Region

Appendix A

Special-Status Wildlife Species Known to Occur in Study Area Region

	Status*	Habitat	Probability on Project Site
Insects			
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	Fed: FT State: - Other: *	Requires host plant, elderberry (<i>Sambucus</i> spp.) for most of its life cycle. Shrubs must have stem diameters at ground level of 1.0 inch or greater and shrubs must be found less than 3,000 feet in elevation. Typically riparian and upland associated.	Possible - Elderberry shrubs observed on Sites 10 and 13 and could be on others. Study area is at higher elevation than most occurrences of this species. Proposed for de-listing by USFWS Oct. 2, 2012.
Amphibians			
California red-legged frog <i>Rana aurora draytonii</i>	Fed: FT State: CSC Other: -	Occurs in lowlands and foothills in deeper pools and slow-moving streams, usually with emergent wetland vegetation. Requires 11-20 weeks of permanent water for larval development.	Unlikely - Perennial streams are shallow and maintain moderate flow rates. Intermittent streams are shallow and seasonal. Wastewater ponds near Site 12 are unvegetated.
Foothill yellow-legged frog <i>Rana boylei</i>	Fed: - State: CSC Other: *	Found in partially shaded, shallow streams with rocky substrates. Needs some cobble-sized rocks as a substrate for egg laying. Requires water for 15 weeks for larval transformation.	Possible - Squirrel Creek, Ragsdale Creek, and a perennial tributary to Wolf Creek provide suitable habitat. Species reported from Squirrel Creek and known from Bear River in Nevada County.
Reptiles			
Western pond turtle <i>Emys marmorata</i>	Fed: - State: CSC Other: -	Inhabits ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Needs suitable basking sites and upland habitat for egg laying.	Possible - Some potential for this species to occur in aquatic habitat onsite, although water movement in these areas is not optimal for this species.
Coast horned lizard <i>Phrynosoma coronatum</i>	Fed: - State: CSC Other: -	Open lowlands, washes, and sandy areas with an exposed gravelly-sandy substrate containing scattered shrubs. Edge of Sacramento Valley and in the Sierra Nevada foothills. Also observed in riparian woodland clearings and dry uniform chamise chaparral.	Unlikely - Few open sandy areas with exposed substrate occur on subject sites.
Birds			
Bald eagle <i>Haliaeetus leucocephalus</i>	Fed: - State: CE Other: *	Occurs along shorelines, lake margins, and rivers. Nests in large, old-growth or dominant trees with open branches.	Unlikely - No large water bodies or larger waterways near candidate sites.

Appendix A

Special-Status Wildlife Species Known to Occur in Study Area Region

	Status*	Habitat	Probability on Project Site
Northern harrier <i>Circus cyaneus</i>	Fed: - State: CSC Other: -	Frequents meadows, grasslands, open rangelands, freshwater emergent wetlands; seldom found in wooded areas. Found in or near freshwater and salt marshes. Nests on the ground in shrubby vegetation near marsh edge.	Unlikely - This species typically occurs at lower elevations of the Central Valley. Sites provide suitable nesting habitat for other protected raptors.
California black rail <i>Laterallus jamaicensis coturnculus</i>	Fed: - State: CT Other: *	Inhabits salt, fresh, and brackish water marshes with little daily and/or annual water fluctuations. In freshwater habitats, preference is for dense bulrush and cattails. Several scattered populations documented from Butte Co. to southern Nevada Co.	Possible - Dense vegetation in riparian corridors are potentially suitable habitat.
Long-eared owl <i>Asio otus</i>	Fed: - State: CSC Other: -	Dense, mixed forests and tall shrublands, usually next to open spaces. Nesting often in an abandoned crow, magpie, or hawk nest, occasionally in a natural tree cavity.	Possible - Riparian and oak woodland communities, especially near open grassland areas, provide suitable nesting habitat.
Bank swallow <i>Riparia riparia</i>	Fed: - State: CT Other: *	Colonial nester near riparian and other lowland habitats. Requires vertical banks or cliffs with fine-textured, sandy soils near streams, rivers, and lakes.	Unlikely - No appropriate exposed, sandy banks were observed on any of the sites.
Yellow warbler <i>Dendroica petechia</i>	Fed: - State: CSC Other: *	Breeds in riparian vegetation throughout California; populations in Sacramento and San Joaquin valleys are declining. Common in eastern Sierran riparian habitats below 8,000 feet.	Possible - Riparian corridors provide good habitat for this species. (Sites 3, 7, 8, 10, 13, 17)
Grasshopper sparrow <i>Ammodramus savannarum</i>	Fed: - State: CSC Other: -	Breeds in grasslands and savannahs in rolling hills and lower mountain hillsides up to 5000 feet elevation.	Possible - Suitable grassland habitat occurs on some of the sites. This species and other migratory songbirds could nest within candidate sites.

Mammals

Western red bat <i>Lasiurus blossevillii</i>	Fed: - State: - Other: *	Forests and woodlands up to conifer forests. Roosts primarily in trees and occasionally shrubs.	Unlikely - Rare above 200 meters and typically associated with wider riparian corridors of mature sycamore and cottonwood that do not occur on any of the sites. Breeding restricted to lower elevations in CA (Pierson et al 2004).
Townsend's big-eared bat <i>Corynorhinus townsendii townsendii</i>	Fed: - State: CSC Other: *	Found in a variety of habitats. Most common in mesic sites with forest or woodland component. Roosting and maternity sites in caves, mines, lava tubes, tunnels, and buildings. Gleans insects from brush or trees and feeds along habitat edges.	Unlikely - Could forage, but not likely to roost on any of the sites due to lack of structures, caves, or mines.

Appendix A

Special-Status Wildlife Species Known to Occur in Study Area Region

Status*	Habitat	Probability on Project Site
<p>*Status Federal:</p> <p>FE - Federal Endangered FT - Federal Threatened FPE - Federal Proposed Endangered FPT - Federal Proposed Threatened FC - Federal Candidate FPD - Federal Proposed for Delisting</p>	<p>State:</p> <p>CE - California Endangered CT - California Threatened CR - California Rare CC - California Candidate CFP - California Fully Protected CSC - California Species of Special Concern</p>	<p>Other:</p> <p>Some species have protection under the other designations, such as the California Department of Forestry Sensitive Species, Bureau of Land Management Sensitive Species, U.S.D.A. Forest Service Sensitive Species, and the Migratory Bird Treaty Act. Raptors and their nests are protected by provisions of the California Fish and Game Code. Certain areas, such as wintering areas of the monarch butterfly, may be protected by policies of the California Department of Fish and Game.</p>

Appendix A
Special-Status Plant Species Known to Occur in Study Area Region

Family Taxon Common Name	Status*	Flowering Period	Habitat	Probability on Project Site
Adoxaceae				
<i>Viburnum ellipticum</i> Western viburnum	Fed: - State: - CNPS: List 2.3	May-July	Chaparral; cismontane woodland; lower montane coniferous forest.	Possible - Suitable shaded habitat on several forest/woodland sites. (Sites 3, 4, 7, 8, 9, 17 most suitable)
Agavaceae				
<i>Chlorogalum grandiflorum</i> Red Hills soaproot	Fed: - State: - CNPS: List 1B.2	May-June	Chaparral; cismontane woodland; [serpentinite or gabbroic].	Unlikely - Typically occurs on serpentinite or gabbro substrates that do not occur on any of the candidate sites.
Alliaceae				
<i>Allium jepsonii</i> Jepson's onion	Fed: - State: - CNPS: List 1B.2	May-August	Cismontane woodland; lower montane coniferous forest [serpentinite or volcanic]. 300 to 1160 meters.	Unlikely - Typically occurs on serpentinite substrates that do not occur on any of the candidate sites.
Campanulaceae				
<i>Downingia pusilla</i> Dwarf downingia	Fed: - State: - CNPS: List 2.2	March-May	Valley and foothill grassland (mesic); vernal pools.	Unlikely - Vernal pool habitat does not occur.
Convolvulaceae				
<i>Calystegia stebbinsii</i> Stebbins' morning-glory	Fed: FE State: CE CNPS: List 1B.1	May-June	Chaparral (openings); cismontane woodland; [serpentinite or gabbroic].	Unlikely - Typically occurs on serpentinite or gabbro substrates that do not occur on any of the candidate sites.
Cyperaceae				
<i>Rhynchospora capitellata</i> Brownish beaked-rush	Fed: - State: - CNPS: List 2.2	July-August	Lower montane coniferous forest, meadows and seeps, marshes and swamps, upper montane coniferous forest / mesic; elevation range 455 - 2000 meters (approx. 1,493 - 6,652 feet).	Possible - Potentially suitable habitat occurs near seeps, wetlands, and along the margins of drainages on several of the sites. (Sites 3, 7, 8, 10, 11, 12, 13, 17)

Appendix A
Special-Status Plant Species Known to Occur in Study Area Region

Family	Taxon	Common Name	Status*	Flowering Period	Habitat	Probability on Project Site
Juncaceae						
	<i>Juncus digitatus</i>		Fed: - State: - CNPS: List 1B.1	May-June	Vernal pools (cismontane woodland; lower montane coniferous forest). 660-790 meters.	Possible - Wet, open areas on several sites provide marginally suitable habitat. (Sites 3, 7, 8, 10, 11, 12, 13)
	Finger rush					
Lamiaceae (Labiatae)						
	<i>Monardella follettii</i>		Fed: - State: - CNPS: List 1B.2	June-June	Lower montane coniferous forest (rocky, serpentinite).	Unlikely - Typically occurs on serpentinite or gabbro substrates that do not occur on any of the candidate sites.
	Follett's monardella					
Malvaceae						
	<i>Fremontodendron decumbens</i>		Fed: FE State: CR CNPS: List 1B.2	April-June	Chaparral; cismontane woodland; [gabbroic or serpentinite].	Unlikely - Typically occurs on serpentinite or gabbro substrates that do not occur on any of the candidate sites.
	Pine Hill flannelbush					
	<i>Sidalcea stipularis</i>		Fed: - State: CE CNPS: List 1B.1	July-August	Marshes and swamps (montane freshwater).	Possible - Potentially suitable habitat occurs near seeps, wetlands, and along the margins of drainages on several of the sites. Recorded in Nevada County growing with <i>Rhynchospora capitellata</i> . (Sites 3, 7, 8, 10, 11, 12, 13, 17)
	Scadden Flat checkerbloom					
Melichhoferiaceae						
	<i>Melichhoferia elongata</i>		Fed: - State: - CNPS: List 2.2	September-November	Cismontane woodland (metamorphic rock, usually vernal mesic); 500-1,300 meters.	Unlikely - Fens do not occur on candidate sites. No record within 5 miles of sites. Existing record from region needs fieldwork.
	Elongate copper-moss					
Montiaceae						
	<i>Lewisia cantelovii</i>		Fed: - State: - CNPS: List 1B.2	May-October	Broad-leaved upland forest; chaparral; cismontane woodland; lower montane coniferous forest; [mesic, granitic].	Unlikely - Seeps or wet cliff habitats do not occur on candidate sites.
	Cantelow's lewisia					

Appendix A
Special-Status Plant Species Known to Occur in Study Area Region

Family	Taxon	Status*	Flowering Period	Habitat	Probability on Project Site
Common Name					
Pottiaceae					
<i>Didymodon norrisii</i>	Fed: -	September-November	Cismontane woodland; lower montane coniferous forest [intermittently mesic, rock].	Unlikely - Typically found on seasonal sheet flow over exposed rock. Habitat on sites is unlikely to support this species. Known from once occurrence in 1981 over 5 miles from project site.	
Norris's beard-moss	State: - CNPS: List 2.2				

***Status**

Federal:
 FE - Federal Endangered
 FT - Federal Threatened
 FPE - Federal Proposed Endangered
 FPT - Federal Proposed Threatened
 FC - Federal Candidate

State:
 CE - California Endangered
 CT - California Threatened
 CR - California Rare
 CSC - California Species of Special Concern

CNPS (California Native Plant Society - List.RED Code):
 List 1A - Extinct
 List 1B - Plants rare, threatened, or endangered in California and elsewhere
 List 2 - Plants rare, threatened, or endangered in California, more common elsewhere
 List 3 - Plants about which more information is needed, a review list
 List 4 - Plants of limited distribution, a watch list
 RED Code
 1 - Seriously endangered (>80% of occurrences threatened)
 2 - Fairly endangered (20 to 80% of occurrences threatened)
 3 - Not very endangered (<20% of occurrences threatened)

These buttons will not appear on your list.

Revise Selection

Print this page

Print species list before going on to letter.

Make Official Letter

U.S. Fish & Wildlife Service
Sacramento Fish & Wildlife Office

**Federal Endangered and Threatened Species that Occur in
or may be Affected by Projects in the Counties and/or
U.S.G.S. 7 1/2 Minute Quads you requested**

Document Number: 120508082145

Database Last Updated: September 18, 2011

No quad species lists requested.

County Lists

Nevada County

Listed Species

Invertebrates

- Branchinecta lynchi
 - vernal pool fairy shrimp (T)

- Desmocerus californicus dimorphus
 - valley elderberry longhorn beetle (T)

- Lepidurus packardi
 - vernal pool tadpole shrimp (E)

Fish

- Hypomesus transpacificus
 - delta smelt (T)

- *Oncorhynchus* (=Salmo) *clarki henshawi*
 - Lahontan cutthroat trout (T)

- *Oncorhynchus mykiss*
 - Central Valley steelhead (T) (NMFS)
 - Critical habitat, Central Valley steelhead (X) (NMFS)

- *Oncorhynchus tshawytscha*
 - Central Valley spring-run chinook salmon (T) (NMFS)
 - Critical Habitat, Central Valley spring-run chinook (X) (NMFS)
 - winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

- *Rana draytonii*
 - California red-legged frog (T)
 - Critical habitat, California red-legged frog (X)

Reptiles

- *Thamnophis gigas*
 - giant garter snake (T)

Plants

- *Calystegia stebbinsii*
 - Stebbins's morning-glory (E)

- *Fremontodendron californicum* ssp. *decumbens*
 - Pine Hill flannelbush (E)

- *Senecio layneae*
 - Layne's butterweed (=ragwort) (T)

Proposed Species**Amphibians**

- *Rana draytonii*
 - Critical habitat, California red-legged frog (PX)

Candidate Species**Amphibians**

- *Rana muscosa*
 - mountain yellow-legged frog (C)

Mammals

- *Martes pennanti*
 - fisher (C)

Plants

- *Ivesia webberi*
 - Webber's ivesia (C)

Key:

- (E) Endangered - Listed as being in danger of extinction.
- (T) Threatened - Listed as likely to become endangered within the foreseeable future.
- (P) Proposed - Officially proposed in the Federal Register for listing as endangered or threatened.
- (NMFS) Species under the Jurisdiction of the [National Oceanic & Atmospheric Administration Fisheries Service](#). Consult with them directly about these species.
- Critical Habitat - Area essential to the conservation of a species.
- (PX) Proposed Critical Habitat - The species is already listed. Critical habitat is being proposed for it.
- (C) Candidate - Candidate to become a proposed species.
- (V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
- (X) Critical Habitat designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, or may be affected by projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online [Inventory of Rare and Endangered Plants](#).

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list.

See our [Protocol](#) and [Recovery Permits](#) pages.

For plant surveys, we recommend using the [Guidelines for Conducting and Reporting Botanical Inventories](#). The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal [consultation](#) with the Service.
- During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.
- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.
- Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this

on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our [Map Room](#) page.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. [More info](#)

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6520.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be August 06, 2012.

Penn and Grass Valley Sites



Inventory of Rare and Endangered Plants

v7-12apr 4-11-12

Status: search results - Tue, May, 8, 2012, 22:16 b

{QUADS_123} =~ m/542B|558C|558D|543A|543D|559D|542A|542C

Tip: Want to search by habitat? Try the **Checkbox and Preset** search page.[\[all tips and help.\]](#)
[\[search history\]](#)

Your Quad Selection: **Rough And Ready (542B)** 3912122, French Corral (558C) 3912132, Nevada City (558D) 3912131, Smartville (543A) 3912123, Camp Far West (543D) 3912113, Oregon House (559D) 3912133, Grass Valley (542A) 3912121, Wolf (542C) 3912112, Lake Combie (542D) 3912111

Hits 1 to 13 of 13
Requests that specify topo quads will return only Lists 1-3.

To save selected records for later study, click the ADD button.

Selections will appear in a new window.

open	save	hits	scientific	common	family	CNPS
	<input type="checkbox"/>	1	<u>Calystegia stebbinsii</u>	Stebbins' morning-glory	Convolvulaceae	List 1B.1
	<input type="checkbox"/>	1	<u>Clarkia biloba ssp. brandegeae</u>	Brandegee's clarkia	Onagraceae	List 1B.2
	<input type="checkbox"/>	1	<u>Didymodon norrisii</u>	Norris' beard moss	Pottiaceae	List 2.2
	<input type="checkbox"/>	1	<u>Fremontodendron decumbens</u>	Pine Hill flannelbush	Sterculiaceae	List 1B.2
	<input type="checkbox"/>	1	<u>Fritillaria eastwoodiae</u>	Butte County fritillary	Liliaceae	List 3.2
	<input type="checkbox"/>	1	<u>Juncus digitatus</u>	finger rush	Juncaceae	List 1B.1
	<input type="checkbox"/>	1	<u>Lathyrus sulphureus var. argillaceus</u>	dubious pea	Fabaceae	List 3
	<input type="checkbox"/>	1	<u>Lewisia cantelovii</u>	Cantelow's lewisia	Montiaceae	List 1B.2
	<input type="checkbox"/>	1	<u>Mielichhoferia elongata</u>	elongate copper moss	Mniaceae	List 2.2
	<input type="checkbox"/>	1	<u>Monardella follettii</u>	Follett's monardella	Lamiaceae	List 1B.2
	<input type="checkbox"/>	1	<u>Plagiobothrys glyptocarpus var. modestus</u>	Cedar Crest popcorn-flower	Boraginaceae	List 3
	<input type="checkbox"/>	1	<u>Rhynchospora capitellata</u>	brownish beaked-rush	Cyperaceae	List 2.2
	<input type="checkbox"/>	1	<u>Sidalcea stipularis</u>	Scadden Flat checkerbloom	Malvaceae	List 1B.1

To save selected records for later study, click the ADD button.

Selections will appear in a new window.

Lake of the Pines Sites



Inventory of Rare and Endangered Plants

v7-12apr 4-11-12

Status: search results - Tue, May, 8, 2012, 22:19 b

{QUADS_123} =~ m/542D|527A|527B|541B|541C|526B|542A|542E

Tip: Lathyrus Astragalus returns species from both genera.[\[all tips and help.\]](#)
[\[search history\]](#)

Your Quad Selection: Lake Combie (542D) 3912111, Auburn (527A) 3812181, Gold Hill (527B) 3812182, Chicago Park (541B) 3912028, Colfax (541C) 3912018, Greenwood (526B) 3812088, Grass Valley (542A) 3912121, Rough And Ready (542B) 3912122, Wolf (542C) 3912112

Hits 1 to 14 of 14
Requests that specify topo quads will return only Lists 1-3.

To save selected records for later study, click the ADD button.

Selections will appear in a new window.

open	save	hits	scientific	common	family	CNPS
	<input type="checkbox"/>	1	<u>Allium jepsonii</u>	Jepson's onion	Alliaceae	List 1B.2
	<input type="checkbox"/>	1	<u>Calystegia stebbinsii</u>	Stebbins' morning-glory	Convolvulaceae	List 1B.1
	<input type="checkbox"/>	1	<u>Chlorogalum grandiflorum</u>	Red Hills soaproot	Agavaceae	List 1B.2
	<input type="checkbox"/>	1	<u>Clarkia biloba ssp. brandegeae</u>	Brandegee's clarkia	Onagraceae	List 1B.2
	<input type="checkbox"/>	1	<u>Fremontodendron decumbens</u>	Pine Hill flannelbush	Sterculiaceae	List 1B.2
	<input type="checkbox"/>	1	<u>Fritillaria eastwoodiae</u>	Butte County fritillary	Liliaceae	List 3.2
	<input type="checkbox"/>	1	<u>Juncus digitatus</u>	finger rush	Juncaceae	List 1B.1
	<input type="checkbox"/>	1	<u>Lathyrus sulphureus var. argillaceus</u>	dubious pea	Fabaceae	List 3
	<input type="checkbox"/>	1	<u>Monardella follettii</u>	Follett's monardella	Lamiaceae	List 1B.2
	<input type="checkbox"/>	1	<u>Plagiobothrys glyptocarpus var. modestus</u>	Cedar Crest popcorn-flower	Boraginaceae	List 3
	<input type="checkbox"/>	1	<u>Poa sierrae</u>	Sierra blue grass	Poaceae	List 1B.3
	<input type="checkbox"/>	1	<u>Rhynchospora capitellata</u>	brownish beaked-rush	Cyperaceae	List 2.2
	<input type="checkbox"/>	1	<u>Sidalcea stipularis</u>	Scadden Flat checkerbloom	Malvaceae	List 1B.1
	<input type="checkbox"/>	1	<u>Viburnum ellipticum</u>	oval-leaved viburnum	Adoxaceae	List 2.3

To save selected records for later study, click the ADD button.

Selections will appear in a new window.

Penn/GrassValley Sites - California Department of Fish and Game
 Natural Diversity Database
 Selected Elements by Scientific Name - Portrait

Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1 <i>Ammodramus savannarum</i> grasshopper sparrow	ABPBXA0020			G5	S2	SC
2 <i>Asio otus</i> long-eared owl	ABNSB13010			G5	S3	SC
3 <i>Calystegia stebbinsii</i> Stebbins' morning-glory	PDCON040H0	Endangered	Endangered	G1	S1	1B.1
4 <i>Circus cyaneus</i> northern harrier	ABNKC11010			G5	S3	SC
5 <i>Clarkia biloba ssp. brandegeeeae</i> Brandegee's clarkia	PDONA05053			G4G5T3	S3	1B.2
6 <i>Dendroica petechia brewsteri</i> yellow warbler	ABPBX03018			G5T3?	S2	SC
7 <i>Didymodon norrisii</i> Norris' beard moss	NBMUS2C0H0			G3G4	S3S4	2.2
8 <i>Downingia pusilla</i> dwarf downingia	PDCAM060C0			G2	S2	2.2
9 <i>Emys marmorata</i> western pond turtle	ARAAD02030			G3G4	S3	SC
10 <i>Fremontodendron decumbens</i> Pine Hill flannelbush	PDSTE03030	Endangered	Rare	G1	S1	1B.2
11 <i>Fritillaria eastwoodiae</i> Butte County fritillary	PMLIL0V060			G3Q	S3	3.2
12 <i>Haliaeetus leucocephalus</i> bald eagle	ABNKC10010	Delisted	Endangered	G5	S2	
13 <i>Juncus digitatus</i> finger rush	PMJUN013E0			G1	S1	1B.1
14 <i>Lasiurus blossevillii</i> western red bat	AMACC05060			G5	S3?	SC
15 <i>Lasiurus cinereus</i> hoary bat	AMACC05030			G5	S4?	
16 <i>Laterallus jamaicensis coturniculus</i> California black rail	ABNME03041		Threatened	G4T1	S1	
17 <i>Lathyrus sulphureus var. argillaceus</i> dubious pea	PDFAB25101			G1G2	S1S2	3
18 <i>Lewisia cantelovii</i> Cantelow's lewisia	PDPOR04020			G3	S3	1B.2
19 <i>Mielichhoferia elongata</i> elongate copper moss	NBMUS4Q022			G4?	S2	2.2
20 <i>Myotis yumanensis</i> Yuma myotis	AMACC01020			G5	S4?	
21 <i>Oncorhynchus tshawytscha</i> chinook salmon - Central Valley spring-run ESU	AFCHA0205A	Threatened	Threatened	G5	S1	
22 <i>Phrynosoma blainvillii</i> coast horned lizard	ARACF12100			G4G5	S3S4	SC
23 <i>Rana boylei</i> foothill yellow-legged frog	AAABH01050			G3	S2S3	SC
24 <i>Rhynchospora capitellata</i> brownish beaked-rush	PMCYP0N080			G5	S2S3	2.2

Penn/GrassValley Sites - California Department of Fish and Game
 Natural Diversity Database
 Selected Elements by Scientific Name - Portrait

Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
25 <i>Riparia riparia</i> bank swallow	ABPAU08010		Threatened	G5	S2S3	
26 <i>Sidalcea stipularis</i> Scadden Flat checkerbloom	PDMAL110R0		Endangered	G1	S1.1	1B.1

Lake of the Pines Sites - California Department of Fish and Game
 Natural Diversity Database
 Selected Elements by Scientific Name - Portrait

Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1 <i>Allium jepsonii</i> Jepson's onion	PMLIL022V0			G1	S1.2	1B.2
2 <i>Ammonitella yatesii</i> tight coin (=Yates' snail)	IMGASB0010			G1	S1	
3 <i>Andrena subapasta</i> A vernal pool andrenid bee	IIHYM35050			G1G3	S1S3	
4 <i>Banksula galilei</i> Galile's cave harvestman	ILARA14040			G1	S1	
5 <i>Calystegia stebbinsii</i> Stebbins' morning-glory	PDCON040H0	Endangered	Endangered	G1	S1	1B.1
6 <i>Chlorogalum grandiflorum</i> Red Hills soaproot	PMLIL0G020			G3	S3	1B.2
7 <i>Clarkia biloba ssp. brandegeeeae</i> Brandegee's clarkia	PDONA05053			G4G5T3	S3	1B.2
8 <i>Corynorhinus townsendii</i> Townsend's big-eared bat	AMACC08010			G4	S2S3	SC
9 <i>Emys marmorata</i> western pond turtle	ARAAD02030			G3G4	S3	SC
10 <i>Fremontodendron decumbens</i> Pine Hill flannelbush	PDSTE03030	Endangered	Rare	G1	S1	1B.2
11 <i>Fritillaria eastwoodiae</i> Butte County fritillary	PMLIL0V060			G3Q	S3	3.2
12 <i>Juncus digitatus</i> finger rush	PMJUN013E0			G1	S1	1B.1
13 <i>Laterallus jamaicensis coturniculus</i> California black rail	ABNME03041		Threatened	G4T1	S1	
14 <i>Lathyrus sulphureus var. argillaceus</i> dubious pea	PDFAB25101			G1G2	S1S2	3
15 <i>Martes pennanti (pacifica) DPS</i> Pacific fisher	AMAJF01021	Candidate		G5	S2S3	SC
16 <i>Phrynosoma blainvillii</i> coast horned lizard	ARACF12100			G4G5	S3S4	SC
17 <i>Poa sierrae</i> Sierra blue grass	PMPOA4Z310			G2G3	S2S3	1B.3
18 <i>Rana boylei</i> foothill yellow-legged frog	AAABH01050			G3	S2S3	SC
19 <i>Rhynchospora capitellata</i> brownish beaked-rush	PMCYP0N080			G5	S2S3	2.2
20 <i>Sidalcea stipularis</i> Scadden Flat checkerbloom	PDMAL110R0		Endangered	G1	S1.1	1B.1
21 <i>Viburnum ellipticum</i> oval-leaved viburnum	PDCPR07080			G5	S2.3	2.3

Appendix B.
Species Observed Within the Study Area

Appendix B

Plant Species Observed on Candidate Sites

Ferns and Allies

Dennstaedtiaceae

Pteridium aquilinum var. *pubescens* Bracken fern

Equisetaceae

Equisetum sp. Horsetail

Gymnosperms

Cupressaceae

Calocedrus decurrens Incense cedar

Pinaceae

Pinus lambertiana Sugar pine
Pinus ponderosa var. *ponderosa* North Plateau ponderosa pine
Pinus sabiniana Gray pine
Pseudotsuga menziesii var. *menziesii* Douglas-fir

Angiosperms - Dicots

Adoxaceae

Sambucus nigra subsp. *caerulea* Blue elderberry

Anacardiaceae

Toxicodendron diversilobum Western poison-oak

Apiaceae (Umbelliferae)

**Daucus carota* Queen Anne's lace
**Torilis arvensis* Field hedgeparsley

Apocynaceae

**Vinca major* Periwinkle

Asteraceae (Compositae)

Artemisia douglasiana California mugwort
Baccharis pilularis subsp. *consanguinea* Coyote brush
Balsamorhiza sagittata Arrowleaf balsam-root
**Centaurea solstitialis* Yellow starthistle
**Cirsium vulgare* Bull thistle
**Sonchus arvensis* Field sow thistle
Wyethia angustifolia Narrowleaf mules ears
Wyethia helenioides Gray mules ears

Betulaceae

Alnus rhombifolia White alder
Corylus cornuta subsp. *californica* California hazelnut

Boraginaceae

Eriodictyon californicum Yerba santa

* Indicates a non-native species

Caprifoliaceae

Lonicera sp.
Symphoricarpos mollis

Honeysuckle
Creeping snowberry

Ericaceae

Arbutus menziesii
Arctostaphylos viscida

Madrone
Whiteleaf manzanita

Fabaceae (Leguminosae)

Astragalus sp.
**Genista monspessulana*
Lathyrus sp.
Lathyrus sulphureus
**Robinia pseudoacacia*
**Trifolium dubium*
**Trifolium hirtum*
**Vicia villosa*

Loco weed
French broom
Wild pea
Sulphur-flowered pea
Black locust
Little hop clover
Rose clover
Winter vetch

Fagaceae

Quercus chrysolepis
Quercus douglasii
Quercus durata var. *durata*
Quercus kelloggii
Quercus lobata
Quercus wislizeni var. *wislizeni*

Canyon live oak
Blue oak
Leather oak
California black oak
Valley oak
Interior live oak

Lamiaceae (Labiatae)

**Prunella vulgaris* var. *vulgaris*

Common self-heal

Oleaceae

Fraxinus latifolia

Oregon ash

Onagraceae

Epilobium densiflorum

Dense-flower spike-primrose

Plantaginaceae

**Plantago lanceolata*

English plantain

Polygonaceae

**Rumex crispus*

Curly dock

Rhamnaceae

Ceanothus cuneatus var. *cuneatus*
Ceanothus diversifolius
Ceanothus integerrimus var. *integerrimus*
Ceanothus lemmonii
Frangula californica subsp. *tomentella*
Rhamnus ilicifolia

Buck brush
Pine mat
Deer brush
Lemmon's ceanothus
Hoary coffeeberry
Hollyleaf redberry

Rosaceae

Amelanchier sp.
Chamaebatia foliolosa
Heteromeles arbutifolia
**Prunus cerasifera*
Prunus sp.
Rosa californica

Western serviceberry
Sierra mountain misery
Toyon
Cherry plum
Prunus
Califronia rose

* <i>Rosa sp.</i>	Wild rose
* <i>Rubus armeniacus</i>	Himalayan blackberry
<i>Rubus laciniatus</i>	Cutleaf blackberry
<i>Rubus ursinus</i>	California blackberry

Rubiaceae

<i>Galium aparine</i>	Goose grass
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Salicaceae

* <i>Populus alba</i>	White poplar
<i>Populus fremontii subsp. fremontii</i>	Fremont cottonwood
<i>Salix exigua</i>	Narrow-leaved willow
<i>Salix gooddingii</i>	Goodding's black willow
<i>Salix laevigata</i>	Red willow
<i>Salix lasiolepis</i>	Arroyo willow
<i>Salix sp.</i>	Willow

Sapindaceae

<i>Acer macrophyllum</i>	Big-leaf maple
<i>Aesculus californica</i>	California buckeye

Scrophulariaceae

* <i>Verbascum thapsus</i>	Woolly mullein
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Vitaceae

<i>Vitis californica</i>	California wild grape
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Angiosperms -Monocots

Cyperaceae

<i>Carex sp.</i>	Sedge
<i>Cyperus eragrostis</i>	Tall flatsedge
<i>Eleocharis sp.</i>	Spikerush

Juncaceae

* <i>Juncus effusus</i>	Soft rush
<i>Juncus mexicanus</i>	Mexican rush
<i>Juncus sp.</i>	Rush
<i>Juncus xiphioides</i>	Iris-leaved rush

Liliaceae

<i>Fritillaria sp.</i>	Fritillary
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Poaceae (Gramineae)

* <i>Avena sp.</i>	Oat
* <i>Bromus diandrus</i>	Ripgut grass
* <i>Bromus hordeaceus</i>	Soft chess
* <i>Cynodon dactylon</i>	Bermudagrass
* <i>Cynosurus echinatus</i>	Hedgehog dogtail
* <i>Dactylis glomerata</i>	Orchard grass
<i>Elymus glaucus</i>	Blue wildrye
* <i>Festuca perennis</i>	Italian ryegrass
* <i>Hordeum marinum subsp. gussoneanum</i>	Mediterranean barley
<i>Melica sp.</i>	Melicgrass
* <i>Phalaris aquatica</i>	Harding grass
<i>Poa sp.</i>	Bluegrass

Themidaceae

Triteleia laxa

Ithuriel's spear

Typhaceae

Typha latifolia

Broad-leaved cattail

Appendix B
Wildlife Species Observed on Candidate Sites

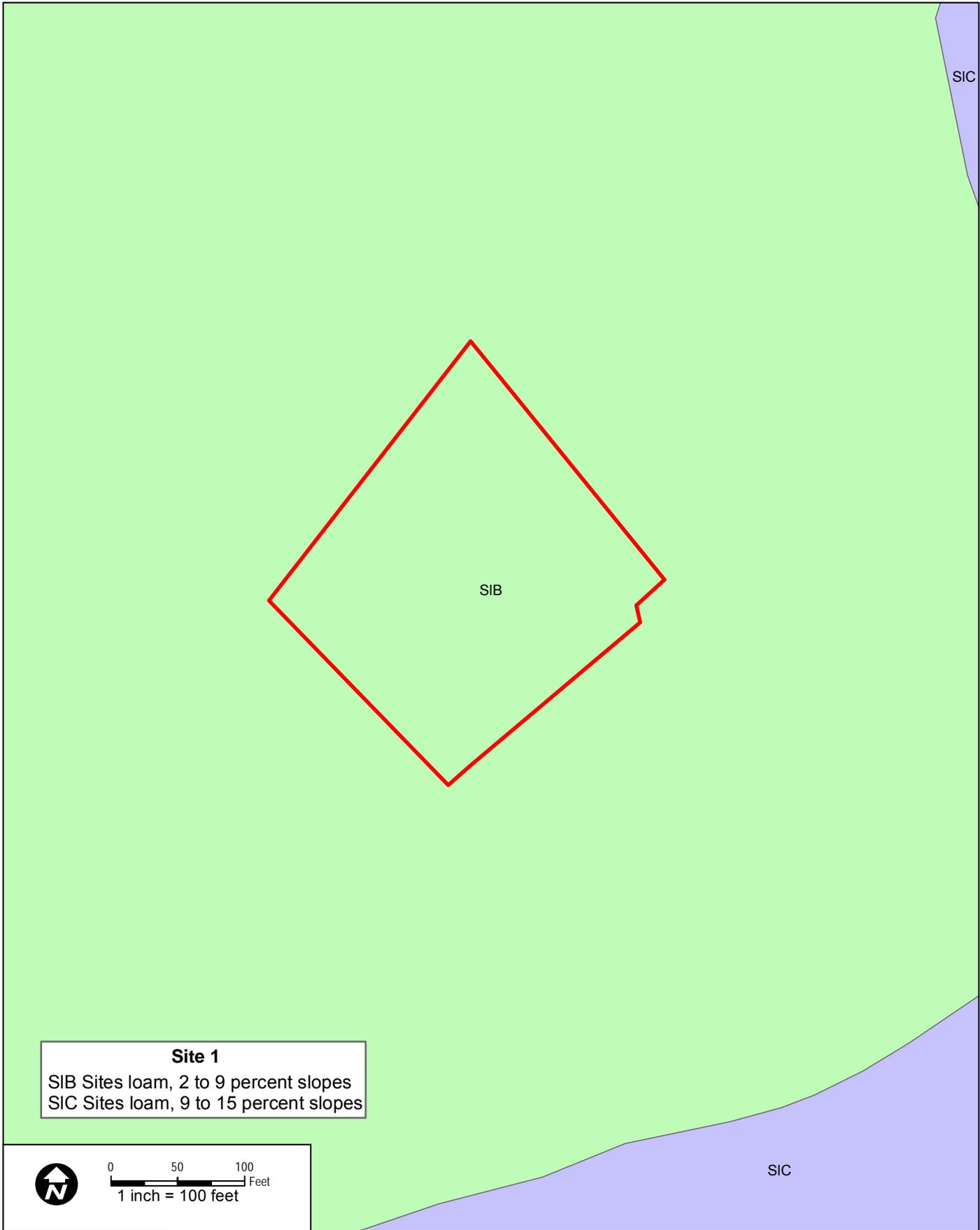
Birds

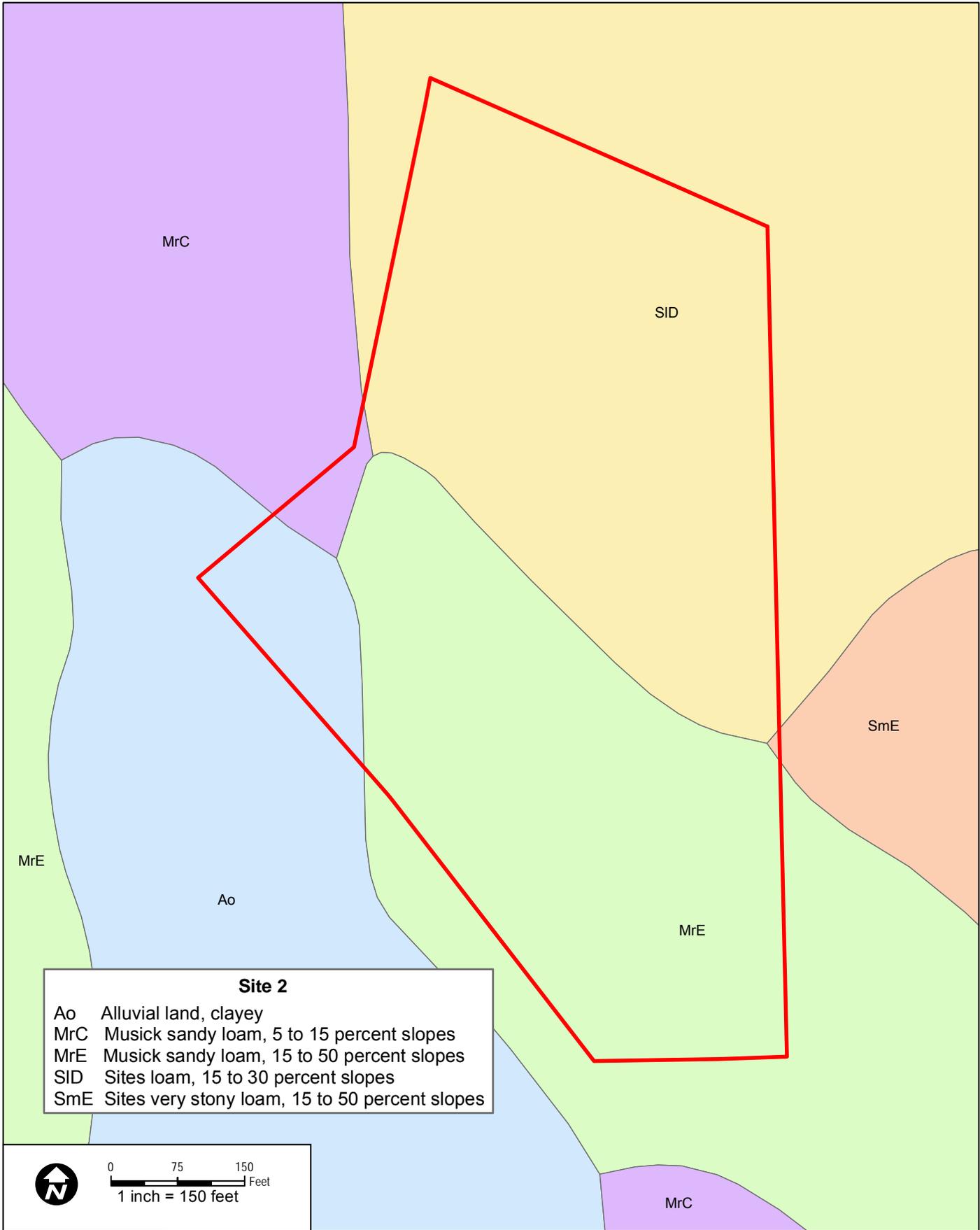
California quail	<i>Callipepla californica</i>
American crow	<i>Corvus brachyrhynchos</i>
European starling	<i>Sturnus vulgaris</i>
Chipping sparrow	<i>Spizella passerina</i>
Brewer's blackbird	<i>Euphagus cyanocephalus</i>

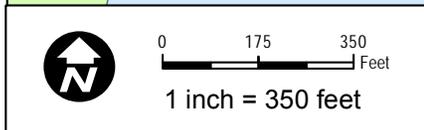
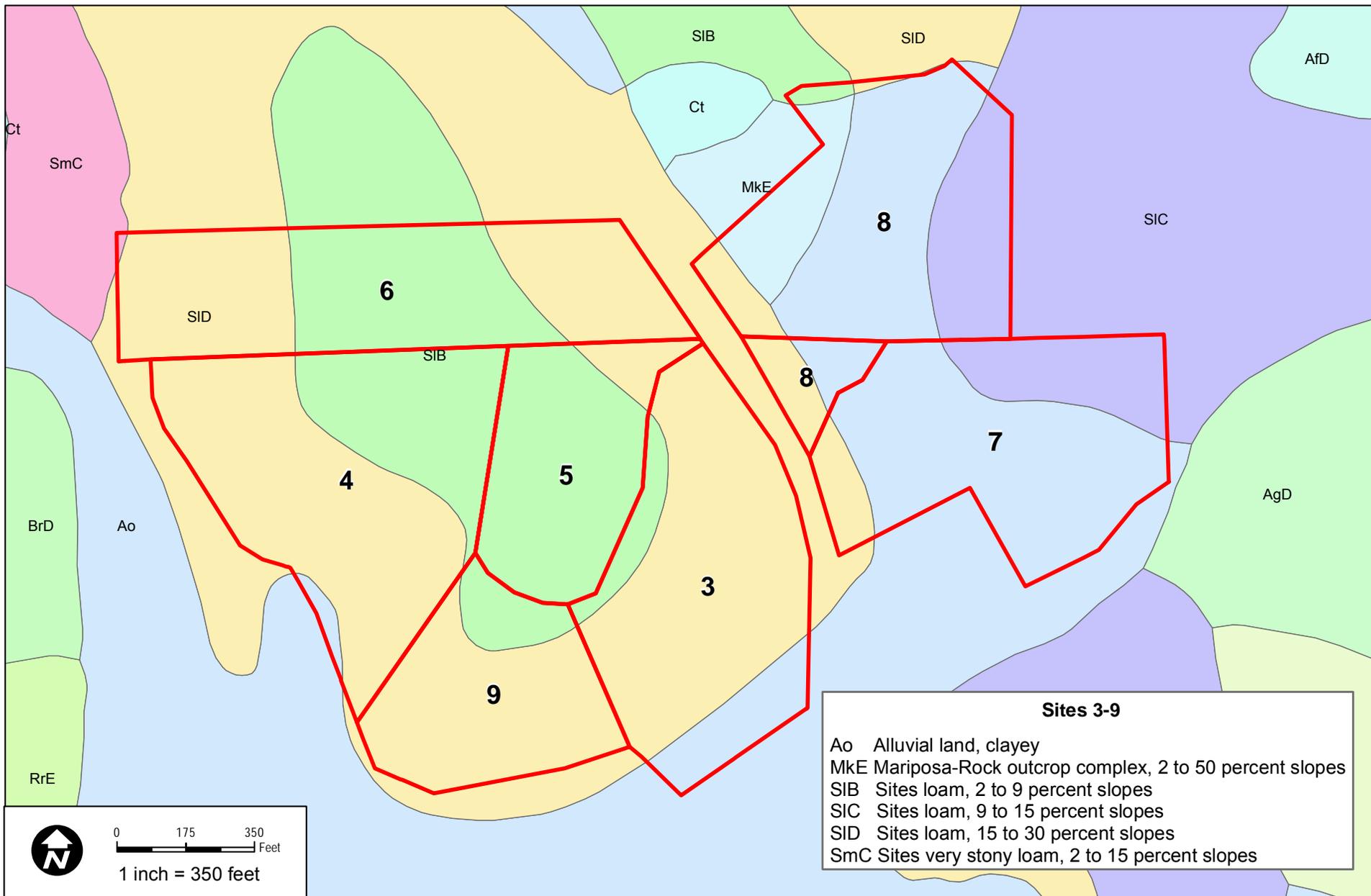
Mammals

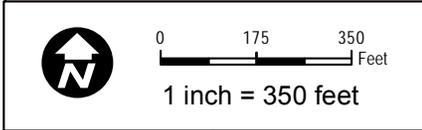
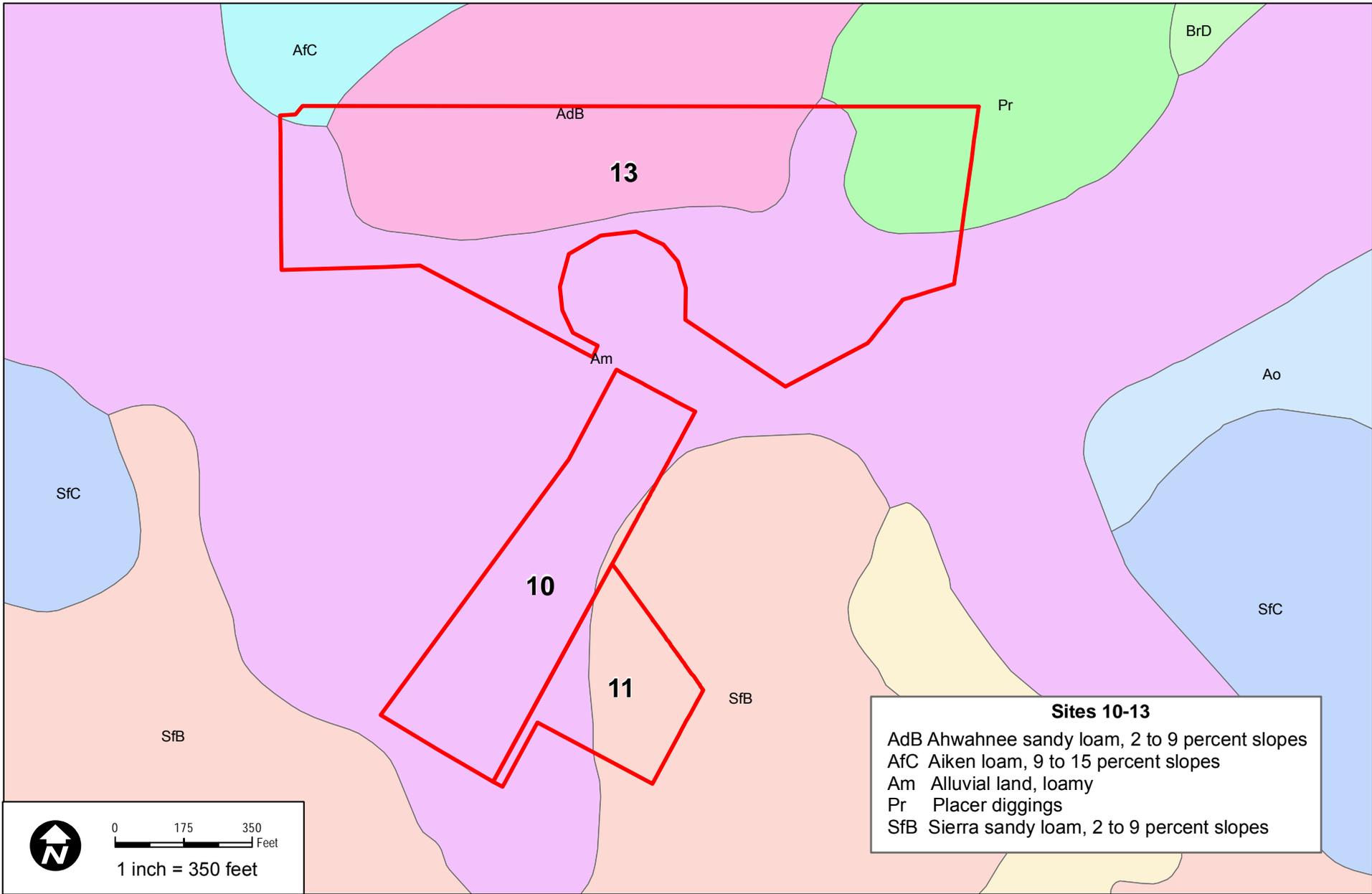
Mule deer	<i>Odocoileus hemionus</i>
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Appendix C.
Study Area Soils Maps











SfB

Site 12

SfB Sierra sandy loam, 2 to 9 percent slopes



0 75 150 Feet
1 inch = 150 feet

DUDEK

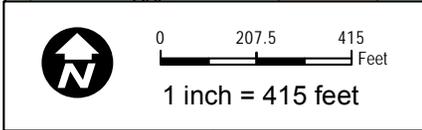
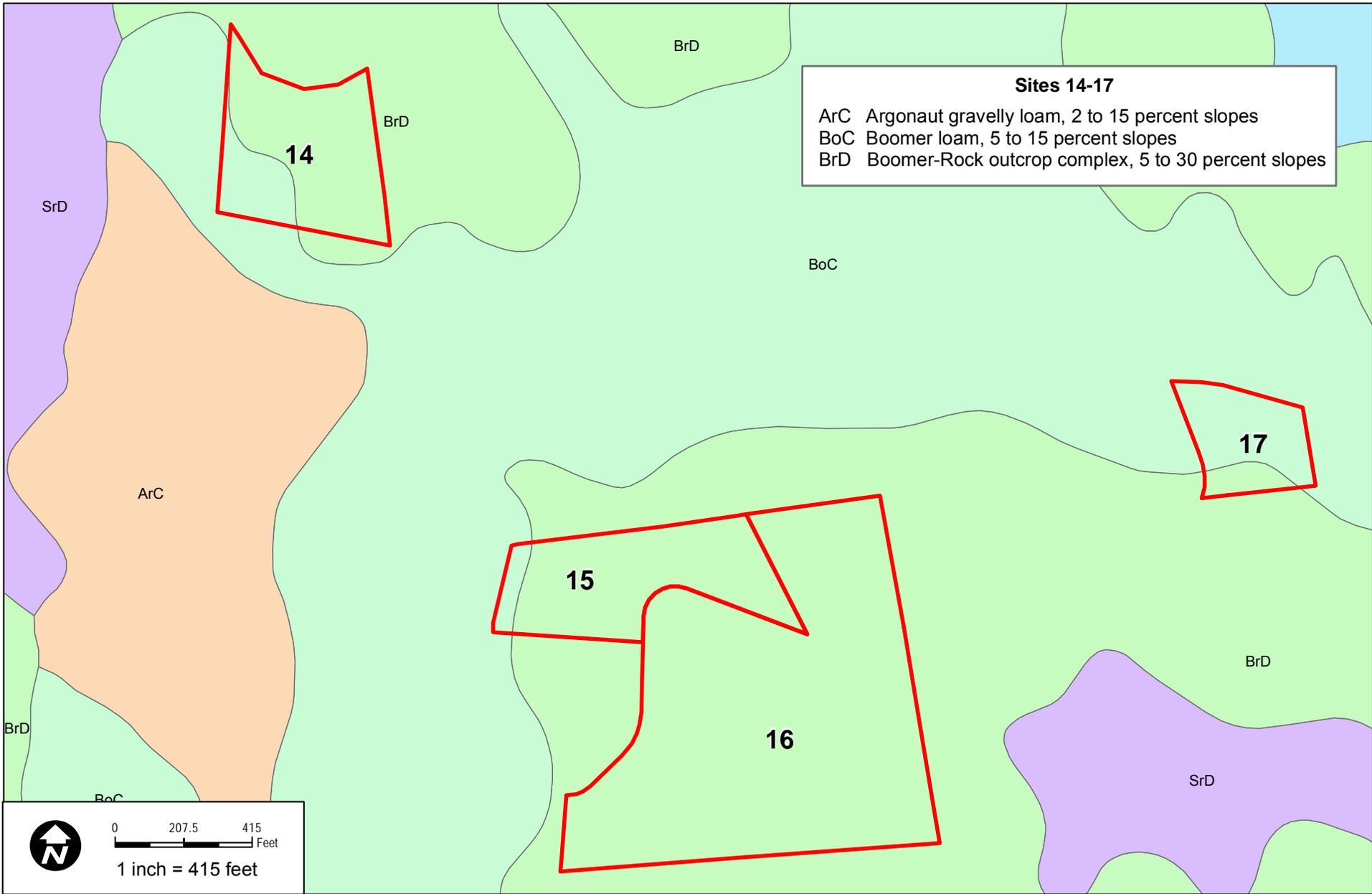
Nevada County Housing Element Rezone

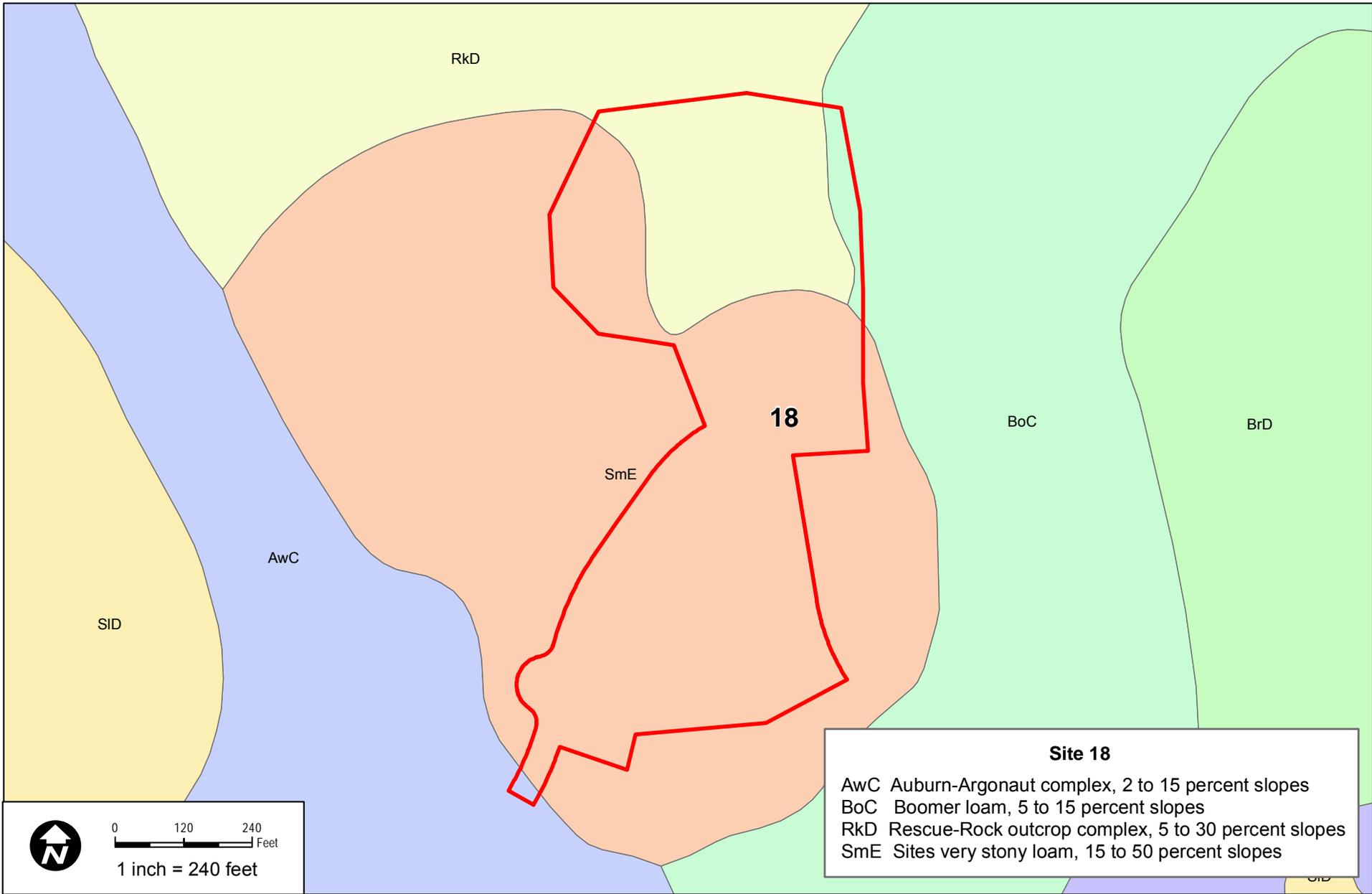
Nevada County, CA

Site 12
Soils Map

7397
January 2013

SOURCE: NRCS SSURGO Database



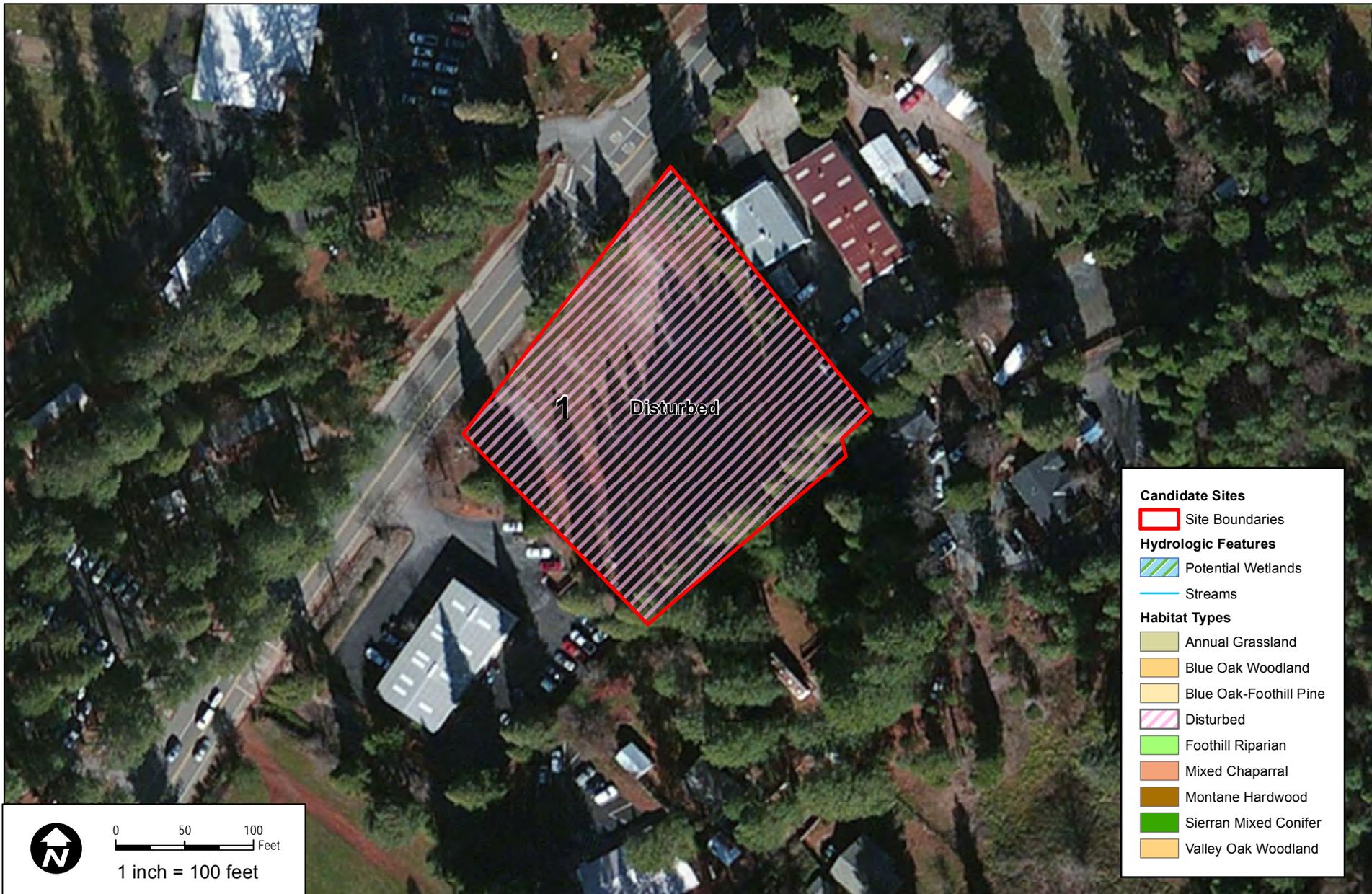


Site 18

AwC Auburn-Argonaut complex, 2 to 15 percent slopes
 BoC Boomer loam, 5 to 15 percent slopes
 RkD Rescue-Rock outcrop complex, 5 to 30 percent slopes
 SmE Sites very stony loam, 15 to 50 percent slopes


 0 120 240 Feet
 1 inch = 240 feet

**Appendix D.
Habitat Maps**



DUDEK

Nevada County Housing Element Rezone

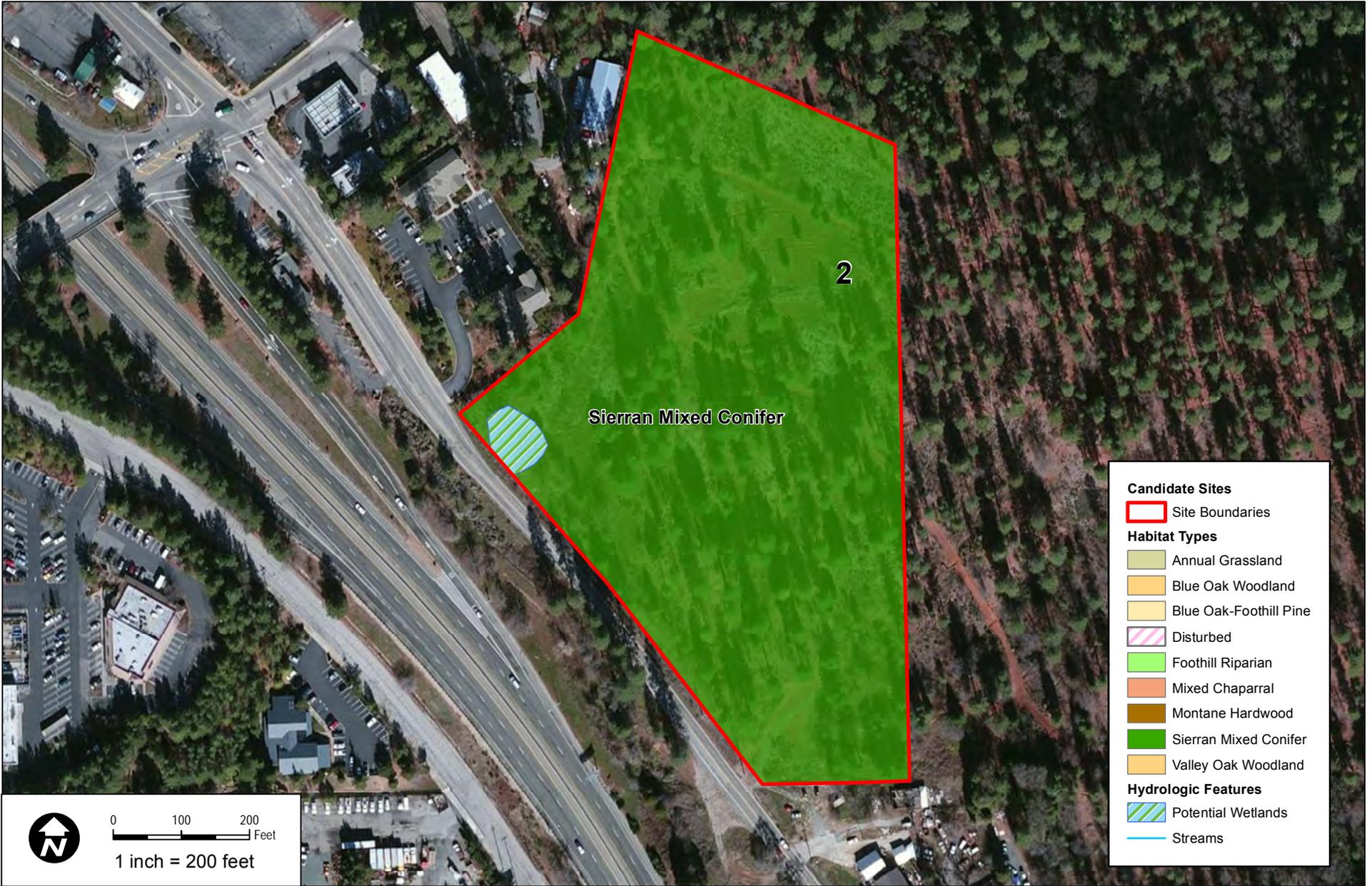
Nevada County, CA

Site 1
Habitat Map

7397

February 2013

Note: Habitats mapped according to CWHR classification scheme.
Field Surveys: May 5, May 9, and November 27, 2013



Candidate Sites

- Site Boundaries

Habitat Types

- Annual Grassland
- Blue Oak Woodland
- Blue Oak-Foothill Pine
- Disturbed
- Foothill Riparian
- Mixed Chaparral
- Montane Hardwood
- Sierran Mixed Conifer
- Valley Oak Woodland

Hydrologic Features

- Potential Wetlands
- Streams



0 100 200 Feet
1 inch = 200 feet

DUDEK

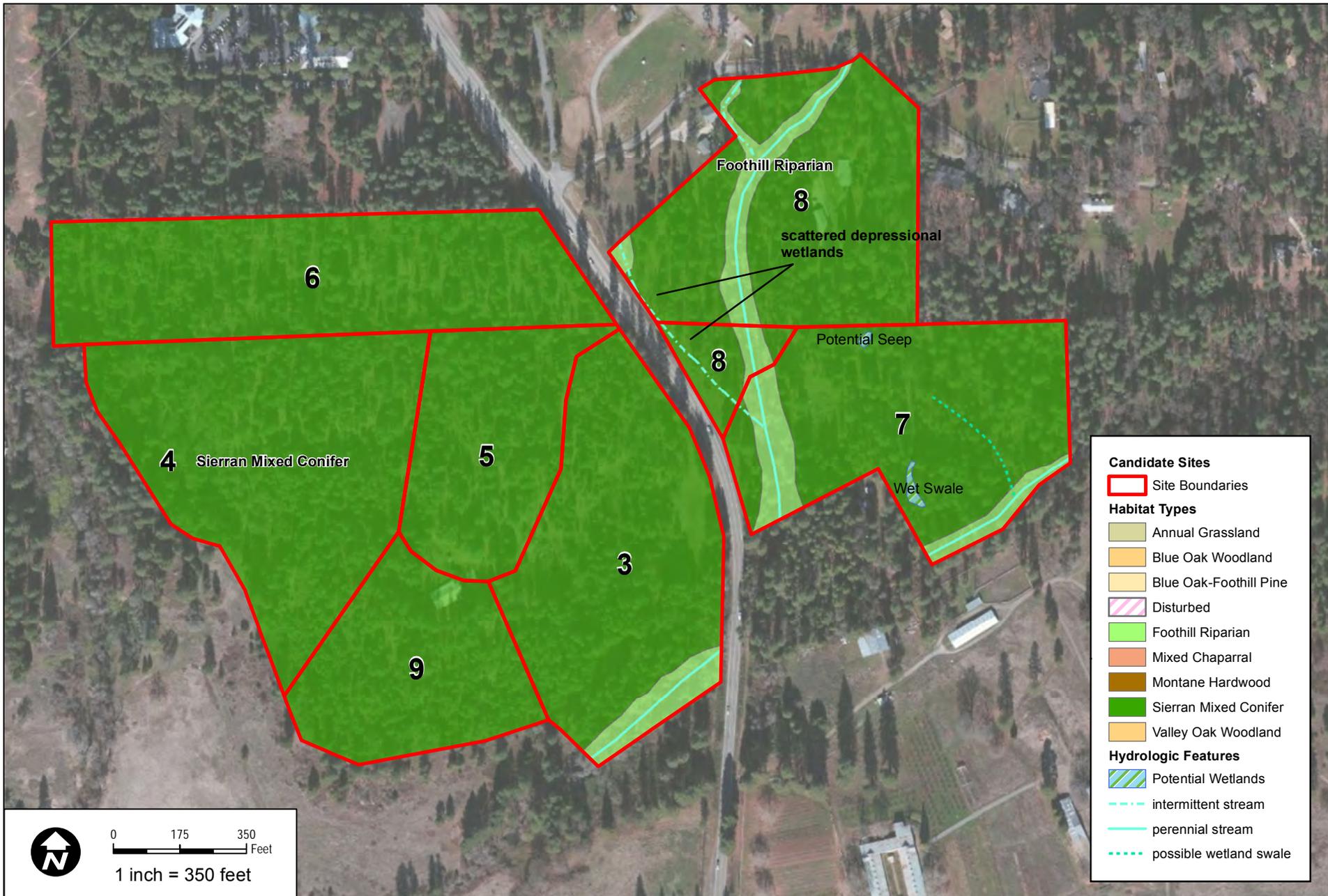
Nevada County Housing Element Rezone

Nevada County, CA

**Site 2
Habitat Map**

7397
February 2013

Note: Habitats mapped according to CWHR classification scheme.
Field Surveys: May 5, May 9, and November 27, 2013



DUDEK

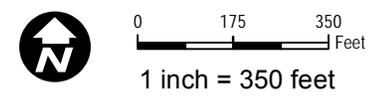
Nevada County Housing Element Rezone

**Sites 3 - 9
Habitat Map**

Nevada County, CA

7397
February 2013

Note: Habitats mapped according to CWHR classification scheme.
Field Surveys: May 5, May 9, and November 27, 2013



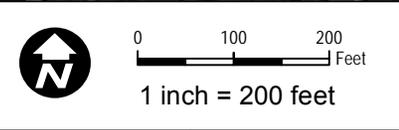
DUDEK

Nevada County Housing Element Rezone
Nevada County, CA

Sites 10, 11, 13
Habitat Map

7397
February 2013

Note: Habitats mapped according to CWHR classification scheme.
Field Surveys: May 5, May 9, and November 27, 2013



Candidate Sites	
	Site Boundaries
Habitat Types	
	Annual Grassland
	Blue Oak Woodland
	Blue Oak-Foothill Pine
	Disturbed
	Foothill Riparian
	Mixed Chaparral
	Montane Hardwood
	Sierran Mixed Conifer
	Valley Oak Woodland
Hydrologic Features	
	Potential Wetlands
	intermittent stream
	perennial stream
	possible wetland swale

DUDEK

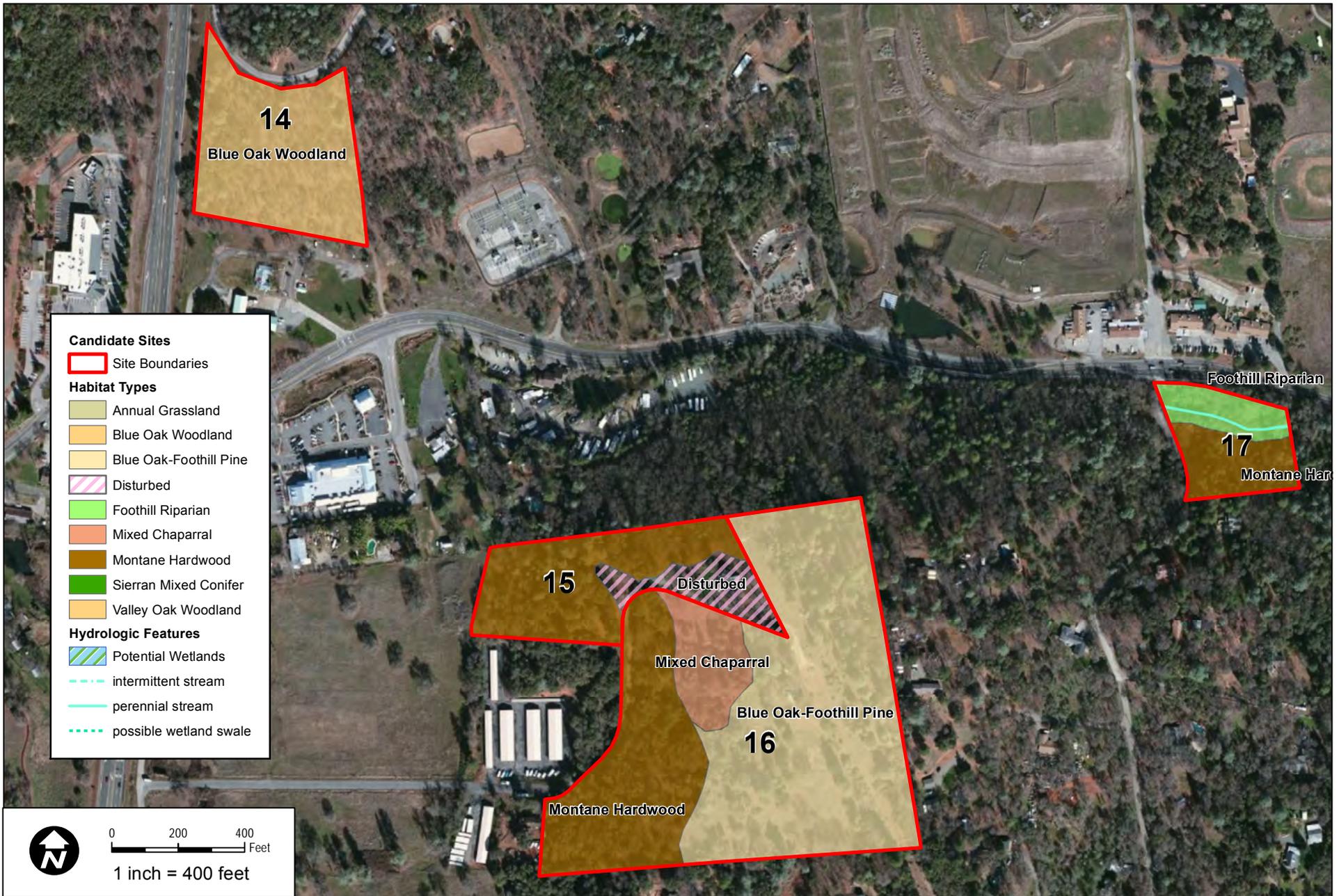
Nevada County Housing Element Rezone

Nevada County, CA

**Site 12
Habitat Map**

7397
February 2013

Note: Habitats mapped according to CWHR classification scheme.
Field Surveys: May 5, May 9, and November 27, 2013





Candidate Sites

- Site Boundaries

Habitat Types

- Annual Grassland
- Blue Oak Woodland
- Blue Oak-Foothill Pine
- Disturbed
- Foothill Riparian
- Mixed Chaparral
- Montane Hardwood
- Sierran Mixed Conifer
- Valley Oak Woodland

Hydrologic Features

- Potential Wetlands
- intermittent stream
- perennial stream
- possible wetland swale


 0 125 250 Feet
 1 inch = 250 feet

**County of Nevada
Housing Element Rezone Implementation Program EIR
September 2013**

Technical Appendices

Appendix D

Air Quality Modeling Data

Nevada County EMFAC.rts

Title : Mountain Counties Air Basin Subarea Winter Cyr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Amador (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Amador (MC)

Amador (MC)

Amador (MC)

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.056	0.115	0.154	0.583	4.561	4.681	0.197
35	0.008	0.018	0.026	0.097	0.717	1.804	0.049

Pollutant Name: Carbon Monoxide Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.949	1.677	2.090	4.470	50.581	22.073	1.971
35	0.562	0.962	1.060	0.934	9.886	14.292	1.067

Pollutant Name: Oxides of Nitrogen Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.095	0.208	0.440	2.438	14.596	1.388	0.312
35	0.054	0.114	0.265	1.218	9.559	1.264	0.181

Pollutant Name: Carbon Dioxide Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	922.966	1171.218	1726.449	2157.031	2398.510	266.298	1174.294
35	300.262	382.085	519.084	1214.141	1391.802	139.926	396.182

Pollutant Name: Sulfur Dioxide Temperature: 70F Relative Humidity: 0%

Nevada County EMFAC.rts

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.009	0.011	0.017	0.021	0.024	0.003	0.011
35	0.003	0.004	0.005	0.012	0.013	0.002	0.004

Pollutant Name: PM2.5 Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.046	0.076	0.098	0.190	0.328	0.023	0.071
35	0.007	0.012	0.017	0.065	0.077	0.011	0.013

Pollutant Name: PM2.5 - Tire Wear Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.002	0.002	0.002	0.004	0.002	0.001	0.002
35	0.002	0.002	0.002	0.004	0.002	0.001	0.002

Pollutant Name: PM2.5 - Brake wear Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.005	0.005	0.005	0.006	0.005	0.003	0.005
35	0.005	0.005	0.005	0.006	0.005	0.003	0.005

Pollutant Name: Gasoline - mi/gal Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	9.582	7.522	4.952	3.516	3.295	28.041	8.287
35	29.422	23.088	17.018	17.769	16.689	52.649	25.162

Pollutant Name: Diesel - mi/gal Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	29.156	29.156	19.499	5.871	4.414	0.000	11.603
35	29.156	29.156	19.499	6.458	4.414	0.000	11.956

Nevada County EMFAC.rts

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Amador (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Amador (MC)

Amador (MC)

Amador (MC)

Table 2: Starting Emissions (grams/trip)

Pollutant Name: Reactive Org Gases Temperature: 70F Relative Humidity:

ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.006	0.014	0.037	0.062	0.447	0.650	0.030
10	0.012	0.027	0.073	0.122	0.870	0.802	0.051
20	0.023	0.052	0.143	0.230	1.650	1.095	0.090
30	0.033	0.075	0.209	0.327	2.339	1.371	0.127
40	0.042	0.096	0.274	0.410	2.938	1.631	0.161
50	0.051	0.115	0.335	0.481	3.445	1.875	0.193
60	0.058	0.132	0.393	0.539	3.862	2.052	0.221
120	0.089	0.192	0.670	0.606	4.342	2.320	0.322
180	0.087	0.188	0.664	0.643	4.608	2.348	0.321
240	0.092	0.199	0.707	0.679	4.864	2.496	0.341
300	0.097	0.211	0.749	0.714	5.113	2.641	0.361
360	0.103	0.222	0.791	0.747	5.353	2.783	0.380
420	0.108	0.233	0.833	0.780	5.584	2.922	0.400
480	0.113	0.243	0.875	0.811	5.807	3.058	0.419
540	0.118	0.254	0.916	0.841	6.022	3.191	0.437
600	0.123	0.264	0.958	0.870	6.228	3.321	0.456
660	0.128	0.275	0.999	0.897	6.426	3.448	0.474
720	0.133	0.285	1.040	0.924	6.616	3.571	0.492

Pollutant Name: Carbon Monoxide Temperature: 70F Relative Humidity:

ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.096	0.206	0.517	0.823	6.751	2.971	0.321
10	0.190	0.406	1.023	1.612	13.229	3.585	0.592
20	0.371	0.789	2.001	3.090	25.360	4.760	1.112
30	0.542	1.148	2.933	4.435	36.394	5.867	1.601
40	0.703	1.484	3.820	5.646	46.330	6.903	2.059
50	0.855	1.795	4.661	6.723	55.170	7.871	2.487
60	0.996	2.084	5.457	7.667	62.912	8.769	2.884
120	1.564	3.138	8.761	8.953	73.471	12.410	4.327

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180	1.474	2.964	8.390	9.215	75.618	12.019	4.157
240	1.595	3.180	9.144	9.485	77.837	13.034	4.476
300	1.702	3.373	9.806	9.764	80.126	13.971	4.761
360	1.795	3.544	10.376	10.052	82.486	14.832	5.012
420	1.875	3.693	10.855	10.348	84.917	15.615	5.229
480	1.940	3.819	11.243	10.653	87.419	16.322	5.412
540	1.992	3.923	11.539	10.967	89.991	16.951	5.561
600	2.030	4.004	11.744	11.289	92.635	17.504	5.676
660	2.054	4.062	11.857	11.619	95.349	17.979	5.758
720	2.064	4.098	11.879	11.959	98.134	18.378	5.805

ALL Pollutant Name: Oxides of Nitrogen Temperature: 70F Relative Humidity:

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.051	0.113	0.830	0.224	2.375	0.154	0.254
10	0.054	0.123	0.860	0.337	3.579	0.193	0.273
20	0.060	0.140	0.915	0.536	5.693	0.263	0.305
30	0.066	0.154	0.963	0.699	7.415	0.320	0.333
40	0.070	0.166	1.005	0.824	8.746	0.365	0.355
50	0.074	0.175	1.042	0.913	9.686	0.398	0.373
60	0.076	0.181	1.071	0.964	10.234	0.420	0.386
120	0.082	0.194	1.178	0.971	10.309	0.422	0.417
180	0.083	0.195	1.179	0.968	10.271	0.418	0.417
240	0.082	0.194	1.170	0.962	10.213	0.412	0.414
300	0.081	0.191	1.154	0.955	10.135	0.404	0.409
360	0.080	0.188	1.133	0.946	10.037	0.394	0.402
420	0.078	0.184	1.105	0.935	9.919	0.382	0.393
480	0.076	0.179	1.071	0.922	9.781	0.369	0.382
540	0.073	0.174	1.031	0.907	9.624	0.354	0.369
600	0.070	0.167	0.985	0.890	9.446	0.338	0.355
660	0.067	0.160	0.932	0.871	9.248	0.319	0.338
720	0.063	0.151	0.874	0.851	9.030	0.299	0.319

ALL Pollutant Name: Carbon Dioxide Temperature: 70F Relative Humidity:

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	11.979	14.915	21.901	2.923	4.767	13.197	14.820
10	13.435	16.842	24.631	5.829	9.507	15.392	16.826
20	16.839	21.299	30.986	11.594	18.908	19.701	21.421
30	20.898	26.563	38.533	17.294	28.204	23.903	26.795
40	25.612	32.633	47.272	22.929	37.394	27.999	32.948
50	30.982	39.508	57.204	28.499	46.479	31.987	39.880
60	37.007	47.190	68.327	34.005	55.458	35.869	47.592
120	86.346	109.146	158.846	57.837	94.324	53.301	108.865
180	97.996	123.993	180.351	68.330	111.437	57.552	123.706
240	109.632	138.794	201.812	78.204	127.540	61.553	138.477
300	121.251	153.547	223.227	87.458	142.632	65.305	153.177
360	132.856	168.254	244.598	96.093	156.715	68.807	167.808
420	144.445	182.915	265.924	104.109	169.788	72.060	182.369
480	156.018	197.528	287.206	111.505	181.850	75.064	196.859
540	167.576	212.095	308.443	118.282	192.903	77.817	211.280
600	179.118	226.615	329.634	124.440	202.946	80.322	225.631
660	190.646	241.089	350.781	129.979	211.978	82.577	239.912

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720 202.157 255.516 371.884 134.898 220.000 84.582 254.122

Pollutant Name: Sulfur Dioxide Temperature: 70F Relative Humidity:

ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20	0.000	0.000	0.000	0.000	0.001	0.000	0.000
30	0.000	0.000	0.000	0.000	0.001	0.000	0.000
40	0.000	0.000	0.001	0.000	0.001	0.000	0.000
50	0.000	0.000	0.001	0.000	0.001	0.000	0.000
60	0.000	0.000	0.001	0.000	0.002	0.001	0.001
120	0.001	0.001	0.002	0.001	0.002	0.001	0.001
180	0.001	0.001	0.002	0.001	0.002	0.001	0.001
240	0.001	0.001	0.002	0.001	0.003	0.001	0.001
300	0.001	0.002	0.002	0.001	0.003	0.001	0.002
360	0.001	0.002	0.003	0.001	0.003	0.001	0.002
420	0.001	0.002	0.003	0.001	0.003	0.001	0.002
480	0.002	0.002	0.003	0.001	0.003	0.001	0.002
540	0.002	0.002	0.003	0.001	0.003	0.001	0.002
600	0.002	0.002	0.003	0.001	0.004	0.001	0.002
660	0.002	0.002	0.004	0.001	0.004	0.001	0.002
720	0.002	0.003	0.004	0.002	0.004	0.001	0.003

Pollutant Name: PM2.5 Temperature: 70F Relative Humidity:

ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.000	0.001	0.001	0.000	0.001	0.005	0.001
10	0.001	0.001	0.001	0.001	0.001	0.005	0.001
20	0.002	0.003	0.003	0.001	0.003	0.004	0.002
30	0.002	0.004	0.004	0.002	0.004	0.003	0.003
40	0.003	0.006	0.005	0.002	0.005	0.003	0.005
50	0.004	0.007	0.006	0.003	0.006	0.002	0.006
60	0.005	0.008	0.008	0.003	0.007	0.002	0.006
120	0.008	0.013	0.012	0.004	0.010	0.005	0.011
180	0.009	0.014	0.014	0.005	0.010	0.007	0.012
240	0.009	0.016	0.015	0.005	0.010	0.008	0.013
300	0.010	0.017	0.016	0.005	0.010	0.010	0.014
360	0.011	0.018	0.017	0.005	0.011	0.011	0.015
420	0.011	0.019	0.018	0.005	0.011	0.012	0.015
480	0.012	0.019	0.019	0.005	0.011	0.013	0.016
540	0.012	0.020	0.019	0.006	0.012	0.014	0.016
600	0.012	0.020	0.019	0.006	0.012	0.014	0.017
660	0.012	0.020	0.020	0.006	0.012	0.015	0.017
720	0.012	0.020	0.020	0.006	0.013	0.015	0.017

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Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Amador (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Amador (MC) Amador (MC) Amador (MC)

Table 4: Hot Soak Emissions (grams/trip)

Pollutant Name: Reactive Org Gases Temperature: 70F Relative Humidity:
 ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.032	0.064	0.031	0.004	0.108	0.173	0.046
10	0.060	0.118	0.057	0.008	0.199	0.322	0.084
20	0.103	0.203	0.097	0.013	0.340	0.565	0.144
30	0.132	0.261	0.126	0.017	0.437	0.747	0.187
40	0.144	0.283	0.137	0.019	0.473	0.821	0.203

Hot soak results are scaled to reflect zero emissions for trip lengths of less than 5 minutes (about 25% of in-use trips).

Title : Mountain Counties Air Basin Subarea Winter Cyr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Amador (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Amador (MC) Amador (MC) Amador (MC)

Table 5a: Partial Day Diurnal Loss Emissions

(grams/hour)

Pollutant Name: Reactive Org Gases Temperature: ALL Relative Humidity:
 ALL

Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
70	0.036	0.092	0.059	0.003	0.007	0.446	0.087

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Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Amador (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Amador (MC) Amador (MC) Amador (MC)

Table 5b: Multi-Day Diurnal Loss Emissions

(grams/hour)

Pollutant Name: Reactive Org Gases								Temperature: ALL	Relative Humidity:
Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL		
70	0.003	0.007	0.004	0.000	0.002	0.042	0.007		

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Amador (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Amador (MC) Amador (MC) Amador (MC)

Table 6a: Partial Day Resting Loss Emissions

(grams/hour)

Pollutant Name: Reactive Org Gases								Temperature: ALL	Relative Humidity:
Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL		
70	0.017	0.046	0.038	0.002	0.002	0.141	0.039		

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Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Amador (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Amador (MC) Amador (MC) Amador (MC)

Table 6b: Multi-Day Resting Loss Emissions

(grams/hour)

Pollutant Name:	Reactive Org Gases						Temperature: ALL	Relative Humidity:
ALL	LDA	LDT	MDT	HDT	UBUS	MCY	ALL	
Temp degF								
70	0.001	0.004	0.003	0.000	0.001	0.014	0.003	

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Amador (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Amador (MC) Amador (MC) Amador (MC)

Table 7: Estimated Travel Fractions

Pollutant Name:	Reactive Org Gases						Temperature: ALL	Relative Humidity:
ALL	LDA	LDT	MDT	HDT	UBUS	MCY	ALL	
%VMT	0.359	0.458	0.130	0.034	0.001	0.017	1.000	
%TRIP	0.320	0.394	0.215	0.052	0.000	0.018	1.000	
%VEH	0.348	0.440	0.115	0.035	0.000	0.061	1.000	

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Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Amador (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Amador (MC)

Amador (MC)

Amador (MC)

Table 8: Evaporative Running Loss Emissions

(grams/minute)

Pollutant Name: Reactive Org Gases Temperature: 70F Relative Humidity:
 ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
1	0.007	0.421	0.342	0.189	1.283	0.003	0.248
2	0.007	0.219	0.178	0.098	0.663	0.038	0.131
3	0.009	0.154	0.126	0.069	0.457	0.057	0.094
4	0.011	0.123	0.101	0.055	0.356	0.068	0.077
5	0.013	0.105	0.087	0.047	0.296	0.077	0.067
10	0.018	0.072	0.061	0.031	0.178	0.100	0.050
15	0.021	0.064	0.056	0.028	0.143	0.113	0.047
20	0.022	0.063	0.057	0.027	0.130	0.124	0.047
25	0.024	0.064	0.059	0.028	0.124	0.133	0.049
30	0.025	0.067	0.062	0.030	0.130	0.141	0.051
35	0.026	0.070	0.065	0.031	0.136	0.148	0.054
40	0.027	0.073	0.067	0.032	0.142	0.154	0.056
45	0.028	0.076	0.070	0.033	0.147	0.161	0.058
50	0.029	0.078	0.072	0.034	0.152	0.167	0.060
55	0.029	0.081	0.074	0.035	0.157	0.172	0.062
60	0.030	0.083	0.076	0.036	0.161	0.178	0.063

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Calaveras (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Calaveras (MC)

Calaveras (MC)

Calaveras

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(MC)

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.053	0.106	0.152	1.041	5.911	4.675	0.203
35	0.008	0.017	0.026	0.131	0.857	1.802	0.047

Pollutant Name: Carbon Monoxide Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.929	1.586	2.064	4.487	70.727	22.031	1.867
35	0.551	0.914	1.048	0.943	13.935	14.266	1.014

Pollutant Name: Oxides of Nitrogen Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.092	0.193	0.436	3.830	5.999	1.383	0.360
35	0.052	0.107	0.263	1.623	7.420	1.260	0.190

Pollutant Name: Carbon Dioxide Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	922.716	1171.279	1730.534	2637.369	2398.802	266.300	1209.914
35	300.189	382.023	518.943	1351.192	1065.325	139.927	408.999

Pollutant Name: Sulfur Dioxide Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.009	0.011	0.017	0.025	0.024	0.003	0.012
35	0.003	0.004	0.005	0.013	0.010	0.002	0.004

Pollutant Name: PM2.5 Temperature: 70F Relative Humidity: 0%

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Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.047	0.077	0.097	0.150	0.091	0.023	0.072
35	0.008	0.013	0.017	0.061	0.017	0.011	0.013

0% Pollutant Name: PM2.5 - Tire wear Temperature: 70F Relative Humidity:

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.002	0.002	0.002	0.005	0.003	0.001	0.002
35	0.002	0.002	0.002	0.005	0.003	0.001	0.002

0% Pollutant Name: PM2.5 - Brake wear Temperature: 70F Relative Humidity:

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.005	0.005	0.005	0.008	0.005	0.003	0.005
35	0.005	0.005	0.005	0.008	0.005	0.003	0.005

0% Pollutant Name: Gasoline - mi/gal Temperature: 70F Relative Humidity:

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	9.585	7.525	4.940	3.515	3.274	28.048	8.201
35	29.431	23.098	17.026	17.764	16.588	52.664	24.969

0% Pollutant Name: Diesel - mi/gal Temperature: 70F Relative Humidity:

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	29.156	29.156	19.471	4.645	4.635	0.000	10.092
35	29.156	29.156	19.471	6.102	4.635	0.000	11.056

Title : Mountain Counties Air Basin Subarea winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : winter
 Area : Calaveras (MC)

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Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

(MC) Calaveras (MC) Calaveras (MC) Calaveras

Table 2: Starting Emissions (grams/trip)

ALL Pollutant Name: Reactive Org Gases Temperature: 70F Relative Humidity:

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.006	0.013	0.036	0.063	0.639	0.649	0.030
10	0.011	0.025	0.072	0.122	1.247	0.801	0.051
20	0.022	0.048	0.140	0.231	2.363	1.093	0.090
30	0.032	0.069	0.207	0.328	3.350	1.368	0.127
40	0.041	0.088	0.270	0.412	4.207	1.628	0.161
50	0.049	0.106	0.331	0.483	4.934	1.871	0.193
60	0.057	0.121	0.389	0.541	5.531	2.048	0.222
120	0.088	0.178	0.668	0.609	6.219	2.315	0.327
180	0.085	0.175	0.661	0.646	6.599	2.343	0.326
240	0.091	0.186	0.703	0.682	6.966	2.491	0.347
300	0.096	0.196	0.746	0.717	7.322	2.636	0.367
360	0.101	0.206	0.788	0.750	7.666	2.777	0.386
420	0.106	0.217	0.830	0.783	7.997	2.916	0.406
480	0.111	0.227	0.871	0.814	8.317	3.052	0.425
540	0.116	0.237	0.913	0.844	8.624	3.184	0.445
600	0.121	0.246	0.954	0.873	8.920	3.314	0.464
660	0.126	0.256	0.995	0.901	9.203	3.440	0.482
720	0.131	0.265	1.036	0.927	9.474	3.564	0.501

ALL Pollutant Name: Carbon Monoxide Temperature: 70F Relative Humidity:

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.097	0.193	0.514	0.892	9.735	2.966	0.326
10	0.191	0.381	1.017	1.747	19.075	3.576	0.601
20	0.372	0.741	1.989	3.349	36.567	4.744	1.128
30	0.544	1.079	2.916	4.806	52.477	5.843	1.625
40	0.706	1.395	3.799	6.119	66.805	6.874	2.091
50	0.858	1.689	4.637	7.286	79.551	7.836	2.526
60	1.000	1.962	5.431	8.309	90.714	8.729	2.931
120	1.573	2.971	8.750	9.703	105.939	12.355	4.422
180	1.484	2.808	8.374	9.987	109.036	11.971	4.249
240	1.607	3.017	9.132	10.280	112.235	12.984	4.581
300	1.715	3.204	9.796	10.582	115.536	13.919	4.876
360	1.809	3.368	10.369	10.894	118.939	14.778	5.136
420	1.890	3.511	10.849	11.215	122.444	15.560	5.360
480	1.956	3.631	11.237	11.545	126.051	16.265	5.549
540	2.008	3.729	11.533	11.885	129.761	16.892	5.702
600	2.046	3.805	11.736	12.234	133.572	17.443	5.819
660	2.070	3.859	11.847	12.592	137.486	17.917	5.900
720	2.080	3.891	11.866	12.960	141.501	18.314	5.946

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ALL Pollutant Name: Oxides of Nitrogen Temperature: 70F Relative Humidity:

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.050	0.106	0.835	0.231	3.368	0.153	0.268
10	0.054	0.115	0.863	0.348	5.074	0.192	0.286
20	0.060	0.130	0.916	0.554	8.072	0.262	0.318
30	0.065	0.143	0.962	0.721	10.514	0.319	0.345
40	0.069	0.154	1.003	0.851	12.401	0.364	0.367
50	0.072	0.162	1.038	0.942	13.733	0.397	0.385
60	0.075	0.168	1.068	0.995	14.511	0.418	0.398
120	0.081	0.180	1.175	1.003	14.616	0.420	0.430
180	0.081	0.181	1.176	0.999	14.562	0.417	0.431
240	0.080	0.180	1.167	0.993	14.480	0.410	0.427
300	0.079	0.178	1.152	0.986	14.370	0.402	0.422
360	0.078	0.175	1.130	0.976	14.231	0.392	0.415
420	0.076	0.171	1.102	0.965	14.064	0.381	0.405
480	0.074	0.167	1.068	0.951	13.868	0.368	0.394
540	0.072	0.161	1.028	0.936	13.645	0.353	0.380
600	0.069	0.155	0.981	0.919	13.392	0.336	0.365
660	0.066	0.148	0.929	0.900	13.112	0.318	0.348
720	0.062	0.140	0.870	0.878	12.803	0.298	0.328

ALL Pollutant Name: Carbon Dioxide Temperature: 70F Relative Humidity:

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	11.986	14.967	21.968	2.874	6.314	13.192	15.101
10	13.439	16.873	24.694	5.732	12.593	15.387	17.118
20	16.837	21.295	31.045	11.401	25.045	19.695	21.748
30	20.891	26.527	38.593	17.006	37.358	23.897	27.174
40	25.601	32.571	47.337	22.548	49.532	27.992	33.396
50	30.967	39.426	57.279	28.026	61.565	31.981	40.414
60	36.989	47.092	68.417	33.440	73.459	35.862	48.227
120	86.336	109.139	159.155	56.876	124.941	53.292	110.526
180	97.982	123.957	180.689	67.194	147.609	57.544	125.564
240	109.613	138.735	202.182	76.904	168.938	61.546	140.538
300	121.229	153.472	223.632	86.005	188.930	65.299	155.446
360	132.831	168.170	245.041	94.496	207.584	68.802	170.290
420	144.418	182.826	266.407	102.379	224.900	72.055	185.069
480	155.990	197.442	287.732	109.652	240.878	75.059	199.783
540	167.549	212.018	309.014	116.317	255.518	77.813	214.432
600	179.092	226.554	330.255	122.372	268.820	80.318	229.016
660	190.621	241.049	351.453	127.819	280.785	82.574	243.535
720	202.136	255.503	372.610	132.656	291.411	84.579	257.989

ALL Pollutant Name: Sulfur Dioxide Temperature: 70F Relative Humidity:

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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20	0.000	0.000	0.000	0.000	0.001	0.000	0.000
30	0.000	0.000	0.000	0.000	0.001	0.000	0.000
40	0.000	0.000	0.001	0.000	0.002	0.000	0.000
50	0.000	0.000	0.001	0.000	0.002	0.000	0.000
60	0.000	0.000	0.001	0.000	0.002	0.001	0.001
120	0.001	0.001	0.002	0.001	0.003	0.001	0.001
180	0.001	0.001	0.002	0.001	0.003	0.001	0.001
240	0.001	0.001	0.002	0.001	0.004	0.001	0.001
300	0.001	0.002	0.002	0.001	0.004	0.001	0.002
360	0.001	0.002	0.003	0.001	0.004	0.001	0.002
420	0.001	0.002	0.003	0.001	0.004	0.001	0.002
480	0.002	0.002	0.003	0.001	0.004	0.001	0.002
540	0.002	0.002	0.003	0.001	0.005	0.001	0.002
600	0.002	0.002	0.003	0.001	0.005	0.001	0.002
660	0.002	0.002	0.004	0.001	0.005	0.001	0.002
720	0.002	0.003	0.004	0.001	0.005	0.001	0.003

ALL Pollutant Name: PM2.5 Temperature: 70F Relative Humidity:

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.000	0.001	0.001	0.000	0.001	0.005	0.001
10	0.001	0.002	0.001	0.001	0.002	0.005	0.001
20	0.002	0.003	0.003	0.001	0.004	0.004	0.002
30	0.003	0.004	0.004	0.002	0.005	0.003	0.004
40	0.003	0.006	0.005	0.002	0.007	0.003	0.005
50	0.004	0.007	0.006	0.003	0.008	0.002	0.006
60	0.005	0.008	0.007	0.003	0.009	0.002	0.007
120	0.008	0.013	0.012	0.004	0.013	0.005	0.011
180	0.009	0.015	0.014	0.004	0.013	0.007	0.012
240	0.010	0.016	0.015	0.004	0.013	0.008	0.013
300	0.011	0.017	0.016	0.005	0.014	0.010	0.014
360	0.011	0.018	0.017	0.005	0.014	0.011	0.015
420	0.012	0.019	0.018	0.005	0.015	0.012	0.016
480	0.012	0.020	0.018	0.005	0.015	0.013	0.016
540	0.013	0.020	0.019	0.005	0.016	0.014	0.017
600	0.013	0.021	0.019	0.005	0.016	0.014	0.017
660	0.013	0.021	0.019	0.005	0.016	0.015	0.017
720	0.013	0.021	0.019	0.006	0.017	0.015	0.017

Title : Mountain Counties Air Basin Subarea winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : winter
 Area : Calaveras (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

(MC) Calaveras (MC) Calaveras (MC) Calaveras

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Table 4: Hot Soak Emissions (grams/trip)

Pollutant Name: Reactive Org Gases Temperature: 70F Relative Humidity:
ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.031	0.057	0.030	0.005	0.138	0.173	0.043
10	0.058	0.106	0.056	0.010	0.255	0.322	0.079
20	0.099	0.182	0.096	0.017	0.435	0.565	0.136
30	0.128	0.234	0.124	0.022	0.558	0.747	0.176
40	0.139	0.254	0.135	0.024	0.603	0.821	0.191

Hot soak results are scaled to reflect zero emissions for trip lengths of less than 5 minutes (about 25% of in-use trips).

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2013/01/08 15:08:53
Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
Season : Winter
Area : Calaveras (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
Emfac2007 Emission Factors: V2.3 Nov 1 2006

Calaveras (MC) Calaveras (MC) Calaveras

Table 5a: Partial Day Diurnal Loss Emissions

(grams/hour)

Pollutant Name: Reactive Org Gases Temperature: ALL Relative Humidity:
ALL

Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
70	0.034	0.082	0.060	0.003	0.009	0.446	0.084

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2013/01/08 15:08:53
Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
Season : Winter
Area : Calaveras (MC)

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Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Calaveras (MC) Calaveras (MC) Calaveras
 (MC)

Table 5b: Multi-Day Diurnal Loss Emissions

(grams/hour)

Pollutant Name:	Reactive Org Gases			Temperature: ALL			Relative Humidity:	
Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL	
70	0.003	0.006	0.004	0.000	0.003	0.042	0.007	

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Calaveras (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Calaveras (MC) Calaveras (MC) Calaveras
 (MC)

Table 6a: Partial Day Resting Loss Emissions

(grams/hour)

Pollutant Name:	Reactive Org Gases			Temperature: ALL			Relative Humidity:	
Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL	
70	0.017	0.042	0.038	0.002	0.003	0.141	0.038	

Title : Mountain Counties Air Basin Subarea winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Calaveras (MC)

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 Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Calaveras (MC) Calaveras (MC) Calaveras

Table 6b: Multi-Day Resting Loss Emissions
 (grams/hour)

Pollutant Name:	Reactive Org Gases			Temperature: ALL			Relative Humidity:	
ALL	LDA	LDT	MDT	HDT	UBUS	MCY	ALL	
Temp degF								
70	0.001	0.003	0.003	0.000	0.001	0.014	0.003	

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Calaveras (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Calaveras (MC) Calaveras (MC) Calaveras

Table 7: Estimated Travel Fractions

Pollutant Name:				Temperature: ALL			Relative Humidity:	
ALL	LDA	LDT	MDT	HDT	UBUS	MCY	ALL	
%VMT	0.340	0.466	0.137	0.041	0.000	0.015	1.000	
%TRIP	0.298	0.399	0.236	0.049	0.000	0.019	1.000	
%VEH	0.327	0.446	0.126	0.038	0.000	0.063	1.000	

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Calaveras (MC)

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Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Calaveras (MC) Calaveras (MC) Calaveras
 (MC)

Table 8: Evaporative Running Loss Emissions

(grams/minute)

Pollutant Name: Reactive Org Gases Temperature: 70F Relative Humidity:
 ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
1	0.007	0.378	0.342	0.184	1.275	0.003	0.233
2	0.007	0.197	0.178	0.095	0.655	0.038	0.123
3	0.009	0.139	0.126	0.067	0.452	0.057	0.089
4	0.011	0.111	0.101	0.053	0.352	0.068	0.073
5	0.013	0.095	0.087	0.045	0.293	0.077	0.064
10	0.018	0.066	0.061	0.030	0.180	0.100	0.048
15	0.020	0.059	0.056	0.026	0.149	0.113	0.045
20	0.022	0.058	0.056	0.025	0.139	0.124	0.045
25	0.024	0.060	0.059	0.025	0.139	0.133	0.047
30	0.025	0.063	0.062	0.027	0.147	0.141	0.050
35	0.026	0.066	0.065	0.028	0.154	0.148	0.052
40	0.027	0.068	0.067	0.029	0.160	0.154	0.054
45	0.028	0.071	0.070	0.030	0.167	0.161	0.056
50	0.029	0.073	0.072	0.031	0.173	0.167	0.057
55	0.029	0.075	0.074	0.032	0.179	0.172	0.059
60	0.030	0.078	0.076	0.033	0.185	0.178	0.061

Title : Mountain Counties Air Basin Subarea Winter Cyr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : El Dorado (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

El Dorado (MC) El Dorado (MC) El Dorado
 (MC)

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases Temperature: 70F Relative Humidity:
 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.036	0.075	0.117	0.322	1.742	4.663	0.137

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35 0.006 0.012 0.020 0.066 0.312 1.799 0.038

0% Pollutant Name: Carbon Monoxide Temperature: 70F Relative Humidity:

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.746	1.357	1.789	3.274	17.327	21.967	1.506
35	0.444	0.790	0.926	0.684	3.261	14.227	0.859

0% Pollutant Name: Oxides of Nitrogen Temperature: 70F Relative Humidity:

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.066	0.146	0.359	2.124	11.331	1.374	0.204
35	0.038	0.081	0.214	1.167	5.868	1.254	0.122

0% Pollutant Name: Carbon Dioxide Temperature: 70F Relative Humidity:

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	922.794	1175.209	1716.131	2020.115	2438.718	266.262	1149.668
35	300.204	383.224	520.168	1135.574	1471.385	139.901	379.269

0% Pollutant Name: Sulfur Dioxide Temperature: 70F Relative Humidity:

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.009	0.011	0.016	0.019	0.024	0.003	0.011
35	0.003	0.004	0.005	0.011	0.014	0.002	0.004

0% Pollutant Name: PM2.5 Temperature: 70F Relative Humidity:

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.041	0.075	0.087	0.164	0.348	0.023	0.063
35	0.007	0.012	0.015	0.054	0.082	0.011	0.011

0% Pollutant Name: PM2.5 - Tire Wear Temperature: 70F Relative Humidity:

Speed

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MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.002	0.002	0.002	0.003	0.002	0.001	0.002
35	0.002	0.002	0.002	0.003	0.002	0.001	0.002

0% Pollutant Name: PM2.5 - Brake Wear Temperature: 70F Relative Humidity:

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.005	0.005	0.005	0.006	0.005	0.003	0.005
35	0.005	0.005	0.005	0.006	0.005	0.003	0.005

0% Pollutant Name: Gasoline - mi/gal Temperature: 70F Relative Humidity:

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	9.588	7.504	5.028	3.520	3.454	28.064	8.348
35	29.447	23.039	16.989	17.787	17.466	52.694	25.395

0% Pollutant Name: Diesel - mi/gal Temperature: 70F Relative Humidity:

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	29.156	29.156	19.478	6.336	4.254	0.000	13.723
35	29.156	29.156	19.478	6.593	4.254	0.000	13.845

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : El Dorado (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

(MC) El Dorado (MC) El Dorado (MC) El Dorado

Table 2: Starting Emissions (grams/trip)

ALL Pollutant Name: Reactive Org Gases Temperature: 70F Relative Humidity:

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Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.005	0.009	0.028	0.046	0.202	0.650	0.026
10	0.009	0.018	0.055	0.089	0.393	0.801	0.042
20	0.018	0.034	0.108	0.168	0.746	1.090	0.072
30	0.027	0.050	0.159	0.239	1.057	1.364	0.100
40	0.034	0.064	0.207	0.300	1.328	1.622	0.127
50	0.041	0.077	0.253	0.352	1.557	1.864	0.152
60	0.048	0.089	0.297	0.394	1.746	2.040	0.174
120	0.075	0.139	0.504	0.443	1.963	2.304	0.256
180	0.073	0.135	0.500	0.470	2.083	2.333	0.255
240	0.077	0.144	0.532	0.496	2.199	2.480	0.271
300	0.082	0.152	0.563	0.522	2.311	2.624	0.287
360	0.086	0.160	0.595	0.546	2.419	2.766	0.302
420	0.091	0.168	0.626	0.570	2.524	2.904	0.318
480	0.095	0.176	0.658	0.593	2.625	3.039	0.333
540	0.099	0.184	0.689	0.615	2.722	3.171	0.348
600	0.104	0.192	0.720	0.636	2.815	3.301	0.363
660	0.108	0.200	0.751	0.656	2.905	3.427	0.378
720	0.112	0.208	0.782	0.675	2.990	3.550	0.393

ALL Pollutant Name: Carbon Monoxide Temperature: 70F Relative Humidity:

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.073	0.130	0.423	0.687	2.508	2.966	0.256
10	0.144	0.257	0.837	1.346	4.915	3.565	0.461
20	0.281	0.500	1.637	2.580	9.421	4.712	0.853
30	0.411	0.730	2.399	3.702	13.521	5.793	1.224
40	0.533	0.945	3.123	4.713	17.212	6.807	1.573
50	0.649	1.148	3.810	5.613	20.496	7.755	1.900
60	0.757	1.336	4.459	6.400	23.373	8.635	2.205
120	1.197	2.071	7.139	7.474	27.295	12.229	3.362
180	1.128	1.956	6.838	7.693	28.093	11.866	3.228
240	1.222	2.111	7.449	7.919	28.917	12.879	3.488
300	1.305	2.249	7.985	8.152	29.768	13.814	3.719
360	1.378	2.370	8.448	8.392	30.645	14.672	3.922
420	1.439	2.473	8.836	8.639	31.548	15.452	4.097
480	1.490	2.559	9.151	8.893	32.477	16.155	4.243
540	1.529	2.628	9.393	9.155	33.433	16.781	4.360
600	1.558	2.679	9.560	9.424	34.415	17.328	4.449
660	1.576	2.713	9.654	9.700	35.423	17.799	4.509
720	1.583	2.729	9.674	9.984	36.458	18.192	4.541

ALL Pollutant Name: Oxides of Nitrogen Temperature: 70F Relative Humidity:

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.034	0.070	0.614	0.171	0.963	0.153	0.191
10	0.036	0.075	0.637	0.257	1.451	0.192	0.203
20	0.040	0.085	0.679	0.409	2.307	0.260	0.225
30	0.044	0.093	0.716	0.533	3.006	0.317	0.244
40	0.047	0.100	0.748	0.629	3.545	0.362	0.259

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50	0.049	0.105	0.775	0.696	3.926	0.395	0.272
60	0.051	0.108	0.798	0.736	4.148	0.415	0.281
120	0.055	0.117	0.876	0.741	4.178	0.418	0.304
180	0.055	0.117	0.877	0.738	4.163	0.414	0.304
240	0.055	0.116	0.870	0.734	4.140	0.408	0.302
300	0.054	0.115	0.859	0.729	4.108	0.400	0.298
360	0.053	0.113	0.843	0.722	4.068	0.390	0.293
420	0.052	0.111	0.822	0.713	4.021	0.378	0.286
480	0.051	0.108	0.797	0.703	3.965	0.365	0.278
540	0.049	0.104	0.767	0.692	3.901	0.350	0.268
600	0.047	0.100	0.733	0.679	3.829	0.333	0.257
660	0.045	0.096	0.694	0.665	3.748	0.315	0.245
720	0.043	0.090	0.651	0.649	3.660	0.295	0.231

Pollutant Name: Carbon Dioxide Temperature: 70F Relative Humidity:

ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	11.986	15.104	21.823	2.904	4.580	13.248	15.056
10	13.443	16.993	24.584	5.792	9.135	15.444	17.040
20	16.847	21.388	30.993	11.520	18.168	19.757	21.604
30	20.907	26.604	38.588	17.183	27.101	23.962	26.964
40	25.623	32.642	47.366	22.782	35.931	28.061	33.118
50	30.994	39.502	57.330	28.317	44.661	32.052	40.066
60	37.022	47.183	68.477	33.788	53.289	35.936	47.810
120	86.386	109.637	158.859	57.467	90.635	53.380	109.748
180	98.041	124.487	180.408	67.893	107.078	57.621	124.649
240	109.681	139.304	201.903	77.704	122.551	61.614	139.491
300	121.306	154.089	223.343	86.899	137.054	65.357	154.275
360	132.916	168.842	244.729	95.479	150.586	68.852	169.000
420	144.510	183.562	266.061	103.444	163.147	72.097	183.667
480	156.089	198.249	287.339	110.793	174.738	75.094	198.275
540	167.652	212.905	308.562	117.526	185.358	77.842	212.825
600	179.201	227.528	329.731	123.645	195.008	80.341	227.317
660	190.734	242.118	350.846	129.148	203.687	82.590	241.750
720	202.251	256.676	371.906	134.036	211.396	84.591	256.125

Pollutant Name: Sulfur Dioxide Temperature: 70F Relative Humidity:

ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30	0.000	0.000	0.000	0.000	0.000	0.000	0.000
40	0.000	0.000	0.001	0.000	0.001	0.000	0.000
50	0.000	0.000	0.001	0.000	0.001	0.000	0.000
60	0.000	0.000	0.001	0.000	0.001	0.001	0.000
120	0.001	0.001	0.002	0.001	0.001	0.001	0.001
180	0.001	0.001	0.002	0.001	0.002	0.001	0.001
240	0.001	0.001	0.002	0.001	0.002	0.001	0.001
300	0.001	0.002	0.002	0.001	0.002	0.001	0.002
360	0.001	0.002	0.002	0.001	0.002	0.001	0.002
420	0.001	0.002	0.003	0.001	0.002	0.001	0.002
480	0.002	0.002	0.003	0.001	0.002	0.001	0.002

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540	0.002	0.002	0.003	0.001	0.002	0.001	0.002
600	0.002	0.002	0.003	0.001	0.002	0.001	0.002
660	0.002	0.002	0.004	0.001	0.003	0.001	0.002
720	0.002	0.003	0.004	0.001	0.003	0.001	0.003

ALL Pollutant Name: PM2.5 Temperature: 70F Relative Humidity:

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.000	0.001	0.001	0.000	0.001	0.005	0.001
10	0.001	0.001	0.001	0.001	0.001	0.005	0.001
20	0.002	0.003	0.002	0.001	0.003	0.004	0.002
30	0.002	0.004	0.004	0.001	0.004	0.003	0.003
40	0.003	0.005	0.005	0.002	0.005	0.003	0.004
50	0.004	0.006	0.006	0.002	0.006	0.002	0.005
60	0.004	0.008	0.007	0.003	0.006	0.002	0.006
120	0.007	0.012	0.011	0.003	0.009	0.005	0.010
180	0.008	0.014	0.012	0.004	0.009	0.007	0.011
240	0.009	0.015	0.013	0.004	0.009	0.008	0.012
300	0.009	0.016	0.014	0.004	0.010	0.010	0.013
360	0.010	0.017	0.015	0.004	0.010	0.011	0.013
420	0.010	0.018	0.016	0.004	0.010	0.012	0.014
480	0.011	0.018	0.017	0.004	0.011	0.013	0.014
540	0.011	0.019	0.017	0.004	0.011	0.014	0.015
600	0.011	0.019	0.017	0.004	0.011	0.014	0.015
660	0.011	0.019	0.017	0.004	0.012	0.015	0.015
720	0.011	0.019	0.017	0.005	0.012	0.015	0.015

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : El Dorado (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

(MC) El Dorado (MC) El Dorado (MC) El Dorado

Table 4: Hot Soak Emissions (grams/trip)

ALL Pollutant Name: Reactive Org Gases Temperature: 70F Relative Humidity:

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.029	0.049	0.030	0.005	0.071	0.183	0.038
10	0.054	0.091	0.056	0.009	0.132	0.342	0.071

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20	0.093	0.156	0.097	0.015	0.225	0.597	0.123
30	0.120	0.201	0.125	0.020	0.289	0.788	0.159
40	0.131	0.219	0.136	0.022	0.313	0.865	0.173

Hot soak results are scaled to reflect zero emissions for trip lengths of less than 5 minutes (about 25% of in-use trips).

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : El Dorado (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

(MC) El Dorado (MC) El Dorado (MC) El Dorado

Table 5a: Partial Day Diurnal Loss Emissions

(grams/hour)

Pollutant Name:	Reactive Org Gases			Temperature: ALL			Relative Humidity:	
ALL	LDA	LDT	MDT	HDT	UBUS	MCY	ALL	
Temp degF								
70	0.033	0.070	0.060	0.003	0.004	0.456	0.078	

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : El Dorado (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

(MC) El Dorado (MC) El Dorado (MC) El Dorado

Table 5b: Multi-Day Diurnal Loss Emissions

(grams/hour)

Pollutant Name:	Reactive Org Gases			Temperature: ALL			Relative Humidity:	
ALL	LDA	LDT	MDT	HDT	UBUS	MCY	ALL	

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Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
70	0.003	0.005	0.004	0.000	0.001	0.043	0.007

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : El Dorado (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

(MC) El Dorado (MC) El Dorado (MC) El Dorado

Table 6a: Partial Day Resting Loss Emissions

(grams/hour)

Pollutant Name: Reactive Org Gases Temperature: ALL Relative Humidity:
 ALL

Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
70	0.016	0.039	0.039	0.002	0.002	0.144	0.036

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : El Dorado (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

(MC) El Dorado (MC) El Dorado (MC) El Dorado

Table 6b: Multi-Day Resting Loss Emissions

(grams/hour)

Pollutant Name: Reactive Org Gases Temperature: ALL Relative Humidity:
 ALL

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Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
70	0.001	0.003	0.003	0.000	0.000	0.014	0.003

Title : Mountain Counties Air Basin Subarea winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : winter
 Area : El Dorado (MC)

 Year: 2030 -- Model Years 1986 to 2030 Inclusive -- winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

(MC) El Dorado (MC) El Dorado (MC) El Dorado

Table 7: Estimated Travel Fractions

Pollutant Name:	Temperature: ALL						Relative Humidity:
ALL	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
%VMT	0.421	0.402	0.143	0.019	0.000	0.015	1.000
%TRIP	0.358	0.348	0.235	0.039	0.000	0.020	1.000
%VEH	0.388	0.384	0.135	0.026	0.000	0.066	1.000

Title : Mountain Counties Air Basin Subarea winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : winter
 Area : El Dorado (MC)

 Year: 2030 -- Model Years 1986 to 2030 Inclusive -- winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

(MC) El Dorado (MC) El Dorado (MC) El Dorado

Table 8: Evaporative Running Loss Emissions

(grams/minute)

Pollutant Name: Reactive Org Gases Temperature: 70F Relative Humidity:
 ALL

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Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
1	0.009	0.250	0.240	0.260	0.954	0.004	0.144
2	0.007	0.131	0.126	0.135	0.494	0.038	0.077
3	0.009	0.094	0.090	0.094	0.342	0.057	0.057
4	0.011	0.076	0.074	0.075	0.267	0.069	0.048
5	0.012	0.066	0.064	0.063	0.223	0.078	0.043
10	0.017	0.048	0.046	0.042	0.137	0.100	0.035
15	0.019	0.043	0.042	0.037	0.112	0.114	0.034
20	0.020	0.043	0.042	0.036	0.104	0.125	0.034
25	0.022	0.043	0.043	0.036	0.101	0.134	0.035
30	0.022	0.045	0.045	0.038	0.106	0.141	0.037
35	0.023	0.047	0.046	0.040	0.111	0.148	0.038
40	0.024	0.049	0.048	0.041	0.115	0.155	0.040
45	0.025	0.051	0.050	0.043	0.120	0.161	0.041
50	0.026	0.052	0.051	0.044	0.124	0.167	0.042
55	0.026	0.054	0.052	0.046	0.127	0.173	0.044
60	0.027	0.055	0.054	0.047	0.131	0.179	0.045

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year : 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Mariposa (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

(MC) Mariposa (MC) Mariposa (MC) Mariposa

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.062	0.135	0.157	0.427	0.131	4.676	0.183
35	0.010	0.022	0.027	0.096	0.019	1.802	0.045

Pollutant Name: Carbon Monoxide Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	1.012	1.888	2.114	4.961	3.082	22.038	1.961
35	0.598	1.071	1.073	1.030	0.549	14.270	1.090

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Pollutant Name: Oxides of Nitrogen Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.103	0.239	0.436	3.081	0.983	1.384	0.295
35	0.058	0.130	0.262	1.800	0.901	1.261	0.174

Pollutant Name: Carbon Dioxide Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	923.035	1170.621	1720.424	2030.911	2395.012	266.300	1160.292
35	300.302	382.073	519.393	1054.497	1057.650	139.927	382.541

Pollutant Name: Sulfur Dioxide Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.009	0.011	0.017	0.019	0.023	0.003	0.011
35	0.003	0.004	0.005	0.010	0.010	0.002	0.004

Pollutant Name: PM2.5 Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.050	0.080	0.098	0.239	0.089	0.023	0.074
35	0.008	0.013	0.017	0.077	0.016	0.011	0.013

Pollutant Name: PM2.5 - Tire wear Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.002	0.002	0.002	0.003	0.003	0.001	0.002
35	0.002	0.002	0.002	0.003	0.003	0.001	0.002

Pollutant Name: PM2.5 - Brake wear Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5							
35							

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5	0.005	0.005	0.005	0.006	0.005	0.003	0.005
35	0.005	0.005	0.005	0.006	0.005	0.003	0.005

Pollutant Name: Gasoline - mi/gal Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	9.580	7.519	4.969	3.516	3.519	28.047	8.214
35	29.412	23.076	17.008	17.767	17.782	52.662	25.014

Pollutant Name: Diesel - mi/gal Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	29.156	29.156	19.461	6.487	4.663	0.000	14.542
35	29.156	29.156	19.461	6.636	4.663	0.000	14.608

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Mariposa (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

(MC) Mariposa (MC) Mariposa (MC) Mariposa

Table 2: Starting Emissions (grams/trip)

Pollutant Name: Reactive Org Gases Temperature: 70F Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.007	0.017	0.037	0.104	0.261	0.649	0.033
10	0.013	0.034	0.073	0.203	0.510	0.801	0.056
20	0.025	0.065	0.144	0.386	0.966	1.093	0.101
30	0.036	0.093	0.211	0.547	1.369	1.369	0.142
40	0.046	0.119	0.275	0.686	1.720	1.628	0.180
50	0.056	0.142	0.336	0.805	2.017	1.871	0.215
60	0.064	0.162	0.394	0.902	2.261	2.049	0.246
120	0.096	0.228	0.667	1.015	2.542	2.316	0.352

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180	0.094	0.224	0.661	1.077	2.697	2.344	0.352
240	0.099	0.238	0.704	1.137	2.847	2.492	0.374
300	0.105	0.251	0.746	1.195	2.993	2.637	0.395
360	0.110	0.264	0.787	1.251	3.133	2.778	0.416
420	0.116	0.276	0.829	1.305	3.269	2.917	0.437
480	0.121	0.289	0.871	1.357	3.399	3.053	0.457
540	0.127	0.301	0.912	1.407	3.525	3.185	0.477
600	0.132	0.313	0.953	1.455	3.646	3.315	0.497
660	0.137	0.325	0.994	1.502	3.762	3.442	0.517
720	0.142	0.337	1.034	1.546	3.872	3.565	0.536

ALL Pollutant Name: Carbon Monoxide Temperature: 70F Relative Humidity:

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.104	0.248	0.520	1.444	1.221	2.966	0.360
10	0.206	0.488	1.028	2.829	2.392	3.577	0.669
20	0.401	0.945	2.010	5.424	4.586	4.746	1.261
30	0.586	1.372	2.945	7.783	6.582	5.847	1.816
40	0.759	1.770	3.833	9.909	8.379	6.879	2.334
50	0.922	2.137	4.675	11.799	9.977	7.842	2.815
60	1.074	2.475	5.471	13.455	11.378	8.736	3.260
120	1.675	3.650	8.743	15.713	13.287	12.365	4.806
180	1.579	3.447	8.378	16.172	13.675	11.979	4.623
240	1.705	3.682	9.123	16.647	14.077	12.992	4.960
300	1.818	3.894	9.778	17.136	14.491	13.928	5.262
360	1.916	4.082	10.343	17.641	14.917	14.787	5.530
420	2.000	4.248	10.818	18.161	15.357	15.569	5.764
480	2.070	4.391	11.204	18.696	15.810	16.274	5.964
540	2.125	4.511	11.499	19.246	16.275	16.902	6.129
600	2.166	4.609	11.705	19.811	16.753	17.453	6.260
660	2.193	4.683	11.821	20.392	17.244	17.927	6.356
720	2.206	4.734	11.846	20.988	17.747	18.324	6.418

ALL Pollutant Name: Oxides of Nitrogen Temperature: 70F Relative Humidity:

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.052	0.120	0.813	0.427	1.102	0.153	0.264
10	0.056	0.132	0.844	0.643	1.661	0.192	0.286
20	0.063	0.154	0.902	1.023	2.642	0.262	0.327
30	0.069	0.172	0.952	1.333	3.442	0.319	0.361
40	0.073	0.187	0.996	1.572	4.059	0.364	0.389
50	0.077	0.198	1.033	1.741	4.495	0.397	0.410
60	0.080	0.205	1.064	1.839	4.750	0.418	0.425
120	0.086	0.219	1.167	1.853	4.784	0.421	0.456
180	0.086	0.220	1.168	1.846	4.767	0.417	0.456
240	0.086	0.218	1.159	1.836	4.740	0.411	0.453
300	0.085	0.216	1.144	1.822	4.704	0.403	0.447
360	0.083	0.212	1.123	1.804	4.658	0.393	0.440
420	0.082	0.208	1.095	1.783	4.604	0.381	0.431
480	0.079	0.203	1.062	1.758	4.540	0.368	0.419
540	0.077	0.197	1.023	1.730	4.466	0.353	0.406
600	0.074	0.190	0.977	1.698	4.384	0.336	0.391
660	0.070	0.182	0.926	1.662	4.292	0.318	0.373

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720 0.067 0.173 0.868 1.623 4.191 0.298 0.354

Pollutant Name: Carbon Dioxide Temperature: 70F Relative Humidity:

ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	11.962	14.768	21.809	2.855	6.332	13.193	14.952
10	13.425	16.740	24.546	5.694	12.629	15.387	16.977
20	16.841	21.278	30.908	11.325	25.118	19.696	21.617
30	20.911	26.609	38.457	16.893	37.467	23.897	27.043
40	25.634	32.731	47.191	22.397	49.676	27.993	33.256
50	31.011	39.647	57.111	27.839	61.745	31.981	40.254
60	37.042	47.354	68.216	33.217	73.673	35.862	48.039
120	86.349	108.997	158.436	56.496	125.305	53.292	109.889
180	98.010	123.891	179.905	66.746	148.039	57.544	124.874
240	109.653	138.722	201.325	76.391	169.431	61.546	139.788
300	121.279	153.493	222.696	85.431	189.481	65.299	154.630
360	132.887	168.201	244.018	93.866	208.189	68.802	169.401
420	144.477	182.847	265.291	101.696	225.555	72.055	184.102
480	156.050	197.432	286.515	108.921	241.580	75.059	198.731
540	167.605	211.955	307.690	115.541	256.262	77.814	213.289
600	179.142	226.417	328.816	121.556	269.603	80.319	227.777
660	190.662	240.816	349.894	126.966	281.603	82.574	242.193
720	202.164	255.154	370.922	131.771	292.260	84.580	256.538

Pollutant Name: Sulfur Dioxide Temperature: 70F Relative Humidity:

ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30	0.000	0.000	0.000	0.000	0.001	0.000	0.000
40	0.000	0.000	0.001	0.000	0.001	0.000	0.000
50	0.000	0.000	0.001	0.000	0.001	0.000	0.000
60	0.000	0.000	0.001	0.001	0.001	0.001	0.001
120	0.001	0.001	0.002	0.001	0.001	0.001	0.001
180	0.001	0.001	0.002	0.001	0.002	0.001	0.001
240	0.001	0.001	0.002	0.001	0.002	0.001	0.001
300	0.001	0.002	0.002	0.001	0.002	0.001	0.002
360	0.001	0.002	0.003	0.001	0.002	0.001	0.002
420	0.001	0.002	0.003	0.001	0.002	0.001	0.002
480	0.002	0.002	0.003	0.001	0.003	0.001	0.002
540	0.002	0.002	0.003	0.001	0.003	0.001	0.002
600	0.002	0.002	0.003	0.002	0.003	0.001	0.002
660	0.002	0.002	0.004	0.002	0.003	0.001	0.002
720	0.002	0.003	0.004	0.002	0.003	0.001	0.003

Pollutant Name: PM2.5 Temperature: 70F Relative Humidity:

ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
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5	0.000	0.001	0.001	0.000	0.001	0.005	0.001
10	0.001	0.002	0.001	0.001	0.002	0.005	0.001
20	0.002	0.003	0.003	0.001	0.004	0.004	0.003
30	0.003	0.005	0.004	0.002	0.005	0.003	0.004
40	0.004	0.006	0.005	0.003	0.007	0.003	0.005
50	0.004	0.007	0.006	0.003	0.008	0.002	0.006
60	0.005	0.009	0.008	0.003	0.009	0.002	0.007
120	0.008	0.014	0.012	0.005	0.012	0.005	0.011
180	0.009	0.015	0.014	0.005	0.013	0.007	0.013
240	0.010	0.017	0.015	0.005	0.013	0.008	0.014
300	0.011	0.018	0.016	0.005	0.014	0.010	0.015
360	0.012	0.019	0.017	0.005	0.014	0.011	0.016
420	0.012	0.020	0.018	0.006	0.014	0.012	0.017
480	0.013	0.021	0.019	0.006	0.015	0.013	0.017
540	0.013	0.021	0.019	0.006	0.015	0.014	0.018
600	0.013	0.022	0.020	0.006	0.016	0.014	0.018
660	0.013	0.022	0.020	0.006	0.016	0.015	0.018
720	0.013	0.022	0.020	0.006	0.017	0.015	0.018

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : winter
 Area : Mariposa (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

(MC) Mariposa (MC) Mariposa (MC) Mariposa

Table 4: Hot Soak Emissions (grams/trip)

Pollutant Name: Reactive Org Gases Temperature: 70F Relative Humidity:
 ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.033	0.073	0.032	0.011	0.061	0.173	0.051
10	0.061	0.134	0.059	0.020	0.112	0.323	0.094
20	0.104	0.230	0.101	0.034	0.192	0.565	0.162
30	0.135	0.296	0.130	0.044	0.247	0.747	0.209
40	0.146	0.321	0.142	0.048	0.268	0.821	0.227

Hot soak results are scaled to reflect zero emissions for trip lengths of less than 5 minutes (about 25% of in-use trips).

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Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Mariposa (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

(MC) Mariposa (MC) Mariposa (MC) Mariposa

Table 5a: Partial Day Diurnal Loss Emissions

(grams/hour)

Pollutant Name: Reactive Org Gases		Temperature: ALL					Relative Humidity:	
Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL	
70	0.038	0.111	0.062	0.005	0.002	0.446	0.098	

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Mariposa (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

(MC) Mariposa (MC) Mariposa (MC) Mariposa

Table 5b: Multi-Day Diurnal Loss Emissions

(grams/hour)

Pollutant Name: Reactive Org Gases		Temperature: ALL					Relative Humidity:	
Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL	
70	0.003	0.009	0.004	0.000	0.001	0.042	0.008	

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Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Mariposa (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Mariposa (MC) Mariposa (MC) Mariposa
 (MC)

Table 6a: Partial Day Resting Loss Emissions

(grams/hour)

Pollutant Name: Reactive Org Gases Temperature: ALL Relative Humidity:
 ALL

Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
70	0.018	0.054	0.038	0.003	0.002	0.141	0.044

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Mariposa (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Mariposa (MC) Mariposa (MC) Mariposa
 (MC)

Table 6b: Multi-Day Resting Loss Emissions

(grams/hour)

Pollutant Name: Reactive Org Gases Temperature: ALL Relative Humidity:
 ALL

Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
70	0.001	0.004	0.003	0.000	0.000	0.014	0.004

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title

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Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year : 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Mariposa (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

(MC) Mariposa (MC) Mariposa (MC) Mariposa

Table 7: Estimated Travel Fractions

Pollutant Name: Temperature: ALL Relative Humidity:
 ALL

	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
%VMT	0.350	0.487	0.126	0.022	0.001	0.014	1.000
%TRIP	0.300	0.424	0.218	0.040	0.000	0.017	1.000
%VEH	0.321	0.469	0.117	0.035	0.000	0.058	1.000

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year : 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Mariposa (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

(MC) Mariposa (MC) Mariposa (MC) Mariposa

Table 8: Evaporative Running Loss Emissions

(grams/minute)

Pollutant Name: Reactive Org Gases Temperature: 70F Relative Humidity:
 ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
1	0.007	0.497	0.354	0.488	0.662	0.003	0.300
2	0.007	0.257	0.184	0.252	0.341	0.038	0.157
3	0.009	0.180	0.130	0.176	0.237	0.057	0.112
4	0.011	0.144	0.104	0.139	0.186	0.068	0.091
5	0.013	0.122	0.090	0.117	0.156	0.077	0.079
10	0.018	0.082	0.063	0.074	0.100	0.100	0.057
15	0.021	0.072	0.057	0.063	0.086	0.113	0.052
20	0.023	0.070	0.057	0.059	0.084	0.124	0.052

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25	0.024	0.071	0.060	0.059	0.087	0.133	0.054
30	0.025	0.074	0.063	0.062	0.091	0.141	0.056
35	0.026	0.078	0.066	0.065	0.095	0.148	0.059
40	0.027	0.081	0.068	0.067	0.100	0.154	0.061
45	0.028	0.084	0.071	0.070	0.104	0.161	0.063
50	0.029	0.087	0.073	0.072	0.107	0.167	0.066
55	0.030	0.089	0.075	0.074	0.111	0.172	0.068
60	0.030	0.092	0.077	0.076	0.114	0.178	0.069

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Nevada (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Nevada (MC) Nevada (MC) Nevada (MC)

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.054	0.090	0.134	1.890	0.267	4.674	0.307
35	0.008	0.014	0.023	0.200	0.054	1.802	0.054

Pollutant Name: Carbon Monoxide Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.903	1.446	1.948	5.162	3.451	22.023	1.951
35	0.533	0.838	1.017	1.096	0.596	14.260	0.968

Pollutant Name: Oxides of Nitrogen Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.089	0.167	0.379	6.187	3.634	1.383	0.730
35	0.050	0.092	0.224	2.268	1.960	1.260	0.308

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0% Pollutant Name: Carbon Dioxide Temperature: 70F Relative Humidity:

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	923.326	1173.473	1711.384	3389.613	2395.565	266.308	1353.596
35	300.393	382.526	520.282	1652.897	1231.346	139.933	486.640

0% Pollutant Name: Sulfur Dioxide Temperature: 70F Relative Humidity:

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.009	0.011	0.016	0.032	0.023	0.003	0.013
35	0.003	0.004	0.005	0.016	0.012	0.002	0.005

0% Pollutant Name: PM2.5 Temperature: 70F Relative Humidity:

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.046	0.080	0.103	0.117	0.127	0.023	0.075
35	0.007	0.013	0.017	0.064	0.027	0.011	0.017

0% Pollutant Name: PM2.5 - Tire Wear Temperature: 70F Relative Humidity:

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.002	0.002	0.002	0.008	0.003	0.001	0.003
35	0.002	0.002	0.002	0.008	0.003	0.001	0.003

0% Pollutant Name: PM2.5 - Brake Wear Temperature: 70F Relative Humidity:

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.005	0.005	0.005	0.011	0.005	0.003	0.006
35	0.005	0.005	0.005	0.011	0.005	0.003	0.006

0% Pollutant Name: Gasoline - mi/gal Temperature: 70F Relative Humidity:

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5							
35							

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5	9.579	7.517	5.037	3.503	3.519	28.049	8.146
35	29.414	23.077	16.979	17.704	17.782	52.665	24.789

Pollutant Name: Diesel - mi/gal Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	29.156	29.156	19.480	3.250	4.511	0.000	5.450
35	29.156	29.156	19.480	5.697	4.511	0.000	7.585

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : winter
 Area : Nevada (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Nevada (MC) Nevada (MC) Nevada (MC)

Table 2: Starting Emissions (grams/trip)

Pollutant Name: Reactive Org Gases Temperature: 70F Relative Humidity: ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.005	0.012	0.028	0.046	0.227	0.649	0.026
10	0.011	0.023	0.056	0.089	0.442	0.801	0.044
20	0.021	0.045	0.111	0.169	0.837	1.092	0.076
30	0.030	0.065	0.163	0.239	1.187	1.368	0.107
40	0.039	0.083	0.212	0.300	1.491	1.627	0.136
50	0.047	0.099	0.260	0.352	1.748	1.870	0.162
60	0.054	0.114	0.305	0.395	1.960	2.048	0.185
120	0.081	0.169	0.522	0.444	2.204	2.315	0.269
180	0.079	0.165	0.517	0.471	2.338	2.343	0.268
240	0.084	0.175	0.550	0.497	2.468	2.490	0.284
300	0.089	0.185	0.582	0.522	2.594	2.635	0.301
360	0.094	0.195	0.615	0.547	2.716	2.777	0.317
420	0.098	0.205	0.648	0.570	2.834	2.916	0.333
480	0.103	0.214	0.680	0.593	2.947	3.051	0.349
540	0.107	0.224	0.713	0.615	3.056	3.184	0.364
600	0.112	0.233	0.745	0.636	3.161	3.313	0.380
660	0.116	0.242	0.777	0.656	3.261	3.440	0.395
720	0.121	0.251	0.809	0.676	3.357	3.563	0.410

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ALL Pollutant Name: Carbon Monoxide Temperature: 70F Relative Humidity:

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.080	0.167	0.426	0.877	1.064	2.963	0.283
10	0.159	0.330	0.843	1.718	2.084	3.573	0.520
20	0.309	0.641	1.648	3.293	3.995	4.742	0.971
30	0.451	0.933	2.416	4.726	5.733	5.842	1.396
40	0.585	1.207	3.147	6.017	7.298	6.873	1.793
50	0.710	1.461	3.840	7.165	8.691	7.835	2.162
60	0.827	1.696	4.496	8.170	9.910	8.728	2.504
120	1.290	2.565	7.229	9.541	11.573	12.354	3.716
180	1.214	2.420	6.914	9.820	11.912	11.968	3.576
240	1.311	2.599	7.535	10.109	12.261	12.980	3.843
300	1.398	2.759	8.081	10.406	12.622	13.915	4.082
360	1.473	2.899	8.552	10.712	12.994	14.773	4.294
420	1.538	3.022	8.947	11.028	13.377	15.554	4.478
480	1.591	3.125	9.266	11.353	13.771	16.259	4.634
540	1.634	3.210	9.510	11.687	14.176	16.886	4.763
600	1.665	3.275	9.679	12.030	14.592	17.437	4.864
660	1.686	3.323	9.772	12.383	15.020	17.910	4.937
720	1.696	3.351	9.790	12.744	15.458	18.307	4.983

ALL Pollutant Name: Oxides of Nitrogen Temperature: 70F Relative Humidity:

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.040	0.093	0.638	0.187	0.956	0.153	0.197
10	0.043	0.100	0.660	0.282	1.440	0.192	0.211
20	0.048	0.114	0.701	0.449	2.290	0.262	0.238
30	0.053	0.126	0.738	0.584	2.983	0.319	0.261
40	0.056	0.136	0.770	0.689	3.519	0.364	0.279
50	0.059	0.143	0.797	0.763	3.897	0.397	0.293
60	0.061	0.148	0.820	0.806	4.118	0.418	0.304
120	0.066	0.159	0.902	0.812	4.148	0.420	0.327
180	0.066	0.160	0.903	0.809	4.132	0.417	0.328
240	0.066	0.158	0.896	0.805	4.109	0.410	0.325
300	0.065	0.157	0.884	0.799	4.078	0.402	0.321
360	0.064	0.154	0.867	0.791	4.038	0.392	0.316
420	0.063	0.151	0.846	0.782	3.991	0.381	0.309
480	0.061	0.147	0.820	0.771	3.935	0.368	0.300
540	0.059	0.142	0.789	0.758	3.872	0.353	0.290
600	0.057	0.137	0.754	0.744	3.800	0.336	0.279
660	0.054	0.131	0.713	0.729	3.721	0.318	0.266
720	0.051	0.124	0.668	0.712	3.633	0.298	0.252

ALL Pollutant Name: Carbon Dioxide Temperature: 70F Relative Humidity:

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	11.977	14.994	21.850	2.564	5.512	13.179	14.803
10	13.434	16.909	24.571	5.114	10.994	15.373	16.791

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20	16.839	21.348	30.904	10.171	21.866	19.681	21.351
30	20.899	26.599	38.427	15.172	32.617	23.882	26.691
40	25.615	32.662	47.140	20.115	43.245	27.976	32.812
50	30.986	39.537	57.042	25.002	53.751	31.964	39.712
60	37.011	47.225	68.135	29.832	64.135	35.845	47.392
120	86.345	109.408	158.427	50.740	109.083	53.271	108.549
180	97.997	124.267	179.872	59.945	128.873	57.525	123.333
240	109.633	139.086	201.273	68.607	147.495	61.529	138.050
300	121.253	153.862	222.630	76.726	164.949	65.284	152.702
360	132.858	168.597	243.944	84.301	181.235	68.789	167.288
420	144.447	183.290	265.214	91.333	196.353	72.044	181.807
480	156.020	197.942	286.439	97.822	210.303	75.050	196.260
540	167.577	212.552	307.621	103.768	223.085	77.806	210.647
600	179.119	227.120	328.760	109.170	234.699	80.312	224.968
660	190.644	241.647	349.854	114.028	245.145	82.568	239.223
720	202.154	256.132	370.904	118.344	254.422	84.575	253.411

ALL Pollutant Name: Sulfur Dioxide Temperature: 70F Relative Humidity:

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30	0.000	0.000	0.000	0.000	0.000	0.000	0.000
40	0.000	0.000	0.001	0.000	0.001	0.000	0.000
50	0.000	0.000	0.001	0.000	0.001	0.000	0.000
60	0.000	0.000	0.001	0.000	0.001	0.001	0.000
120	0.001	0.001	0.002	0.001	0.001	0.001	0.001
180	0.001	0.001	0.002	0.001	0.001	0.001	0.001
240	0.001	0.001	0.002	0.001	0.002	0.001	0.001
300	0.001	0.002	0.002	0.001	0.002	0.001	0.002
360	0.001	0.002	0.002	0.001	0.002	0.001	0.002
420	0.001	0.002	0.003	0.001	0.002	0.001	0.002
480	0.002	0.002	0.003	0.001	0.002	0.001	0.002
540	0.002	0.002	0.003	0.001	0.002	0.001	0.002
600	0.002	0.002	0.003	0.001	0.003	0.001	0.002
660	0.002	0.002	0.004	0.001	0.003	0.001	0.002
720	0.002	0.003	0.004	0.001	0.003	0.001	0.003

ALL Pollutant Name: PM2.5 Temperature: 70F Relative Humidity:

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.000	0.001	0.001	0.000	0.001	0.005	0.001
10	0.001	0.002	0.001	0.001	0.002	0.005	0.001
20	0.002	0.003	0.003	0.001	0.003	0.004	0.003
30	0.002	0.005	0.004	0.002	0.005	0.003	0.004
40	0.003	0.006	0.006	0.002	0.006	0.003	0.005
50	0.004	0.007	0.007	0.002	0.007	0.002	0.006
60	0.004	0.009	0.008	0.003	0.008	0.002	0.007
120	0.007	0.014	0.013	0.004	0.011	0.005	0.011
180	0.008	0.016	0.015	0.004	0.011	0.006	0.012
240	0.009	0.017	0.016	0.004	0.011	0.008	0.014
300	0.010	0.018	0.017	0.004	0.012	0.010	0.015

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360	0.010	0.019	0.018	0.004	0.012	0.011	0.015
420	0.011	0.020	0.019	0.004	0.012	0.012	0.016
480	0.011	0.021	0.020	0.004	0.013	0.013	0.017
540	0.011	0.022	0.020	0.005	0.013	0.014	0.017
600	0.012	0.022	0.021	0.005	0.014	0.014	0.018
660	0.012	0.022	0.021	0.005	0.014	0.015	0.018
720	0.012	0.022	0.021	0.005	0.014	0.015	0.018

Title : Mountain Counties Air Basin Subarea Winter Cyr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Nevada (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Nevada (MC) Nevada (MC) Nevada (MC)

Table 4: Hot Soak Emissions (grams/trip)

Pollutant Name: Reactive Org Gases Temperature: 70F Relative Humidity:
 ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.027	0.049	0.027	0.003	0.052	0.173	0.037
10	0.051	0.090	0.049	0.006	0.097	0.322	0.069
20	0.087	0.154	0.085	0.010	0.165	0.565	0.119
30	0.113	0.200	0.111	0.013	0.213	0.747	0.155
40	0.122	0.217	0.121	0.014	0.230	0.820	0.168

Hot soak results are scaled to reflect zero emissions for trip lengths of less than 5 minutes (about 25% of in-use trips).

Title : Mountain Counties Air Basin Subarea Winter Cyr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Nevada (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Table 5a: Partial Day Diurnal Loss Emissions

(grams/hour)

Pollutant Name: Reactive Org Gases Temperature: ALL Relative Humidity: ALL

Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
70	0.033	0.075	0.056	0.002	0.002	0.446	0.078

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : winter
 Area : Nevada (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Table 5b: Multi-Day Diurnal Loss Emissions

(grams/hour)

Pollutant Name: Reactive Org Gases Temperature: ALL Relative Humidity: ALL

Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
70	0.003	0.006	0.004	0.000	0.001	0.042	0.007

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : winter
 Area : Nevada (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

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Table 6a: Partial Day Resting Loss Emissions

(grams/hour)

Pollutant Name: Reactive Org Gases								Temperature: ALL	Relative Humidity:
Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL		
70	0.015	0.039	0.036	0.001	0.001	0.141	0.035		

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Nevada (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Nevada (MC) Nevada (MC) Nevada (MC)

Table 6b: Multi-Day Resting Loss Emissions

(grams/hour)

Pollutant Name: Reactive Org Gases								Temperature: ALL	Relative Humidity:
Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL		
70	0.001	0.003	0.002	0.000	0.000	0.014	0.003		

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Nevada (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Nevada (MC) Nevada (MC) Nevada (MC)

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Table 7: Estimated Travel Fractions

Pollutant Name:	Temperature: ALL						Relative Humidity:
ALL	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
%VMT	0.303	0.468	0.126	0.090	0.001	0.013	1.000
%TRIP	0.295	0.425	0.208	0.056	0.000	0.017	1.000
%VEH	0.316	0.466	0.119	0.041	0.000	0.058	1.000

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : winter
 Area : Nevada (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Nevada (MC) Nevada (MC) Nevada (MC)

Table 8: Evaporative Running Loss Emissions

(grams/minute)

Pollutant Name:	Temperature: 70F						Relative Humidity:
ALL	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
Time min							
1	0.008	0.254	0.203	0.035	0.647	0.003	0.150
2	0.007	0.132	0.106	0.018	0.333	0.038	0.080
3	0.008	0.094	0.076	0.013	0.231	0.057	0.058
4	0.010	0.076	0.063	0.011	0.181	0.068	0.049
5	0.011	0.066	0.055	0.009	0.151	0.077	0.043
10	0.016	0.047	0.040	0.006	0.095	0.100	0.034
15	0.018	0.043	0.037	0.006	0.081	0.113	0.032
20	0.019	0.042	0.037	0.006	0.078	0.124	0.032
25	0.021	0.043	0.038	0.006	0.079	0.133	0.033
30	0.022	0.045	0.040	0.006	0.083	0.141	0.035
35	0.022	0.047	0.041	0.007	0.088	0.148	0.036
40	0.023	0.048	0.043	0.007	0.091	0.154	0.038
45	0.024	0.050	0.044	0.007	0.095	0.161	0.039
50	0.025	0.052	0.046	0.007	0.099	0.167	0.040
55	0.025	0.053	0.047	0.008	0.102	0.172	0.042
60	0.026	0.055	0.048	0.008	0.105	0.178	0.043

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Title : Mountain Counties Air Basin Subarea Winter Cyr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : winter
 Area : Placer (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Placer (MC) Placer (MC) Placer (MC)

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases Temperature: 70F Relative Humidity:
 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.050	0.084	0.135	2.464	0.000	4.679	0.974
35	0.007	0.013	0.024	0.250	0.000	1.804	0.122

Pollutant Name: Carbon Monoxide Temperature: 70F Relative Humidity:
 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.938	1.499	2.044	5.929	0.000	22.070	3.269
35	0.554	0.867	1.033	1.263	0.000	14.290	1.154

Pollutant Name: Oxides of Nitrogen Temperature: 70F Relative Humidity:
 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.083	0.162	0.413	7.979	0.000	1.386	2.890
35	0.047	0.090	0.247	2.828	0.000	1.263	1.060

Pollutant Name: Carbon Dioxide Temperature: 70F Relative Humidity:
 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	923.711	1171.510	1732.414	3758.290	0.000	266.267	2051.049
35	300.518	382.483	519.215	1784.839	0.000	139.904	858.507

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0% Pollutant Name: Sulfur Dioxide Temperature: 70F Relative Humidity:

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.009	0.011	0.017	0.036	0.000	0.003	0.020
35	0.003	0.004	0.005	0.017	0.000	0.002	0.008

0% Pollutant Name: PM2.5 Temperature: 70F Relative Humidity:

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.053	0.092	0.114	0.110	0.000	0.023	0.091
35	0.009	0.015	0.019	0.071	0.000	0.011	0.033

0% Pollutant Name: PM2.5 - Tire Wear Temperature: 70F Relative Humidity:

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.002	0.002	0.002	0.009	0.000	0.001	0.004
35	0.002	0.002	0.002	0.009	0.000	0.001	0.004

0% Pollutant Name: PM2.5 - Brake Wear Temperature: 70F Relative Humidity:

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.005	0.005	0.005	0.012	0.000	0.003	0.008
35	0.005	0.005	0.005	0.012	0.000	0.003	0.008

0% Pollutant Name: Gasoline - mi/gal Temperature: 70F Relative Humidity:

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	9.575	7.516	4.958	3.441	0.000	28.045	8.297
35	29.399	23.071	17.017	17.394	0.000	52.658	25.039

0% Pollutant Name: Diesel - mi/gal Temperature: 70F Relative Humidity:

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	29.156	29.156	19.488	2.713	4.511	0.000	3.278

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50	0.775	1.372	4.058	9.984	0.000	7.847	2.877
60	0.902	1.595	4.750	11.385	0.000	8.740	3.319
120	1.409	2.442	7.624	13.296	0.000	12.373	4.706
180	1.324	2.304	7.299	13.685	0.000	11.991	4.590
240	1.430	2.480	7.954	14.086	0.000	13.008	4.898
300	1.524	2.637	8.529	14.500	0.000	13.947	5.178
360	1.607	2.775	9.025	14.928	0.000	14.808	5.429
420	1.677	2.894	9.441	15.367	0.000	15.592	5.652
480	1.735	2.994	9.778	15.820	0.000	16.299	5.846
540	1.782	3.074	10.036	16.286	0.000	16.929	6.011
600	1.816	3.136	10.214	16.764	0.000	17.481	6.147
660	1.839	3.178	10.313	17.255	0.000	17.956	6.255
720	1.850	3.202	10.332	17.759	0.000	18.353	6.335

ALL Pollutant Name: Oxides of Nitrogen Temperature: 70F Relative Humidity:

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.038	0.078	0.712	0.200	0.000	0.154	0.222
10	0.041	0.085	0.737	0.301	0.000	0.193	0.243
20	0.047	0.096	0.784	0.479	0.000	0.262	0.280
30	0.052	0.106	0.825	0.624	0.000	0.320	0.310
40	0.056	0.114	0.861	0.736	0.000	0.365	0.336
50	0.059	0.121	0.892	0.815	0.000	0.398	0.355
60	0.061	0.125	0.918	0.861	0.000	0.419	0.368
120	0.065	0.134	1.009	0.868	0.000	0.421	0.394
180	0.066	0.135	1.010	0.864	0.000	0.418	0.394
240	0.065	0.134	1.002	0.860	0.000	0.411	0.391
300	0.064	0.132	0.989	0.853	0.000	0.403	0.386
360	0.063	0.130	0.970	0.845	0.000	0.393	0.380
420	0.062	0.127	0.946	0.835	0.000	0.382	0.372
480	0.060	0.124	0.917	0.823	0.000	0.368	0.362
540	0.058	0.120	0.883	0.810	0.000	0.353	0.351
600	0.056	0.115	0.843	0.795	0.000	0.337	0.338
660	0.054	0.110	0.798	0.778	0.000	0.318	0.323
720	0.051	0.105	0.748	0.760	0.000	0.298	0.306

ALL Pollutant Name: Carbon Dioxide Temperature: 70F Relative Humidity:

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	11.945	14.957	21.985	1.723	0.000	13.243	14.239
10	13.419	16.864	24.738	3.436	0.000	15.439	16.200
20	16.854	21.286	31.142	6.835	0.000	19.752	20.677
30	20.942	26.518	38.742	10.195	0.000	23.957	25.892
40	25.680	32.561	47.537	13.517	0.000	28.055	31.845
50	31.071	39.415	57.528	16.801	0.000	32.046	38.537
60	37.113	47.079	68.715	20.046	0.000	35.930	45.967
120	86.412	109.092	159.639	34.095	0.000	53.373	104.640
180	98.094	123.906	181.265	40.281	0.000	57.615	118.909
240	109.756	138.679	202.843	46.102	0.000	61.609	133.101
300	121.397	153.411	224.373	51.557	0.000	65.353	147.218
360	133.017	168.103	245.855	56.648	0.000	68.849	161.257
420	144.617	182.753	267.289	61.373	0.000	72.095	175.221
480	156.196	197.363	288.674	65.733	0.000	75.092	189.108

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540	167.755	211.932	310.012	69.728	0.000	77.841	202.918
600	179.293	226.460	331.302	73.358	0.000	80.340	216.653
660	190.810	240.947	352.544	76.623	0.000	82.591	230.310
720	202.307	255.394	373.737	79.523	0.000	84.592	243.892

ALL Pollutant Name: Sulfur Dioxide Temperature: 70F Relative Humidity:

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30	0.000	0.000	0.000	0.000	0.000	0.000	0.000
40	0.000	0.000	0.001	0.000	0.000	0.000	0.000
50	0.000	0.000	0.001	0.000	0.000	0.000	0.000
60	0.000	0.000	0.001	0.000	0.000	0.001	0.000
120	0.001	0.001	0.002	0.001	0.000	0.001	0.001
180	0.001	0.001	0.002	0.001	0.000	0.001	0.001
240	0.001	0.001	0.002	0.001	0.000	0.001	0.001
300	0.001	0.002	0.002	0.001	0.000	0.001	0.002
360	0.001	0.002	0.003	0.001	0.000	0.001	0.002
420	0.001	0.002	0.003	0.001	0.000	0.001	0.002
480	0.002	0.002	0.003	0.001	0.000	0.001	0.002
540	0.002	0.002	0.003	0.001	0.000	0.001	0.002
600	0.002	0.002	0.003	0.001	0.000	0.001	0.002
660	0.002	0.002	0.004	0.001	0.000	0.001	0.002
720	0.002	0.003	0.004	0.001	0.000	0.001	0.002

ALL Pollutant Name: PM2.5 Temperature: 70F Relative Humidity:

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.001	0.001	0.001	0.000	0.000	0.005	0.001
10	0.001	0.002	0.002	0.000	0.000	0.005	0.001
20	0.002	0.003	0.003	0.001	0.000	0.004	0.003
30	0.003	0.005	0.005	0.001	0.000	0.003	0.004
40	0.004	0.007	0.006	0.002	0.000	0.003	0.005
50	0.005	0.008	0.007	0.002	0.000	0.002	0.006
60	0.005	0.009	0.009	0.002	0.000	0.002	0.007
120	0.009	0.016	0.014	0.003	0.000	0.005	0.012
180	0.010	0.017	0.016	0.003	0.000	0.007	0.013
240	0.011	0.019	0.017	0.003	0.000	0.008	0.014
300	0.012	0.020	0.019	0.003	0.000	0.010	0.015
360	0.012	0.021	0.020	0.003	0.000	0.011	0.016
420	0.013	0.022	0.021	0.004	0.000	0.012	0.017
480	0.013	0.023	0.021	0.004	0.000	0.013	0.018
540	0.014	0.024	0.022	0.004	0.000	0.014	0.018
600	0.014	0.024	0.022	0.004	0.000	0.014	0.019
660	0.014	0.025	0.023	0.004	0.000	0.015	0.019
720	0.014	0.025	0.023	0.004	0.000	0.015	0.019

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Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
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 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Placer (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Placer (MC) Placer (MC) Placer (MC)

Table 4: Hot Soak Emissions (grams/trip)

Pollutant Name: Reactive Org Gases Temperature: 70F Relative Humidity:
 ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.032	0.048	0.027	0.002	0.000	0.182	0.038
10	0.059	0.089	0.050	0.004	0.000	0.339	0.070
20	0.101	0.153	0.086	0.006	0.000	0.593	0.120
30	0.131	0.198	0.112	0.008	0.000	0.783	0.156
40	0.142	0.215	0.122	0.009	0.000	0.859	0.169

Hot soak results are scaled to reflect zero emissions for trip lengths of less than 5 minutes (about 25% of in-use trips).

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Placer (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Placer (MC) Placer (MC) Placer (MC)

Table 5a: Partial Day Diurnal Loss Emissions

(grams/hour)

Pollutant Name: Reactive Org Gases Temperature: ALL Relative Humidity:
 ALL

Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
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Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Placer (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Placer (MC) Placer (MC) Placer (MC)

Table 6b: Multi-Day Resting Loss Emissions

(grams/hour)

Pollutant Name: Reactive Org Gases Temperature: ALL Relative Humidity:
 ALL

Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
70	0.002	0.003	0.003	0.000	0.000	0.014	0.003

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Placer (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Placer (MC) Placer (MC) Placer (MC)

Table 7: Estimated Travel Fractions

Pollutant Name: Temperature: ALL Relative Humidity:
 ALL

	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
%VMT	0.226	0.315	0.098	0.346	0.000	0.015	1.000
%TRIP	0.278	0.369	0.222	0.105	0.000	0.026	1.000

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 %VEH 0.294 0.398 0.116 0.107 0.000 0.085 1.000

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Placer (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Placer (MC) Placer (MC) Placer (MC)

Table 8: Evaporative Running Loss Emissions

(grams/minute)

Pollutant Name: Reactive Org Gases Temperature: 70F Relative Humidity:
 ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
1	0.009	0.246	0.224	0.011	0.000	0.004	0.105
2	0.008	0.129	0.117	0.006	0.000	0.038	0.056
3	0.009	0.092	0.084	0.004	0.000	0.057	0.042
4	0.011	0.075	0.069	0.003	0.000	0.069	0.035
5	0.013	0.065	0.060	0.003	0.000	0.077	0.031
10	0.017	0.047	0.044	0.002	0.000	0.100	0.025
15	0.019	0.043	0.040	0.002	0.000	0.114	0.024
20	0.021	0.042	0.040	0.002	0.000	0.125	0.024
25	0.022	0.043	0.041	0.002	0.000	0.134	0.025
30	0.023	0.045	0.043	0.002	0.000	0.141	0.026
35	0.024	0.047	0.044	0.002	0.000	0.148	0.027
40	0.025	0.048	0.046	0.002	0.000	0.155	0.028
45	0.025	0.050	0.047	0.002	0.000	0.161	0.029
50	0.026	0.052	0.049	0.002	0.000	0.167	0.030
55	0.027	0.053	0.050	0.002	0.000	0.173	0.031
60	0.028	0.055	0.052	0.002	0.000	0.179	0.032

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Plumas (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter

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Emfac2007 Emission Factors: V2.3 Nov 1 2006

Plumas (MC)

Plumas (MC)

Plumas (MC)

Table 1: Running Exhaust Emissions (grams/mile)

0% Pollutant Name: Reactive Org Gases Temperature: 70F Relative Humidity:

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.071	0.100	0.160	0.823	1.384	4.675	0.183
35	0.011	0.016	0.027	0.114	0.256	1.802	0.041

0% Pollutant Name: Carbon Monoxide Temperature: 70F Relative Humidity:

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	1.069	1.509	2.132	4.380	12.608	22.035	1.846
35	0.628	0.872	1.104	0.920	2.369	14.268	1.001

0% Pollutant Name: Oxides of Nitrogen Temperature: 70F Relative Humidity:

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.113	0.181	0.429	3.179	11.398	1.384	0.342
35	0.063	0.100	0.255	1.427	4.684	1.261	0.183

0% Pollutant Name: Carbon Dioxide Temperature: 70F Relative Humidity:

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	923.428	1171.330	1725.239	2376.279	2396.927	266.305	1224.648
35	300.469	381.810	519.631	1314.146	1399.512	139.930	415.020

0% Pollutant Name: Sulfur Dioxide Temperature: 70F Relative Humidity:

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.009	0.011	0.017	0.023	0.023	0.003	0.012
35	0.003	0.004	0.005	0.013	0.013	0.002	0.004

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Pollutant Name: PM2.5 Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.046	0.075	0.100	0.167	0.352	0.023	0.074
35	0.008	0.012	0.017	0.062	0.083	0.011	0.014

Pollutant Name: PM2.5 - Tire wear Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.002	0.002	0.002	0.005	0.002	0.001	0.002
35	0.002	0.002	0.002	0.005	0.002	0.001	0.002

Pollutant Name: PM2.5 - Brake wear Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.005	0.005	0.005	0.007	0.005	0.003	0.005
35	0.005	0.005	0.005	0.007	0.005	0.003	0.005

Pollutant Name: Gasoline - mi/gal Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	9.574	7.530	4.986	3.515	3.475	28.047	7.922
35	29.392	23.117	16.997	17.766	17.569	52.661	24.229

Pollutant Name: Diesel - mi/gal Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	29.156	29.156	19.480	5.269	4.416	0.000	10.367
35	29.156	29.156	19.480	6.283	4.416	0.000	11.032

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected

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Season : Winter
 Area : Plumas (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Plumas (MC) Plumas (MC) Plumas (MC)

Table 2: Starting Emissions (grams/trip)

ALL Pollutant Name: Reactive Org Gases Temperature: 70F Relative Humidity:

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.007	0.012	0.036	0.067	0.197	0.649	0.028
10	0.014	0.024	0.071	0.130	0.383	0.801	0.049
20	0.027	0.046	0.138	0.246	0.726	1.093	0.089
30	0.039	0.066	0.204	0.349	1.029	1.369	0.127
40	0.050	0.085	0.266	0.439	1.293	1.628	0.161
50	0.060	0.102	0.326	0.514	1.516	1.871	0.193
60	0.069	0.117	0.383	0.577	1.700	2.049	0.221
120	0.102	0.171	0.656	0.648	1.911	2.316	0.325
180	0.100	0.168	0.649	0.688	2.028	2.344	0.324
240	0.106	0.178	0.691	0.726	2.141	2.492	0.344
300	0.112	0.188	0.732	0.763	2.250	2.636	0.364
360	0.118	0.198	0.773	0.799	2.356	2.778	0.383
420	0.123	0.208	0.814	0.834	2.457	2.917	0.402
480	0.129	0.218	0.855	0.867	2.556	3.053	0.422
540	0.135	0.227	0.896	0.899	2.650	3.185	0.440
600	0.140	0.236	0.936	0.930	2.741	3.315	0.459
660	0.146	0.246	0.977	0.959	2.828	3.441	0.477
720	0.151	0.255	1.017	0.988	2.911	3.565	0.495

ALL Pollutant Name: Carbon Monoxide Temperature: 70F Relative Humidity:

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.108	0.185	0.505	0.890	1.263	2.965	0.321
10	0.212	0.366	1.000	1.743	2.476	3.576	0.603
20	0.413	0.710	1.956	3.342	4.746	4.746	1.142
30	0.602	1.034	2.868	4.795	6.811	5.847	1.649
40	0.780	1.337	3.735	6.105	8.670	6.879	2.124
50	0.946	1.618	4.559	7.270	10.324	7.842	2.566
60	1.100	1.879	5.339	8.290	11.773	8.736	2.977
120	1.700	2.842	8.607	9.681	13.749	12.365	4.446
180	1.600	2.686	8.226	9.964	14.151	11.979	4.275
240	1.725	2.885	8.969	10.256	14.566	12.991	4.598
300	1.836	3.063	9.621	10.558	14.994	13.927	4.887
360	1.933	3.219	10.182	10.869	15.436	14.786	5.142
420	2.016	3.355	10.654	11.189	15.891	15.567	5.363
480	2.086	3.470	11.034	11.519	16.359	16.272	5.549
540	2.142	3.564	11.325	11.858	16.840	16.900	5.702
600	2.185	3.637	11.525	12.206	17.335	17.451	5.820
660	2.213	3.689	11.634	12.564	17.843	17.925	5.904

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720 2.228 3.720 11.654 12.931 18.364 18.322 5.954

Pollutant Name: Oxides of Nitrogen Temperature: 70F Relative Humidity:

ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.054	0.099	0.808	0.247	0.796	0.153	0.261
10	0.059	0.107	0.835	0.372	1.199	0.192	0.280
20	0.066	0.122	0.885	0.592	1.907	0.262	0.315
30	0.073	0.134	0.930	0.771	2.484	0.319	0.344
40	0.078	0.145	0.969	0.910	2.930	0.364	0.368
50	0.083	0.152	1.003	1.007	3.245	0.397	0.387
60	0.086	0.158	1.031	1.064	3.428	0.418	0.400
120	0.092	0.169	1.135	1.072	3.453	0.421	0.431
180	0.092	0.170	1.136	1.068	3.441	0.417	0.432
240	0.092	0.169	1.127	1.062	3.421	0.411	0.429
300	0.091	0.167	1.112	1.054	3.395	0.403	0.423
360	0.089	0.164	1.091	1.044	3.362	0.393	0.416
420	0.087	0.161	1.064	1.031	3.323	0.381	0.407
480	0.085	0.157	1.031	1.017	3.277	0.368	0.396
540	0.082	0.152	0.992	1.001	3.224	0.353	0.383
600	0.079	0.146	0.947	0.982	3.164	0.336	0.368
660	0.076	0.139	0.896	0.962	3.098	0.318	0.351
720	0.072	0.132	0.839	0.939	3.025	0.298	0.332

Pollutant Name: Carbon Dioxide Temperature: 70F Relative Humidity:

ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	11.937	14.989	21.992	2.850	4.723	13.189	15.134
10	13.409	16.892	24.728	5.684	9.419	15.383	17.190
20	16.842	21.307	31.098	11.306	18.733	19.691	21.900
30	20.926	26.535	38.666	16.864	27.943	23.893	27.410
40	25.661	32.576	47.431	22.359	37.049	27.988	33.717
50	31.047	39.430	57.394	27.791	46.050	31.977	40.823
60	37.085	47.097	68.555	33.160	54.946	35.858	48.727
120	86.348	109.205	159.424	56.400	93.454	53.288	111.521
180	98.022	124.025	181.001	66.632	110.409	57.540	126.749
240	109.675	138.807	202.535	76.261	126.363	61.543	141.903
300	121.307	153.549	224.026	85.285	141.316	65.297	156.985
360	132.919	168.253	245.472	93.706	155.269	68.801	171.994
420	144.510	182.918	266.876	101.522	168.221	72.055	186.929
480	156.081	197.544	288.235	108.735	180.172	75.060	201.792
540	167.631	212.131	309.552	115.344	191.122	77.815	216.581
600	179.161	226.679	330.824	121.349	201.072	80.320	231.298
660	190.670	241.189	352.053	126.749	210.021	82.576	245.941
720	202.159	255.659	373.239	131.546	217.970	84.582	260.512

Pollutant Name: Sulfur Dioxide Temperature: 70F Relative Humidity:

ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
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5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30	0.000	0.000	0.000	0.000	0.000	0.000	0.000
40	0.000	0.000	0.001	0.000	0.001	0.000	0.000
50	0.000	0.000	0.001	0.000	0.001	0.000	0.000
60	0.000	0.000	0.001	0.000	0.001	0.001	0.001
120	0.001	0.001	0.002	0.001	0.001	0.001	0.001
180	0.001	0.001	0.002	0.001	0.001	0.001	0.001
240	0.001	0.001	0.002	0.001	0.001	0.001	0.001
300	0.001	0.002	0.002	0.001	0.002	0.001	0.002
360	0.001	0.002	0.003	0.001	0.002	0.001	0.002
420	0.001	0.002	0.003	0.001	0.002	0.001	0.002
480	0.002	0.002	0.003	0.001	0.002	0.001	0.002
540	0.002	0.002	0.003	0.001	0.002	0.001	0.002
600	0.002	0.002	0.003	0.001	0.002	0.001	0.002
660	0.002	0.002	0.004	0.001	0.002	0.001	0.002
720	0.002	0.003	0.004	0.001	0.002	0.001	0.003

ALL Pollutant Name: PM2.5 Temperature: 70F Relative Humidity:

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.000	0.001	0.001	0.000	0.001	0.005	0.001
10	0.001	0.001	0.001	0.001	0.001	0.005	0.001
20	0.002	0.003	0.003	0.001	0.003	0.004	0.003
30	0.002	0.004	0.004	0.002	0.004	0.003	0.004
40	0.003	0.006	0.005	0.002	0.005	0.003	0.005
50	0.004	0.007	0.007	0.003	0.006	0.002	0.006
60	0.004	0.008	0.008	0.003	0.007	0.002	0.007
120	0.007	0.013	0.013	0.004	0.009	0.005	0.011
180	0.008	0.015	0.014	0.004	0.009	0.006	0.012
240	0.009	0.016	0.015	0.004	0.010	0.008	0.013
300	0.010	0.017	0.017	0.004	0.010	0.010	0.014
360	0.010	0.018	0.018	0.005	0.010	0.011	0.015
420	0.011	0.019	0.018	0.005	0.011	0.012	0.016
480	0.011	0.020	0.019	0.005	0.011	0.013	0.017
540	0.011	0.020	0.020	0.005	0.011	0.014	0.017
600	0.011	0.020	0.020	0.005	0.012	0.014	0.017
660	0.011	0.021	0.020	0.005	0.012	0.015	0.017
720	0.012	0.021	0.020	0.005	0.012	0.015	0.017

Title : Mountain Counties Air Basin Subarea Winter Cyr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : winter
 Area : Plumas (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

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Plumas (MC)

Plumas (MC)

Plumas (MC)

Table 4: Hot Soak Emissions (grams/trip)

Pollutant Name: Reactive Org Gases Temperature: 70F Relative Humidity:
ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.037	0.054	0.032	0.005	0.086	0.173	0.044
10	0.069	0.101	0.059	0.008	0.159	0.323	0.081
20	0.117	0.173	0.102	0.015	0.271	0.565	0.140
30	0.151	0.223	0.133	0.019	0.349	0.747	0.181
40	0.164	0.242	0.144	0.021	0.378	0.821	0.196

Hot soak results are scaled to reflect zero emissions for trip lengths of less than 5 minutes (about 25% of in-use trips).

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2013/01/08 15:08:53
Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
Season : winter
Area : Plumas (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- winter
Emfac2007 Emission Factors: V2.3 Nov 1 2006

Plumas (MC)

Plumas (MC)

Plumas (MC)

Table 5a: Partial Day Diurnal Loss Emissions

(grams/hour)

Pollutant Name: Reactive Org Gases Temperature: ALL Relative Humidity:
ALL

Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
70	0.045	0.078	0.066	0.003	0.004	0.446	0.083

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2013/01/08 15:08:53
Scen Year: 2030 -- All model years in the range 1986 to 2030 selected

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Season : Winter
 Area : Plumas (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Plumas (MC) Plumas (MC) Plumas (MC)

Table 5b: Multi-Day Diurnal Loss Emissions

(grams/hour)

Pollutant Name: Reactive Org Gases Temperature: ALL Relative Humidity:
 ALL

Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
70	0.004	0.006	0.005	0.000	0.001	0.042	0.007

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Plumas (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Plumas (MC) Plumas (MC) Plumas (MC)

Table 6a: Partial Day Resting Loss Emissions

(grams/hour)

Pollutant Name: Reactive Org Gases Temperature: ALL Relative Humidity:
 ALL

Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
70	0.021	0.040	0.040	0.002	0.002	0.141	0.039

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter

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Season : Winter
 Area : Plumas (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Plumas (MC) Plumas (MC) Plumas (MC)

Table 8: Evaporative Running Loss Emissions

(grams/minute)

Pollutant Name: Reactive Org Gases Temperature: 70F Relative Humidity:
 ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
1	0.007	0.359	0.359	0.181	1.342	0.003	0.261
2	0.007	0.187	0.187	0.094	0.695	0.038	0.137
3	0.009	0.132	0.132	0.066	0.480	0.057	0.098
4	0.012	0.106	0.106	0.052	0.374	0.068	0.080
5	0.014	0.091	0.091	0.044	0.311	0.077	0.070
10	0.019	0.063	0.063	0.029	0.187	0.100	0.051
15	0.021	0.057	0.058	0.025	0.149	0.113	0.048
20	0.023	0.056	0.058	0.025	0.132	0.124	0.048
25	0.025	0.058	0.061	0.025	0.125	0.133	0.050
30	0.026	0.061	0.064	0.026	0.131	0.141	0.052
35	0.027	0.063	0.067	0.027	0.136	0.148	0.054
40	0.028	0.066	0.069	0.028	0.141	0.154	0.056
45	0.029	0.068	0.072	0.029	0.146	0.161	0.058
50	0.030	0.071	0.074	0.030	0.151	0.167	0.060
55	0.031	0.073	0.076	0.031	0.155	0.172	0.062
60	0.031	0.075	0.079	0.032	0.160	0.178	0.064

Title : Mountain Counties Air Basin Subarea Winter Cyr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Sierra (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Sierra (MC) Sierra (MC) Sierra (MC)

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Reactive Org Gases Temperature: 70F Relative Humidity:
 0%

Speed

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MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.067	0.116	0.174	1.134	0.162	4.675	0.204
35	0.010	0.018	0.030	0.143	0.022	1.802	0.040

0% Pollutant Name: Carbon Monoxide Temperature: 70F Relative Humidity:

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	1.030	1.667	2.184	4.877	3.396	22.035	1.932
35	0.606	0.951	1.108	1.026	0.621	14.268	1.017

0% Pollutant Name: Oxides of Nitrogen Temperature: 70F Relative Humidity:

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.108	0.208	0.473	3.952	1.097	1.384	0.414
35	0.060	0.114	0.280	1.641	1.105	1.261	0.210

0% Pollutant Name: Carbon Dioxide Temperature: 70F Relative Humidity:

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	923.451	1168.162	1728.921	2607.262	2413.480	266.301	1249.818
35	300.429	381.478	518.405	1423.861	973.509	139.927	430.098

0% Pollutant Name: Sulfur Dioxide Temperature: 70F Relative Humidity:

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.009	0.011	0.017	0.025	0.023	0.003	0.012
35	0.003	0.004	0.005	0.014	0.009	0.002	0.004

0% Pollutant Name: PM2.5 Temperature: 70F Relative Humidity:

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.046	0.073	0.095	0.162	0.091	0.023	0.073
35	0.007	0.012	0.016	0.066	0.016	0.011	0.014

Pollutant Name: PM2.5 - Tire Wear Temperature: 70F Relative Humidity:

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ALL Pollutant Name: Reactive Org Gases Temperature: 70F Relative Humidity:

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.007	0.015	0.036	0.078	0.338	0.649	0.029
10	0.013	0.030	0.071	0.152	0.659	0.801	0.053
20	0.025	0.058	0.139	0.288	1.250	1.093	0.097
30	0.036	0.083	0.205	0.408	1.771	1.368	0.138
40	0.046	0.106	0.268	0.513	2.225	1.628	0.176
50	0.056	0.126	0.328	0.602	2.609	1.871	0.210
60	0.064	0.145	0.386	0.674	2.925	2.048	0.241
120	0.095	0.205	0.670	0.758	3.289	2.315	0.351
180	0.093	0.201	0.662	0.805	3.489	2.343	0.351
240	0.098	0.213	0.704	0.849	3.684	2.491	0.372
300	0.104	0.225	0.747	0.893	3.872	2.636	0.394
360	0.109	0.237	0.789	0.935	4.054	2.778	0.414
420	0.115	0.248	0.831	0.975	4.229	2.916	0.435
480	0.120	0.259	0.873	1.014	4.398	3.052	0.456
540	0.126	0.270	0.915	1.052	4.561	3.185	0.476
600	0.131	0.281	0.956	1.088	4.717	3.314	0.496
660	0.136	0.292	0.998	1.122	4.867	3.441	0.515
720	0.141	0.302	1.039	1.155	5.010	3.564	0.535

ALL Pollutant Name: Carbon Monoxide Temperature: 70F Relative Humidity:

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.101	0.221	0.526	0.988	1.315	2.966	0.350
10	0.199	0.436	1.041	1.937	2.576	3.576	0.665
20	0.388	0.846	2.036	3.712	4.938	4.745	1.267
30	0.566	1.229	2.986	5.328	7.087	5.844	1.832
40	0.733	1.586	3.890	6.782	9.022	6.875	2.359
50	0.890	1.916	4.748	8.076	10.743	7.837	2.849
60	1.036	2.220	5.561	9.210	12.250	8.730	3.302
120	1.606	3.292	8.979	10.755	14.306	12.358	4.873
180	1.512	3.106	8.575	11.070	14.725	11.973	4.689
240	1.632	3.321	9.350	11.394	15.157	12.986	5.030
300	1.738	3.515	10.031	11.730	15.602	13.922	5.336
360	1.831	3.687	10.617	12.075	16.062	14.781	5.607
420	1.910	3.838	11.109	12.431	16.535	15.563	5.844
480	1.976	3.967	11.506	12.797	17.022	16.267	6.045
540	2.030	4.075	11.809	13.174	17.523	16.895	6.211
600	2.069	4.162	12.017	13.561	18.038	17.446	6.342
660	2.096	4.228	12.131	13.958	18.567	17.920	6.438
720	2.109	4.272	12.150	14.366	19.109	18.317	6.499

ALL Pollutant Name: Oxides of Nitrogen Temperature: 70F Relative Humidity:

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.050	0.108	0.838	0.273	1.433	0.153	0.278
10	0.054	0.119	0.863	0.411	2.159	0.192	0.299

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20	0.061	0.138	0.909	0.654	3.435	0.262	0.338
30	0.067	0.154	0.950	0.852	4.474	0.319	0.371
40	0.072	0.167	0.987	1.005	5.277	0.364	0.398
50	0.076	0.176	1.020	1.113	5.844	0.397	0.419
60	0.079	0.183	1.048	1.176	6.175	0.418	0.434
120	0.084	0.195	1.156	1.184	6.220	0.421	0.467
180	0.085	0.196	1.158	1.180	6.197	0.417	0.467
240	0.084	0.195	1.149	1.173	6.162	0.411	0.464
300	0.083	0.193	1.133	1.164	6.115	0.402	0.458
360	0.082	0.190	1.111	1.153	6.056	0.393	0.451
420	0.080	0.186	1.084	1.140	5.985	0.381	0.441
480	0.078	0.181	1.049	1.124	5.902	0.368	0.429
540	0.075	0.175	1.009	1.106	5.806	0.353	0.415
600	0.073	0.169	0.963	1.085	5.699	0.336	0.399
660	0.069	0.162	0.910	1.062	5.580	0.318	0.381
720	0.066	0.154	0.851	1.037	5.448	0.298	0.361

ALL Pollutant Name: Carbon Dioxide Temperature: 70F Relative Humidity:

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	11.958	14.771	21.971	2.940	6.818	13.199	15.012
10	13.423	16.716	24.672	5.863	13.598	15.393	17.103
20	16.843	21.202	30.974	11.661	27.046	19.703	21.877
30	20.917	26.484	38.475	17.394	40.342	23.905	27.440
40	25.643	32.560	47.175	23.062	53.487	28.001	33.792
50	31.023	39.431	57.075	28.665	66.482	31.990	40.935
60	37.056	47.097	68.175	34.202	79.326	35.872	48.866
120	86.360	108.625	158.806	58.172	134.919	53.304	111.498
180	98.026	123.440	180.266	68.726	159.397	57.555	126.784
240	109.672	138.200	201.690	78.657	182.430	61.557	141.986
300	121.301	152.904	223.079	87.965	204.018	65.309	157.104
360	132.911	167.553	244.432	96.650	224.162	68.811	172.136
420	144.503	182.147	265.749	104.712	242.861	72.064	187.085
480	156.077	196.686	287.030	112.152	260.115	75.068	201.948
540	167.632	211.169	308.276	118.968	275.924	77.821	216.728
600	179.169	225.598	329.486	125.162	290.289	80.326	231.422
660	190.688	239.971	350.659	130.732	303.208	82.581	246.032
720	202.189	254.288	371.797	135.680	314.684	84.586	260.558

ALL Pollutant Name: Sulfur Dioxide Temperature: 70F Relative Humidity:

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30	0.000	0.000	0.000	0.000	0.001	0.000	0.000
40	0.000	0.000	0.001	0.000	0.001	0.000	0.000
50	0.000	0.000	0.001	0.000	0.001	0.000	0.000
60	0.000	0.000	0.001	0.000	0.001	0.001	0.001
120	0.001	0.001	0.002	0.001	0.002	0.001	0.001
180	0.001	0.001	0.002	0.001	0.002	0.001	0.001
240	0.001	0.001	0.002	0.001	0.002	0.001	0.001
300	0.001	0.002	0.002	0.001	0.002	0.001	0.002

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360	0.001	0.002	0.003	0.001	0.003	0.001	0.002
420	0.001	0.002	0.003	0.001	0.003	0.001	0.002
480	0.002	0.002	0.003	0.001	0.003	0.001	0.002
540	0.002	0.002	0.003	0.001	0.003	0.001	0.002
600	0.002	0.002	0.003	0.001	0.003	0.001	0.002
660	0.002	0.002	0.004	0.001	0.003	0.001	0.002
720	0.002	0.003	0.004	0.002	0.003	0.001	0.003

ALL Pollutant Name: PM2.5 Temperature: 70F Relative Humidity:

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.000	0.001	0.001	0.000	0.001	0.005	0.001
10	0.001	0.001	0.001	0.001	0.002	0.005	0.001
20	0.002	0.003	0.003	0.001	0.004	0.004	0.002
30	0.002	0.004	0.004	0.002	0.006	0.003	0.004
40	0.003	0.005	0.005	0.002	0.007	0.003	0.005
50	0.004	0.007	0.006	0.003	0.009	0.002	0.006
60	0.004	0.008	0.007	0.003	0.010	0.002	0.007
120	0.007	0.013	0.012	0.004	0.014	0.005	0.011
180	0.008	0.014	0.013	0.005	0.014	0.007	0.012
240	0.009	0.016	0.015	0.005	0.015	0.008	0.013
300	0.010	0.017	0.016	0.005	0.015	0.010	0.014
360	0.010	0.018	0.017	0.005	0.016	0.011	0.015
420	0.011	0.018	0.017	0.005	0.016	0.012	0.016
480	0.011	0.019	0.018	0.005	0.017	0.013	0.016
540	0.011	0.020	0.019	0.005	0.017	0.014	0.017
600	0.012	0.020	0.019	0.006	0.018	0.014	0.017
660	0.012	0.020	0.019	0.006	0.018	0.015	0.017
720	0.012	0.020	0.019	0.006	0.019	0.015	0.017

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Sierra (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

sierra (MC) sierra (MC) sierra (MC)

Table 4: Hot Soak Emissions (grams/trip)

ALL Pollutant Name: Reactive Org Gases Temperature: 70F Relative Humidity:

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
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5	0.035	0.067	0.032	0.005	0.083	0.173	0.049
10	0.064	0.124	0.060	0.009	0.153	0.323	0.090
20	0.110	0.212	0.102	0.016	0.262	0.565	0.155
30	0.141	0.273	0.132	0.021	0.337	0.747	0.200
40	0.153	0.296	0.144	0.023	0.365	0.821	0.217

Hot soak results are scaled to reflect zero emissions for trip lengths of less than 5 minutes (about 25% of in-use trips).

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Sierra (MC)

 Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Sierra (MC) Sierra (MC) Sierra (MC)

Table 5a: Partial Day Diurnal Loss Emissions

(grams/hour)

Pollutant Name: Reactive Org Gases	Temperature: ALL						Relative Humidity:
ALL	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
Temp degF							
70	0.041	0.100	0.070	0.002	0.003	0.446	0.092

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Sierra (MC)

 Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

Sierra (MC) Sierra (MC) Sierra (MC)

Table 5b: Multi-Day Diurnal Loss Emissions

(grams/hour)

Nevada County EMFAC.rts

Pollutant Name: Reactive Org Gases Temperature: ALL Relative Humidity:
ALL

Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
70	0.001	0.004	0.003	0.000	0.000	0.014	0.003

Title : Mountain Counties Air Basin Subarea Winter Cyr 2030 Default Title
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2013/01/08 15:08:53
Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
Season : Winter
Area : Sierra (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
Emfac2007 Emission Factors: V2.3 Nov 1 2006

Sierra (MC) Sierra (MC) Sierra (MC)

Table 7: Estimated Travel Fractions

Pollutant Name: Temperature: ALL Relative Humidity:
ALL

	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
%VMT	0.234	0.571	0.136	0.049	0.001	0.009	1.000
%TRIP	0.211	0.477	0.232	0.069	0.000	0.011	1.000
%VEH	0.240	0.559	0.126	0.036	0.000	0.038	1.000

Title : Mountain Counties Air Basin Subarea Winter Cyr 2030 Default Title
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2013/01/08 15:08:53
Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
Season : Winter
Area : Sierra (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
Emfac2007 Emission Factors: V2.3 Nov 1 2006

Sierra (MC) Sierra (MC) Sierra (MC)

Table 8: Evaporative Running Loss Emissions

(grams/minute)

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5	0.952	1.539	2.080	3.798	20.448	22.024	1.764
35	0.564	0.889	1.077	0.796	3.879	14.261	0.983

Pollutant Name: Oxides of Nitrogen Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.095	0.183	0.414	2.510	9.832	1.383	0.270
35	0.054	0.101	0.248	1.263	5.402	1.260	0.156

Pollutant Name: Carbon Dioxide Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	922.826	1171.915	1725.388	2189.543	2413.927	266.308	1171.930
35	300.204	381.879	519.585	1166.425	1569.847	139.933	389.536

Pollutant Name: Sulfur Dioxide Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.009	0.011	0.017	0.021	0.023	0.003	0.011
35	0.003	0.004	0.005	0.011	0.015	0.002	0.004

Pollutant Name: PM2.5 Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.047	0.076	0.100	0.173	0.205	0.023	0.071
35	0.008	0.012	0.017	0.060	0.047	0.011	0.013

Pollutant Name: PM2.5 - Tire wear Temperature: 70F Relative Humidity: 0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.002	0.002	0.002	0.004	0.002	0.001	0.002
35	0.002	0.002	0.002	0.004	0.002	0.001	0.002

Pollutant Name: PM2.5 - Brake wear Temperature: 70F Relative Humidity: 0%

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Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.005	0.005	0.005	0.006	0.005	0.003	0.005
35	0.005	0.005	0.005	0.006	0.005	0.003	0.005

Pollutant Name: Gasoline - mi/gal Temperature: 70F Relative Humidity:
0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	9.584	7.529	4.983	3.519	3.425	28.049	8.201
35	29.427	23.112	17.002	17.784	17.326	52.665	24.991

Pollutant Name: Diesel - mi/gal Temperature: 70F Relative Humidity:
0%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	29.156	29.156	19.461	5.848	4.304	0.000	12.074
35	29.156	29.156	19.461	6.451	4.304	0.000	12.405

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2013/01/08 15:08:53
Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
Season : Winter
Area : Tuolumne (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
Emfac2007 Emission Factors: V2.3 Nov 1 2006

(MC) Tuolumne (MC) Tuolumne (MC) Tuolumne

Table 2: Starting Emissions (grams/trip)

Pollutant Name: Reactive Org Gases Temperature: 70F Relative Humidity:
ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.006	0.012	0.035	0.066	0.206	0.649	0.028
10	0.013	0.023	0.069	0.129	0.401	0.801	0.047
20	0.024	0.045	0.135	0.244	0.761	1.092	0.084
30	0.035	0.065	0.199	0.346	1.078	1.368	0.118
40	0.045	0.083	0.260	0.435	1.354	1.627	0.150

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50	0.054	0.100	0.319	0.510	1.588	1.870	0.180
60	0.062	0.115	0.375	0.572	1.781	2.048	0.206
120	0.094	0.169	0.649	0.643	2.002	2.315	0.305
180	0.092	0.166	0.642	0.682	2.124	2.343	0.304
240	0.097	0.176	0.683	0.720	2.243	2.491	0.323
300	0.103	0.186	0.724	0.757	2.357	2.635	0.342
360	0.109	0.196	0.765	0.792	2.468	2.777	0.360
420	0.114	0.206	0.806	0.826	2.574	2.916	0.378
480	0.119	0.215	0.847	0.859	2.677	3.051	0.396
540	0.125	0.225	0.887	0.891	2.776	3.184	0.414
600	0.130	0.234	0.928	0.922	2.871	3.313	0.432
660	0.135	0.243	0.968	0.951	2.963	3.440	0.449
720	0.140	0.252	1.008	0.979	3.050	3.563	0.467

ALL Pollutant Name: Carbon Monoxide Temperature: 70F Relative Humidity:

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.102	0.185	0.501	0.881	2.778	2.963	0.303
10	0.202	0.364	0.991	1.726	5.443	3.574	0.560
20	0.394	0.708	1.939	3.309	10.435	4.742	1.052
30	0.575	1.031	2.844	4.749	14.975	5.842	1.516
40	0.746	1.333	3.706	6.046	19.064	6.873	1.952
50	0.906	1.615	4.524	7.200	22.701	7.835	2.359
60	1.056	1.876	5.300	8.210	25.887	8.729	2.739
120	1.651	2.846	8.565	9.588	30.232	12.355	4.149
180	1.555	2.692	8.190	9.868	31.115	11.969	3.979
240	1.681	2.893	8.935	10.158	32.028	12.981	4.292
300	1.793	3.074	9.588	10.456	32.970	13.916	4.570
360	1.890	3.232	10.151	10.764	33.941	14.774	4.815
420	1.973	3.370	10.622	11.082	34.942	15.555	5.026
480	2.042	3.485	11.002	11.408	35.971	16.260	5.203
540	2.096	3.580	11.291	11.744	37.030	16.887	5.346
600	2.137	3.652	11.490	12.089	38.117	17.438	5.455
660	2.163	3.703	11.597	12.443	39.234	17.912	5.530
720	2.175	3.733	11.613	12.806	40.380	18.309	5.571

ALL Pollutant Name: Oxides of Nitrogen Temperature: 70F Relative Humidity:

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.053	0.101	0.815	0.240	1.016	0.153	0.246
10	0.056	0.109	0.841	0.362	1.530	0.192	0.262
20	0.063	0.124	0.889	0.575	2.434	0.262	0.291
30	0.069	0.136	0.932	0.749	3.171	0.319	0.315
40	0.074	0.146	0.970	0.884	3.740	0.364	0.335
50	0.077	0.153	1.003	0.979	4.142	0.397	0.351
60	0.080	0.159	1.032	1.034	4.376	0.418	0.363
120	0.086	0.171	1.136	1.042	4.408	0.420	0.393
180	0.087	0.171	1.138	1.038	4.392	0.417	0.394
240	0.086	0.170	1.129	1.032	4.367	0.410	0.390
300	0.085	0.168	1.114	1.024	4.334	0.402	0.386
360	0.084	0.165	1.093	1.014	4.292	0.392	0.379
420	0.082	0.162	1.065	1.002	4.242	0.381	0.370
480	0.080	0.158	1.032	0.989	4.183	0.368	0.360

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540	0.077	0.152	0.993	0.973	4.115	0.353	0.348
600	0.074	0.147	0.948	0.955	4.039	0.336	0.333
660	0.071	0.140	0.896	0.935	3.955	0.318	0.317
720	0.067	0.133	0.839	0.913	3.861	0.298	0.300

ALL Pollutant Name: Carbon Dioxide Temperature: 70F Relative Humidity:

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	11.969	15.022	22.030	2.959	3.997	13.180	15.058
10	13.430	16.921	24.748	5.901	7.971	15.374	17.046
20	16.843	21.331	31.085	11.736	15.854	19.682	21.619
30	20.910	26.557	38.623	17.506	23.648	23.883	26.989
40	25.632	32.598	47.363	23.210	31.353	27.978	33.156
50	31.007	39.454	57.306	28.849	38.970	31.965	40.119
60	37.037	47.126	68.449	34.423	46.499	35.846	47.880
120	86.361	109.335	159.369	58.547	79.087	53.273	109.954
180	98.021	124.165	180.915	69.169	93.435	57.527	124.895
240	109.664	138.958	202.423	79.164	106.937	61.531	139.778
300	121.289	153.714	223.893	88.531	119.591	65.286	154.602
360	132.898	168.433	245.325	97.273	131.399	68.790	169.367
420	144.489	183.114	266.718	105.387	142.360	72.046	184.072
480	156.064	197.759	288.074	112.874	152.474	75.051	198.719
540	167.622	212.366	309.391	119.734	161.741	77.807	213.307
600	179.162	226.937	330.671	125.968	170.161	80.313	227.836
660	190.686	241.470	351.912	131.574	177.734	82.569	242.306
720	202.192	255.966	373.115	136.553	184.461	84.576	256.717

ALL Pollutant Name: Sulfur Dioxide Temperature: 70F Relative Humidity:

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30	0.000	0.000	0.000	0.000	0.000	0.000	0.000
40	0.000	0.000	0.001	0.000	0.001	0.000	0.000
50	0.000	0.000	0.001	0.000	0.001	0.000	0.000
60	0.000	0.000	0.001	0.000	0.001	0.001	0.001
120	0.001	0.001	0.002	0.001	0.001	0.001	0.001
180	0.001	0.001	0.002	0.001	0.001	0.001	0.001
240	0.001	0.001	0.002	0.001	0.002	0.001	0.001
300	0.001	0.002	0.002	0.001	0.002	0.001	0.002
360	0.001	0.002	0.003	0.001	0.002	0.001	0.002
420	0.001	0.002	0.003	0.001	0.002	0.001	0.002
480	0.002	0.002	0.003	0.001	0.002	0.001	0.002
540	0.002	0.002	0.003	0.001	0.002	0.001	0.002
600	0.002	0.002	0.003	0.001	0.002	0.001	0.002
660	0.002	0.002	0.004	0.001	0.002	0.001	0.002
720	0.002	0.003	0.004	0.002	0.002	0.001	0.003

ALL Pollutant Name: PM2.5 Temperature: 70F Relative Humidity:

Nevada County EMFAC.rts

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.000	0.001	0.001	0.000	0.001	0.005	0.001
10	0.001	0.001	0.001	0.001	0.001	0.005	0.001
20	0.002	0.003	0.003	0.001	0.002	0.004	0.002
30	0.003	0.004	0.004	0.002	0.003	0.003	0.004
40	0.003	0.006	0.005	0.002	0.004	0.003	0.005
50	0.004	0.007	0.007	0.003	0.005	0.002	0.006
60	0.005	0.008	0.008	0.003	0.006	0.002	0.007
120	0.008	0.013	0.013	0.004	0.008	0.005	0.011
180	0.009	0.015	0.014	0.004	0.008	0.006	0.012
240	0.010	0.016	0.015	0.004	0.008	0.008	0.013
300	0.011	0.017	0.017	0.005	0.008	0.010	0.014
360	0.011	0.018	0.018	0.005	0.008	0.011	0.015
420	0.012	0.019	0.018	0.005	0.009	0.012	0.016
480	0.012	0.020	0.019	0.005	0.009	0.013	0.017
540	0.013	0.020	0.020	0.005	0.009	0.014	0.017
600	0.013	0.020	0.020	0.005	0.010	0.014	0.017
660	0.013	0.021	0.020	0.005	0.010	0.015	0.017
720	0.013	0.021	0.020	0.006	0.010	0.015	0.017

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Tuolumne (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

(MC) Tuolumne (MC) Tuolumne (MC) Tuolumne

Table 4: Hot Soak Emissions (grams/trip)

Pollutant Name: Reactive Org Gases Temperature: 70F Relative Humidity:
 ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
5	0.033	0.054	0.031	0.005	0.053	0.173	0.043
10	0.062	0.100	0.057	0.010	0.097	0.323	0.079
20	0.106	0.172	0.099	0.017	0.166	0.565	0.136
30	0.137	0.222	0.128	0.021	0.214	0.747	0.176
40	0.148	0.241	0.139	0.023	0.231	0.821	0.191

Hot soak results are scaled to reflect zero emissions for trip lengths of less than 5 minutes (about 25% of in-use trips).

Nevada County EMFAC.rts

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Tuolumne (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

(MC) Tuolumne (MC) Tuolumne (MC) Tuolumne

Table 5a: Partial Day Diurnal Loss Emissions

(grams/hour)

Pollutant Name:	Reactive Org Gases			Temperature: ALL			Relative Humidity:	
Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL	
70	0.038	0.077	0.061	0.003	0.003	0.446	0.081	

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Tuolumne (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

(MC) Tuolumne (MC) Tuolumne (MC) Tuolumne

Table 5b: Multi-Day Diurnal Loss Emissions

(grams/hour)

Pollutant Name:	Reactive Org Gases			Temperature: ALL			Relative Humidity:	
Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL	
70	0.003	0.006	0.004	0.000	0.001	0.042	0.007	

Nevada County EMFAC.rts

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Tuolumne (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

(MC) Tuolumne (MC) Tuolumne (MC) Tuolumne

Table 6a: Partial Day Resting Loss Emissions

(grams/hour)

Pollutant Name: Reactive Org Gases Temperature: ALL Relative Humidity:
 ALL

Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
70	0.019	0.040	0.039	0.002	0.001	0.141	0.037

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Tuolumne (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

(MC) Tuolumne (MC) Tuolumne (MC) Tuolumne

Table 6b: Multi-Day Resting Loss Emissions

(grams/hour)

Pollutant Name: Reactive Org Gases Temperature: ALL Relative Humidity:
 ALL

Temp degF	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
70	0.001	0.003	0.003	0.000	0.000	0.014	0.003

Nevada County EMFAC.rts

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Tuolumne (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

(MC) Tuolumne (MC) Tuolumne (MC) Tuolumne

Table 7: Estimated Travel Fractions

Pollutant Name: Temperature: ALL Relative Humidity:
 ALL

	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
%VMT	0.348	0.482	0.129	0.026	0.001	0.014	1.000
%TRIP	0.309	0.418	0.215	0.041	0.000	0.017	1.000
%VEH	0.334	0.459	0.118	0.032	0.000	0.057	1.000

Title : Mountain Counties Air Basin Subarea Winter CYr 2030 Default Title
 Version : Emfac2007 V2.3 Nov 1 2006
 Run Date : 2013/01/08 15:08:53
 Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
 Season : Winter
 Area : Tuolumne (MC)

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Winter
 Emfac2007 Emission Factors: V2.3 Nov 1 2006

(MC) Tuolumne (MC) Tuolumne (MC) Tuolumne

Table 8: Evaporative Running Loss Emissions

(grams/minute)

Pollutant Name: Reactive Org Gases Temperature: 70F Relative Humidity:
 ALL

Time min	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
1	0.007	0.356	0.344	0.217	0.604	0.003	0.225
2	0.007	0.185	0.179	0.112	0.313	0.038	0.119
3	0.009	0.131	0.126	0.079	0.217	0.057	0.086
4	0.011	0.105	0.102	0.063	0.170	0.068	0.071
5	0.013	0.090	0.088	0.053	0.142	0.077	0.062

Nevada County EMFAC.rts

10	0.018	0.063	0.062	0.036	0.088	0.100	0.047
15	0.021	0.057	0.057	0.032	0.073	0.113	0.044
20	0.023	0.056	0.057	0.032	0.067	0.124	0.045
25	0.024	0.058	0.060	0.033	0.066	0.133	0.047
30	0.025	0.061	0.063	0.034	0.069	0.141	0.049
35	0.026	0.063	0.065	0.036	0.072	0.148	0.051
40	0.027	0.066	0.068	0.037	0.075	0.154	0.053
45	0.028	0.068	0.070	0.038	0.078	0.161	0.055
50	0.029	0.070	0.073	0.040	0.081	0.167	0.057
55	0.030	0.073	0.075	0.041	0.083	0.172	0.059
60	0.031	0.075	0.077	0.042	0.086	0.178	0.060

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Nev City Hwy-Brunswick.1st
CALINE4 - (DATED CALINE4x)

3.0.0 PC (32 BIT) VERSION
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Run Began on 1/08/2013 at 15:29:08

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Nev City Hwy-Brunswick
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 6 (F) VS= 0.0 CM/S
MIXH= 1000. M AMB= 2.8 PPM
SIGTH= 20. DEGREES TEMP= 15.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	* * *	LINK X1	COORDINATES Y1	(M) X2	Y2	* * *	TYPE	VPH	EF (G/MI)	H (M)	W (M)
1. Y SB1	* * *	684	1256	711	1201	* * *	AG	1147	1.1	0.0	21.8
2. Y SB2	* * *	711	1201	745	1133	* * *	AG	293	2.0	0.0	21.8
3. Y SB3	* * *	745	1133	800	1025	* * *	AG	633	1.1	0.0	21.8
4. Y SB4	* * *	800	1025	858	906	* * *	AG	633	1.1	0.0	21.8
5. Y NB1	* * *	868	911	813	1024	* * *	AG	612	1.1	0.0	21.8
6. Y NB2	* * *	814	1024	761	1138	* * *	AG	600	2.0	0.0	21.8
7. Y NB3	* * *	761	1138	728	1205	* * *	AG	610	1.1	0.0	21.8
8. Y NB4	* * *	728	1205	700	1263	* * *	AG	610	1.1	0.0	21.8
9. Y LT1	* * *	720	1198	753	1134	* * *	AG	854	2.0	0.0	21.8
10. Y LT2	* * *	753	1134	802	1038	* * *	AG	12	2.0	0.0	21.8
11. X EB1	* * *	596	1103	682	1125	* * *	AG	57	1.1	0.0	26.8
12. X EB2	* * *	682	1125	750	1141	* * *	AG	47	2.0	0.0	26.8
13. X EB3	* * *	750	1141	826	1158	* * *	AG	901	1.1	0.0	26.8
14. X EB4	* * *	826	1158	923	1182	* * *	AG	901	1.1	0.0	26.8
15. X WB1	* * *	924	1170	832	1147	* * *	AG	1173	1.1	0.0	26.8
16. X WB2	* * *	832	1147	757	1128	* * *	AG	833	2.0	0.0	26.8
17. X WB3	* * *	757	1128	687	1111	* * *	AG	845	1.1	0.0	26.8
18. X WB4	* * *	687	1111	599	1090	* * *	AG	845	1.1	0.0	26.8
19. X LT1	* * *	674	1115	753	1134	* * *	AG	10	2.0	0.0	26.8
20. X LT2	* * *	753	1134	841	1157	* * *	AG	340	2.0	0.0	26.8

III. RECEPTOR LOCATIONS

RECEPTOR	* * *	COORDINATES X	(M) Y	Z
1. Recpt 1	* * *	805	1099	1.8
2. Recpt 2	* * *	691	1157	1.8
3. Recpt 3	* * *	729	1093	1.8
4. Recpt 4	* * *	778	1179	1.8

Nev City Hwy-Brunswick.1st

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	* * BRG * (DEG)	* PRED * CONC * (PPM)	* * *	1	2	3	CONC/LINK (PPM)					
							4	5	6	7	8	
1. Recpt 1	* 313.	* 3.0	* *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2. Recpt 2	* 97.	* 3.0	* *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
3. Recpt 3	* 52.	* 3.0	* *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
4. Recpt 4	* 179.	* 3.0	* *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

RECEPTOR	* * *	9	10	11	CONC/LINK (PPM)					
					12	13	14	15	16	
1. Recpt 1	* *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2. Recpt 2	* *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
3. Recpt 3	* *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
4. Recpt 4	* *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

RECEPTOR	* * CONC/LINK * (PPM) *	17	18	19	20
1. Recpt 1	* *	0.0	0.0	0.0	0.0
2. Recpt 2	* *	0.0	0.0	0.0	0.0
3. Recpt 3	* *	0.0	0.0	0.0	0.0
4. Recpt 4	* *	0.0	0.0	0.0	0.0

1

Run Ended on 1/08/2013 at 15:29:08

1

SR49SB-Brunswick.1st
CALINE4 - (DATED CALINE4x)

3.0.0 PC (32 BIT) VERSION
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Run Began on 1/08/2013 at 15:32:47

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: SR49SB-Brunswick
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 6 (F) VS= 0.0 CM/S
MIXH= 1000. M AMB= 2.8 PPM
SIGTH= 20. DEGREES TEMP= 15.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	* * *	LINK X1	COORDINATES Y1	(M) X2	Y2	* * *	TYPE	VPH	EF (G/MI)	H (M)	W (M)
1. Y SB1	* * *	684	1256	711	1201	* * *	AG	572	1.1	0.0	28.0
2. Y SB2	* * *	711	1201	745	1133	* * *	AG	274	2.0	0.0	28.0
3. Y SB3	* * *	745	1133	800	1025	* * *	AG	490	1.1	0.0	28.0
4. Y SB4	* * *	800	1025	858	906	* * *	AG	490	1.1	0.0	28.0
5. Y NB1	* * *	868	911	813	1024	* * *	AG	392	1.1	0.0	28.0
6. Y NB2	* * *	814	1024	761	1138	* * *	AG	338	2.0	0.0	28.0
7. Y NB3	* * *	761	1138	728	1205	* * *	AG	338	1.1	0.0	28.0
8. Y NB4	* * *	728	1205	700	1263	* * *	AG	338	1.1	0.0	28.0
9. Y LT1	* * *	720	1198	753	1134	* * *	AG	298	2.0	0.0	28.0
10. Y LT2	* * *	753	1134	802	1038	* * *	AG	54	2.0	0.0	28.0
11. X EB1	* * *	596	1103	682	1125	* * *	AG	1143	1.1	0.0	25.1
12. X EB2	* * *	682	1125	750	1141	* * *	AG	1143	2.0	0.0	25.1
13. X EB3	* * *	750	1141	826	1158	* * *	AG	1441	1.1	0.0	25.1
14. X EB4	* * *	826	1158	923	1182	* * *	AG	1441	1.1	0.0	25.1
15. X WB1	* * *	924	1170	832	1147	* * *	AG	1119	1.1	0.0	25.1
16. X WB2	* * *	832	1147	757	1128	* * *	AG	903	2.0	0.0	25.1
17. X WB3	* * *	757	1128	687	1111	* * *	AG	957	1.1	0.0	25.1
18. X WB4	* * *	687	1111	599	1090	* * *	AG	957	1.1	0.0	25.1
19. X LT1	* * *	674	1115	753	1134	* * *	AG	0	2.0	0.0	25.1
20. X LT2	* * *	753	1134	841	1157	* * *	AG	216	2.0	0.0	25.1

III. RECEPTOR LOCATIONS

RECEPTOR	* * *	COORDINATES X	(M) Y	Z
1. Recpt 1	* * *	805	1099	1.8
2. Recpt 2	* * *	691	1157	1.8
3. Recpt 3	* * *	729	1093	1.8
4. Recpt 4	* * *	778	1179	1.8

SR49SB-Brunswick.1st

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	* * BRG * (DEG)	* PRED * CONC * (PPM)	* * *	1	2	3	CONC/LINK (PPM)					
							4	5	6	7	8	
1. Recpt 1	* 308.	* 3.0	* *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2. Recpt 2	* 104.	* 3.0	* *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
3. Recpt 3	* 51.	* 3.0	* *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
4. Recpt 4	* 177.	* 3.0	* *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

RECEPTOR	* * *	9	10	11	CONC/LINK (PPM)					
					12	13	14	15	16	
1. Recpt 1	* *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2. Recpt 2	* *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
3. Recpt 3	* *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
4. Recpt 4	* *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

RECEPTOR	* * CONC/LINK * (PPM) *	17	18	19	20
1. Recpt 1	* *	0.0	0.0	0.0	0.0
2. Recpt 2	* *	0.0	0.0	0.0	0.0
3. Recpt 3	* *	0.0	0.0	0.0	0.0
4. Recpt 4	* *	0.0	0.0	0.0	0.0

1

Run Ended on 1/08/2013 at 15:32:47

1 SR49NB-Brunswick.1st
 CALINE4 - (DATED CALINE4x)

3.0.0 PC (32 BIT) VERSION
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Run Began on 1/08/2013 at 15:42:06

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
 JUNE 1989 VERSION
 PAGE 1

JOB: SR49NB-Brunswick
 RUN: Hour 1 (WORST CASE ANGLE)
 POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0. (M)
 BRG= WORST CASE VD= 0.0 CM/S
 CLAS= 6 (F) VS= 0.0 CM/S
 MIXH= 1000. M AMB= 3.1 PPM
 SIGTH= 5. DEGREES TEMP= 20.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	* * * * *	LINK X1	COORDINATES Y1	(M) X2	Y2	* * * * *	TYPE	VPH	EF (G/MI)	H (M)	W (M)
1. Link A	*	6284	-181	6284	-246	*	AG	1912	2.9	0.0	19.1
2. Link B	*	6284	-246	6284	-300	*	AG	1912	6.8	0.0	19.1
3. Link C	*	6284	-300	6279	-453	*	AG	2291	2.9	0.0	19.1
4. Link D	*	6297	-460	6298	-378	*	AG	889	2.9	0.0	19.1
5. Link E	*	6298	-378	6298	-319	*	AG	889	2.9	0.0	19.1
6. Link F	*	6298	-319	6297	-176	*	AG	889	2.9	0.0	19.1
7. Link G	*	6284	-265	6300	-314	*	AG	0	6.8	0.0	19.1
8. Link H	*	6300	-314	6462	-325	*	AG	0	2.9	0.0	26.5
9. Link I	*	6523	-313	6380	-311	*	AG	1255	2.9	0.0	26.5
10. Link J	*	6380	-311	6298	-301	*	AG	876	6.8	0.0	26.5
11. Link K	*	6370	-310	6284	-326	*	AG	379	6.8	0.0	26.5

III. RECEPTOR LOCATIONS

RECEPTOR	* * * * *	COORDINATES X	(M) Y	Z
1. Recpt 1	*	6325	-280	1.7
2. Recpt 2	*	6315	-339	1.7
3. Recpt 3	*	6243	-327	1.7
4. Recpt 4	*	6246	-277	1.7

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	* * * * *	BRG (DEG)	* * * * *	PRED CONC (PPM)	* * * * *	1	2	3	4	5	6	7	8
1. Recpt 1	*	200.	*	3.8	*	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.0

SR49NB-Brunswick.lst

2. Recpt	2	*	339.	*	4.0	*	0.1	0.4	0.0	0.0	0.0	0.2	0.0	0.0
3. Recpt	3	*	82.	*	3.8	*	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
4. Recpt	4	*	104.	*	3.9	*	0.0	0.3	0.0	0.0	0.0	0.1	0.0	0.0

		*CONC/LINK *(PPM)			
RECEPTOR		*	9	10	11

1. Recpt	1	*	0.0	0.2	0.1
2. Recpt	2	*	0.0	0.1	0.1
3. Recpt	3	*	0.1	0.2	0.2
4. Recpt	4	*	0.1	0.3	0.0

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Run Ended on 1/08/2013 at 15:42:07

1 Sutton-Brunswick.lst
 CALINE4 - (DATED CALINE4x)

3.0.0 PC (32 BIT) VERSION
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Run Began on 1/08/2013 at 15:35:26

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
 JUNE 1989 VERSION
 PAGE 1

JOB: Sutton-Brunswick
 RUN: Hour 1 (WORST CASE ANGLE)
 POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0. (M)
 BRG= WORST CASE VD= 0.0 CM/S
 CLAS= 6 (F) VS= 0.0 CM/S
 MIXH= 1000. M AMB= 2.8 PPM
 SIGTH= 20. DEGREES TEMP= 15.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	* * *	LINK X1	COORDINATES Y1	(M) X2	Y2	* * *	TYPE	VPH	EF (G/MI)	H (M)	W (M)
1. Y SB1	* * *	684	1256	711	1201	* * *	AG	534	1.1	0.0	20.5
2. Y SB2	* * *	711	1201	745	1133	* * *	AG	421	2.0	0.0	20.5
3. Y SB3	* * *	745	1133	800	1025	* * *	AG	685	1.1	0.0	20.5
4. Y SB4	* * *	800	1025	858	906	* * *	AG	685	1.1	0.0	20.5
5. Y NB1	* * *	868	911	813	1024	* * *	AG	914	1.1	0.0	20.5
6. Y NB2	* * *	814	1024	761	1138	* * *	AG	346	2.0	0.0	20.5
7. Y NB3	* * *	761	1138	728	1205	* * *	AG	595	1.1	0.0	20.5
8. Y NB4	* * *	728	1205	700	1263	* * *	AG	595	1.1	0.0	20.5
9. Y LT1	* * *	720	1198	753	1134	* * *	AG	113	2.0	0.0	20.5
10. Y LT2	* * *	753	1134	802	1038	* * *	AG	568	2.0	0.0	20.5
11. X EB1	* * *	596	1103	682	1125	* * *	AG	1766	1.1	0.0	28.3
12. X EB2	* * *	682	1125	750	1141	* * *	AG	1517	2.0	0.0	28.3
13. X EB3	* * *	750	1141	826	1158	* * *	AG	1630	1.1	0.0	28.3
14. X EB4	* * *	826	1158	923	1182	* * *	AG	1630	1.1	0.0	28.3
15. X WB1	* * *	924	1170	832	1147	* * *	AG	1296	1.1	0.0	28.3
16. X WB2	* * *	832	1147	757	1128	* * *	AG	1032	2.0	0.0	28.3
17. X WB3	* * *	757	1128	687	1111	* * *	AG	1600	1.1	0.0	28.3
18. X WB4	* * *	687	1111	599	1090	* * *	AG	1600	1.1	0.0	28.3
19. X LT1	* * *	674	1115	753	1134	* * *	AG	249	2.0	0.0	28.3
20. X LT2	* * *	753	1134	841	1157	* * *	AG	264	2.0	0.0	28.3

III. RECEPTOR LOCATIONS

RECEPTOR	* * *	COORDINATES X	Y	(M) Z
1. Recpt 1	* * *	805	1099	1.8
2. Recpt 2	* * *	691	1157	1.8
3. Recpt 3	* * *	729	1093	1.8
4. Recpt 4	* * *	778	1179	1.8

Sutton-Brunswick.1st

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	* * BRG * (DEG)	* PRED * CONC * (PPM)	* * *	1	2	3	CONC/LINK (PPM)					
							4	5	6	7	8	
1. Recpt 1	* 293.	* 3.0	* *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2. Recpt 2	* 120.	* 3.1	* *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
3. Recpt 3	* 51.	* 3.0	* *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
4. Recpt 4	* 229.	* 3.0	* *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

RECEPTOR	* * *	9	10	11	CONC/LINK (PPM)					
					12	13	14	15	16	
1. Recpt 1	* *	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	
2. Recpt 2	* *	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	
3. Recpt 3	* *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
4. Recpt 4	* *	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	

RECEPTOR	* * CONC/LINK * (PPM) *	17	18	19	20
1. Recpt 1	* *	0.0	0.0	0.0	0.0
2. Recpt 2	* *	0.0	0.0	0.0	0.0
3. Recpt 3	* *	0.0	0.0	0.0	0.0
4. Recpt 4	* *	0.0	0.0	0.0	0.0

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Run Ended on 1/08/2013 at 15:35:26

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Brunswick-IdahoM.lst
CALINE4 - (DATED CALINE4x)

3.0.0 PC (32 BIT) VERSION
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Run Began on 1/08/2013 at 15:37:34

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Brunswick-Idaho M
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 6 (F) VS= 0.0 CM/S
MIXH= 1000. M AMB= 2.8 PPM
SIGTH= 20. DEGREES TEMP= 15.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	* * *	LINK X1	COORDINATES Y1	(M) X2	Y2	* * *	TYPE	VPH	EF (G/MI)	H (M)	W (M)
1. Y SB1	* * *	684	1256	711	1201	* * *	AG	932	1.1	0.0	24.6
2. Y SB2	* * *	711	1201	745	1133	* * *	AG	730	2.0	0.0	24.6
3. Y SB3	* * *	745	1133	800	1025	* * *	AG	922	1.1	0.0	24.6
4. Y SB4	* * *	800	1025	858	906	* * *	AG	922	1.1	0.0	24.6
5. Y NB1	* * *	868	911	813	1024	* * *	AG	1125	1.1	0.0	24.6
6. Y NB2	* * *	814	1024	761	1138	* * *	AG	941	2.0	0.0	24.6
7. Y NB3	* * *	761	1138	728	1205	* * *	AG	941	1.1	0.0	24.6
8. Y NB4	* * *	728	1205	700	1263	* * *	AG	941	1.1	0.0	24.6
9. Y LT1	* * *	720	1198	753	1134	* * *	AG	202	2.0	0.0	24.6
10. Y LT2	* * *	753	1134	802	1038	* * *	AG	184	2.0	0.0	24.6
11. X EB1	* * *	596	1103	682	1125	* * *	AG	240	1.1	0.0	33.6
12. X EB2	* * *	682	1125	750	1141	* * *	AG	240	2.0	0.0	33.6
13. X EB3	* * *	750	1141	826	1158	* * *	AG	442	1.1	0.0	33.6
14. X EB4	* * *	826	1158	923	1182	* * *	AG	442	1.1	0.0	33.6
15. X WB1	* * *	924	1170	832	1147	* * *	AG	510	1.1	0.0	33.6
16. X WB2	* * *	832	1147	757	1128	* * *	AG	318	2.0	0.0	33.6
17. X WB3	* * *	757	1128	687	1111	* * *	AG	502	1.1	0.0	33.6
18. X WB4	* * *	687	1111	599	1090	* * *	AG	502	1.1	0.0	33.6
19. X LT1	* * *	674	1115	753	1134	* * *	AG	0	2.0	0.0	33.6
20. X LT2	* * *	753	1134	841	1157	* * *	AG	192	2.0	0.0	33.6

III. RECEPTOR LOCATIONS

RECEPTOR	* * *	COORDINATES X	Y	(M) Z
1. Recpt 1	* * *	805	1099	1.8
2. Recpt 2	* * *	691	1157	1.8
3. Recpt 3	* * *	729	1093	1.8
4. Recpt 4	* * *	778	1179	1.8

Brunswick-IdahoM.1st

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	* * BRG * (DEG)	* PRED * CONC * (PPM)	* * *	1	2	3	CONC/LINK (PPM)			6	7	8
1. Recpt 1	* 306.	* 3.0	* 0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	
2. Recpt 2	* 108.	* 2.9	* 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
3. Recpt 3	* 53.	* 2.9	* 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
4. Recpt 4	* 179.	* 3.0	* 0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	

RECEPTOR	* * *	9	10	11	CONC/LINK (PPM)					
1. Recpt 1	* 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2. Recpt 2	* 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3. Recpt 3	* 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4. Recpt 4	* 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

RECEPTOR	* * CONC/LINK * (PPM)	17	18	19	20
1. Recpt 1	* 0.0	0.0	0.0	0.0	0.0
2. Recpt 2	* 0.0	0.0	0.0	0.0	0.0
3. Recpt 3	* 0.0	0.0	0.0	0.0	0.0
4. Recpt 4	* 0.0	0.0	0.0	0.0	0.0

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Run Ended on 1/08/2013 at 15:37:34

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LaBarr-McKn.1st
 CALINE4 - (DATED CALINE4x)

3.0.0 PC (32 BIT) VERSION
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Run Began on 1/08/2013 at 15:38:46

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
 JUNE 1989 VERSION
 PAGE 1

JOB: LaBarr-McKn
 RUN: Hour 1 (WORST CASE ANGLE)
 POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0. (M)
 BRG= WORST CASE VD= 0.0 CM/S
 CLAS= 6 (F) VS= 0.0 CM/S
 MIXH= 1000. M AMB= 2.8 PPM
 SIGTH= 20. DEGREES TEMP= 15.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	* * *	LINK X1	COORDINATES Y1	(M) X2	Y2	* * *	TYPE	VPH	EF (G/MI)	H (M)	W (M)
1. Y SB1	*	684	1256	711	1201	*	AG	468	1.1	0.0	32.3
2. Y SB2	*	711	1201	745	1133	*	AG	448	2.0	0.0	32.3
3. Y SB3	*	745	1133	800	1025	*	AG	475	1.1	0.0	32.3
4. Y SB4	*	800	1025	858	906	*	AG	475	1.1	0.0	32.3
5. Y NB1	*	868	911	813	1024	*	AG	1043	1.1	0.0	32.3
6. Y NB2	*	814	1024	761	1138	*	AG	304	2.0	0.0	32.3
7. Y NB3	*	761	1138	728	1205	*	AG	547	1.1	0.0	32.3
8. Y NB4	*	728	1205	700	1263	*	AG	547	1.1	0.0	32.3
9. Y LT1	*	720	1198	753	1134	*	AG	20	2.0	0.0	32.3
10. Y LT2	*	753	1134	802	1038	*	AG	739	2.0	0.0	32.3
11. X EB1	*	596	1103	682	1125	*	AG	1107	1.1	0.0	20.1
12. X EB2	*	682	1125	750	1141	*	AG	864	2.0	0.0	20.1
13. X EB3	*	750	1141	826	1158	*	AG	884	1.1	0.0	20.1
14. X EB4	*	826	1158	923	1182	*	AG	884	1.1	0.0	20.1
15. X WB1	*	924	1170	832	1147	*	AG	104	1.1	0.0	20.1
16. X WB2	*	832	1147	757	1128	*	AG	77	2.0	0.0	20.1
17. X WB3	*	757	1128	687	1111	*	AG	816	1.1	0.0	20.1
18. X WB4	*	687	1111	599	1090	*	AG	816	1.1	0.0	20.1
19. X LT1	*	674	1115	753	1134	*	AG	243	2.0	0.0	20.1
20. X LT2	*	753	1134	841	1157	*	AG	27	2.0	0.0	20.1

III. RECEPTOR LOCATIONS

RECEPTOR	* * *	COORDINATES X	Y	(M) Z
1. Recpt 1	*	805	1099	1.8
2. Recpt 2	*	691	1157	1.8
3. Recpt 3	*	729	1093	1.8
4. Recpt 4	*	778	1179	1.8

LaBarr-MCKn.1st

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	* * BRG * (DEG)	* PRED * CONC * (PPM)	* * *	1	2	3	CONC/LINK (PPM)					
							4	5	6	7	8	
1. Recpt 1	* 287.	* 3.0	* *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2. Recpt 2	* 128.	* 3.0	* *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
3. Recpt 3	* 6.	* 2.9	* *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
4. Recpt 4	* 229.	* 2.9	* *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

RECEPTOR	* * *	9	10	11	CONC/LINK (PPM)					
					12	13	14	15	16	
1. Recpt 1	* *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2. Recpt 2	* *	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	
3. Recpt 3	* *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
4. Recpt 4	* *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

RECEPTOR	* * CONC/LINK * (PPM) *	17	18	19	20
1. Recpt 1	* *	0.0	0.0	0.0	0.0
2. Recpt 2	* *	0.0	0.0	0.0	0.0
3. Recpt 3	* *	0.0	0.0	0.0	0.0
4. Recpt 4	* *	0.0	0.0	0.0	0.0

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Run Ended on 1/08/2013 at 15:38:46

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LaBarr-Site 2.1st
CALINE4 - (DATED CALINE4x)

3.0.0 PC (32 BIT) VERSION
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Run Began on 1/08/2013 at 15:45:49

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: LaBarr-Site 2
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 6 (F) VS= 0.0 CM/S
MIXH= 1000. M AMB= 3.1 PPM
SIGTH= 5. DEGREES TEMP= 20.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	* * *	LINK X1	COORDINATES Y1	(M) X2	Y2	* * *	TYPE	VPH	EF (G/MI)	H (M)	W (M)
1. Link A	* * *	6284	-181	6284	-246	* * *	AG	4	2.9	0.0	17.2
2. Link B	* * *	6284	-246	6284	-300	* * *	AG	0	6.8	0.0	17.2
3. Link C	* * *	6284	-300	6279	-453	* * *	AG	0	2.9	0.0	17.2
4. Link D	* * *	6297	-460	6298	-378	* * *	AG	0	2.9	0.0	17.2
5. Link E	* * *	6298	-378	6298	-319	* * *	AG	0	2.9	0.0	17.2
6. Link F	* * *	6298	-319	6297	-176	* * *	AG	0	2.9	0.0	17.2
7. Link G	* * *	6284	-265	6300	-314	* * *	AG	4	6.8	0.0	17.2
8. Link H	* * *	6300	-314	6462	-325	* * *	AG	4	2.9	0.0	14.2
9. Link I	* * *	6523	-313	6380	-311	* * *	AG	1008	2.9	0.0	14.2
10. Link J	* * *	6380	-311	6298	-301	* * *	AG	1008	6.8	0.0	14.2
11. Link K	* * *	6370	-310	6284	-326	* * *	AG	0	6.8	0.0	14.2

III. RECEPTOR LOCATIONS

RECEPTOR	* * *	COORDINATES X	(M) Y	Z
1. Recpt 1	* * *	6325	-280	1.7
2. Recpt 2	* * *	6315	-339	1.7
3. Recpt 3	* * *	6243	-327	1.7
4. Recpt 4	* * *	6246	-277	1.7

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	* * *	BRG (DEG)	* * *	PRED CONC (PPM)	* * *	1	2	3	4	5	6	7	8
1. Recpt 1	* * *	128.	* * *	3.4	* * *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

LaBarr-Site 2.1st

2. Recpt	2	*	59.	*	3.3	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3. Recpt	3	*	79.	*	3.4	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4. Recpt	4	*	107.	*	3.5	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0

RECEPTOR		*	*CONC/LINK *(PPM)		
		*	9	10	11
1. Recpt	1	*	0.0	0.3	0.0
2. Recpt	2	*	0.0	0.2	0.0
3. Recpt	3	*	0.0	0.3	0.0
4. Recpt	4	*	0.0	0.4	0.0

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Run Ended on 1/08/2013 at 15:45:49

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Brunswick-Sites 3-6,9.1st
 CALINE4 - (DATED CALINE4x)

3.0.0 PC (32 BIT) VERSION
 (C) COPYRIGHT 2000, TRINITY CONSULTANTS

Run Began on 1/08/2013 at 15:43:37

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
 JUNE 1989 VERSION
 PAGE 1

JOB: Brunswick-Sites 3-6,9
 RUN: Hour 1 (WORST CASE ANGLE)
 POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0. (M)
 BRG= WORST CASE VD= 0.0 CM/S
 CLAS= 6 (F) VS= 0.0 CM/S
 MIXH= 1000. M AMB= 3.1 PPM
 SIGTH= 5. DEGREES TEMP= 20.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	* * *	LINK X1	COORDINATES Y1	(M) X2	Y2	* * *	TYPE	VPH	EF (G/MI)	H (M)	W (M)
1. Link A	* * *	6284	-181	6284	-246	* * *	AG	0	2.9	0.0	12.2
2. Link B	* * *	6284	-246	6284	-300	* * *	AG	0	6.8	0.0	12.2
3. Link C	* * *	6284	-300	6279	-453	* * *	AG	72	2.9	0.0	12.2
4. Link D	* * *	6297	-460	6298	-378	* * *	AG	141	2.9	0.0	12.2
5. Link E	* * *	6298	-378	6298	-319	* * *	AG	141	2.9	0.0	12.2
6. Link F	* * *	6298	-319	6297	-176	* * *	AG	141	2.9	0.0	12.2
7. Link G	* * *	6284	-265	6300	-314	* * *	AG	0	6.8	0.0	12.2
8. Link H	* * *	6300	-314	6462	-325	* * *	AG	0	2.9	0.0	14.2
9. Link I	* * *	6523	-313	6380	-311	* * *	AG	1166	2.9	0.0	14.2
10. Link J	* * *	6380	-311	6298	-301	* * *	AG	1094	6.8	0.0	14.2
11. Link K	* * *	6370	-310	6284	-326	* * *	AG	72	6.8	0.0	14.2

III. RECEPTOR LOCATIONS

RECEPTOR	* * *	COORDINATES X	(M) Y	Z
1. Recpt 1	* * *	6325	-280	1.7
2. Recpt 2	* * *	6315	-339	1.7
3. Recpt 3	* * *	6243	-327	1.7
4. Recpt 4	* * *	6246	-277	1.7

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	* * *	BRG (DEG)	* * *	PRED CONC (PPM)	* * *	1	2	3	4	5	6	7	8
1. Recpt 1	* * *	129.	* * *	3.5	* * *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Brunswick-Sites 3-6,9.1st

2. Recpt	2	*	57.	*	3.4	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3. Recpt	3	*	82.	*	3.5	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4. Recpt	4	*	107.	*	3.6	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0

		*CONC/LINK *(PPM)			
RECEPTOR	*	9	10	11	
1. Recpt	1	*	0.0	0.3	0.0
2. Recpt	2	*	0.0	0.2	0.0
3. Recpt	3	*	0.1	0.2	0.1
4. Recpt	4	*	0.0	0.4	0.0

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Run Ended on 1/08/2013 at 15:43:37

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Brunswick-Sites 7-8.1st
CALINE4 - (DATED CALINE4x)

3.0.0 PC (32 BIT) VERSION
(C) COPYRIGHT 2000, TRINITY CONSULTANTS

Run Began on 1/08/2013 at 15:44:45

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Brunswick-Sites 7-8
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 6 (F) VS= 0.0 CM/S
MIXH= 1000. M AMB= 3.1 PPM
SIGTH= 5. DEGREES TEMP= 20.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	* * *	LINK X1	COORDINATES Y1	(M) X2	Y2	* * *	TYPE	VPH	EF (G/MI)	H (M)	W (M)
1. Link A	* * *	6284	-181	6284	-246	* * *	AG	18	2.9	0.0	12.2
2. Link B	* * *	6284	-246	6284	-300	* * *	AG	0	6.8	0.0	12.2
3. Link C	* * *	6284	-300	6279	-453	* * *	AG	0	2.9	0.0	12.2
4. Link D	* * *	6297	-460	6298	-378	* * *	AG	0	2.9	0.0	12.2
5. Link E	* * *	6298	-378	6298	-319	* * *	AG	0	2.9	0.0	12.2
6. Link F	* * *	6298	-319	6297	-176	* * *	AG	0	2.9	0.0	12.2
7. Link G	* * *	6284	-265	6300	-314	* * *	AG	18	6.8	0.0	12.2
8. Link H	* * *	6300	-314	6462	-325	* * *	AG	18	2.9	0.0	14.2
9. Link I	* * *	6523	-313	6380	-311	* * *	AG	1149	2.9	0.0	14.2
10. Link J	* * *	6380	-311	6298	-301	* * *	AG	1149	6.8	0.0	14.2
11. Link K	* * *	6370	-310	6284	-326	* * *	AG	0	6.8	0.0	14.2

III. RECEPTOR LOCATIONS

RECEPTOR	* * *	COORDINATES X	(M) Y	Z
1. Recpt 1	* * *	6325	-280	1.7
2. Recpt 2	* * *	6315	-339	1.7
3. Recpt 3	* * *	6243	-327	1.7
4. Recpt 4	* * *	6246	-277	1.7

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	* * *	BRG (DEG)	* * *	PRED CONC (PPM)	* * *	1	2	3	4	5	6	7	8
1. Recpt 1	* * *	128.	* * *	3.5	* * *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Brunswick-Sites 7-8.1st

2. Recpt	2	*	59.	*	3.4	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3. Recpt	3	*	79.	*	3.4	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4. Recpt	4	*	107.	*	3.6	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0

		*CONC/LINK *(PPM)			
RECEPTOR	*	9	10	11	
1. Recpt	1	*	0.0	0.4	0.0
2. Recpt	2	*	0.0	0.3	0.0
3. Recpt	3	*	0.0	0.3	0.0
4. Recpt	4	*	0.0	0.5	0.0

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Run Ended on 1/08/2013 at 15:44:45

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SR49-Cameo.1st
CALINE4 - (DATED CALINE4x)

3.0.0 PC (32 BIT) VERSION
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Run Began on 1/08/2013 at 15:46:56

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: SR49-Cameo
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 6 (F) VS= 0.0 CM/S
MIXH= 1000. M AMB= 3.1 PPM
SIGTH= 5. DEGREES TEMP= 20.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	* * *	LINK X1	COORDINATES Y1	(M) X2	Y2	* * *	TYPE	VPH	EF (G/MI)	H (M)	W (M)
1. Link A	* * *	6284	-181	6284	-246	* * *	AG	18	2.9	0.0	21.1
2. Link B	* * *	6284	-246	6284	-300	* * *	AG	0	6.8	0.0	21.1
3. Link C	* * *	6284	-300	6279	-453	* * *	AG	0	2.9	0.0	21.1
4. Link D	* * *	6297	-460	6298	-378	* * *	AG	0	2.9	0.0	21.1
5. Link E	* * *	6298	-378	6298	-319	* * *	AG	0	2.9	0.0	21.1
6. Link F	* * *	6298	-319	6297	-176	* * *	AG	0	2.9	0.0	21.1
7. Link G	* * *	6284	-265	6300	-314	* * *	AG	18	6.8	0.0	21.1
8. Link H	* * *	6300	-314	6462	-325	* * *	AG	18	2.9	0.0	24.3
9. Link I	* * *	6523	-313	6380	-311	* * *	AG	1267	2.9	0.0	24.3
10. Link J	* * *	6380	-311	6298	-301	* * *	AG	1267	6.8	0.0	24.3
11. Link K	* * *	6370	-310	6284	-326	* * *	AG	0	6.8	0.0	24.3

III. RECEPTOR LOCATIONS

RECEPTOR	* * *	COORDINATES X	(M) Y	Z
1. Recpt 1	* * *	6325	-280	1.7
2. Recpt 2	* * *	6315	-339	1.7
3. Recpt 3	* * *	6243	-327	1.7
4. Recpt 4	* * *	6246	-277	1.7

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	* * *	BRG (DEG)	* * *	PRED CONC (PPM)	* * *	1	2	3	4	5	6	7	8
1. Recpt 1	* * *	129.	* * *	3.5	* * *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

SR49-Cameo.1st

2. Recpt	2	*	58.	*	3.4	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3. Recpt	3	*	80.	*	3.5	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4. Recpt	4	*	105.	*	3.6	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0

		*CONC/LINK *(PPM)			
RECEPTOR	*	9	10	11	
1. Recpt	1	*	0.0	0.4	0.0
2. Recpt	2	*	0.0	0.3	0.0
3. Recpt	3	*	0.1	0.3	0.0
4. Recpt	4	*	0.1	0.4	0.0

1

Run Ended on 1/08/2013 at 15:46:56

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Rose-Combie.1st
CALINE4 - (DATED CALINE4x)

3.0.0 PC (32 BIT) VERSION
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Run Began on 1/08/2013 at 15:39:53

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Rose-Combie
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 6 (F) VS= 0.0 CM/S
MIXH= 1000. M AMB= 2.8 PPM
SIGTH= 20. DEGREES TEMP= 15.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	* * *	LINK X1	COORDINATES Y1	(M) X2	Y2	* * *	TYPE	VPH	EF (G/MI)	H (M)	W (M)
1. Y SB1	* * *	684	1256	711	1201	* * *	AG	30	1.1	0.0	25.1
2. Y SB2	* * *	711	1201	745	1133	* * *	AG	25	2.0	0.0	25.1
3. Y SB3	* * *	745	1133	800	1025	* * *	AG	39	1.1	0.0	25.1
4. Y SB4	* * *	800	1025	858	906	* * *	AG	39	1.1	0.0	25.1
5. Y NB1	* * *	868	911	813	1024	* * *	AG	57	1.1	0.0	25.1
6. Y NB2	* * *	814	1024	761	1138	* * *	AG	46	2.0	0.0	25.1
7. Y NB3	* * *	761	1138	728	1205	* * *	AG	48	1.1	0.0	25.1
8. Y NB4	* * *	728	1205	700	1263	* * *	AG	48	1.1	0.0	25.1
9. Y LT1	* * *	720	1198	753	1134	* * *	AG	5	2.0	0.0	25.1
10. Y LT2	* * *	753	1134	802	1038	* * *	AG	11	2.0	0.0	25.1
11. X EB1	* * *	596	1103	682	1125	* * *	AG	900	1.1	0.0	19.1
12. X EB2	* * *	682	1125	750	1141	* * *	AG	898	2.0	0.0	19.1
13. X EB3	* * *	750	1141	826	1158	* * *	AG	903	1.1	0.0	19.1
14. X EB4	* * *	826	1158	923	1182	* * *	AG	903	1.1	0.0	19.1
15. X WB1	* * *	924	1170	832	1147	* * *	AG	592	1.1	0.0	19.1
16. X WB2	* * *	832	1147	757	1128	* * *	AG	578	2.0	0.0	19.1
17. X WB3	* * *	757	1128	687	1111	* * *	AG	589	1.1	0.0	19.1
18. X WB4	* * *	687	1111	599	1090	* * *	AG	589	1.1	0.0	19.1
19. X LT1	* * *	674	1115	753	1134	* * *	AG	2	2.0	0.0	19.1
20. X LT2	* * *	753	1134	841	1157	* * *	AG	14	2.0	0.0	19.1

III. RECEPTOR LOCATIONS

RECEPTOR	* * *	COORDINATES X	Y	(M) Z
1. Recpt 1	* * *	805	1099	1.8
2. Recpt 2	* * *	691	1157	1.8
3. Recpt 3	* * *	729	1093	1.8
4. Recpt 4	* * *	778	1179	1.8

Rose-Combie.1st

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	* * BRG * (DEG)	* PRED * CONC * (PPM)	* * *	1	2	3	CONC/LINK (PPM)					
							4	5	6	7	8	
1. Recpt 1	* 293.	* 2.9	* *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2. Recpt 2	* 109.	* 2.9	* *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
3. Recpt 3	* 51.	* 2.9	* *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
4. Recpt 4	* 229.	* 2.9	* *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

RECEPTOR	* * *	9	10	11	CONC/LINK (PPM)					
					12	13	14	15	16	
1. Recpt 1	* *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2. Recpt 2	* *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
3. Recpt 3	* *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
4. Recpt 4	* *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

RECEPTOR	* * CONC/LINK * (PPM) *	17	18	19	20
1. Recpt 1	* *	0.0	0.0	0.0	0.0
2. Recpt 2	* *	0.0	0.0	0.0	0.0
3. Recpt 3	* *	0.0	0.0	0.0	0.0
4. Recpt 4	* *	0.0	0.0	0.0	0.0

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Run Ended on 1/08/2013 at 15:39:54

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SR49-woodridge.lst
CALINE4 - (DATED CALINE4x)

3.0.0 PC (32 BIT) VERSION
(C) COPYRIGHT 2000, TRINITY CONSULTANTS

Run Began on 1/08/2013 at 15:48:16

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: SR49-woodridge
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 6 (F) VS= 0.0 CM/S
MIXH= 1000. M AMB= 3.1 PPM
SIGTH= 5. DEGREES TEMP= 20.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	* * *	LINK X1	COORDINATES Y1	(M) X2	Y2	* * *	TYPE	VPH	EF (G/MI)	H (M)	W (M)
1. Link A	* * *	6284	-181	6284	-246	* * *	AG	18	2.9	0.0	25.1
2. Link B	* * *	6284	-246	6284	-300	* * *	AG	18	6.8	0.0	25.1
3. Link C	* * *	6284	-300	6279	-453	* * *	AG	1257	2.9	0.0	25.1
4. Link D	* * *	6297	-460	6298	-378	* * *	AG	18	2.9	0.0	25.1
5. Link E	* * *	6298	-378	6298	-319	* * *	AG	18	2.9	0.0	25.1
6. Link F	* * *	6298	-319	6297	-176	* * *	AG	18	2.9	0.0	25.1
7. Link G	* * *	6284	-265	6300	-314	* * *	AG	0	6.8	0.0	25.1
8. Link H	* * *	6300	-314	6462	-325	* * *	AG	0	2.9	0.0	25.2
9. Link I	* * *	6523	-313	6380	-311	* * *	AG	1291	2.9	0.0	25.2
10. Link J	* * *	6380	-311	6298	-301	* * *	AG	52	6.8	0.0	25.2
11. Link K	* * *	6370	-310	6284	-326	* * *	AG	1239	6.8	0.0	25.2

III. RECEPTOR LOCATIONS

RECEPTOR	* * *	COORDINATES X	(M) Y	Z
1. Recpt 1	* * *	6325	-280	1.7
2. Recpt 2	* * *	6315	-339	1.7
3. Recpt 3	* * *	6243	-327	1.7
4. Recpt 4	* * *	6246	-277	1.7

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	* * *	BRG (DEG)	* * *	PRED CONC (PPM)	* * *	1	2	3	4	5	6	7	8
1. Recpt 1	* * *	202.	* * *	3.5	* * *	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0

SR49-woodridge.lst

2. Recpt	2	*	311.	*	3.6	*	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
3. Recpt	3	*	85.	*	3.8	*	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
4. Recpt	4	*	132.	*	3.4	*	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0

		*CONC/LINK			
		*(PPM)			
RECEPTOR	*	9	10	11	

1. Recpt	1	*	0.0	0.0	0.3
2. Recpt	2	*	0.0	0.0	0.4
3. Recpt	3	*	0.1	0.0	0.5
4. Recpt	4	*	0.0	0.0	0.2

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Run Ended on 1/08/2013 at 15:48:17

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Cattle-SR20.1st
CALINE4 - (DATED CALINE4x)

3.0.0 PC (32 BIT) VERSION
(C) COPYRIGHT 2000, TRINITY CONSULTANTS

Run Began on 1/08/2013 at 15:49:24

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Cattle-SR20
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 6 (F) VS= 0.0 CM/S
MIXH= 1000. M AMB= 3.1 PPM
SIGTH= 5. DEGREES TEMP= 20.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	* * *	LINK X1	COORDINATES Y1	(M) X2	Y2	* * *	TYPE	VPH	EF (G/MI)	H (M)	W (M)
1. Link A	* * *	6284	-181	6284	-246	* * *	AG	18	2.9	0.0	20.5
2. Link B	* * *	6284	-246	6284	-300	* * *	AG	0	6.8	0.0	20.5
3. Link C	* * *	6284	-300	6279	-453	* * *	AG	28	2.9	0.0	20.5
4. Link D	* * *	6297	-460	6298	-378	* * *	AG	18	2.9	0.0	20.5
5. Link E	* * *	6298	-378	6298	-319	* * *	AG	18	2.9	0.0	20.5
6. Link F	* * *	6298	-319	6297	-176	* * *	AG	18	2.9	0.0	20.5
7. Link G	* * *	6284	-265	6300	-314	* * *	AG	18	6.8	0.0	20.5
8. Link H	* * *	6300	-314	6462	-325	* * *	AG	18	2.9	0.0	17.1
9. Link I	* * *	6523	-313	6380	-311	* * *	AG	928	2.9	0.0	17.1
10. Link J	* * *	6380	-311	6298	-301	* * *	AG	900	6.8	0.0	17.1
11. Link K	* * *	6370	-310	6284	-326	* * *	AG	28	6.8	0.0	17.1

III. RECEPTOR LOCATIONS

RECEPTOR	* * *	COORDINATES X	(M) Y	Z
1. Recpt 1	* * *	6325	-280	1.7
2. Recpt 2	* * *	6315	-339	1.7
3. Recpt 3	* * *	6243	-327	1.7
4. Recpt 4	* * *	6246	-277	1.7

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	* * *	BRG (DEG)	* * *	PRED CONC (PPM)	* * *	1	2	3	4	5	6	7	8
1. Recpt 1	* * *	128.	* * *	3.4	* * *	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Cattle-SR20.1st

2. Recpt	2	*	58.	*	3.3	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3. Recpt	3	*	81.	*	3.4	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4. Recpt	4	*	106.	*	3.5	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0

RECEPTOR		*CONC/LINK *(PPM)			
		* 9	10	11	
1. Recpt	1	*	0.0	0.3	0.0
2. Recpt	2	*	0.0	0.2	0.0
3. Recpt	3	*	0.1	0.2	0.0
4. Recpt	4	*	0.0	0.3	0.0

1

Run Ended on 1/08/2013 at 15:49:24

**County of Nevada
Housing Element Rezone Implementation Program EIR
September 2013**

Technical Appendices

Appendix E

Greenhouse Gas Emission Modeling Data

Nevada County Housing Element
Nevada County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Apartments Low Rise	840	Dwelling Unit

1.2 Other Project Characteristics

Urbanization Rural
Climate Zone 1

Wind Speed (m/s) 2.2
Precipitation Freq (Days) 80

Utility Company Pacific Gas & Electric Company

1.3 User Entered Comments

- Project Characteristics -
- Land Use -
- Construction Phase -
- Mobile Land Use Mitigation -
- Area Mitigation -
- Water Mitigation -
- Vehicle Trips - trip rate per traffic study

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	57.58	0.79	71.39	0.03		0.00	9.21		0.00	9.21	867.68	1,101.99	1,969.67	0.83	0.08	2,012.30
Energy	0.06	0.54	0.23	0.00		0.00	0.04		0.00	0.04	0.00	1,491.49	1,491.49	0.05	0.03	1,500.72
Mobile	12.52	42.03	111.32	0.13	11.28	1.24	12.51	0.56	1.24	1.80	0.00	13,242.20	13,242.20	0.68	0.00	13,256.47
Waste						0.00	0.00		0.00	0.00	78.44	0.00	78.44	4.64	0.00	175.78
Water						0.00	0.00		0.00	0.00	0.00	121.90	121.90	1.68	0.04	170.58
Total	70.16	43.36	182.94	0.16	11.28	1.24	21.76	0.56	1.24	11.05	946.12	15,957.58	16,903.70	7.88	0.15	17,115.85

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.98	0.08	6.47	0.00		0.00	0.16		0.00	0.16	0.00	1,796.69	1,796.69	0.05	0.03	1,807.80
Energy	0.06	0.54	0.23	0.00		0.00	0.04		0.00	0.04	0.00	1,491.49	1,491.49	0.05	0.03	1,500.72
Mobile	12.52	42.03	111.32	0.13	11.28	1.24	12.51	0.56	1.24	1.80	0.00	13,242.20	13,242.20	0.68	0.00	13,256.47
Waste						0.00	0.00		0.00	0.00	78.44	0.00	78.44	4.64	0.00	175.78
Water						0.00	0.00		0.00	0.00	0.00	104.54	104.54	1.34	0.03	143.54
Total	17.56	42.65	118.02	0.13	11.28	1.24	12.71	0.56	1.24	2.00	78.44	16,634.92	16,713.36	6.76	0.09	16,884.31

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	12.52	42.03	111.32	0.13	11.28	1.24	12.51	0.56	1.24	1.80	0.00	13,242.20	13,242.20	0.68	0.00	13,256.47
Unmitigated	12.52	42.03	111.32	0.13	11.28	1.24	12.51	0.56	1.24	1.80	0.00	13,242.20	13,242.20	0.68	0.00	13,256.47
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	6,720.00	6,720.00	6,720.00	24,989,792	24,989,792
Total	6,720.00	6,720.00	6,720.00	24,989,792	24,989,792

4.3 Trip Type Information

Land Use	Miles			Trip %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
Apartments Low Rise	16.80	7.10	7.90	42.30	19.60	38.10

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.00	0.00		0.00	0.00	0.00	861.15	861.15	0.04	0.01	866.55
Electricity Unmitigated						0.00	0.00		0.00	0.00	0.00	861.15	861.15	0.04	0.01	866.55
NaturalGas Mitigated	0.06	0.54	0.23	0.00		0.00	0.04		0.00	0.04	0.00	630.33	630.33	0.01	0.01	634.17
NaturalGas Unmitigated	0.06	0.54	0.23	0.00		0.00	0.04		0.00	0.04	0.00	630.33	630.33	0.01	0.01	634.17
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
Apartments Low Rise	1.1812e+007	0.06	0.54	0.23	0.00		0.00	0.04		0.00	0.04	0.00	630.33	630.33	0.01	0.01	634.17
Total		0.06	0.54	0.23	0.00		0.00	0.04		0.00	0.04	0.00	630.33	630.33	0.01	0.01	634.17

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
Apartments Low Rise	1.1812e+007	0.06	0.54	0.23	0.00		0.00	0.04		0.00	0.04	0.00	630.33	630.33	0.01	0.01	634.17

Total		0.06	0.54	0.23	0.00		0.00	0.04		0.00	0.04	0.00	630.33	630.33	0.01	0.01	634.17
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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
Apartments Low Rise	2.96019e+006					861.15	0.04	0.01	866.55
Total						861.15	0.04	0.01	866.55

Mitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
Apartments Low Rise	2.96019e+006					861.15	0.04	0.01	866.55
Total						861.15	0.04	0.01	866.55

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.98	0.08	6.47	0.00		0.00	0.16		0.00	0.16	0.00	1,796.69	1,796.69	0.05	0.03	1,807.80
Unmitigated	57.58	0.79	71.39	0.03		0.00	9.21		0.00	9.21	867.68	1,101.99	1,969.67	0.83	0.08	2,012.30
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.31					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	3.28					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	52.78	0.72	64.93	0.03		0.00	9.17		0.00	9.17	867.68	1,091.68	1,959.37	0.81	0.08	2,001.77
Landscaping	0.21	0.08	6.46	0.00		0.00	0.03		0.00	0.03	0.00	10.30	10.30	0.01	0.00	10.53
Total	57.58	0.80	71.39	0.03		0.00	9.20		0.00	9.20	867.68	1,101.98	1,969.67	0.82	0.08	2,012.30

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.31					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Consumer Products	3.28					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	0.18	0.00	0.01	0.00		0.00	0.12		0.00	0.12	0.00	1,786.39	1,786.39	0.03	0.03	1,797.26
Landscaping	0.21	0.08	6.46	0.00		0.00	0.03		0.00	0.03	0.00	10.30	10.30	0.01	0.00	10.53
Total	4.98	0.08	6.47	0.00		0.00	0.15		0.00	0.15	0.00	1,796.69	1,796.69	0.04	0.03	1,807.79

7.0 Water Detail

7.1 Mitigation Measures Water

- Install Low Flow Bathroom Faucet
- Install Low Flow Kitchen Faucet
- Install Low Flow Toilet
- Install Low Flow Shower

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr				MT/yr			
Mitigated					104.54	1.34	0.03	143.54
Unmitigated					121.90	1.68	0.04	170.58
Total	NA							

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			

Apartments Low Rise	54.7294 / 34.5033					121.90	1.68	0.04	170.58
Total						121.90	1.68	0.04	170.58

Mitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
Apartments Low Rise	43.7835 / 34.5033					104.54	1.34	0.03	143.54
Total						104.54	1.34	0.03	143.54

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	tons/yr				MT/yr			
Mitigated					78.44	4.64	0.00	175.78
Unmitigated					78.44	4.64	0.00	175.78
Total	NA							

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
Apartments Low Rise	386.4					78.44	4.64	0.00	175.78
Total						78.44	4.64	0.00	175.78

Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
Apartments Low Rise	386.4					78.44	4.64	0.00	175.78
Total						78.44	4.64	0.00	175.78

**Nevada County Housing Element
Nevada County, Summer**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Apartments Low Rise	840	Dwelling Unit

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)		Utility Company	Pacific Gas & Electric Company
Climate Zone	1		2.2		
		Precipitation Freq (Days)			
			80		

1.3 User Entered Comments

- Project Characteristics -
- Land Use -
- Construction Phase -
- Mobile Land Use Mitigation -
- Area Mitigation -
- Water Mitigation -
- Vehicle Trips - trip rate per traffic study

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	470.54	8.72	726.17	0.62		0.00	95.58		0.00	95.57	10,819.44	9,909.83		21.66	0.73	21,410.87
Energy	0.35	2.98	1.27	0.02		0.00	0.24		0.00	0.24		3,807.25		0.07	0.07	3,830.42
Mobile	70.40	223.30	604.00	0.77	82.96	6.74	89.70	3.09	6.74	9.83		84,826.88		4.40		84,919.35
Total	541.29	235.00	1,331.44	1.41	82.96	6.74	185.52	3.09	6.74	105.64	10,819.44	98,543.96		26.13	0.80	110,160.64

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	28.98	0.85	71.94	0.00		0.00	1.39		0.00	1.38	0.00	16,135.71		0.44	0.29	16,235.97
Energy	0.35	2.98	1.27	0.02		0.00	0.24		0.00	0.24		3,807.25		0.07	0.07	3,830.42
Mobile	70.40	223.30	604.00	0.77	82.96	6.74	89.70	3.09	6.74	9.83		84,826.88		4.40		84,919.35
Total	99.73	227.13	677.21	0.79	82.96	6.74	91.33	3.09	6.74	11.45	0.00	104,769.84		4.91	0.36	104,985.74

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	70.40	223.30	604.00	0.77	82.96	6.74	89.70	3.09	6.74	9.83		84,826.88		4.40		84,919.35
Unmitigated	70.40	223.30	604.00	0.77	82.96	6.74	89.70	3.09	6.74	9.83		84,826.88		4.40		84,919.35
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	6,720.00	6,720.00	6,720.00	24,989,792	24,989,792
Total	6,720.00	6,720.00	6,720.00	24,989,792	24,989,792

4.3 Trip Type Information

Land Use	Miles			Trip %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
Apartments Low Rise	16.80	7.10	7.90	42.30	19.60	38.10

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

NaturalGas Mitigated	0.35	2.98	1.27	0.02		0.00	0.24		0.00	0.24		3,807.25		0.07	0.07	3,830.42
NaturalGas Unmitigated	0.35	2.98	1.27	0.02		0.00	0.24		0.00	0.24		3,807.25		0.07	0.07	3,830.42
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
Apartments Low Rise	32361.7	0.35	2.98	1.27	0.02		0.00	0.24		0.00	0.24		3,807.25		0.07	0.07	3,830.42
Total		0.35	2.98	1.27	0.02		0.00	0.24		0.00	0.24		3,807.25		0.07	0.07	3,830.42

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
Apartments Low Rise	32.3617	0.35	2.98	1.27	0.02		0.00	0.24		0.00	0.24		3,807.25		0.07	0.07	3,830.42
Total		0.35	2.98	1.27	0.02		0.00	0.24		0.00	0.24		3,807.25		0.07	0.07	3,830.42

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	28.98	0.85	71.94	0.00		0.00	1.39		0.00	1.38	0.00	16,135.71		0.44	0.29	16,235.97
Unmitigated	470.54	8.72	726.17	0.62		0.00	95.58		0.00	95.57	10,819.44	9,909.83		21.66	0.73	21,410.87
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	7.19					0.00	0.00		0.00	0.00						0.00
Consumer Products	17.98					0.00	0.00		0.00	0.00						0.00
Hearth	443.03	7.88	654.31	0.62		0.00	95.20		0.00	95.19	10,819.44	9,783.53		21.53	0.73	21,281.74
Landscaping	2.34	0.85	71.86	0.00		0.00	0.38		0.00	0.38		126.30		0.13		129.13
Total	470.54	8.73	726.17	0.62		0.00	95.58		0.00	95.57	10,819.44	9,909.83		21.66	0.73	21,410.87

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	7.19					0.00	0.00		0.00	0.00						0.00
Consumer Products	17.98					0.00	0.00		0.00	0.00						0.00

Hearth	1.47	0.00	0.08	0.00		0.00	1.01		0.00	1.00	0.00	16,009.41		0.31	0.29	16,106.84
Landscaping	2.34	0.85	71.86	0.00		0.00	0.38		0.00	0.38		126.30		0.13		129.13
Total	28.98	0.85	71.94	0.00		0.00	1.39		0.00	1.38	0.00	16,135.71		0.44	0.29	16,235.97

7.0 Water Detail

7.1 Mitigation Measures Water

- Install Low Flow Bathroom Faucet
- Install Low Flow Kitchen Faucet
- Install Low Flow Toilet
- Install Low Flow Shower

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

**Nevada County Housing Element
Nevada County, Winter**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Apartments Low Rise	840	Dwelling Unit

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	Utility Company Pacific Gas & Electric Company
Climate Zone	1		2.2
		Precipitation Freq (Days)	80

1.3 User Entered Comments

- Project Characteristics -
- Land Use -
- Construction Phase -
- Mobile Land Use Mitigation -
- Area Mitigation -
- Water Mitigation -
- Vehicle Trips - trip rate per traffic study

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	470.54	8.72	726.17	0.62		0.00	95.58		0.00	95.57	10,819.44	9,909.83		21.66	0.73	21,410.87
Energy	0.35	2.98	1.27	0.02		0.00	0.24		0.00	0.24		3,807.25		0.07	0.07	3,830.42
Mobile	73.88	229.74	609.57	0.72	82.96	6.88	89.84	3.09	6.88	9.97		78,689.24		4.13		78,775.95
Total	544.77	241.44	1,337.01	1.36	82.96	6.88	185.66	3.09	6.88	105.78	10,819.44	92,406.32		25.86	0.80	104,017.24

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	28.98	0.85	71.94	0.00		0.00	1.39		0.00	1.38	0.00	16,135.71		0.44	0.29	16,235.97
Energy	0.35	2.98	1.27	0.02		0.00	0.24		0.00	0.24		3,807.25		0.07	0.07	3,830.42
Mobile	73.88	229.74	609.57	0.72	82.96	6.88	89.84	3.09	6.88	9.97		78,689.24		4.13		78,775.95
Total	103.21	233.57	682.78	0.74	82.96	6.88	91.47	3.09	6.88	11.59	0.00	98,632.20		4.64	0.36	98,842.34

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	73.88	229.74	609.57	0.72	82.96	6.88	89.84	3.09	6.88	9.97			78,689.24	4.13		78,775.95
Unmitigated	73.88	229.74	609.57	0.72	82.96	6.88	89.84	3.09	6.88	9.97			78,689.24	4.13		78,775.95
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	6,720.00	6,720.00	6,720.00	24,989,792	24,989,792
Total	6,720.00	6,720.00	6,720.00	24,989,792	24,989,792

4.3 Trip Type Information

Land Use	Miles			Trip %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
Apartments Low Rise	16.80	7.10	7.90	42.30	19.60	38.10

5.0 Energy Detail

5.1 Mitigation Measures Energy

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

Category	lb/day										lb/day					
NaturalGas Mitigated	0.35	2.98	1.27	0.02		0.00	0.24		0.00	0.24		3,807.25		0.07	0.07	3,830.42
NaturalGas Unmitigated	0.35	2.98	1.27	0.02		0.00	0.24		0.00	0.24		3,807.25		0.07	0.07	3,830.42
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
Apartments Low Rise	32361.7	0.35	2.98	1.27	0.02		0.00	0.24		0.00	0.24		3,807.25		0.07	0.07	3,830.42
Total		0.35	2.98	1.27	0.02		0.00	0.24		0.00	0.24		3,807.25		0.07	0.07	3,830.42

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
Apartments Low Rise	32.3617	0.35	2.98	1.27	0.02		0.00	0.24		0.00	0.24		3,807.25		0.07	0.07	3,830.42
Total		0.35	2.98	1.27	0.02		0.00	0.24		0.00	0.24		3,807.25		0.07	0.07	3,830.42

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	28.98	0.85	71.94	0.00		0.00	1.39		0.00	1.38	0.00	16,135.71		0.44	0.29	16,235.97
Unmitigated	470.54	8.72	726.17	0.62		0.00	95.58		0.00	95.57	10,819.44	9,909.83		21.66	0.73	21,410.87
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	7.19					0.00	0.00		0.00	0.00						0.00
Consumer Products	17.98					0.00	0.00		0.00	0.00						0.00
Hearth	443.03	7.88	654.31	0.62		0.00	95.20		0.00	95.19	10,819.44	9,783.53		21.53	0.73	21,281.74
Landscaping	2.34	0.85	71.86	0.00		0.00	0.38		0.00	0.38		126.30		0.13		129.13
Total	470.54	8.73	726.17	0.62		0.00	95.58		0.00	95.57	10,819.44	9,909.83		21.66	0.73	21,410.87

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	7.19					0.00	0.00		0.00	0.00						0.00

Consumer Products	17.98					0.00	0.00		0.00	0.00						0.00
Hearth	1.47	0.00	0.08	0.00		0.00	1.01		0.00	1.00	0.00	16,009.41		0.31	0.29	16,106.84
Landscaping	2.34	0.85	71.86	0.00		0.00	0.38		0.00	0.38		126.30		0.13		129.13
Total	28.98	0.85	71.94	0.00		0.00	1.39		0.00	1.38	0.00	16,135.71		0.44	0.29	16,235.97

7.0 Water Detail

7.1 Mitigation Measures Water

- Install Low Flow Bathroom Faucet
- Install Low Flow Kitchen Faucet
- Install Low Flow Toilet
- Install Low Flow Shower

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

Nevada County Housing Element - Proposed
Nevada County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Apartments Low Rise	2681	Dwelling Unit

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)		Utility Company	Pacific Gas & Electric Company
Climate Zone	1		2.2		
		Precipitation Freq (Days)			
			80		

1.3 User Entered Comments

- Project Characteristics -
- Land Use - proposed acreage
- Construction Phase -
- Mobile Land Use Mitigation -
- Area Mitigation -
- Water Mitigation -
- Vehicle Trips - Trip rate based on traffic study

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	183.79	2.53	227.87	0.08		0.00	29.39		0.00	29.38	2,769.36	3,517.17	6,286.53	2.64	0.26	6,422.60
Energy	0.20	1.74	0.74	0.01		0.00	0.14		0.00	0.14	0.00	4,760.33	4,760.33	0.16	0.08	4,789.80
Mobile	28.97	97.26	257.59	0.31	26.09	2.86	28.96	1.30	2.86	4.17	0.00	30,641.90	30,641.90	1.57	0.00	30,674.91
Waste						0.00	0.00		0.00	0.00	250.34	0.00	250.34	14.79	0.00	561.03
Water						0.00	0.00		0.00	0.00	0.00	389.05	389.05	5.35	0.14	544.44
Total	212.96	101.53	486.20	0.40	26.09	2.86	58.49	1.30	2.86	33.69	3,019.70	39,308.45	42,328.15	24.51	0.48	42,992.78

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	15.91	0.24	20.66	0.00		0.00	0.51		0.00	0.50	0.00	5,734.45	5,734.45	0.14	0.10	5,769.88
Energy	0.20	1.74	0.74	0.01		0.00	0.14		0.00	0.14	0.00	4,760.33	4,760.33	0.16	0.08	4,789.80
Mobile	28.95	97.20	257.44	0.31	26.07	2.86	28.93	1.30	2.86	4.16	0.00	30,619.11	30,619.11	1.57	0.00	30,652.10
Waste						0.00	0.00		0.00	0.00	250.34	0.00	250.34	14.79	0.00	561.03
Water						0.00	0.00		0.00	0.00	0.00	333.66	333.66	4.28	0.11	458.12
Total	45.06	99.18	278.84	0.32	26.07	2.86	29.58	1.30	2.86	4.80	250.34	41,447.55	41,697.89	20.94	0.29	42,230.93

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

Increase Density

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	28.95	97.20	257.44	0.31	26.07	2.86	28.93	1.30	2.86	4.16	0.00	30,619.11	30,619.11	1.57	0.00	30,652.10
Unmitigated	28.97	97.26	257.59	0.31	26.09	2.86	28.96	1.30	2.86	4.17	0.00	30,641.90	30,641.90	1.57	0.00	30,674.91
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	15,549.80	15,549.80	15,549.80	57,825,338	57,780,600
Total	15,549.80	15,549.80	15,549.80	57,825,338	57,780,600

4.3 Trip Type Information

Land Use	Miles			Trip %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
Apartments Low Rise	16.80	7.10	7.90	42.30	19.60	38.10

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.00	0.00		0.00	0.00	0.00	2,748.52	2,748.52	0.12	0.05	2,765.74
Electricity Unmitigated						0.00	0.00		0.00	0.00	0.00	2,748.52	2,748.52	0.12	0.05	2,765.74
NaturalGas Mitigated	0.20	1.74	0.74	0.01		0.00	0.14		0.00	0.14	0.00	2,011.81	2,011.81	0.04	0.04	2,024.06
NaturalGas Unmitigated	0.20	1.74	0.74	0.01		0.00	0.14		0.00	0.14	0.00	2,011.81	2,011.81	0.04	0.04	2,024.06
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
Apartments Low Rise	3.77e+007	0.20	1.74	0.74	0.01		0.00	0.14		0.00	0.14	0.00	2,011.81	2,011.81	0.04	0.04	2,024.06
Total		0.20	1.74	0.74	0.01		0.00	0.14		0.00	0.14	0.00	2,011.81	2,011.81	0.04	0.04	2,024.06

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
Apartments Low Rise	3.77e+007	0.20	1.74	0.74	0.01		0.00	0.14		0.00	0.14	0.00	2,011.81	2,011.81	0.04	0.04	2,024.06
Total		0.20	1.74	0.74	0.01		0.00	0.14		0.00	0.14	0.00	2,011.81	2,011.81	0.04	0.04	2,024.06

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
Apartments Low Rise	9.44795e+006					2,748.52	0.12	0.05	2,765.74
Total						2,748.52	0.12	0.05	2,765.74

Mitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
Apartments Low Rise	9.44795e+006					2,748.52	0.12	0.05	2,765.74
Total						2,748.52	0.12	0.05	2,765.74

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

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

Mitigated	15.91	0.24	20.66	0.00		0.00	0.51		0.00	0.50	0.00	5,734.45	5,734.45	0.14	0.10	5,769.88
Unmitigated	183.79	2.53	227.87	0.08		0.00	29.39		0.00	29.38	2,769.36	3,517.17	6,286.53	2.64	0.26	6,422.60
Total	NA															

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.19					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	10.47					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	168.46	2.28	207.24	0.08		0.00	29.28		0.00	29.27	2,769.36	3,484.29	6,253.65	2.60	0.26	6,388.98
Landscaping	0.67	0.24	20.62	0.00		0.00	0.11		0.00	0.11	0.00	32.89	32.89	0.04	0.00	33.62
Total	183.79	2.52	227.86	0.08		0.00	29.39		0.00	29.38	2,769.36	3,517.18	6,286.54	2.64	0.26	6,422.60

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.19					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	10.47					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	0.58	0.00	0.03	0.00		0.00	0.40		0.00	0.39	0.00	5,701.56	5,701.56	0.11	0.10	5,736.26
Landscaping	0.67	0.24	20.62	0.00		0.00	0.11		0.00	0.11	0.00	32.89	32.89	0.04	0.00	33.62
Total	15.91	0.24	20.65	0.00		0.00	0.51		0.00	0.50	0.00	5,734.45	5,734.45	0.15	0.10	5,769.88

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr				MT/yr			
Mitigated					333.66	4.28	0.11	458.12
Unmitigated					389.05	5.35	0.14	544.44
Total	NA	NA	NA	NA	NA	NA	NA	NA

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
Apartments Low Rise	174,678 / 110,123					389.05	5.35	0.14	544.44
Total						389.05	5.35	0.14	544.44

Mitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
Apartments Low Rise	139.742 / 110.123					333.66	4.28	0.11	458.12
Total						333.66	4.28	0.11	458.12

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	tons/yr				MT/yr			
Mitigated					250.34	14.79	0.00	561.03
Unmitigated					250.34	14.79	0.00	561.03
Total	NA							

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
Apartments Low Rise	1233.26					250.34	14.79	0.00	561.03

Total						250.34	14.79	0.00	561.03
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Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
Apartments Low Rise	1233.26					250.34	14.79	0.00	561.03
Total						250.34	14.79	0.00	561.03

**Nevada County Housing Element - Proposed
Nevada County, Summer**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Apartments Low Rise	2681	Dwelling Unit

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)		Utility Company	Pacific Gas & Electric Company
Climate Zone	1		2.2		
		Precipitation Freq (Days)			
			80		

1.3 User Entered Comments

- Project Characteristics -
- Land Use - proposed acreage
- Construction Phase -
- Mobile Land Use Mitigation -
- Area Mitigation -
- Water Mitigation -
- Vehicle Trips - Trip rate based on traffic study

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1,501.81	27.85	2,317.69	1.99		0.00	305.05		0.00	305.03	34,532.04	31,628.88		69.14	2.33	68,336.35
Energy	1.11	9.52	4.05	0.06		0.00	0.77		0.00	0.77		12,151.48		0.23	0.22	12,225.44
Mobile	162.90	516.71	1,397.62	1.79	191.97	15.59	207.55	7.15	15.59	22.74		196,285.86		10.19		196,499.84
Total	1,665.82	554.08	3,719.36	3.84	191.97	15.59	513.37	7.15	15.59	328.54	34,532.04	240,066.22		79.56	2.55	277,061.63

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	92.50	2.71	229.62	0.01		0.00	4.45		0.00	4.41	0.00	51,499.82		1.41	0.94	51,819.81
Energy	1.11	9.52	4.05	0.06		0.00	0.77		0.00	0.77		12,151.48		0.23	0.22	12,225.44
Mobile	162.81	516.40	1,396.69	1.79	191.82	15.58	207.39	7.15	15.58	22.72		196,139.80		10.18		196,353.64
Total	256.42	528.63	1,630.36	1.86	191.82	15.58	212.61	7.15	15.58	27.90	0.00	259,791.10		11.82	1.16	260,398.89

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

Increase Density

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	162.81	516.40	1,396.69	1.79	191.82	15.58	207.39	7.15	15.58	22.72		196,139.80		10.18		196,353.64
Unmitigated	162.90	516.71	1,397.62	1.79	191.97	15.59	207.55	7.15	15.59	22.74		196,285.86		10.19		196,499.84
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	15,549.80	15,549.80	15,549.80	57,825,338	57,780,600
Total	15,549.80	15,549.80	15,549.80	57,825,338	57,780,600

4.3 Trip Type Information

Land Use	Miles			Trip %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
Apartments Low Rise	16.80	7.10	7.90	42.30	19.60	38.10

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	1.11	9.52	4.05	0.06		0.00	0.77		0.00	0.77		12,151.48		0.23	0.22	12,225.44
NaturalGas Unmitigated	1.11	9.52	4.05	0.06		0.00	0.77		0.00	0.77		12,151.48		0.23	0.22	12,225.44
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
Apartments Low Rise	103288	1.11	9.52	4.05	0.06		0.00	0.77		0.00	0.77		12,151.48		0.23	0.22	12,225.44
Total		1.11	9.52	4.05	0.06		0.00	0.77		0.00	0.77		12,151.48		0.23	0.22	12,225.44

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
Apartments Low Rise	103.288	1.11	9.52	4.05	0.06		0.00	0.77		0.00	0.77		12,151.48		0.23	0.22	12,225.44
Total		1.11	9.52	4.05	0.06		0.00	0.77		0.00	0.77		12,151.48		0.23	0.22	12,225.44

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	92.50	2.71	229.62	0.01		0.00	4.45		0.00	4.41	0.00	51,499.82		1.41	0.94	51,819.81
Unmitigated	1,501.81	27.85	2,317.69	1.99		0.00	305.05		0.00	305.03	34,532.04	31,628.88		69.14	2.33	68,336.35
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	22.96					0.00	0.00		0.00	0.00						0.00
Consumer Products	57.37					0.00	0.00		0.00	0.00						0.00
Hearth	1,413.99	25.14	2,088.33	1.97		0.00	303.83		0.00	303.81	34,532.04	31,225.76		68.71	2.33	67,924.21
Landscaping	7.48	2.71	229.37	0.01		0.00	1.21		0.00	1.21		403.11		0.43		412.14
Total	1,501.80	27.85	2,317.70	1.98		0.00	305.04		0.00	305.02	34,532.04	31,628.87		69.14	2.33	68,336.35

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
SubCategory	lb/day										lb/day						
Architectural Coating	22.96					0.00	0.00		0.00	0.00							0.00
Consumer Products	57.37					0.00	0.00		0.00	0.00							0.00
Hearth	4.68	0.00	0.26	0.00		0.00	3.24		0.00	3.20	0.00	51,096.71		0.98	0.94		51,407.67
Landscaping	7.48	2.71	229.37	0.01		0.00	1.21		0.00	1.21		403.11		0.43			412.14
Total	92.49	2.71	229.63	0.01		0.00	4.45		0.00	4.41	0.00	51,499.82		1.41	0.94		51,819.81

7.0 Water Detail

7.1 Mitigation Measures Water

- Install Low Flow Bathroom Faucet
- Install Low Flow Kitchen Faucet
- Install Low Flow Toilet
- Install Low Flow Shower

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

Nevada County Housing Element - Proposed
Nevada County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Apartments Low Rise	2681	Dwelling Unit

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)		Utility Company	Pacific Gas & Electric Company
Climate Zone	1		2.2		
		Precipitation Freq (Days)			

1.3 User Entered Comments

- Project Characteristics -
- Land Use - proposed acreage
- Construction Phase -
- Mobile Land Use Mitigation -
- Area Mitigation -
- Water Mitigation -
- Vehicle Trips - Trip rate based on traffic study

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1,501.81	27.85	2,317.69	1.99		0.00	305.05		0.00	305.03	34,532.04	31,628.88		69.14	2.33	68,336.35
Energy	1.11	9.52	4.05	0.06		0.00	0.77		0.00	0.77		12,151.48		0.23	0.22	12,225.44
Mobile	170.96	531.61	1,410.53	1.65	191.97	15.93	207.89	7.15	15.93	23.08		182,083.63		9.55		182,284.26
Total	1,673.88	568.98	3,732.27	3.70	191.97	15.93	513.71	7.15	15.93	328.88	34,532.04	225,863.99		78.92	2.55	262,846.05

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	92.50	2.71	229.62	0.01		0.00	4.45		0.00	4.41	0.00	51,499.82		1.41	0.94	51,819.81
Energy	1.11	9.52	4.05	0.06		0.00	0.77		0.00	0.77		12,151.48		0.23	0.22	12,225.44
Mobile	170.86	531.28	1,409.69	1.65	191.82	15.91	207.73	7.15	15.91	23.06		181,948.07		9.55		182,148.56
Total	264.47	543.51	1,643.36	1.72	191.82	15.91	212.95	7.15	15.91	28.24	0.00	245,599.37		11.19	1.16	246,193.81

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

Increase Density

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
Mitigated	170.86	531.28	1,409.69	1.65	191.82	15.91	207.73	7.15	15.91	23.06		181,948.07		9.55		182,148.56
Unmitigated	170.96	531.61	1,410.53	1.65	191.97	15.93	207.89	7.15	15.93	23.08		182,083.63		9.55		182,284.26
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	15,549.80	15,549.80	15,549.80	57,825,338	57,780,600
Total	15,549.80	15,549.80	15,549.80	57,825,338	57,780,600

4.3 Trip Type Information

Land Use	Miles			Trip %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
Apartments Low Rise	16.80	7.10	7.90	42.30	19.60	38.10

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	1.11	9.52	4.05	0.06		0.00	0.77		0.00	0.77		12,151.48		0.23	0.22	12,225.44
NaturalGas Unmitigated	1.11	9.52	4.05	0.06		0.00	0.77		0.00	0.77		12,151.48		0.23	0.22	12,225.44
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
Apartments Low Rise	103288	1.11	9.52	4.05	0.06		0.00	0.77		0.00	0.77		12,151.48		0.23	0.22	12,225.44
Total		1.11	9.52	4.05	0.06		0.00	0.77		0.00	0.77		12,151.48		0.23	0.22	12,225.44

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
Apartments Low Rise	103.288	1.11	9.52	4.05	0.06		0.00	0.77		0.00	0.77		12,151.48		0.23	0.22	12,225.44
Total		1.11	9.52	4.05	0.06		0.00	0.77		0.00	0.77		12,151.48		0.23	0.22	12,225.44

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	92.50	2.71	229.62	0.01		0.00	4.45		0.00	4.41	0.00	51,499.82		1.41	0.94	51,819.81
Unmitigated	1,501.81	27.85	2,317.69	1.99		0.00	305.05		0.00	305.03	34,532.04	31,628.88		69.14	2.33	68,336.35
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	22.96					0.00	0.00		0.00	0.00						0.00
Consumer Products	57.37					0.00	0.00		0.00	0.00						0.00
Hearth	1,413.99	25.14	2,088.33	1.97		0.00	303.83		0.00	303.81	34,532.04	31,225.76		68.71	2.33	67,924.21
Landscaping	7.48	2.71	229.37	0.01		0.00	1.21		0.00	1.21		403.11		0.43		412.14
Total	1,501.80	27.85	2,317.70	1.98		0.00	305.04		0.00	305.02	34,532.04	31,628.87		69.14	2.33	68,336.35

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	22.96					0.00	0.00		0.00	0.00						0.00
Consumer Products	57.37					0.00	0.00		0.00	0.00						0.00
Hearth	4.68	0.00	0.26	0.00		0.00	3.24		0.00	3.20	0.00	51,096.71		0.98	0.94	51,407.67
Landscaping	7.48	2.71	229.37	0.01		0.00	1.21		0.00	1.21		403.11		0.43		412.14
Total	92.49	2.71	229.63	0.01		0.00	4.45		0.00	4.41	0.00	51,499.82		1.41	0.94	51,819.81

7.0 Water Detail

7.1 Mitigation Measures Water

- Install Low Flow Bathroom Faucet
- Install Low Flow Kitchen Faucet
- Install Low Flow Toilet
- Install Low Flow Shower

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

**County of Nevada
Housing Element Rezone Implementation Program EIR
September 2013**

Technical Appendices

Appendix F

Cultural Resources Technical Report

**CULTURAL RESOURCE INVENTORY
OF THE NEVADA COUNTY HOUSING
ELEMENT REZONE, CALIFORNIA**

Prepared by

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January 23, 2013
(Job #12-112)

INTRODUCTION

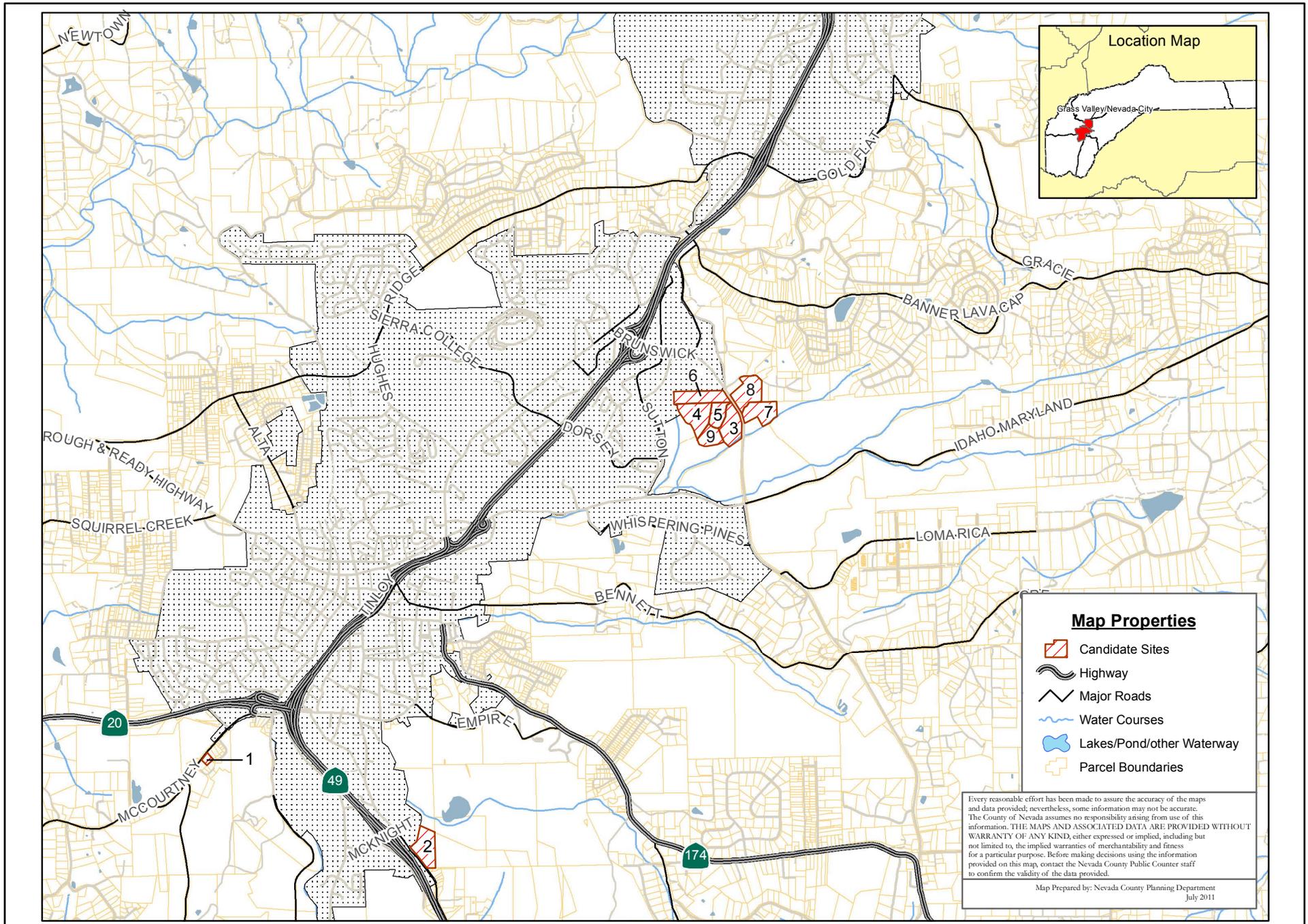
The County of Nevada has selected 18 candidate properties as potential sites for development for affordable housing units. To meet state housing requirements identified in the County's Housing Element, an additional 1,270 low and very low housing units are required to meet unmet housing needs. If these candidate sites are determined to be suitable for development, the County's goal is to rezone the site to R3 (high density residential) and will utilize the newly adopted overlay zone on these sites to permit increased housing densities at state mandated minimum default densities of 16-units minimum per acre to meet the policy objectives of the County of Nevada Housing Element.

The County completed a vacant land inventory process in which potential rezone candidate sites that could be suitable for higher density housing were identified. These sites were identified based on the relative lack of constraints and proximity to services.

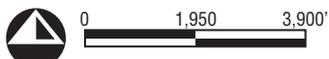
To determine if enough suitable land for the development of 1,270 affordable housing units could be achieved from the candidate site, a site analysis was conducted for each of the properties. The evaluation of each site consisted of a field visit, research and investigation regarding the existing land use conditions in the surrounding area of each site, a site specific biological reconnaissance, a cultural resources record search and field reconnaissance, and a general geotechnical investigation.

The parcels are detailed below (Figures 1-14).

Parcel #	Acreage	Township/Range	Section	Topographic Map
1	1.08	16N/7E	33	Grass Valley
2	11.36	16N/7E	34	Grass Valley
3	9.15	16N/7E	24	Grass Valley
4	11.35	16N/7E	24	Grass Valley
5	4.5	16N/7E	24	Grass Valley
6	9.7	16N/7E	24	Grass Valley
7	9.9	16N/7E	24	Grass Valley
8	10.43	16N/7E	24	Grass Valley
9	6.49	16N/7E	24	Grass Valley
10	5.95	16N/7E	34	Rough and Ready
11	3.1	16N/7E	34	Rough and Ready
12	4.37	16N/7E	34	Rough and Ready
13	20.1	16N/7E	34	Rough and Ready
14	5.0	14N/8E	21	Lake Combie
15	5.0	14N/8E	28	Lake Combie
16	18.12	14N/8E	28	Lake Combie
17	2.36	14N/8E	27/28	Lake Combie
18	11.03	14N/8E	35	Lake Combie



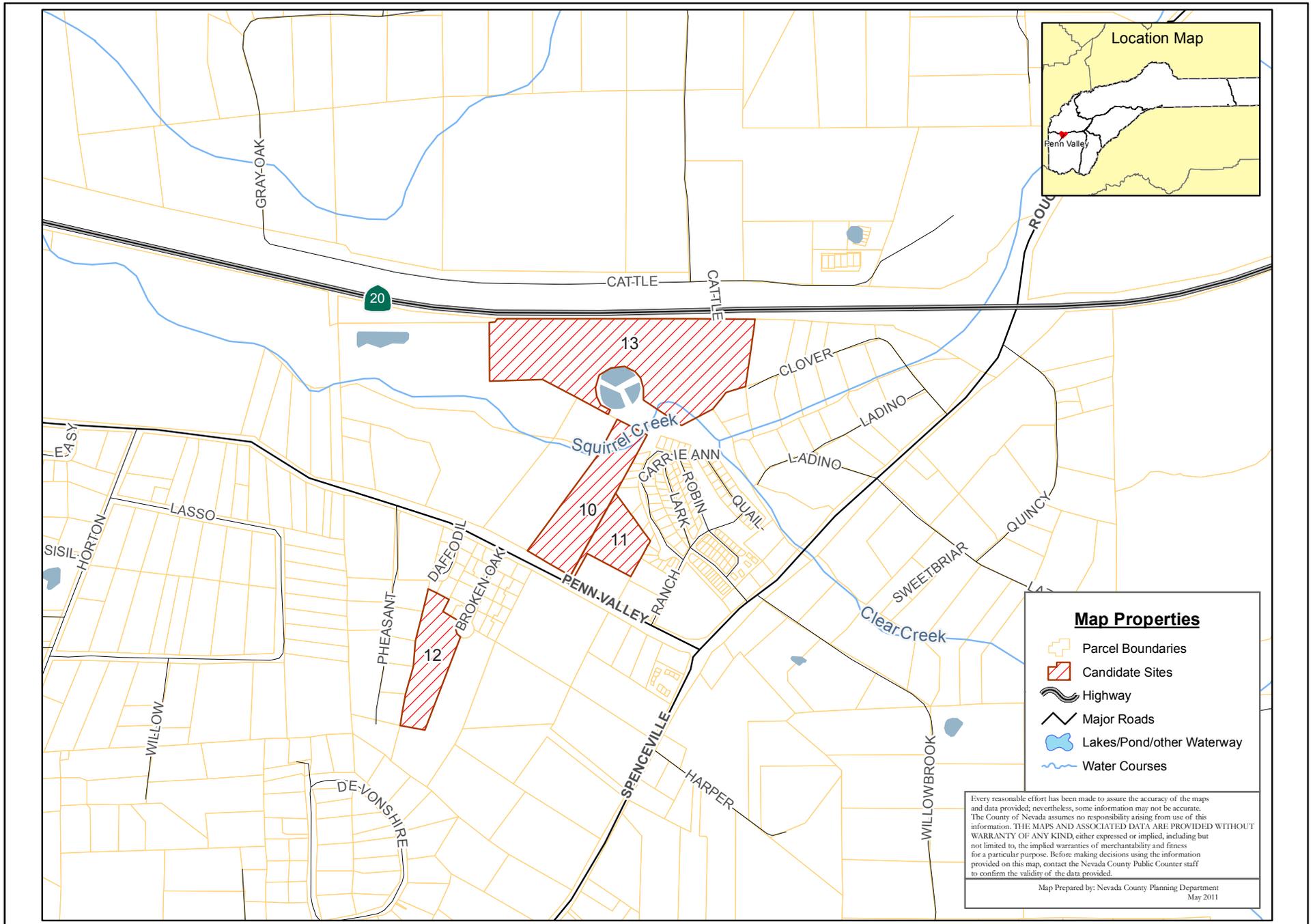
Source: Nevada County GIS 2012; ESRI 2012.



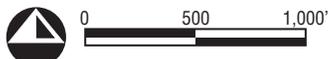
1/22/13 JN 131242-18945

COUNTY OF NEVADA
2009-2014 HOUSING ELEMENT REZONE PROGRAM IMPLEMENTATION
Grass Valley Area Sites

FIGURE 2



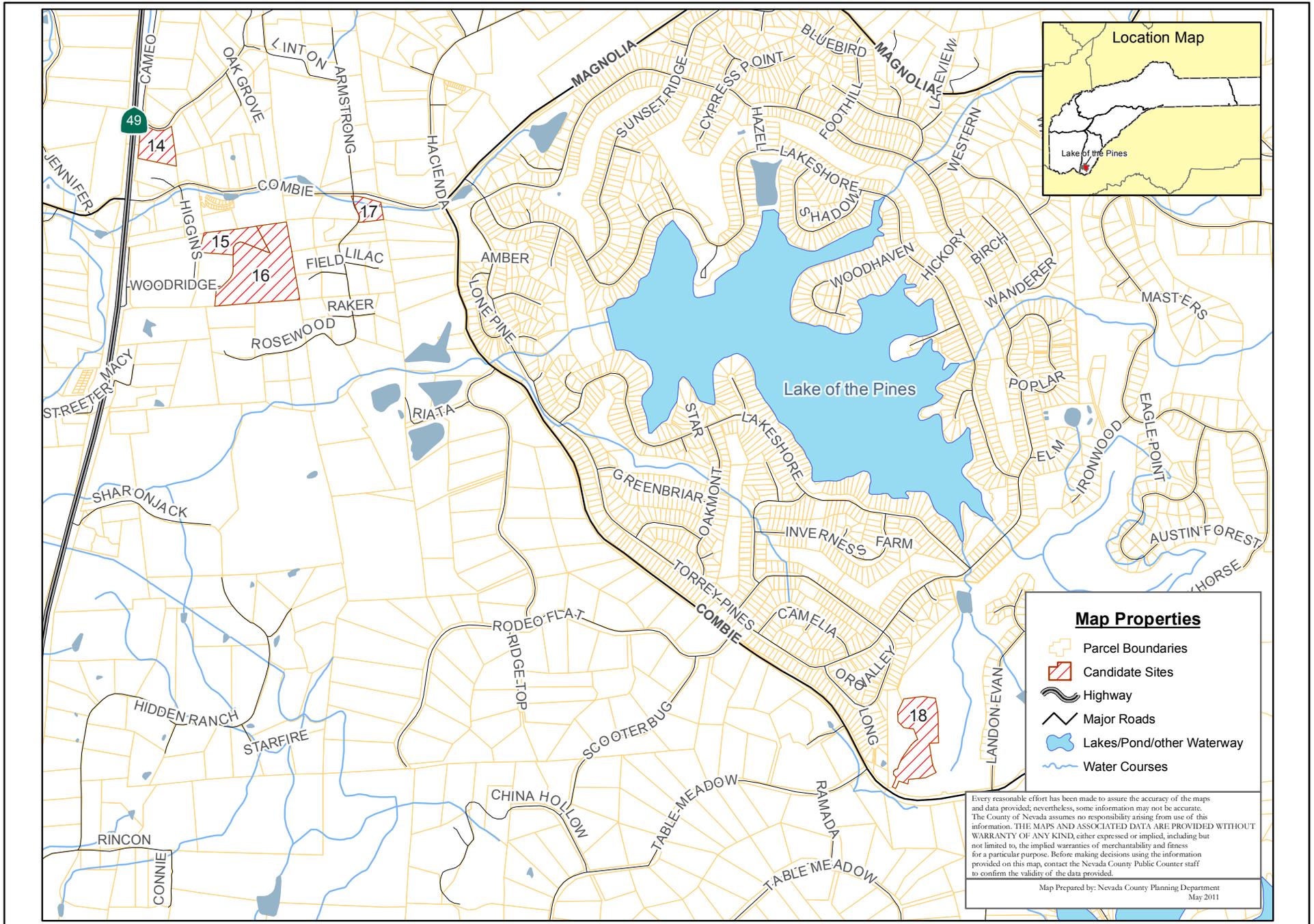
Source: Nevada County GIS 2012; ESRI 2012.



1/22/13 JN 131242-18945

COUNTY OF NEVADA
2009-2014 HOUSING ELEMENT REZONE PROGRAM IMPLEMENTATION
Penn Valley Area Sites

FIGURE 3



Source: Nevada County GIS 2012; ESRI 2012.



1/22/13 JN 131242-18945

COUNTY OF NEVADA
2009-2014 HOUSING ELEMENT REZONE PROGRAM IMPLEMENTATION
Lake of the Pines Area Sites

FIGURE 4



Source: Nevada County GIS 2012; ESRI 2012.



Source: Nevada County GIS 2012; ESRI 2012.



1/22/13 JN 131242-18945



Source: Nevada County GIS 2012; ESRI 2012.



1/22/13 JN 131242-18945

COUNTY OF NEVADA
2009-2014 HOUSING ELEMENT REZONE PROGRAM IMPLEMENTATION

Sites 3, 4, 5, 6, 7, 8 & 9

FIGURE 7



Source: Nevada County GIS 2012; ESRI 2012.



1/22/13 JN 131242-18945

COUNTY OF NEVADA
2009-2014 HOUSING ELEMENT REZONE PROGRAM IMPLEMENTATION

Sites 10 & 11

FIGURE 8



Source: Nevada County GIS 2012; ESRI 2012.



Source: Nevada County GIS 2012; ESRI 2012.



Legend

- Potential Rezone Sites
- Potential Rezone Site Parcels
- Parcels

Contours

- Index (100')
- Major (20')
- Depressions

- City Limits
- Sphere of Influence

Source: Nevada County GIS 2012; ESRI 2012.



1/22/13 JN 131242-18945



Source: Nevada County GIS 2012; ESRI 2012.



Source: Nevada County GIS 2012; ESRI 2012.



1/22/13 JN 131242-18945



Source: Nevada County GIS 2012; ESRI 2012.



1/22/13 JN 131242-18945

Melinda Peak served as principal investigator for the project, overseeing the field effort and prepared the report. Robert Gerry conducted an in-person record search at the North Central Information Center and completed the fieldwork for four of the parcels. Neal Neuenschwander undertook the fieldwork and Native American consultation. Resumes for all personnel are included in Appendix 1.

CULTURAL HISTORY

Prehistory

Until relatively recent years, the study of Sierran archeology lagged far behind the central valley and coastal areas in terms of developing regional chronologies and other basic aspects of systematic study of the prehistory of the area. The first effective synthesis of Sierran archeology was produced by Heizer and Elsasser (1953), and further refined by Elsasser (1960). Since that time, major archeological projects in the Sierra have proliferated, largely due to work on water projects and other cultural resources management-based research efforts. For the northern Sierra alone, archeological sequences, based on excavation of stratified sites and other data, are available for the Lake Tahoe vicinity (Elston 1979, 1972; Elston and Davis 1972; Elston et al. 1977), the Lake Oroville locality (Jewell 1964; Olsen and Riddell 1963; Ritter 1968, 1970a), and for the proposed Auburn Reservoir area. The latter, being of most relevance to the current project area, will be discussed briefly.

There have been several archeological reconnaissance surveys conducted in the Auburn Reservoir area, but the great majority of prehistoric sites recorded (i.e., milling stations, surface lithic scatters, small, single-component sites) are relatively uninformative in terms of larger regional research goals. Sites that have been excavated include a chert quarry (Crew 1970) and five midden sites, all reported during Phases II and III of the Auburn Reservoir Project (Ritter, ed. 1970). The most informative of these is the Spring Garden Ravine site (CA-Pla-101), which contained three well-defined strata (Ritter 1970b).

The lowest stratum (C) has been radiocarbon dated at about 1400 B.C., and contains an assemblage similar to the Martis Complex, as defined at high-elevation sites in the Sierra. The artifacts include large projectile points (mostly of basalt and slate), atlatl (dart-thrower) weights, numerous core tools, and several varieties of grinding implements. The collection would not look out of place had it been found in Martis Valley. The next stratum (B) is less easily defined, and appears to represent a transition between cultures represented by the upper and lower strata. Some of this transitional appearance may be attributable to simple physical mixing of deposits, but the basic stratigraphic integrity of the site is indicated by consistency of the two radiocarbon dates from stratum B (A.D. 1039±80 and 976±90). The upper stratum contains small projectile points (arrowheads), hopper mortars, and other artifacts comparable to recent archeological collections elsewhere in the northern foothills. Stratum A is, therefore, probably a manifestation

of the ancestral Nisenan, the Indian group inhabiting the area at the time of Euro-American contact.

Ethnology

The Nisenan, or Southern Maidu, occupied the upper drainages and the adjacent ridges of the Yuba, the north, middle, and south forks of the American, and at least the upper north side of the Cosumnes River. The eastern limit of the territory is conventionally believed to extend to the crest of the Sierra. As well, the Nisenan in the valley proper occupied some area west of the lower reaches of the Feather River (Wilson and Towne 1978).

The Nisenan linguistically are grouped with the Northern Maidu and Konkow within the Penutian family (Riddell 1978:387). Kroeber distinguished three dialects within the larger territory occupied by the Nisenan, but Riddell indicated more distinctions are possible. Wilson and Towne (1978) distinguished several “centers,” presumably linguistic and social groupings.

The Nisenan were socially integrated at the village or community group level (Wilson and Towne 1978), with the group participating in the decision-making process. The villages would range in size from 15 to 25 people to, at least in the Valley Nisenan, villages over 500 people (Kroeber 1925:821). A very large settlement consisted of a major village and associated smaller camps, whether general or specialized in nature. A headman, respected by all and residing in the major village had the authority to call upon the smaller associated groups in times of need, although the smaller groups did not have to always obey.

The villages for the Hill Nisenan were located on ridges and flats along the major streams and rivers within their territory. The satellite encampments and villages were probably located on the smaller water courses surrounding or nearby the major village. A main village with reported dance house, *Tuyi*, was located in the Grass Valley area, although the exact location has not been matched to a known archeological site (Wilson and Towne 1978:388, Figure 1).

The Nisenan, as with other Sierra Native American groups, moved into the higher elevations during the hot summer months. The main activity was the collecting of pine nuts and numerous other species of nuts, roots, and berries. This was done primarily by women and children. The foraging groups in a locale could range from small, extended family groups, composed of a woman, her immediate female kin, and their adolescent children to whole villages (Wilson and Towne 1978:389). The men spent most of their time hunting or fishing for a wide variety of fish and animals. Hunting was noted as often involving communal drives, with the best archers of the village posted to do the killing (Wilson and Towne 1978:389). Individual hunters made extensive use of decoys and imitative sounds.

Most Nisenan people never left the territory used by their own village group. However, there were, in most large villages, at least some individuals who engaged in rather extensive trade with several valley groups as well as Sierra groups, such as the Washo. The Hill Nisenan probably acquired obsidian and basketry from the east, in exchange for acorns from the Washo (Davis 1974:38; Freed 1966:78), but it is presently unclear whether they were visited by the Washo or

they visited the Washo or both. Presumably, the exchange network functioned in the summer and fall.

History

The 1848 discovery of gold at Coloma in El Dorado County brought thousands to northern California seeking their fortunes. A number of small towns were developed to provide goods and services to the miners. Some of the towns died off almost as quickly as they developed, as the mining played out and the population shifted to other locations. Other communities such as Grass Valley and Nevada City became important regional service centers, continuing to serve Nevada County.

The 1833 malaria epidemic that decimated the Indians in the Central Valley played a major role in defining the post-Contact land use pattern of the Indians of the region, as well as impacting Euro-American economic development. The introduction of malaria to central California *circa* 1831 occurred as a result of expeditions of several fur brigades of the Hudson's Bay Company with infected individuals. The introduction of the disease led to the tremendous epidemic of 1833 that decimated the Indian population of the region. Of the total Indian population of the region, an estimated 75 per cent died from the disease in that year.

Malaria was epidemic in the mining camps of the Sierra foothill region, and remained endemic, with frequent sharp local outbreaks throughout the Central Valley until about 1880. The Third Biennial Report of the State Board of Health published in 1875, referenced an undated article from *The Placer Press* that reported, "Almost everybody living west of Gold Hill is either down with fever, or chills and fever, or more or less affected by the miasmatic poison generated and floating around in that locale" (Gray and Fontaine 1951:27).

The project areas lie in part within one of the major early mining districts of the state, the Grass Valley Mining District. In 1848, gold was discovered on Wolf Creek near Grass Valley. Although the placer mines were soon exhausted, quartz lodes were discovered that would support a very active mining industry for the next century (Clark 1970:53-60). Grass Valley was named for the well-watered valley in which it lies in 1849. The starving cattle from a party of emigrants from the Truckee Pass Trail strayed from their camp and were found the next morning enjoying the abundant grass and water of the meadow (Kyle 1990: 251).

The Gold Hill and Allison Ranch mines were the top producers in the early days, but others soon eclipsed them, particularly the Idaho-Maryland, Empire, North Star, Pennsylvania and W.Y.O.D. Nearly four thousand miners were employed in the Grass Valley District during the Depression era and early World War II. The mines were closed during the war, but most of the larger mines in the district, in contrast to most gold mines in California, reopened after the war. The Idaho-Maryland group did not stop gold mining until 1956 and the gold mining era finally ended the following year when the Empire-Star group ceased production.

Estimates of total production are not very accurate, but Clark (1975:54) claims that the lode mines of the Grass Valley District produced "at least" three hundred million dollars, with placer

mines adding a few million more. The estimated production for the Coe Mine, the lode mine nearest the project area, was \$500,000.

Penn Valley was the site of some early mining efforts, and is shown on a map by 1853. The area became mostly a farming area (Gudde 1975:262).

RESEARCH

An in-person record search for the project parcels was conducted on May 22, 2012, at the North Central Information Center of the California Historical Resources Information System by Robert Gerry of Peak & Associates. The purpose of the research was to determine what parcels, or portions thereof, had been surveyed for cultural resources in the past and the resources that had been recorded. The results are summarized in numeric order of parcel number below.

Parcel 1--There have been no previous surveys and no recorded sites on the property, although there have been numerous surveys nearby. McCourtney Road, which is the western boundary of the parcel has been Recorded as P-29-1518-H.

Parcel 2--There have been three surveys in the project area (Hatoff 2005, Lindstrom 1990, Walden 2004) which, between them covered the entire parcel. Lindstrom recorded a stamp mill just east of the parcel and various mining related features in the project area (P-29-1478, 1479, 1481, 1484, 2363) Walden noted an abandoned ditch near the southern boundary of the parcel.

Parcels 3, 4, and 5--These parcels were surveyed together by a Registered Professional Forester (Whittlesey 2001) and an archeologist (Jensen 2007) who covered the full area of the parcels. Whittlesey recorded a small ditch on the western and southern edges of the parcels as P-29-859. Otherwise, the only recorded resource in the vicinity is Brunswick Road, P-29-1516-H, bordering on the east.

Parcel 6--The parcel borders the 3-4-5 group on the north. It was entirely surveyed by Whittlesey (2001) and has a ditch near the western boundary, P-29-859, and Brunswick Road on the east, P-29-1516-H.

Parcel 7--The parcel is east of Brunswick Road and north of Idaho Maryland Road. A survey was conducted along the latter, but just in the immediate area of the road. Essentially, none of the parcel has been surveyed. There are no recorded sites within the parcel.

Parcel 8--This parcel has not been subject to previous surveys. Brunswick Road, which borders the parcel on the west, has been recorded as P-29-1516-H

Parcel 9--This parcel was surveyed by a Registered Professional Forester (Whittlesey 2001) and an archeologist (Jensen 2007) who covered the full area of the parcel. A small ditch runs along the southern boundary of the property (P-29-859).

Parcels 10 and 11--The full area of these adjoining properties was surveyed by Jensen (1999) with negative results.

Parcel 12--This parcel was also surveyed in full by Jensen (Jensen & Associates 1991) with negative results.

Parcel 13--This property was covered in full through three different negative surveys (Jensen 2002; 2011, Jensen & Associates 1992). However, a bedrock mortar site with associated midden was recorded nearby.

Parcel 14--No survey has been conducted on this parcel and no resources have been recorded. A survey of the adjacent CDF fire station recorded the existing features and nothing else.

Parcel 15--No survey has been conducted on this parcel and no resources have been recorded.

Parcel 16--An old survey had covered most of the parcel with negative results. The report could not be located, but due to its age, the survey would need to be redone in any event.

Parcel 17--No survey has been conducted on this parcel and no resources have been recorded. The property just south was surveyed with no sites recorded near #17.

Parcel 18--Both survey and test excavations have been conducted on this property as part of the Dark Horse development (Jensen & Associates 1996, 1999; Wickstrom 1998). In this parcel one prehistoric period site was recorded, CA-NEV-604 and tested. It was evaluated as not eligible for the NRHP.

Several published texts were also consulted for information on sites of recognized significance. No properties on the National Register of Historic Places, California Register of Historic Resources or California Historical Landmarks are located in or adjacent to the project area.

NATIVE AMERICAN CONSULTATION

The Native American Heritage Commission (NAHC) conducted a Sacred Lands File review for the overall project area on May 16, 2012 (Appendix 2). According to the NAHC, no information concerning sacred lands or cultural resources is on file with them for any of the parcels. The NAHC provided a list of groups and individuals who may have information concerning cultural resources in the Nevada County area.

On June 7, 2012, Peak & Associates sent letters requesting information to: Jill Harvey; April Wallace Moore; Eileen Moon, Vice Chairperson, T si-Akim Maidu; Grayson Coney, Cultural Director, T si-Akim Maidu; David Keyser, Chairperson, United Auburn Indian Community of the Auburn Rancheria; and, Marcos Guerrero, Tribal Preservation Committee, United Auburn Indian Community of the Auburn Rancheria.

Only one response has been received: the United Auburn Indian Community of the Auburn Rancheria responded on June 21, 2012 with several requests. They asked to be notified about any resources on the parcels, and asked for copies of reports and environmental documents for the project (Appendix 2).

FIELD SURVEY

Initial Survey Effort

Sixteen of the project parcels were covered in the initial field survey efforts in June 2012.

Parcel 1

The property appeared to have been graded over most of its surface with gravel added. According to a sign lying on the ground, live Christmas trees had been sold at the location. Previously identified resource P-29-1518-H, McCourtney Road, is located adjacent to the parcel. No prehistoric or historic period resources were observed during the field inspection.

Parcel 2

Approximately two-thirds of the parcel had been logged, leaving an exposed hillside covered with low brush. The remaining third had mixed stands of oaks and conifers. In the non-logged portion of the parcel, thirteen prospect pits were observed. No prehistoric period resources were present.

Parcel 3

The parcel had been logged sometime in the past, but was otherwise undisturbed. Previously identified resource P-29-859-H, a small ditch, was recorded along the southern portion of the parcel. Site P-29-1516-H, Brunswick Road, bordered the parcel along the eastern side. A small drainage located along the southern boundary appeared to be utilized by the Nevada Irrigation District to transfer water. No prehistoric period resources were observed during the current inspection.

Parcel 4

The parcel had been logged sometime in the past, but was otherwise undisturbed. About a half dozen tent encampments, and one wood pole structure, had been erected in various locations, but no one was present during the field inspection. Previously identified resource P-29-859-H, a small ditch, was recorded along the western portion of the parcel. No prehistoric period resources were observed during the current inspection.

Parcel 5

The parcel had been logged sometime in the past, but was otherwise undisturbed. Site P-29-

1516-H, Brunswick Road, bordered the parcel along the eastern side. No prehistoric period resources were observed during the current inspection.

Parcel 6

The parcel appeared to have logged, particularly in the eastern half. A tent encampment was located in the eastern portion. Site P-29-1516-H, Brunswick Road, bordered the parcel along the eastern side. Previously identified resource P-29-859-H, a small ditch, was recorded along the western portion of the parcel. No prehistoric period resources were observed during the current inspection.

Parcel 7

The eastern two-thirds of the parcel had been logged very recently. A small drainage located along the southern boundary appeared to be utilized by the Nevada Irrigation District to transfer water. The frame of a 1930s era touring car is located near the center of the parcel, adjacent to an abandoned roadway that transects the parcel in an east/west orientation. Site P-29-1516-H, Brunswick Road, bordered the parcel along the western side.

The resource, PA-12-20, consists of a large-flat-topped metavolcanic boulder that has seventeen mortar cups on its surface. There were no artifacts found in association with the bedrock mortar feature. The feature is located about 30 feet west of a small, intermittent drainage.

The prehistoric period food processing feature was recorded to current standards and the Department of Parks and Recreation 523 Series forms, sketch and location maps are in confidential Appendix 3.

Parcel 10

This property had no obvious disturbance except for a large amount of fill located in the extreme southeastern portion near the post office facility. The southern three-quarters of the property are within grasslands, with the northern portion bordering Squirrel Creek, having riparian vegetation and some tree cover.

Parcel 11

The parcel lies within an oak grassland with three concrete pads, a concrete foundation, and concrete lined well. One of the three concrete pads looked to have once had a home, while the other two appeared to be a garage and outbuilding, respectively. The concrete foundation was raised and appeared to pre-date the three concrete pads and concrete lined well. No prehistoric period resources were observed during the current inspection.

Parcel 12

Parcel 12

The parcel lies within an open, oak grassland bordered by apartments and single family homes. No prehistoric period resources were observed during the current inspection.

Parcel 13

The parcel is in oak grassland with riparian species bordering Squirrel Creek.

The newly identified resource, PA-12-21, is a small, granitic boulder with a single mortar cup. There were no artifacts found in association with the bedrock mortar feature. The source is located about 50 feet east of a small, intermittent drainage.

The prehistoric period food processing feature was recorded to current standards and the Department of Parks and Recreation 523 Series forms, sketch and location maps are in confidential Appendix 3.

Parcel 14

This parcel is north of (behind) the CDF fire station at Combie Road and SR 49. It fronts on Cameo Drive, the northern boundary of the property. The land slopes moderately down to the south and comprises five acres of oak parkland with rare bedrock exposures located primarily in the upper (northern) portion of the property. All bedrock boulders were inspected carefully for signs of grinding or rock art. No such indications were observed. Ground visibility was adequate, though tree litter had to be removed in a few areas, and no artifacts were observed.

No signs of occupation in the historic period were observed. The only trash items are recently blown in roadside discards. The slope of the property argues against previous occupation in either the prehistoric or historic periods.

Parcel 15

This parcel, of five acres, lies adjacent to parcel 16 on the wooded slopes above the self-storage units at the end of Woodridge Drive. The property has a rather small area of fairly level land on the east and then slopes sharply down to the west. It is covered in most areas by a mixed oak and pine forest. There are two permanent structures on the property, a residence and barn. The residence is clearly a recent construction. The barn looks older, but when examined closely, this is a matter of style rather than actual construction date. The traditional appearance of the barn is complemented by the use of board-and-batten siding, but the condition of the structure indicates a recent date of construction.

No indications of prehistoric use or habitation of the property were observed. Ground visibility was difficult in undisturbed wooded areas due to ground litter, but there are few such areas. Most of the property has roads, tracks and cleared areas allowing for ground visibility.

Parcel 16

This property of 18.12 acres lies east and southeast of parcel 15. It differs from that parcel in being quite flat and open over much of its area, although there are rather steep drops on most of the edges of the property and a few areas of dense oak-pine forest. No signs of prehistoric occupation or use were observed, which may be due in part to the absence of natural water supplies and bedrock exposures.

The only permanent structure on the property is a modern barn adjacent to a county water treatment facility. No evidence of earlier structures was observed. The barn is very similar to the one on parcel 15, and they may be of a like age.

Parcel 17

On the south side of Combie Road opposite a modern commercial strip, this 2.36 acre parcel is very densely covered in a blackberry bramble along the frontage on Combie Road and Ragsdale Creek, which crosses the property just south of Combie Road. A dense cover of young oak covers the moderate slope on the south side of the property. Between the two are a trail and two open meadows that provide good visibility of the most sensitive area of the property for cultural resources, the flat terrace on the south side of the creek.

The only signs of historic use of the property are recent: a fence and gate on Rosewood Road (the western boundary of the parcel), a metering well near the western boundary and a small wood-cutters camp on the eastern boundary. There were no indications of prehistoric occupation or use.

Parcel 18

This parcel is within an area previously part of the Dark Horse development. The 11.03 acre parcel has not been developed, although it abuts the golf course and has housing on its western boundary. Combie Road is on the south. There are no structures on the wooded parcel or any indication of previous historic occupation.

There is a previously recorded archeological site on the property, CA-NEV-604, consisting of two widely separated boulders with a total of six mortars situated on the south facing slope of a hill in the southern portion of the parcel. This was previously recorded and tested by Jensen (1996) and found to lack any associated artifact deposit, thus, he evaluated the site as not eligible for the National Register of Historic Places. The current inspection found the mortars intact as described in the site record. There appears to be no reason to argue with the evaluation.

Second Survey Effort

A pedestrian survey of the two remaining parcels (Parcels 8 and 9) forming the project area was undertaken by Neal Neuenschwander in December 12, 2012.

Parcel 8

This project Parcel contains no evidence of prehistoric period resources. There is an area of scattered historic mine tailings in the western third of APN 35-550-15 and the eastern portion of APN 35-412-20. Three buildings are located on the APN 35-550-15 portion of Site 8: an estimated 1940s era small cabin; an estimated 1950s era residence; and a 1960s era residence.

Parcel 9

The Parcel contains no evidence of prehistoric period resources. There is a ditch located along the southern boundary of the site. The remains of an old wire fence paralleling the ditch might indicate NID use at some point, but the ditch is now abandoned.

RECOMMENDATIONS

As stated before, the historic sites were noted but not formally recorded. Prior to initiation of the Project, formal recordation of these resources should be made, with records filed with the North Central Information Center to permanently preserve information on all resources present. If impacts will occur to these resources, they will require a formal evaluation.

As with any inspection of the ground surface, there is always a remote possibility that previous activities (both natural and cultural) have obscured prehistoric or historic period artifacts or habitation areas, leaving no surface evidence that would permit discovery of these hypothetical resources. Thus, if during construction activities, unusual amounts of non-native stone (obsidian, fine-grained silicates, basalt), bone, shell, or prehistoric or historic period artifacts (purple glass, etc.) are revealed, or if areas that contain dark-colored sediment that do not appear to have been created through natural processes are discovered, then work should cease in the immediate area of discovery and a professionally qualified archeologist should be contacted immediately for an on-site inspection of the discovery. If any bone is uncovered that appears to be human, then the County Coroner must be contacted by law. If the coroner determines that the bone most likely represents a Native American interment, then he must contact the Native American Heritage Commission in Sacramento so that they can identify the most likely descendants.

BIBLIOGRAPHY

Clark, William B.

- 1970 Gold Districts of California. California Division of Mines and Geology, Bulletin 193. Sacramento.

Crew, Harvey L.

- 1970 Preliminary Report: 4-Pla-36. In: Archaeological Investigations in the Auburn Reservoir Area, Phase II-III, edited by E. W. Ritter, pp. 275-280. Ms. on file, National Park Service, San Francisco.

Davis, James T.

- 1974 Trade routes and economic exchange among the Indians of California, edited by Robert F. Heizer. Ballena Press Publications in Archaeology, Ethnology and History 3. Ramona.

Elsasser, Albert B.

- 1960 The Archaeology of the Sierra Nevada in California and Nevada. *University of California Archaeological Survey Reports* 51:1-93. Berkeley.

Elston, Robert G.

- 1972 The Steamboat Assemblage and its Relationship to the Martis Complex. Paper presented at the Annual Meeting of the Society for California Archaeology and the Southwestern Anthropological Association, Long Beach.

- 1979 The Archeology of U.S. 395 Right-of-Way Between Stead, Nevada and Hallelujah Junction, California. Ms. on file, Anthropology Department, University of Nevada, Reno.

Elston, Robert G., and Jonathan O. Davis

- 1972 An Archeological Investigation of the Steamboat Springs Locality, Washoe County, Nevada. *Nevada Archeological Reporter* 6(1):9-14. Reno.

Elston, Robert G., Jonathan O. Davis, Alan Levant, and Cameron Covington

- 1977 The Archeology of the Tahoe Reach of the Truckee River. A Report to the Tahoe-Truckee Sanitation Agency. Ms. on file, University of Nevada Northern Division of the Nevada Archaeological Survey, Reno.

Freed, Stanley A.

- 1966 Washo habitation sites in the Lake Tahoe area. In: Notes on western Nevada archaeology and ethnology. University of California Archaeological Survey 66 (3). Berkeley.

- Gray, Harold Farnsworth, and Russel E. Fontaine
1951 A History of Malaria in California. *Proceedings of the California Mosquito and Vector Control Association* 25:18-39. Sacramento.
- Hatoff, Brian
2005 Results of Survey for Verizon Cellular Communications Tower Site. Ms. on file, North Central Information Center.
- Heizer, Robert F., and Albert B. Elsasser
1953 Some Archaeological Sites and Cultures of the Central Sierra Nevada. *University of California Archaeological Survey Reports* 21:1-42. Berkeley.
- Jensen & Associates
1991 Archaeological Inventory Survey of the Proposed Don Pultz Subdivision of 16.29 acres, Penn Valley, Nevada County, California. Ms. on file, North Central Information Center.
- 1992 Archaeological Inventory Survey, Penn Valley Mobile Home Ranch, Re-subdivision of c. 40 ac at Penn Valley, Nevada County, California. Ms. on file, North Central Information Center.
- 1996 Archaeological Inventory Survey: Darkhorse Residential and Golf Course Development Project, Approximately 1,047 acres Between Lake of the Pines and Lake Combie, Lake Combie Road East of State Route 49, Nevada County, California. Ms. on file, North Central Information Center.
- 1999 Eligibility Evaluation, Determination of Effect, and Historic Properties Treatment Plan. Ms. on file, North Central Information Center.
- Jensen, Peter M.
1999 Archaeological Survey, Casilli Property, 15-acre Development. Ms. on file, North Central Information Center.
- 2002 Archaeological Survey, Atherton/Olson 20-acre Development Site, Nevada County, California. Ms. on file, North Central Information Center.
- Jensen, Sean
2011 Archaeological Survey, Penn Valley Oaks Development Project, Nevada County, California. Ms. on file, North Central Information Center.
- 2007 Archaeological Survey, 32-acre Ranchview Development Project, Grass Valley, Nevada County, California. Ms. on file, North Central Information Center.
- Jewell, Donald P.
1964 Archaeology of the Oroville Dam Spillway. *Department of Parks and Recreation Archaeological Reports* 10(1). Sacramento.

- Kroeber, Alfred L.
1925 Handbook of the Indians of California. Bureau of American Ethnology Bulletin 78. Smithsonian Institution, Washington, D.C.
- Kyle, Douglas E. (editor)
1990 *Historic Spots in California* (fourth edition), by Mildred Hoover, Hero E. Rensch, and Ethel G. Rensch. Previously edited by William Abeloe. Stanford University Press, Palo Alto.
- Lindstrom, Susan
1990 A Cultural Resource Evaluation of the Motherlode Village Project, Grass Valley, California, Nevada County. Ms. on file, North Central Information Center.
- Olsen, William H., and Francis A. Riddell
1963 The Archeology of the Western Pacific Railroad Relocation: Oroville project, Butte County, California. *California State Department of Parks and Recreation, Archaeological Resources Section Report 7*. Sacramento.
- Riddell, Francis A.
1978 Maidu and Konkow. In: Handbook of North American Indians (vol. 8), edited by Robert F. Heizer. Smithsonian Institution, Washington, D.C.
- Ritter, Eric W., editor
1970 Archaeological Investigations in the Auburn Reservoir Area, Phase II-III. Ms. on file, National Park Service, San Francisco.
- Ritter, Eric W.
1968 *Culture History of "Tie Wiah" (4-But-84), Oroville Locality, California*. Unpublished Master's thesis, Department of Anthropology, University of California, Davis.

1970a Northern Sierra Foothill Archaeology. In Papers on California and Great Basin Prehistory, edited by Eric W. Ritter, Peter D. Schulz, and Robert Kautz, pp. 171-184. *University of California, Center for Archaeological Research Publications 2*. Davis.

1970b The Archaeology of 4-Pla-101, the Spring Garden Ravine Site. In Archaeological Investigations in the Auburn Reservoir Area, Phase II-III, edited by Eric W. Ritter, pp. 270-538. Ms. on file, National Park Service San Francisco.
- Walden, Peter (RPF)
2004 An Archaeological Survey Report for the La Barr Timber Harvest Plan, Nevada County, California. Ms. on file, North Central Information Center.

Whittlesey, Nicholas (RPF)

2001 Ranchview Court THP. Ms. on file, North Central Information Center.

2001 Ranchview Court THP Amendment. Ms. on file, North Central Information Center.

Wickstrom, Brian

1998 Supplemental Archaeological Survey Report for the Dark Horse Residential and Golf Course Development Project, Nevada County, California. Ms. on file, North Central Information Center.

Wilson, Norman L., and Arlean Towne

1978 Nisenan. In Handbook of North American Indians (vol. 8), edited by Robert F. Heizer. Smithsonian Institution, Washington, D.C.

APPENDIX 1

Resumes

RESUME

MELINDA A. PEAK
Senior Historian/Archeologist
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El Dorado Hills, CA 95762
(916) 939-2405

January 2013

PROFESSIONAL EXPERIENCE

Ms. Peak has served as the principal investigator on a wide range of prehistoric and historic excavations throughout California. She has directed laboratory analyses of archeological materials, including the historic period. She has also conducted a wide variety of cultural resource assessments in California, including documentary research, field survey, Native American consultation and report preparation.

In addition, Ms. Peak has developed a second field of expertise in applied history, specializing in site-specific research for historic period resources. She is a registered professional historian and has completed a number of historical research projects for a wide variety of site types.

Through her education and experience, Ms. Peak meets the Secretary of Interior Standards for historian, architectural historian, prehistoric archeologist and historic archeologist.

EDUCATION

M.A. - History - California State University, Sacramento, 1989
Thesis: *The Bellevue Mine: A Historical Resources Management Site Study in Plumas and Sierra Counties, California*
B.A. - Anthropology - University of California, Berkeley

RECENT PROJECTS

Ms. Peak completed the cultural resource research and contributed to the text prepared for the DeSabra-Centerville PAD for the initial stage of the FERC relicensing. She also served cultural resource project manager for the FERC relicensing of the Beardsley-Donnells Project. For the South Feather Power Project and the Woodleaf-Palermo and Sly Creek Transmission Lines, her team completing the technical work for the project.

In recent months, Ms. Peak has completed several determinations of eligibility and effect documents in coordination with the Corps of Engineers for projects requiring federal permits, assessing the eligibility of a number of sites for the National Register of Historic Places. She has also completed historical research projects on a wide variety of topics for a number of projects including the development of navigation and landings on the Napa River, farmhouses dating to the 1860s, bridges, an early roadhouse, Folsom Dam and a section of an electric railway line.

In recent years, Ms. Peak has prepared a number of cultural resource overviews and predictive models for blocks of land proposed for future development for general and specific plans. She has been able to direct a number of surveys of these areas, allowing the model to be tested.

She served as principal investigator for the multi-phase Twelve Bridges Golf Club project in Placer County. She served as liaison with the various agencies, helped prepare the historic properties treatment plan, managed the various phases of test and data recovery excavations, and completed the final report on the analysis of the test phase excavations of a number of prehistoric sites. She is currently involved as the principal investigator for the Clover Valley Lakes project adjacent to Twelve Bridges in the City of Rocklin, coordinating contacts with Native Americans, the Corps of Engineers and the Office of Historic Preservation.

Ms. Peak has served as project manager for a number of major survey and excavation projects in recent years, including the many surveys and site definition excavations for the 172-mile-long Pacific Pipeline proposed for construction in Santa Barbara, Ventura and Los Angeles counties. She also completed an archival study in the City of Los Angeles for the project. She also served as principal investigator for a major coaxial cable removal project for AT&T.

Additionally, she completed a number of small surveys, served as a construction monitor at several urban sites, and conducted emergency recovery excavations for sites found during monitoring. She has directed the excavations of several historic complexes in Sacramento, Placer and El Dorado Counties.

Ms. Peak is the author of a chapter and two sections of a published history (1999) of Sacramento County, *Sacramento: Gold Rush Legacy, Metropolitan Legacy*. She served as the consultant for a children's book on California, published by Capstone Press in 2003 in the land of Liberty series.

PEAK & ASSOCIATES, INC.
RESUME

ROBERT A. GERRY

January 2013

Senior Archeologist

3941 Park Drive, Suite 20, #329
El Dorado Hills, CA 95762
(916) 939-2405

PROFESSIONAL EXPERIENCE

Mr. Gerry has forty years of extensive experience in both the public and private sectors. He has directed all types of cultural resource-related projects, including field survey, test excavations, data recovery programs, intensive archival research, cultural resource management and monitoring. He has completed archeological work in most cultural areas of California and in the western Great Basin.

EDUCATION

Graduate studies - Anthropology - California State University, Sacramento
B.A. - Anthropology - University of Illinois, Chicago Circle

RECENT PROJECTS

Mr. Gerry was field director for a cultural resources survey of the Diamond Valley Project in Alpine County, California. The project involved an overview and survey of an extensive plan area, recording and evaluation of resources and presenting the results to local Native Americans and helping to conduct a field tour with them. He also directed field survey of the Van Vleck Ranch, a large property in Sacramento County being put into a conservation easement. He has conducted surveys throughout California related to low income housing development.

He was field director and primary report writer on several linear surveys of considerable length--including the San Joaquin Valley Pipeline (157 miles) for Shell Oil, the Point Arena-Dunnigan fiber optic cable (137 miles) and the Medford, Oregon, to Redding, California fiber optic cable (151 miles), the Oregon and Idaho portions of the Spokane to Boise fiber optic cable, and the San Bernardino to San Diego fiber optic cable, for American Telephone & Telegraph Company. He also assisted on the 170 mile Pacific Pipeline survey on the southern coast of California and conducted several surveys of water pipelines in Riverside County for Eastern Municipal Water District: La Sierra pipeline, Perris Valley, Pico Rivera, Temecula, San Jacinto and their entire recycled water project. Follow-up projects involved well sites, pump stations and other infrastructure improvements. Mr. Gerry supervised the cultural resources assessments and

participated in all field surveys for the studies of water supply facilities for seven wildlife refuges in the Sacramento and San Joaquin Valleys. He has also developed a specialty in bridge replacement evaluations, completing five such studies in Tuolumne County, two in Santa Barbara County, two in Amador County and ten others in various areas of California.

Mr. Gerry has had extensive experience in the recording and evaluation of mining sites in northern California and Nevada for proposed mining undertakings as well as in the course of survey for proposed subdivisions, reservoirs, and other development projects.

Mr. Gerry has directed test excavations for evaluation of significance at a number of sites, both historic and prehistoric. Examples include CA-NAP-261, twelve sites on Naval Petroleum Reserve No. 1, three sites on Russell Ranch in Sacramento County, a midden site near Guinda and a village known through ethnographic literature in Murphys. He conducted test excavations at a known village site adjacent to a quarry in Yolo County to insure it would not be impacted by expanded quarrying.

In the field of historical resources, Mr. Gerry has prepared site records and significance evaluations for numerous historical buildings throughout California. The bulk of these have been single family residences, but industrial, commercial and multi-family residences were also included. He has also directed excavations for evaluation of historical archeological potential and monitored construction work in areas of known historical sensitivity.

PEAK & ASSOCIATES, INC.
RESUME

NEAL J. NEUENSCHWANDER
Staff Archeologist

3941 Park Drive, Suite 20-329
El Dorado Hills, CA 95672
(916) 939-2405

January 2013

3161 Godman Avenue, Suite A
Chico, CA 95973
(530) 342-2800

PROFESSIONAL EXPERIENCE

Mr. Neuenschwander has compiled an excellent record of supervision of excavation and survey projects for both the public and private sectors over the past thirty-two years. He has supervised the fieldwork of over 1,700 projects throughout California, Oregon, Nevada, and southern Idaho.

EDUCATION

M.A. candidate - Anthropology - California State University, Chico
B.A. - Anthropology - California State University, Chico (with distinction)
B.A. - Geography - California State University, Chico (with distinction)

RECENT PROJECTS

Mr. Neuenschwander manages the North Valley office of Peak & Associates, located in Chico, California.

Neuenschwander's duties at Peak & Associates have included the field direction for multiple site excavations and surveys throughout northern, central, and southern California, Nevada, Oregon and Idaho. In this capacity, he has been responsible for the planning and implementation of every aspect of the fieldwork, analysis, and report production phases. During his twenty-five years with the company, he has developed a reputation for his ability to complete projects on-time and within budget parameters, while at the same time maximizing the recovery and analysis of data for the professional community.

Neuenschwander assisted in the cultural resource research and contributed to the text prepared for the DeSabra-Centerville PAD. He is also currently assisting the cultural resource project manager in the completion of studies for the FERC re-licensing of the South Feather Power Project and the Woodleaf-Palermo and Sly Creek Transmission Lines. He led the fieldwork effort, and completed site recordation and evaluation.

Notable projects under Neuenschwander's direction include the nine week excavation at Clarks Flat in Calaveras County, eleven weeks with a crew of over twenty technicians at the Upper Mountain locale (a remote camp six miles from the nearest road), ten weeks of an over 9,000-acre survey at Elk Hills Naval Petroleum Reserve, and a two-phase excavation at CA-PLU-88, a site that contained radiocarbon evidence of the some of the earliest inhabitation of the Sierra Nevada Mountains.

Mr. Neuenschwander also served as the field director for multiple phases of recordation, testing and evaluation for the 172-mile-long Pacific Pipeline Project proposed for construction in Santa Barbara, Ventura, and Los Angeles counties. He also has served as field director or co-director on a number of AT&T fiber optic projects throughout California, Oregon and Idaho.

In recent years, Neuenschwander has been involved with a number of Caltrans funded and reviewed projects throughout the area, completing surveys, Native American consultation, site testing and assisting in report preparation. He has also contributed his skills during the recordation and evaluation of a number of historic buildings including Rocklin City Hall and Taylor Hall on the California State University, Chico campus.

Mr. Neuenschwander has extensive experience with Placer County's varied cultural resources including serving Field Director during the testing and evaluation of resources at Twelve Bridges Golf Club, and at Clover Valley. He led the team that identified more than 20 additional cultural resources in the Clover Valley property that had been twice inspected by archeologists.

APPENDIX 2

Native American Consultation

NATIVE AMERICAN HERITAGE COMMISSION

915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-6251
Fax (916) 657-5390



May 16, 2012

Neal Neuenschwander
Peak & Associates, Inc.
3161 Godman Avenue, Suite A
Chico, CA 95973

Sent by Fax: 530-342-0273
Number of Pages: 2

~~Re: Nevada County Housing Element Rezone Project, Nevada County.~~

Dear Mr. Neuenschwander:

A record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have knowledge of cultural resources in the project area. The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe or group. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 653-4038.

Sincerely,

A handwritten signature in black ink, appearing to read "Debbie Pilas-Treadway".

Debbie Pilas-Treadway
Environmental Specialist III

**Native American Contacts
Nevada County
May 16, 2012**

Jill Harvey
11799 McCourtney Road Maidu
Grass Valley , CA 95949 Miwok
(530) 273-1749

United Auburn Indian Community of the Auburn Rancheria
Marcos Guerrero, Tribal Preservation Committee
10720 Indian Hill Road Maidu
Auburn , CA 95603 Miwok
mguerrero@auburnrancheria.com
530-883-2364
530-883-2320 - Fax

April Wallace Moore
19630 Placer Hills Road Nisenan - So Maidu
Colfax , CA 95713 Konkow
530-637-4279 Washoe

T si-Akim Maidu
Eileen Moon, Vice Chairperson
1239 East Main St. Maidu
Grass Valley , CA 95945
(530) 477-0711

T'Si-akim Maidu
Grayson Coney, Cultural Director
P.O. Box 1316 Maidu
Colfax , CA 95713
akimmaidu@att.net
(530) 383-7234

United Auburn Indian Community of the Auburn Rancheria
David Keyser, Chairperson
10720 Indian Hill Road Maidu
Auburn , CA 95603 Miwok
530-883-2390
530-883-2380 - Fax

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Nevada County Housing Element Rezone Program, Nevada County

PEAK & ASSOCIATES, INC.
CONSULTING ARCHEOLOGY



June 7, 2012

Jill Harvey
11799 McCourtney Road
Grass Valley, CA 95949

Subject: Nevada County Housing Element Rezone Program

Dear Ms. Harvey,

Eighteen parcels in Nevada County, ranging in size from a little over an acre to twenty acres, have been grouped by the county into one rezone application. The eighteen parcels involved with the Nevada County Housing Element Rezone Program are shown on the attached maps. A record search through the California Historical Resources Information System (CHRIS), North Central Information Center (NCIC) has been conducted. No cultural resources have been identified in any of the eighteen parcels, and approximately half have been investigated previously by archeologists.

Peak & Associates will be conducting intensive surveys of each of the eighteen parcels, previously surveyed or otherwise. We have contacted the Native American Heritage Commission (NAHC) who provided us with your name as someone we should contact.

If you have any information about cultural resources in any of these parcel areas, or would like to comment, please don't hesitate to contact Neal Neuenschwander, Staff Archeologist, Peak & Associates, Inc., 3161 Godman Avenue, Chico, CA 95973, (530) 342-2800, peakinc@yahoo.com.

Thank you for your time reviewing this letter and attached maps.

Sincerely,

Neal Neuenschwander
Staff Archeologist

Enc. Topographic maps with parcels delineated

- 3941 Park Drive, Suite 20#329, El Dorado Hills, CA 95762/Phone: (916)939-2405/peakinc@sbcglobal.net
- 3161 Godman Avenue, Suite A, Chico, CA 95973/Phone: (530)342-2800/peakinc@cmc.net

PEAK & ASSOCIATES, INC.
CONSULTING ARCHEOLOGY



June 7, 2012

April Wallace Moore
19630 Placer Hills Road
Colfax, CA 95713

Subject: Nevada County Housing Element Rezone Program

Hi April,

Eighteen parcels in Nevada County, ranging in size from a little over an acre to twenty acres, have been grouped by the county into one rezone application. The eighteen parcels involved with the Nevada County Housing Element Rezone Program are shown on the attached maps. A record search through the California Historical Resources Information System (CHRIS), North Central Information Center (NCIC) has been conducted. No cultural resources have been identified in any of the eighteen parcels, and approximately half have been investigated previously by archeologists.

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Thank you for your time reviewing this letter and attached maps.

Sincerely,

Neal Neuenschwander
Staff Archeologist

Enc. Topographic maps with parcels delineated

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- 3161 Godman Avenue, Suite A, Chico, CA 95973/Phone: (530)342-2800/peakinc@cmc.net

PEAK & ASSOCIATES, INC.
CONSULTING ARCHEOLOGY



June 7, 2012

Eileen Moon, Vice Chairperson
T si-Akim Maidu
1239 East Main Street
Grass Valley, CA 95949

Subject: Nevada County Housing Element Rezone Program

Dear Vice Chairperson Moon,

Eighteen parcels in Nevada County, ranging in size from a little over an acre to twenty acres, have been grouped by the county into one rezone application. The eighteen parcels involved with the Nevada County Housing Element Rezone Program are shown on the attached maps. A record search through the California Historical Resources Information System (CHRIS), North Central Information Center (NCIC) has been conducted. No cultural resources have been identified in any of the eighteen parcels, and approximately half have been investigated previously by archeologists.

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Thank you for your time reviewing this letter and attached maps.

Sincerely,

Neal Neuenschwander
Staff Archeologist

Enc. Topographic maps with parcels delineated

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PEAK & ASSOCIATES, INC.
CONSULTING ARCHEOLOGY



June 7, 2012

Grayson Coney, Cultural Director
T si-Akim Maidu
P.O. Box 1316
Colfax, CA 95713

Subject: Nevada County Housing Element Rezone Program

Hi Grayson,

Eighteen parcels in Nevada County, ranging in size from a little over an acre to twenty acres, have been grouped by the county into one rezone application. The eighteen parcels involved with the Nevada County Housing Element Rezone Program are shown on the attached maps. A record search through the California Historical Resources Information System (CHRIS), North Central Information Center (NCIC) has been conducted. No cultural resources have been identified in any of the eighteen parcels, and approximately half have been investigated previously by archeologists.

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If you have any information about cultural resources in any of these parcel areas, or would like to comment, please don't hesitate to contact Neal Neuenschwander, Staff Archeologist, Peak & Associates, Inc., 3161 Godman Avenue, Chico, CA 95973, (530) 342-2800, peakinc@yahoo.com.

Thank you for your time reviewing the attached and thanks again for your input on the Loma Rica Reservoir project recently.

Sincerely,

A handwritten signature in black ink, appearing to read 'Neal'.

Neal Neuenschwander
Staff Archeologist

Enc. Topographic maps with parcels delineated

- 3941 Park Drive, Suite 20#329, El Dorado Hills, CA 95762/Phone: (916)939-2405/peakinc@sbcglobal.net
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PEAK & ASSOCIATES, INC.
CONSULTING ARCHEOLOGY



June 7, 2012

David Keyser, Chairperson
United Auburn Indian Community of the Auburn Rancheria
10720 Indian Hill Road
Auburn, CA 95603

Subject: Nevada County Housing Element Rezone Program

Dear Chairperson Keyser,

Eighteen parcels in Nevada County, ranging in size from a little over an acre to twenty acres, have been grouped by the county into one rezone application. The eighteen parcels involved with the Nevada County Housing Element Rezone Program are shown on the attached maps. A record search through the California Historical Resources Information System (CHRIS), North Central Information Center (NCIC) has been conducted. No cultural resources have been identified in any of the eighteen parcels, and approximately half have been investigated previously by archeologists.

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Thank you for your time reviewing this letter and attached maps.

Sincerely,

Neal Neuenschwander
Staff Archeologist

Enc. Topographic maps with parcels delineated

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PEAK & ASSOCIATES, INC.
CONSULTING ARCHEOLOGY



June 7, 2012

Marcos Guerrero, Tribal Preservation Committee
United Auburn Indian Community of the Auburn Rancheria
10720 Indian Hill Road
Auburn, CA 95603

Subject: Nevada County Housing Element Rezone Program

Hi Marcos,

Eighteen parcels in Nevada County, ranging in size from a little over an acre to twenty acres, have been grouped by the county into one rezone application. The eighteen parcels involved with the Nevada County Housing Element Rezone Program are shown on the attached maps. A record search through the California Historical Resources Information System (CHRIS), North Central Information Center (NCIC) has been conducted. No cultural resources have been identified in any of the eighteen parcels, and approximately half have been investigated previously by archeologists.

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Thank you for your time reviewing this letter and attached maps.

Sincerely,

A handwritten signature in black ink, appearing to read 'Neal'.

Neal Neuenschwander
Staff Archeologist

Enc. Topographic maps with parcels delineated

- 3941 Park Drive, Suite 20#329, El Dorado Hills, CA 95762/Phone: (916)939-2405/peakinc@sbcglobal.net
- 3161 Godman Avenue, Suite A, Chico, CA 95973/Phone: (530)342-2800/peakinc@cmc.net



MIWOK
MAIDU

United Auburn Indian Community
of the Auburn Rancheria

David Keyser
Chairman

Kimberly DuBach
Vice Chair

Gene Whitehouse
Secretary

Brenda Adams
Treasurer

Calvin Moman
Council Member

June 21, 2012

Neal Neuenschwander
Peak & Associates, Inc.
3161 Godman Avenue, Suite A
Chico, CA 95973

Subject: Nevada County Housing Element Rezone Program

Dear Mr. Neuenschwander,

Thank you for requesting information regarding the above referenced project. The United Auburn Indian Community (UAIC) of the Auburn Rancheria is comprised of Miwok and Southern Maidu (Nisenan) people whose tribal lands are within Placer County and ancestral territory spans into El Dorado, Nevada, Sacramento, Sutter, and Yuba counties. The UAIC is concerned about development within its aboriginal territory that has potential to impact the lifeways, cultural sites, and landscapes that may be of sacred or ceremonial significance. We appreciate the opportunity to comment on this and other projects in your jurisdiction.

In order to ascertain whether or not the project could affect cultural resources that may be of importance to the UAIC, we would like to receive copies of any archaeological reports that have been, or will be, completed for the project. We also request copies of future environmental documents for the proposed project so that we have the opportunity to comment on potential impacts and proposed mitigation measures related to cultural resources. The information gathered will provide us with a better understanding of the project and cultural resources on site and is invaluable for consultation purposes. Please contact us if any Native American cultural resources are in, or found to be within, your project area.

Thank you again for taking these matters into consideration, and for involving the UAIC early in the planning process. We look forward to reviewing the aforementioned documents as requested. Please contact Marcos Guerrero, Tribal Historic Preservation Officer, at (530) 883-2364 or email at mguerrero@auburnrancheria.com if you have any questions.

Sincerely,

David Keyser,
Chairman

CC: Marcos Guerrero, THPO

APPENDIX 3

Confidential: Site Records

Maintained Under Separate Cover at:

County of Nevada
Community Development Agency
Planning Department
950 Maidu Avenue
Nevada City, California 95959

**County of Nevada
Housing Element Rezone Implementation Program EIR
September 2013**

Technical Appendices

Appendix G

Geotechnical Report

Project No. 4033-01

December 28, 2012

RBF Consulting
4540 Duckhorn Drive, Suite 202
Sacramento, CA 95834-2597

Attention: Alex Jewell, Senior Project Manager

Reference: *Housing Element Rezone Program*
Nevada County, California

Subject: *Addendum to Preliminary Geotechnical Engineering Report*

Dear Mr. Jewell,

At your request, Holdrege & Kull has provided a geotechnical engineering review of three additional parcels which have been added to the list of candidate sites associated with the Nevada County Housing Element Rezone Program. Specifically, we have expanded the scope of our geotechnical services to include Assessor's Parcel Numbers 35-412-16, 35-412-20 and 35-550-15, which comprise approximately 16.92 acres located near Brunswick Road and Town Talk Road in Grass Valley. These parcels were not considered during our previous study for the Nevada County Rezone Program, as documented in our June 8, 2012 *Preliminary Geotechnical Engineering Report*. This letter should be considered an addendum to our preliminary geotechnical report.

The additional parcels comprise approximately 17 acres and are located adjacent to parcels previously reviewed as a part of our initial study. Based on our review of recent mapping documents provided by RBF Consulting, we understand that the numerical designation of the proposed sites has changed. Attached to this letter is Figure 1 which depicts the three additional parcels considered in this study, and also the neighboring parcels considered in the scope of the original study. The numerical designations of the original parcels have been updated from those used in the preliminary report in an effort to match the current parcel designations being used by RBF Consulting.

The following sections summarize our observations and conclusions regarding the additional parcels.

General Site Vicinity

The three additional parcels and their neighboring rezone candidate sites are located on Brunswick Road, north of its intersection with Idaho Maryland Road and south of its intersection with Bubbling Wells Road. The sites on the west side of Brunswick Road are accessed by Triple Crown Drive. The sites on the east side of Brunswick Road are accessible from Brunswick Road and Bubbling Wells Road.

USDA Soil Survey

H&K reviewed the *Soil Survey of Nevada County Area, California* (USDA Soil Conservation Service, 1975, reissued 1993) and the USDA's online *Web Soil Survey* accessed at <http://websoilsurvey.nrcs.usda.gov/> (May 2012). Figure 1, attached to this letter, presents the corresponding soil classifications mapped in the vicinity of the candidate parcels. Soil conditions mapped by the soil survey are generalized, and the mapped delineations or contacts between soil classifications should be considered approximate. Actual soil conditions would be verified in the field as part of a future design-level geotechnical investigation prior to development. Descriptions of the relevant soil series are summarized below.

Alluvial Land, Clayey

According to the soil survey, a significant portion of the three parcels located to the east of Brunswick Road are likely underlain by materials designated as Alluvial Land, Clayey (Ao). The soil survey describes the Alluvial Land, Clayey soils as narrow areas of alluvial material consisting of mostly dark-gray to dark grayish-brown clay loam to clay to an approximate depth of 30 to 45 inches below the ground surface (bgs). This clay to clay loam is overlain in places by a sandy loam or loam to an approximate thickness of 3 to 10 inches. Permeability is moderately slow.

Mariposa – Rock Outcrop Complex

The soil survey depicts Mariposa Rock Outcrop Complex (MkE) as being located in the northeastern portion of the project area, generally within the low-lying area between Bubbling Wells Road and an unnamed surface water drainage on APN 35-550-15.

The Mariposa series soil is described as well drained residual soil underlain by slightly weathered slate and shale. The surface soil typically consists of 3 inches of

brown gravelly loam. The surface soil is typically underlain by yellowish brown gravelly heavy loam and reddish yellow gravelly clay loam. Slightly weathered slate or shale are typically encountered at a depth of 20 inches bgs. The soil survey notes that the soil series possesses a moderate corrosion rating for uncoated steel and a moderate shrink-swell potential.

Sites Series

The candidate sites located to the west of Brunswick Road are mapped as containing Sites series soils (SIB, SIC, and SID). The soil survey describes the Sites Series as consisting of well drained soil underlain by tilted metasedimentary and metabasic rock. Permeability is moderately slow. The surface soil layer typically consists of brown and yellowish-red heavy loam to an approximate depth of 12 inches bgs. The heavy loam is typically underlain by yellowish-red clay loam and red clay, and light clay to an approximate depth of 78 inches bgs. The clay loam is typically underlain by weathered metasedimentary and basic rock at depths greater than 78 inches bgs.

General Site Geology

To determine the geology of each site, we reviewed the *Geologic Map of the Chico Quadrangle, California* (Saucedo, G. J., and Wagner, D. L., 1992); *California Mineral Land Classification of Nevada County, California, Special Report 164* (California Department of Conservation, Division of Mines and Geology, 1990); and the unpublished thesis *Structural and Stratigraphic Relations in the Grass Valley Colfax Area of the Northern Sierra Nevada foothills, California* (Tuminas, Alvydas, 1983). According to the geologic maps, the geology of the subject sites primarily consists of Mesozoic aged plutonic and metavolcanic rocks. The Mesozoic era spans the time between 65 and 230 million years before present.

We reviewed the following historical mining maps to determine whether mining claims or ore processing facilities were depicted on the subject sites.

- Plate 2A, *Maps of the Mineral Land Classification of Nevada County, California*. Special Report 164, California Department of Conservation Division of Mines and Geology (CDMG), 1990.
- *Map of the Grass Valley Quadrangle* from the Nevada City Folio (Lindgren, 1896).

- *Survey Map of Township 16 North, Range 8 East, Mt. Diablo Meridian* United States Bureau of Land Management (1874).

No mining features are mapped on these sites.

Regional Faulting and Seismic Sources

Regional faulting is associated with the central area of the Foothills Fault System which includes the Spenceville Fault, Wolf Creek Fault Zone, Bear Mountains Fault Zone (Highway 49 lineament), Grass Valley Fault, Weimar Fault Zone, and the Cleveland Hill Fault. The Foothills Fault System is a broad zone of northwest trending east dipping normal faults formed along the margin of the Great Valley and the Sierra Nevada geologic provinces on the western flank of the Sierra Nevada and southern Cascade mountain ranges. The central part of the fault zone is split into branches: the Malones Fault Zone to the east, the Cleveland Hill fault to the northwest, the Spenceville Fault to the west, and the Wolf Creek Fault Zone in the area of the candidate sites.

H&K reviewed the 1997 version of Special Publication 42, *Fault Rupture Hazard Zones in California*, which describes active faults and fault zones (activity within 11,000 years), as part of the Alquist-Priolo Earthquake Fault Zoning Act. The document and the 1999 on-line update indicate that the sites are not located within an Alquist-Priolo active fault zone. According to the *Fault Activity Map of California and Adjacent Areas* (Jennings, 1994), the closest known active fault which has surface displacement within Holocene time (about the last 11,000 years) is the Cleveland Hill Fault. The Cleveland Hill Fault is located approximately 25 miles northwest of the subject sites and is associated with ground rupture during the Oroville earthquakes of 1975.

Tuminas (1983) depicts a fault trace along the east side of the current Brunswick Road alignment which would pass through the western edge of the parcels to the east of Brunswick Road, as well as a thrust fault approximately 800 feet east of the candidate sites. Saucedo and Wagner (1992), show the fault as being located in the same general area, although it appears to be depicted to the west of Brunswick Road in the vicinity of the sites. The mapped fault is presented as pre-quatarnary in the *Fault Activity Map of California*, indicating that there is no evidence of displacement in the past 1.6 million years.

Site Observations

We performed an initial observation of the sites during May and June 2012 as a part of our preliminary geotechnical investigation for the Housing Element Rezone project. We returned to the sites described in this letter on December 20, 2012 to observe the surface conditions on the three additional parcels.

Sites West of Brunswick Road

The sites in the area west of Brunswick Road are generally located on a forested hilltop. These sites are forested with madrone, incense cedar, ponderosa pine, and associated chaparral typical of the area. Blackberry bushes and other plants associated with moist soil conditions were observed in the lower portions of the sites, particularly near the southern and western boundaries of the parcels. The surface soil at the sites was typically obscured by forest litter, recent timber harvest debris, and surface vegetation. However, where observed, the surface soil appeared to typically consist of reddish brown fine sandy silt with common gravel-size rock fragments. We noted an apparent increase in the gravel content of the surface soil in the upper portions of the sites which may be indicative of a thinner soil profile at these hilltop locations and shallower depths to resistant rock.

We observed minor apparent rock outcrop at isolated areas on the western parcels which may indicate the potential for relatively shallow soil and resistant, variably weathered rock conditions. We also observed an abandoned small wood structure in the eastern, downslope portion of APN 35-412-15, near an abandoned irrigation ditch alignment. Areas of shallow irregular topography were also observed in the southern portion of the parcel, generally between the abandoned irrigation ditch and a tributary to Wolf Creek which flows near the eastern boundary. This irregular topography appeared to be the result of past excavation or trenching in this area. Areas of dense blackberry bushes were also observed in the eastern portion of the study area at locations in close proximity to the creek.

We did not observe evidence of significant surface water flow except in the lowermost portions of the sites, generally at locations near the southern and western property boundaries.

During our site observations we observed what appeared to be an exploratory excavation or glory hole in the northwestern portion of the study area. The approximate excavation location, as well as the locations of observed boulders and areas of rock outcrop, are depicted on Figure 1.

Sites East of Brunswick Road

Three parcels (APNs 35-550-15, 35-412-20, and 35-412-21) associated with this study are located to the east of Brunswick Road, as shown on attached Figure 1.

These forested sites are gently to moderately sloping to the southwest, with estimated slope gradients ranging from approximately 20 percent in the northeastern portion of the sites to relatively flat in the west and southwestern portions of the sites, near Brunswick Road. Recent timber harvest in the southern most parcel and past brush clearing in the northern parcel had exposed areas of surface soil at several locations, which typically consisted of dark reddish brown silty fine sand. Saturated surface soil conditions and areas of standing water were observed in the study area particularly in low lying areas adjacent to Brunswick Road. In addition, we observed surface water flowing in an established drainage swale which generally flowed in a southerly direction from Bubbling Wells Road toward Brunswick Road. The approximate location of the drainage swale and areas of standing water are presented on Figure 1.

We also observed boulders and areas of apparent rock outcrop in the western portion of the study area, at the approximate locations depicted on Figure 1.

We observed a previously graded, gently sloping bench which crossed the study area in an approximate northwest to southeast direction. Existing residential and storage structures had been built on a portion of this bench on APN 35-550-15. This previously graded bench is presumed to be attributable to the historical Nevada County Narrow Gauge Railroad alignment. The presence of the bench alters natural surface water drainage, particularly in the southern portion of APN 35-412-21 where we observed areas of standing water and saturated surface soil conditions on the upslope side of the bench. We also observed sloughing and erosion of the bench at a location near the southernmost property boundary, where the apparent railroad alignment crossed a tributary to Wolf Creek. This crossing location is likely outside of the study area, on the neighboring parcel to the south.

Conclusions

Based on our literature review, field observations and our experience in the area, our opinion is that residential development on the sites depicted on Figure 1 is feasible from a geotechnical standpoint.

During our site observations, we noted areas of saturated surface soil, standing water, and surface water drainage in the low lying portions of the parcels on the

east side of Brunswick Road. The consideration of appropriate surface water drainage improvements and potential subsurface drainage will be an important part of the successful development of the low-lying areas, if proposed in the future.

The conclusions and recommendations presented in our previous, June 8, 2012 preliminary geotechnical report apply to the subject parcels. This letter should be considered an addendum to our previous report.

We appreciate the opportunity to work with you on this project. Please feel free to contact us if you have any questions.

Sincerely,

HOLDREGE & KULL



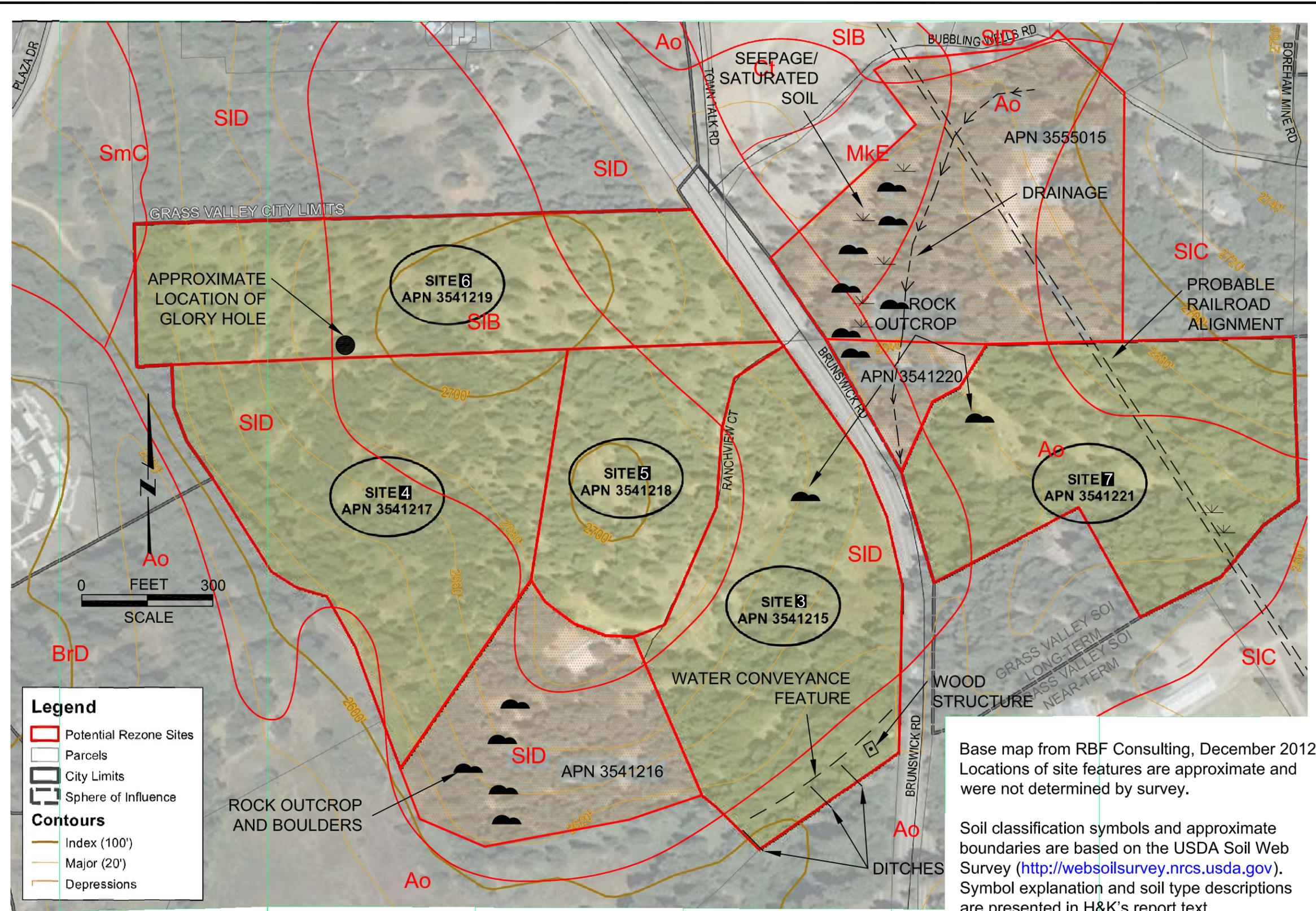
Robert Fingerson, G.E. 2699
Principal Engineer



Attachments: Figure 1

Copies: Electronic copy in PDF format to RBF /Attn: Alex Jewell, AJewell@RBF.com

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Base map from RBF Consulting, December 2012. Locations of site features are approximate and were not determined by survey.

Soil classification symbols and approximate boundaries are based on the USDA Soil Web Survey (<http://websoilsurvey.nrcs.usda.gov>). Symbol explanation and soil type descriptions are presented in H&K's report text.



**PRELIMINARY GEOTECHNICAL
ENGINEERING REPORT**
for
HOUSING ELEMENT REZONE
Nevada County, California

Prepared for:
RBF Consulting
4540 Duckhorn Drive, Suite 202
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Prepared by:
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Project No. 4033-01
June 8, 2012

Project No. 4033-01
June 8, 2012

Axel H. Jewell
RBF Consulting
4540 Duckhorn Drive, Suite 202
Sacramento, California 95834

Reference: ***Nevada County Rezone Program***
Various Sites, Nevada County, California

Subject: ***Preliminary Geotechnical Engineering Report***

Dear Mr. Jewell:

Holdrege & Kull (H&K) prepared this *Preliminary Geotechnical Engineering Report for the Nevada County Housing Element Rezone Program* candidate sites located in Nevada County, California. The purpose of this report is to present the findings of our investigations and preliminary geotechnical recommendations associated with each of the 16 candidate sites (Sites 1, 3 through 8, and Sites 10 through 18) investigated. H&K did not perform investigations of Sites 2 and 9 because the property owners withdrew from the project.

The preliminary findings presented in this report are based on our review of selected geologic references and our experience with subsurface conditions from previous investigations. Based on our experience in the region, our opinion is that the future development on the subject parcels is feasible from a geotechnical engineering standpoint.

Prior to the future design of improvements on the parcels, we should be retained to perform a design-level investigation to confirm the preliminary recommendations presented in this report and provide site specific geotechnical design criteria and construction recommendations based on the subsurface conditions encountered. Additionally, we should be retained to perform testing and observation services during grading to confirm the preliminary recommendations presented in this report.

Please contact us if you have any questions regarding our observations or the preliminary recommendations presented in this report.

Sincerely,
HOLDREGE & KULL

Prepared by:

Heidi Cummings

Heidi Cummings, P.G. 7732
Project Geologist

Reviewed by:

[Signature]
Rob Fingerson, G.E. 2699
Senior Engineer



copies: 3 to RBF Consulting / Attn: Alex Jewell

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Appendix C	Figure 2 from <i>Preliminary Endangerment Assessment</i> (H&K, October 2007)

1 INTRODUCTION

Holdrege & Kull (H&K) performed preliminary geotechnical engineering investigations for the Housing Element Rezone candidate sites located in Nevada County, California. The purpose of this report is to present the findings of our investigations and preliminary geotechnical recommendations associated with each of the candidate sites. A total of 16 candidate sites were investigated (Sites 1, 3 through 8, and Sites 10 through 18). H&K did not perform an investigation for Sites 2 and 9 because the property owners withdrew from the project.

The preliminary geotechnical investigations were performed in general accordance with the scope of services presented in our August 23, 2011 proposal for the project, a copy of which is provided as Appendix A of this report. For your review, Appendix B contains a document prepared by ASFE entitled *Important Information About Your Geotechnical Engineering Report*, which summarizes the general limitations, responsibilities, and use of geotechnical reports.

1.1 SCOPE-OF-SERVICES

H&K performed a limited scope geotechnical review of the subject sites to identify potential geologic hazards that may negatively impact the site and require design mitigation and to develop preliminary geotechnical engineering design recommendations for earthwork and structural improvements. Our limited scope preliminary investigations included:

- **Field Reconnaissance:** H&K performed preliminary site investigations to observe the existing surface conditions. No samples were collected or analyzed for their engineering or environmental properties during the investigations, nor was there any subsurface investigation performed.
- **Literature Review:** H&K reviewed literature pertaining to the project site to characterize general site geology, identify potential geologic and seismic hazards, and identify areas of known historical mining. H&K reviewed geologic and seismic literature, United States Department of Agriculture (USDA) soil survey, aerial photos, and previous environmental, geotechnical, and geological reports pertaining to the candidate sites.
- **Preliminary Geotechnical Report:** H&K prepared this report to present the findings, conclusions and preliminary geotechnical engineering recommendations for future improvements at the sites.

1.2 SITE LOCATIONS AND DESCRIPTIONS

The 16 candidate sites are generally located near the communities of Grass Valley, Penn Valley, and Lake of the Pines in Nevada County, California. The locations of each site and approximate parcel boundaries within the three areas are depicted on Figures 1, 2, and 3, respectively. The latitude, longitude, Nevada County Assessor's parcel numbers (APNs), land use zoning designation, acreage, approximate minimum and maximum elevations, and approximate total relief are summarized in Table 1. Site descriptions are provided below.

1.2.1 Grass Valley Area

1.2.1.1 Site 1

Site 1 is located in the southern portion of Grass Valley, on the southeast side of McCourtney Road between Personeni Road and Genes Road. Site 1 is generally undeveloped and gently slopes to the northwest with 13 feet of relief. The site is periodically used as a fee parking lot for events at the Nevada County Fairgrounds, which is located across McCourtney Road, northwest of the site. Site 1 is bound by commercial buildings to the west and east and single family residences to the southeast. Beyond the single family residences is the northwest boundary of the North Star property, a site of historical hard rock gold mining and known environmental hazards.

1.2.1.2 Site 3

Site 3 is located on La Barr Meadows Road south of the intersection with McKnight Way. Site 3 is undeveloped and moderately slopes toward the southwest with an estimated slope gradient of 20 percent. There is a single dirt access road entering the south end of the site from La Barr Meadows Road which passes through the property and onto adjacent property to the east. The road was likely used for timber harvesting and/or clearing of the site, as evidenced by the presence of brush piles and earthen berms on the site. Site 3 is bound by commercial and residential land uses on the northwest and south, La Barr Meadows Road and State Route 49 on the southwest, the Empire Mine State Historic Park on the north, and a portion of the approximately 45-acre La Barr Meadows property on the east. Site 3 comprises the western portion of the La Barr meadows property which consists of Nevada county APNs 09-620-10 and 12, 22-150-23 and 30, and 29-350-12 (Site 3). An ephemeral drainage was evident in the southern portion of the site.

Past uses of Site 3 include hard rock gold mining. Environmental conditions at Site 3 were investigated during a Preliminary Endangerment Assessment (PEA)

conducted in 2006 for the entire La Barr Meadows property. The PEA findings are presented in the *Preliminary Endangerment Assessment of La Barr Meadows Property* (H&K, January 12, 2007). The potential for impacts to Site 3 from recognized environmental conditions on the adjacent Empire Mine State Historic Park (SHP) property, including former mining and mine processing, are also addressed in the findings of H&K, 2007. A brief summary of the current environmental status is presented in Section 2.1.1.2 of this document.

1.2.1.3 Sites 4 through 8

Sites 4, 5, 6, 7, and 8 are located on Brunswick Road, north of Idaho Maryland Road and south of Bubbling Wells Road. Sites 4, 5, 6, and 7 are on the west side of Brunswick Road and are accessed by Triple Crown Drive. Sites 4, 5, 6, and 7 are undeveloped contiguous parcels with an irregular shape. Site 8 lies across Brunswick Road to the east and also has an irregular shape. These parcels are gently to moderately sloped and have moderate to high relief. Sites 4, 6, and 7 are bound by Brunswick Road on the east. Sites 5 and 7 are bound by undeveloped land to the southwest, west, and north. A single family residence is adjacent to the southern boundary of Site 6 with access to the residence by Triple Crown Drive along the boundary of Sites 4 and 6. Undeveloped land lies southeast of Site 4. Agricultural development is apparent south of Site 8 and single family residences are located to the north. Sites 4 and 8 are bordered by an unnamed tributary to Wolf Creek.

1.2.2 Penn Valley Area

1.2.2.1 Sites 10 and 11

Sites 10 and 11 are undeveloped contiguous parcels located in the Penn Valley Area south of State Route 20, on the north side of Penn Valley Drive, and east of the intersection with Broken Oak Court. Site 11 is gently sloped to the northwest with approximately 7 feet of relief. Site 10 slopes very gently to the northeast and is topographically lower than the surrounding properties to the west and east. The northern section of Site 10 is transected by Squirrel Creek, and is bound by the riparian zone, the Creekside Village mobile home park wastewater percolation ponds, and Site 13. Mixed use commercial and residential properties surround the sites on the east, west, and south. A large culvert enters Site 10 from beneath Penn Valley Road on the south with the primary flow path in the swale along the western boundary, where it then exits the western boundary of the site to another culvert.

1.2.2.2 Site 12

Site 12 is southwest of Sites 10 and 11 across Penn Valley Road on Broken Oak Court. This site is undeveloped and flat lying. This site is surrounded by single and multifamily residential development. A seasonal drainage swale is present on the north side of the site and appears to follow the property boundary from the east, then passes through the northwest portion of the site.

1.2.2.3 Site 13

Site 13 is bordered by State Route 20 to the north, rural residential development to the east, Squirrel Creek to the south, and presently undeveloped land to the west. Site 13 is very gently sloping to flat lying, with estimated slope gradients typically less than 5 percent. Two seasonal drainage swales flow across the project site from the State Route 20 boundary toward Squirrel Creek.

An existing, circular percolation pond is located adjacent to Site 13, near Squirrel Creek. The percolation pond functions as the primary component of the wastewater treatment and disposal system for the Creekside Village mobile home park, which is located south of Site 13, across Squirrel Creek. Access to Site 13 is currently provided by an easement through the Creekside Village mobile home park and a concrete stream crossing over Squirrel Creek.

1.2.3 *Lake of the Pines Area*

1.2.3.1 Site 14

Site 14 is located northeast of the intersection of State Route 49 and Combie Road, on the south side of Cameo Drive, in southern Nevada County. Site 14 is an undeveloped parcel on moderately sloped terrain, with an estimated slope gradient of 20 percent. Site 14 is bound by State Route 49 on the west, rural residential development to the north and east, and the Higgins Fire Station to the south. No significant drainages were present.

1.2.3.2 Sites 15 and 16

Sites 15 and 16 are located southeast of the intersection of State Route 49 and Combie Road and Site 14. Access to these sites is from Woodridge Drive off of State Route 49. Site 15 and 16 are contiguous parcels on gently to moderately sloping terrain, with estimated slope gradients up to 20 percent. Site 15 is presently developed with a single family residence. Site 16 is largely undeveloped, except for a wastewater disposal field and associated groundwater monitoring well network and pump building. The wastewater disposal field services the commercial

development on the corner of State Route 49 and Combie Road to the northwest. Power transmission lines transect the eastern portion of the property. No significant drainages were evident.

1.2.3.3 Site 17

Site 17 is densely vegetated and undeveloped on moderately sloping terrain with an estimated slope gradient of 12 percent. Site 17 is bound by single family residential property on the south, Rosewood Road and undeveloped land to the east, undeveloped land to the west, and commercial development across Combie Road to the north. Ragsdale Creek runs along the north boundary of Site 17. Most of this site was obscured by the dense, north slope, vegetation.

1.2.3.4 Site 18

Site 18 is located southeast of Sites 15, 16, and 17 on the north side of Combie Road. Site 18 is generally an undeveloped parcel on moderately to steeply sloped terrain, with estimated slope gradients of 13 to 30 percent. The northern portion of Site 18 is occupied by the Hole 6 green of the adjacent Darkhorse Golf Course. Site 18 is bound on the north and east by the Darkhorse Golf Course, on the west and south by single family residential development and open space. An ephemeral drainage transects the northwest portion of the property.

1.3 PROPOSED IMPROVEMENTS

Our understanding of the proposed project is based the March 28, 2012 Project Kickoff Meeting Notes issued by the County of Nevada Housing Element. Presently the project is in the feasibility study phase to determine the feasibility of future development of high-density residential housing on the 16 candidate sites. The parcels range in size from approximately 1.08 to 20.10 acres, and associated improvements would likely include single or multilevel buildings, parking and landscape areas, and extensions of public utilities and infrastructure.

2 SITE INVESTIGATION

The following sections summarize our literature review and field reconnaissance.

2.1 LITERATURE REVIEW

H&K performed a limited review of available literature that was pertinent to the candidate sites. The following summarizes our findings.

2.1.1 Previous Investigations

2.1.1.1 Site 1

Site 1 is located near the northwestern boundary of the approximately 705-acre North Star property, on which extensive historical hard rock gold mining was performed. H&K performed a Phase I Environmental Site Assessment (ESA) of the North Star property in 2011, as documented in *Phase I Environmental Site Assessment, North Star Property, Grass Valley, Nevada County, California* (H&K, March 23, 2011). In 2006, H&K performed an additional assessment of the North Star property as described in our December 27, 2006 *Preliminary Endangerment Assessment* which characterized metals concentrations associated with abandoned mine features. The PEA report was prepared pursuant to the August 8, 2005 VCA between the California Department of Toxic Substances Control (DTSC) and North Star/Grass Valley, LLC. The DTSC Docket Number is HSA-A 05/06-022.

Although the *Geologic Map of the Grass Valley Quadrangle and Adjacent Area, Nevada County, California* (W.D. Johnson, Jr., 1940) depicts no record of mining activity at the Site 1 location, the site is located near the historical North Star group of mines, and numerous unrecorded workings are known to exist in the site vicinity which could impact the property.

2.1.1.2 Site 3

Site 3 comprises the western portion of the approximately 45-acre La Barr Meadows property, which consists of Nevada County Assessor's parcel numbers (APNs) 09-620-10 and 12, 22-150-23 and 30, and 29-350-12 (Site 3). Site 3 is bordered by the Empire Mine SHP on the north and by the remainder of the La Barr Meadows property on the east.

Past uses of Site 3 include hard rock gold mining. Adjacent recognized environmental conditions include former mining and mine processing on the Empire Mine SHP property. Based on review of potential transport mechanisms, H&K's opinion is that significant impact to Site 3 from the Empire Mine SHP property is unlikely.

Pursuant to a voluntary cleanup agreement (VCA) with California Department of Toxic Substances Control (DTSC), H&K performed a PEA of the La Barr Meadows property to provide information for use in determining whether past site use or adjacent recognized environmental conditions released hazardous substances that present a risk to human health or to the environment. The PEA findings are presented in H&K's *Preliminary Endangerment Assessment of La Barr Meadows*

Property (January 12, 2007). DTSC approved the PEA report in a letter dated March 27, 2007.

The PEA identified abandoned mine features on Site 3 (referred to as features M2, M5 and M6). Figure 2 of the PEA showing the locations of the features is provided in Appendix C. The constituents of potential concern (COPCs) include arsenic, cadmium, lead, mercury and other metals. Potential exposure routes include ingestion, dermal contact and inhalation of soil dust. Based on a human health risk assessment performed as part of the PEA, assessment area M5 was determined to be suitable for unrestricted land use. The mine waste in areas M2 and M6 pose a potential human health risk and are not acceptable for unrestricted land use.

H&K also presented procedures for conducting remedial activities to address chemical hazards posed by abandoned mine features, as described in our September 8, 2008 *Final Removal Action Workplan for La Barr Meadows Property, APNs 09-620-10 and 12, 22-150-23 and 30, and 29-350-12, Nevada County, California* (RAW). The RAW was approved by DTSC in a letter dated August 19, 2008, and DTSC issued a Notice of Exemption (NOE) under the California Environmental Quality Act (CEQA) for the proposed remedial action. Public documents can be found at the DTSC's Envirostor Web site (Envirostor ID No. 29000004, Site Code 101724). The objectives of site remediation for mining assessment areas M2 and M6 are to:

- 1) Excavate the mine waste and underlying soil containing metals concentrations that exceed remedial goals;
- 2) Obtain soil samples for analysis to verify that the remedial goals have been met; and
- 3) Place the excavated mine waste and soil on-site in a deed restricted area.

The RAW locates the waste placement area near the eastern boundary of Site 3. The RAW can be modified to adjust the location of the mine waste placement area, and any modifications would need to be reviewed by the DTSC. It is possible that the mine waste can be removed from Site 3 and placed east of Site 3 on the adjacent remainder of the La Barr Meadows property. The waste placement area would be subject to land use restrictions which would likely allow commercial development but not residential development at the waste placement area.

If site activities are performed prior to site remediation as presented in the RAW, the remediation areas should be identified and marked in the field so that the areas may be avoided. Potential site activities that may result in disturbance of the mine

waste stockpiles and impacted soil areas include timber harvest, grading and road construction, brush clearing, and other ground disturbing activities. The DTSC should be allowed to review any proposed ground disturbing activities if the activities are to be performed prior to the implementation of the recommended remedial procedures.

The *Map of Township No. 16 North, Range No. 8 East, Mt. Diablo Meridian* (United States Bureau of Land Management, 1874) depicts a mine adit in the vicinity of Area M2. Similarly, the *Map of the Grass Valley Quadrangle, Nevada City Special Folio, California: U.S. Geological Survey Folio 29* (Waldemar Lindgren, 1896) depicts one mine adit and a stockpile of mine waste in the vicinity of Area M2. It is unknown whether the adit at area M2 has been backfilled, or is simply obscured from view by dense vegetation. General guidelines for physical closure are presented in the RAW. Future development proposed at Site 3 should consider potential physical hazards resulting from mine excavations. Recommendations regarding the mine excavations should be provided in a design-level geotechnical engineering report for proposed future development.

2.1.1.3 Sites 4 through 8 and 10 through 12

There are no known previous geotechnical or environmental investigations of Sites 4 through 8 and 10 through 12.

2.1.1.4 Site 13

Previous investigations conducted at Site 13 include a soils evaluation for wastewater disposal and a geotechnical investigation for residential development. The findings of the soil evaluation for wastewater disposal were reported in the *Preliminary Wastewater Disposal Field Design Report for Proposed Penn Valley Oaks Residential Development* (H&K, November 22, 2002) and the findings of the geotechnical investigation were reported in the *Geotechnical Investigation Report for Cross Creek Oaks Residential Development* (H&K, July 24, 2002).

Soils within Site 13 are reported (H&K, 2002) to be variable across the site. In the western portion of the previously planned Cross Creek Oaks development soils consisted of dark brown to brown, dry to damp, loose to medium dense, silty sand and moderately cemented, fine sandy silt. This surface soil was generally underlain by brown, damp to moist, medium dense, silty sand. Thin layers of grayish brown, damp, loose sand were also noted at depths between 2 and 3 feet bgs.

In the eastern portion of the project site, soils consisted of striated alluvial material described as yellowish brown, brown, and grayish brown, silty fine sand, sand, and

gravelly sand. In the northern portion of this area, the soils were finer grained, alluvial materials described as yellowish brown, reddish brown, strong brown, and grayish brown, clayey silt, sandy silt, and sand.

Redoxymorphic features, which indicate seasonal or periodic saturation, were noted across the site at depths less than 12 inches bgs and at depths greater than 4 feet bgs. The investigation was conducted during the summer and a period of extended dry weather. No groundwater or shallow seepage was observed at that time. However, seepage was encountered during previous trenching performed for the nearby Creekside Village mobile home park wastewater disposal field evaluation, which suggests that seasonally shallow groundwater may be encountered across the project site.

A primary concern with development of Site 13 is the proximity to the Squirrel Creek stream channel and areas of indistinct drainage. We anticipate that areas of standing surface water and periodic flooding may occur at isolated areas across the project site. Further review of the site conditions may reveal that grades within future areas of improvement may need to be raised through the placement of compacted fill to mitigate potential drainage problems. General recommendations regarding site drainage are presented in this report. However, a detailed review and analysis of drainage conditions onsite or stream channel hydrology should be addressed in a design-level geotechnical engineering investigation.

2.1.1.5 Sites 14 and 15

There are no known previous geotechnical or environmental investigations of Sites 14 and 15.

2.1.1.6 Site 16

Percolation testing was previously conducted by Anderson Geotechnical Consultants and reported in the *Report Letter on Preliminary Percolation Study* (September 11, 1990). This report was not available for review during this literature review.

H&K conducted a soils evaluation for wastewater disposal at Site 16, including percolation testing, as reported in *Higgins Corner Project, Additional Percolation Testing* (H&K, January 18, 2002) and mantle testing as reported in *Proposed Higgins Village Wastewater Disposal Field, Mantle Trench Observations* (H&K, September 11, 2002). The results of the percolation and mantle testing were used by others to design the existing wastewater disposal field.

In general, percolation test results indicated that an average or design percolation rate of 27 minutes per inch at a depth of 36 inches below ground surface (bgs) and that percolation rates may decrease with depth, as is typically observed in the residual soil found in the region.

The mantle observations revealed that the surface soil across the proposed disposal area typically consisted of dark reddish brown and yellowish red sand loam and silt loam. The surface soil extended to depths ranging between 1.2 feet and 2.8 feet bgs.

Underlying the surface soil layer, horizons of silt loam and silty clay loam extending to and beyond the anticipated depths of the disposal trenches were observed. Completely weathered and severely weathered, friable volcanic or metavolcanic rock was encountered to depths of approximately 9 feet bgs. The completely weathered and severely weathered rock was easily excavated by the backhoe, was friable by hand, and was textured as sandy loam and silty clay loam, and sandy loam with gravel. Resistant rock which would be considered a limiting condition to subsurface effluent disposal was not observed in the mantle trenches which were excavated to depths ranging between 10 feet and 11 feet bgs.

H&K designed and installed the groundwater monitoring well network for the wastewater disposal field. Boring logs, monitoring well construction diagrams, and depths to groundwater are reported in *Monitoring Well and Sampling Report for the Proposed Higgins Village Disposal Area* (H&K, June 1, 2002). Three borings were drilled to depths ranging between 60 and 80 feet bgs.

The soil and/or rock units encountered in the borings were generally stratigraphically continuous across the site; however, the units may slightly vary in thickness. The units encountered in general stratigraphic sequence during drilling at Site 16 consisted of approximately 22 feet of sandy silt, silt, and completely weathered rock, underlain by very severely to severely weathered metavolcanic rock to approximately 45 feet bgs, and moderately to slightly weathered metavolcanic rock from 45 feet bgs to the total depths of the borings. Groundwater was documented to occur at depths ranging from 56 to 75 feet bgs.

2.1.1.7 Site 17

There are no known previous geotechnical or environmental investigations of Site 17.

2.1.1.8 Site 18

Although there are no known previous geotechnical or environmental investigations of Site 18, geotechnical investigations have been conducted on the adjacent Darkhorse Golf Course property where similar geologic conditions are expected to exist. The findings and recommendations of the geotechnical investigations are documented in the following reports:

- *Preliminary Geotechnical Investigation for Darkhorse Golf Course and Residential Community* (H&K, August 14, 1996);
- *Geotechnical Engineering Report for Serene Hill and Darkhorse Lower Tanks* (H&K, July 2, 2002);
- *Geotechnical Engineering Report for Proposed Darkhorse Golf Course* (H&K, May 2, 2001);
- *Soil Evaluation Report for Darkhorse Clubhouse, APN 11-181-10* (H&K, May 15, 2003); and
- *Proposed Darkhorse Wastewater Disposal Fields, Soil Evaluation for Additional Disposal Areas* (H&K, September 20, 2004).

H&K identified geologic conditions at various locations across the Darkhorse Golf Course which may impact development at the site including: fine-grained potentially expansive soil, shallow soil, resistant rock outcrop, shallow groundwater seepage, and poor draining soils. These conditions should be addressed during a design level geotechnical engineering investigation.

During our previous investigations in this area, expansive predominantly fine grained soil was generally encountered near the soil/weathered rock interface. This soil may not be suitable for use within proposed paved areas, building footprints, or any other improvements which may be susceptible to swell or expansive soil induced distress without mitigation.

Localized groundwater seepage or saturated soil conditions are often encountered in the area and may exist at the site particularly during or immediately following the rainy season.

Variably weathered, resistant rock would likely be encountered during grading of Site 18. Blasting, pre-ripping, splitting, or pneumatic hammers may be required to facilitate excavation in resistant rock.

2.2 USDA SOIL SURVEY

H&K reviewed the *Soil Survey of Nevada County Area, California* (USDA Soil Conservation Service, 1975, reissued 1993) and the USDA's online Websoil Survey accessed at <http://websoilsurvey.nrcs.usda.gov/> (May 2012). Soil classifications for each site are listed in Table 2. Figures 4 through 13 show soil classification locations for each site. The soil conditions mapped by the soil survey are generalized, and the mapped locations are presented approximately. Actual soil conditions would need to be verified in the field as part of a design-level geotechnical investigation. The soil series characteristics are summarized below.

Ahwahnee Series

The soil survey describes the Ahwahnee Series soils as consisting of well drained soil underlain by weathered granodiorite. Permeability is moderately rapid. The surface soil layer typically consists of dark grayish brown sandy loam to an approximate depth of 2 inches bgs. The surface soil is typically underlain by brown sandy loam to an approximate depth of 16 inches bgs. The sandy loam is typically underlain by yellowish brown to reddish yellow, heavy sandy loam to an approximate depth of 38 inches bgs. Below 38 inches bgs, weathered granodiorite is generally encountered. Noted limitations to site development are severe shallow soils for septic tank filter fields.

Aiken Series

The soil survey describes the Aiken Series soils as consisting of well drained soil underlain by cobbly andesitic tuff and conglomerate. Permeability is moderately slow. The surface layer is littered with forest debris such as pine needles, oak leaves, and other vegetative material. Similar material below the surface becomes more decomposed as depth increases. The mineral surface layer typically consists of dark brown to yellowish-red loam and heavy loam to an approximate depth of 21 inches bgs. The loam to heavy loam is typically underlain by yellowish-red and reddish-yellow heavy loam to heavy clay loam and clay to an approximate depth of 64 inches bgs. The heavy loam to heavy clay loam and clay is typically underlain by weathered andesitic tuff typically at depths greater than 64 inches bgs.

Alluvial Land, Clayey

The soil survey describes the Alluvial Land, Clayey soils as narrow areas of alluvial material consisting of mostly dark-gray to dark grayish-brown clay loam to clay to an approximate depth of 30 to 45 inches bgs. This clay to clay loam is in places

overlain by a sandy loam or loam to an approximate thickness of 3 to 10 inches. Permeability is moderately slow.

Alluvial Land, Loamy

The soil survey describes the Alluvial Land, Loamy soils as narrow areas of recent alluvial material along stream channels. The material is typically stratified and consists of coarse sandy loam to loam with gravels, to approximate depths of 30 to 45 inches bgs. This sandy loam to loam is typically underlain by gravel, cobblestones, or underlying bedrock. Permeability is moderate.

Argonaut Series

The soil survey describes the Argonaut Series soils as well-drained and underlain by metabasic or basic rock. Permeability is very slow. The typical soil profile consists of approximately 2 inches of brown, gravelly loam. The surface soil is generally underlain by an 8-inch thick stratum of reddish brown, gravelly loam. Reddish brown gravelly loam is typically underlain by 7 inches of reddish-brown gravelly clay which is underlain by 11 inches of light yellowish-brown clay loam and weathered diabase. Weathered basic rock is encountered at depths greater than 28 inches bgs.

Auburn Series

The soil survey describes the Auburn Series soils as well-drained and underlain by weathered diabase and metabasic rock. Permeability is moderate. The typical soil profile consists of approximately 9 inches of brown and reddish-brown loam and heavy loam. The surface soil is generally underlain by a 7-inch thick stratum of yellowish-red light clay loam. The light clay loam is typically underlain by weathered diabase or metabasic rock at depths greater than 16 inches bgs.

Boomer

The soil survey describes the Boomer soils as well-drained and underlain by weathered basic rock. The typical soil profile consists of approximately 11 inches of brown, dark brown, and reddish brown loam. The surface soil is generally underlain by a 26-inch thick stratum of reddish brown, heavy loam and yellowish red, clay loam. Reddish yellow loam and weathered diabase is generally encountered at depths greater than 37 inches bgs. Fractured diabase is typically encountered at a depth of 47 inches bgs. The Boomer-Rock Outcrop Complex generally has rock outcrop covering between 10 percent and 25 percent of the ground surface. Noted limitations to site development include rock outcrop,

moderate corrosion potential of uncoated steel, and moderate shrink-swell potential.

Musick Series

The soil survey describes the Musick Series soils as consisting of well drained soil underlain by weathered granodiorite. Permeability is moderately slow. The surface soil layer typically consists of brown and reddish-brown sandy loam to an approximate depth of 25 inches bgs. The sandy loam is typically underlain by yellowish-red and red heavy clay loam to an approximate depth of 98 inches bgs. The heavy clay loam is typically underlain by weathered granodiorite rock at depths greater than 98 inches bgs.

Placer Diggings

The soil survey describes the Placer Diggings deposits as remnants of Tertiary river deposits. These are hydraulically mined areas, placer-mined areas along stream channels, areas of natural deposits and areas of exposed bedrock. The deposits are highly variable consisting of 90 to 100 percent stones, cobblestones, or gravel with some varying percentages of soil material. The deposits range from 6 inches to 10 feet thick.

Rescue Series

The soil survey describes the Rescue Series soils as well-drained and underlain by weathered basic rock. The typical soil profile consists of approximately 3 inches of brown, loam. The surface soil is generally underlain by a 30-inch thick stratum of brown, heavy loam and reddish-brown, clay loam. The heavy loam and clay loam are typically underlain by 17 inches of brownish-yellow heavy loam that is slightly acid. Slightly weathered or fractured diabase is generally encountered at depths greater than 50 inches bgs. The Rescue-Rock Outcrop Complex generally has rock outcrop covering between 10 percent and 25 percent of the ground surface. Noted limitations to site development include rock outcrop, moderate corrosion potential of uncoated steel, and moderate shrink-swell potential.

Sierra Series

The soil survey describes the Sierra Series soils as consisting of well drained soil underlain by weathered granodiorite. Permeability is moderately slow. The surface soil layer typically consists of dark brown to brown sandy loam to an approximate depth of 9 inches bgs. The sandy loam is typically underlain by reddish brown, heavy sandy loam to an approximate depth of 16 inches bgs. The heavy sandy

loam is generally underlain by yellowish red to reddish yellow sandy clay loam to an approximate depth of 45 inches bgs. The sandy clay loam is typically underlain by light yellowish brown, weathered granodiorite, typically at depths greater than 45 inches bgs.

Sites Series

The soil survey describes the Sites Series soils as consisting of well drained soil underlain by tilted metasedimentary and metabasic rock. Permeability is moderately slow. The surface soil layer typically consists of brown and yellowish-red heavy loam to an approximate depth of 12 inches bgs. The heavy loam is typically underlain by yellowish-red clay loam and red clay, and light clay to an approximate depth of 68 inches bgs. The heavy loam is generally underlain by yellowish red clay loam to an approximate depth of 78 inches bgs. The clay loam is typically underlain by weathered metasedimentary and basic rock at depths greater than 78 inches bgs.

2.3 REGIONAL GEOLOGY

The candidate properties are located in the Sierra Nevada Foothills, on the western side of the Sierra Nevada geomorphic province. The Sierra Nevada province is an elongate, north-west/south-east trending structural block that is tilted upward to form a steep scarp above the adjacent Basin and Range province to the east. The western slope of the Sierra Nevada dips gently westward, and extends beneath sediment of the Great Valley province. Sediment within the Great Valley is derived from continual uplift and erosion of the Sierra Nevada.

2.4 SITE GEOLOGY

To determine the geology of each site, we reviewed the *Geologic Map of the Chico Quadrangle, California* (Saucedo, G. J., and Wagner, D. L., 1992); the *California Mineral Land Classification of Nevada County, California, Special Report 164* (California Department of Conservation, Division of Mines and Geology, 1990); and the unpublished thesis *Structural and Stratigraphic Relations in the Grass Valley Colfax Area of the Northern Sierra Nevada foothills, California* (Tuminas, Alvydas, 1983). According to the geologic maps, the geology of the subject sites primarily consists of Mesozoic aged plutonic and metavolcanic rocks. The Mesozoic era spans the time between the 65 and 230 million years before present. The geology of each site is listed in Table 1 and a brief description is provided below.

We reviewed the following historical mining maps to determine whether mining claims or ore processing facilities were depicted on the subject site.

- Plate 2A, *Maps of the Mineral Land Classification of Nevada County, California*. Special Report 164, California Department of Conservation Division of Mines and Geology (CDMG), 1990.
- *Map of the Grass Valley Quadrangle* from the Nevada City Folio (Lindgren, 1896).
- *Survey Map of Township 16 North, Range 8 East, Mt. Diablo Meridian* United States Bureau of Land Management (1874).

2.4.1 Grass Valley Area

The geology of Site 1 consists of early Mesozoic Lake Combie Complex, massive diabase. These rocks occur as discordant plutonic masses intrusive into all other Lake Combie Units. No mining features were identified on this site; however, as discussed in Section 2.1.1.1, this site is near the northwestern boundary of the historic North Star group of mines, and numerous unrecorded workings are known to exist in the site vicinity.

The geology of Site 3 consists of Mesozoic massive granitic intrusives that are referred to as the La Barr Meadows quartz diorite. The *Survey Map of Township No. 16 North, Range No. 8 East, Mt. Diablo Meridian* (USBLM, 1874) and the *Map of the Grass Valley Quadrangle* (Lindgren, 1896) depict one mine adit near the boundary of Site 3. See Section 2.2.1.2 of this document regarding the status of this mining feature and potential hazards that are known to exist on Site 3.

Sites 4 through 8 are underlain by early Mesozoic Lake Combie Complex, gabbroic rocks that occur as massive to undifferentiated gabbro to quartz diorite. No mining features are mapped on these sites.

2.4.2 Penn Valley Area (Sites 10 through 13)

The geology of sites 10 through 13 consists of Mesozoic gabbroic rock associated with the Penn Valley Pluton. No mining features are mapped on these sites and H&K did not observe evidence of historic mining activities on the sites.

2.4.3 Lake of the Pines Area (Sites 14 through 18)

The geology of sites 14 through 18 consists of early Mesozoic Lake Combie Complex, metavolcanics. No mining features are mapped on these sites and H&K did not observe evidence of historic mining activities on the sites.

2.5 REGIONAL FAULTING AND SEISMIC SOURCES

Regional faulting is associated with the central area of the Foothill Fault System which includes the Spenceville Fault, Wolf Creek Fault Zone, Bear Mountains Fault Zone (Highway 49 lineament), Grass Valley Fault, Weimar Fault Zone, and the Cleveland Hill Fault. The Foothill Fault System is a broad zone of northwest trending east dipping normal faults formed along the margin of the Great Valley and the Sierra Nevada geologic provinces on the western flank of the Sierra Nevada and southern Cascade mountain ranges. The central part of the fault zone is split into branches: the Malones Fault Zone to the east, the Cleveland Hill fault to the northwest, the Spenceville Fault to the west, and the Wolf Creek Fault Zone in the area of the candidate sites.

H&K reviewed the 1997 version of Special Publication 42, *Fault Rupture Hazard Zones in California*, which describes active faults and fault zones (activity within 11,000 years), as part of the Alquist-Priolo Earthquake Fault Zoning Act. The document and the 1999 on-line update indicate that the sites are not located within an Alquist-Priolo active fault zone. According to the *Fault Activity Map of California and Adjacent Areas* (Jennings, 1994), the closest known active fault which has surface displacement within Holocene time (about the last 11,000 years) is the Cleveland Hill Fault. The Cleveland Hill Fault is located approximately 24 to 38 miles northwest of the subject sites and is associated with ground rupture during the Oroville earthquakes of 1975. Figure 17 shows the approximate locations of the candidate Sites on the *Fault Activity Map of California and Adjacent Areas*.

Additionally, we reviewed the California Department of Conservation Division of Mines and Geology Special Report 164, Mineral Land Classification of Nevada County, California (1990) and *Structural and Stratigraphic Relations in the Grass Valley Colfax Area of the Northern Sierra Nevada Foothills, California* (Tuminas, 1983).

There are no faults mapped within the candidate sites, with the exception of Sites 4 and 8. Tuminas, 1983 shows a fault trace on Site 8 and a thrust fault approximately 800 feet east of Site 8. Saucedo and Wagner, 1992 show a fault trace on Site 4. Sites 1, 14, 15, 16, and 17 are within 500 to 4000 feet of the Wolf Creek Fault Zone which is generally located in the study area, mapped on the west side of State Route 49 (Saucedo and Wagner, 1992, and Tuminas, 1983). None of these faults are considered to be active. Table 1 lists the faults associated with each candidate site.

2.6 FIELD OBSERVATIONS

H&K performed site reconnaissance on May 21, 22 and 23 and June 6, 2012 and made observations of surface conditions at each of the candidate sites.

2.6.1 Surface Conditions

2.6.1.1 Site 1

Site 1 is located in an area with other successful development. The site gently slopes toward McCourtney Road with no notable landforms, drainage features, or vegetation. This site has previously been cleared and the exposed surface consisted primarily of gravel with a finer matrix soil. This site is periodically used for a parking lot.

2.6.1.2 Site 3

Site 3 is moderately sloping, with areas of dense blackberry bushes which may be indicative of seasonal shallow groundwater conditions. Portions of the site appeared to have recent timber harvesting and/or clearing, as indicated by the presence of brush piles and earthen berms on the site. Exposed surface soils consisted of a red, silty sand, with a few granitic cobbles strewn across the site. The vegetation consisted of grasses, shrubs, and trees including gray pine and a few madrone. An ephemeral drainage swale was observed in the southern portion of the site, however, evidence of large flow was not observed. The surface of the drainage swale was largely covered in plant litter.

H&K observed potential evidence of past mining activity in the southern portion of the site, as hummocky surfaces (tailings piles), exploratory excavations (glory holes), and berms potentially associated with water conveyance. The berms were located downslope of the adit that is mapped near the eastern Site 3 boundary. Approximate locations of observed features are depicted on Figure 5.

2.6.1.3 Sites 4 through 8

Our observation of Sites 4 through 7 revealed that these sites were generally located on a forested hilltop location. These sites are forested with madrone, incense cedar, ponderosa pines, and associated chaparral typical of the area. Blackberry bushes and other plants associated with moist soil conditions were observed in the lower portions of the sites, particularly on Sites 4, 5 and 7. The surface soil at the sites was typically obscured by forest litter, recent timber harvest debris, and surface vegetation. However, where observed, the surface soil appeared to typically consist of reddish brown fine sandy silt with common gravel-

size rock fragments. We noted an apparent increase in the gravel content of the surface soil in the upper portions of Sites 5, 6, and 7, which may be indicative of a thinner soil profile at these hilltop locations and shallower depths to resistant rock.

On site 4 we observed minor apparent rock outcrop in the eastern portion of the parcel which may indicate the potential for relatively shallow soil. We also observed an abandoned small wood structure in the eastern, downslope portion of the site, near an abandoned irrigation ditch alignment. Areas of shallow irregular topography were also observed in the eastern portion of the site, generally between the abandoned irrigation ditch and a tributary to Wolf Creek which flows near the eastern boundary of the site. This irregular topography appeared to be the result of past excavation or trenching in this area. Areas of dense blackberry bushes were also observed in the eastern portion of the project site at locations in close proximity to the creek.

The southern half of irregularly shaped Site 5 was dominated by a broad swale which sloped downward to the southwest. We did not observe evidence of significant surface water flow in the swale except in the lowermost portions of the site, near the southwestern property boundary.

During our site observations we observed what appeared to be an exploratory excavation or glory hole in the western portion of Site 7, near the boundary with Site 5. The approximate excavation location is depicted on Figure 6.

Site 8 is located to the east of Sites 4 through 7, on the east side of the Brunswick Road alignment. This forested site is gently to moderately sloping to the southwest, with estimated slope gradients varying from approximately 20 percent in the northeastern portion of the site to relatively flat in the west and southwestern portions of the site, near Brunswick Road. Recent timber harvest activities here had exposed areas of surface soil at several locations on the site, which typically consisted of dark reddish brown silty fine sand. Saturated surface soil conditions and areas of standing water were observed in the central portion of the site and also in the low lying areas in the western portion of the site, adjacent to Brunswick Road. Although these moisture conditions were attributable in part to intense thunderstorms the day prior to our site observations and likely compounded by recent disturbance of the surface soil and from timber harvest activities, shallow seepage or groundwater conditions may be present at this site. We also observed an area of rock outcrop in the western portion of the site, at the approximate location shown on Figure 6.

We observed a previously graded, gently sloping bench which crossed the site, descending from northwest to southeast. This previously graded bench is presumed to be attributable to the historical Nevada County Narrow Gauge Railroad alignment. The presence of the bench alters natural surface water drainage, particularly in the southern portion of the site where we observed areas of standing water and saturated surface soil conditions on the upslope side of the bench. We also observed sloughing and erosion of the bench at a location near the southern property boundary, where the apparent railroad alignment crossed a tributary to Wolf Creek. This crossing location is likely off of the subject site, on the neighboring parcel to the south.

2.6.1.4 Sites 10 and 11

Site 10 is undeveloped and very gently slopes to the northeast toward Squirrel Creek. This site is topographically lower than the surrounding properties and appears to have poor drainage. Surface soils were largely obscured by dense grasses. Site vegetation consisted of primarily grasses and localized blackberry bushes, and riparian zone plants near Squirrel Creek. There were drainage courses meandering throughout the property and it is likely that runoff from the surrounding properties drains to Site 10.

In addition to water entering the site from the adjacent properties, a large culvert enters the site from beneath Penn Valley Road which may periodically contribute a large flow volume. The culvert waters flow along the the western side of the property in a ditch that had a large hole scoured out. The hole was approximately 4 feet in diameter and 4 feet deep. Soils in this hole consisted of fine grained silts and sand with some gravel. Standing water was also observed at several locations along this ditch. Drainage improvements will likely be needed in order to develop this site and should be addressed in a design-level geotechnical investigation.

There was a soil stockpile located on the southeast corner of Site 10, the source of which is unknown. Approximate locations of features observed on Site 10 are depicted on Figure 7.

Site 11 gently slopes toward Site 10 and is vegetated primarily with grasses and a few oak trees. There were a few scattered granitic boulders ranging from 3 to 6 feet in diameter.

2.6.1.5 Site 12

Site 12 is largely undeveloped and generally flat lying. Broken Oak Court by which the site is accessed is a paved road. Vegetation on this site consisted of grasses and a few large oak trees. Surface soils were mostly obscured by vegetation but were observed in a recently disturbed area (associated with tree removal) and consisted of fine grained silt and sand with some gravel. A seasonal drainage swale is present on the north side of the site and appears to follow the property boundary from the east, then passes through the northwest portion of the site. The approximate location of the drainage is depicted on Figure 8. There was one large granitic boulder on the south side of the site that appeared to have been placed during previous development.

2.6.1.6 Site 13

Site 13 is undeveloped, gently rolling terrain. Surface soils were largely obscured by vegetation, which consisted of grasses, shrubs, oak and pine trees. Two indistinct seasonal drainage swales transect the site from the State Route 20 boundary and flow is toward Squirrel Creek to the south.

2.6.1.7 Site 14

Site 14 is an undeveloped parcel on moderately sloping terrain. Surface soils were largely obscured by vegetation consisting of grasses, shrubs, oak and pine trees. H&K observed two rock outcroppings, which may be indicative of shallow soils, and several shallow trenches that were likely associated with previous soil evaluations for wastewater disposal. The approximate locations of these features are shown on Figure 10. This site is located in an area of other successful development, but shallow soils and rock outcrops may need to be considered during design.

2.6.1.8 Sites 15 and 16

Sites 15 and 16 are partially developed with a single family residence, high power transmission lines, and a wastewater disposal field and pump house. The parcels occupy moderately sloping terrain and are vegetated with grasses, shrubs, oak and pine trees. Vegetation is dense on the westerly facing slopes. The eastern portion of Site 16 is transected by high power transmission lines, and the central portion of is occupied by a wastewater disposal system that would limit development in these areas.

2.6.1.9 Site 17

Site 17 is undeveloped on moderately sloping terrain and with very dense vegetation that obscured most of the site. Thus observations were made from Rosewood Road on the west side of the property because very limited portions of the site were accessible.

2.6.1.10 Site 18

Site 18 is an undeveloped parcel on moderately to steeply sloped terrain. Vegetation consisted of grasses, shrubs, oak and pine trees. H&K observed rock outcrop in the southern portion of the site centered on the topographic high and extending southwest along the ridge. Tree trunks on the northwest slope of Site 18 have a notable curvature, which may be an indication of soil creep on the relatively steep slopes in the area. An ephemeral drainage transects the northwest portion of the property. Shallow soil and rock outcrop may limit development of this site and slope instability should be addressed in a design-level geotechnical investigation.

2.6.2 *Ground Water Conditions*

Based on our experience in the area, we anticipate that saturated soil conditions and seasonally shallow seepage will be encountered in drainage swales, shallow soils, and onsite excavations during or following extended periods of wet weather.

Deeper groundwater conditions have not been documented at the majority of the sites. In general, depth to groundwater is highly variable dependent on site specific conditions and groundwater in the region is predominantly governed by fracture flow. Site 16 is the only site with an existing monitoring well network, associated with the wastewater disposal field, with groundwater documented to occur at depths ranging from 56 to 75 feet bgs. (H&K, 2002d)

3 LABORATORY TESTING

Laboratory testing was not conducted for this preliminary geotechnical engineering investigation. Laboratory testing is typically performed as part of a design-level geotechnical engineering investigation.

4 CONCLUSIONS

The following conclusions are based on our field observations and our experience in the area.

- Based on the results of our preliminary geotechnical investigation, our opinion is that residential development on the candidate sites is feasible from a geotechnical standpoint.
- Our primary concern regarding future residential development on the sites is the possible presence of potentially expansive, clay soil, particularly at the sites in the Lake of the Pines area. Our experience in the area has shown that, where encountered, potentially expansive soil often occurs as a relatively thin horizon near the soil/rock interface. Expansive clay is often successfully mitigated in this area by over excavation and mixing with granular material during grading, or by deepening proposed footings through the clay layer into underlying, more competent soil or weathered rock. The scope of future, design-level geotechnical investigations at the individual sites should include the excavation of exploratory trenches and laboratory testing to determine the presence of potentially expansive soil and derive project specific mitigation approaches, if appropriate.
- We anticipate that areas of seepage will likely be encountered during grading, particularly during the rainy season and/or in excavations which reveal the surface soil/weathered rock contact. Preliminary recommendations regarding subsurface drainage are presented in this report.
- Based on the site geology and our experience in the region, we anticipate that relatively shallow, resistant rock may be on many of the sites during grading or excavation for subsurface utilities. Preliminary recommendations for resistant rock are presented in the following sections. Fill material resulting from excavation onsite may contain significant gravel and oversized rock that will require specific recommendations for use as fill. General recommendations for placement of rock fill and oversized material are presented in this report.
- Our preliminary opinion is that the future residential development at the sites will likely be able to utilize conventional shallow footings and incorporate standard grading practices employed in the region. Deepened footings may be an option to mitigate the presence of expansive soil or previously placed, undocumented fill, if encountered during future design-level investigations of the individual sites.
- Based on our site observations and review of published references, we anticipate that the sites are generally underlain by relatively thin, medium dense soil derived from residually weathered rock. We anticipate that at

many of the sites variably weathered rock will be encountered at relatively shallow depths ranging from (10 to 30 feet bgs) in the native soil profile. Based on these assumptions, and considering the distance to known active faults, we consider the potential for liquefaction, ground lurching, surface rupture, or lateral spreading in native soil/rock onsite to be minimal. However, areas of loose colluvium or sediments adjacent to drainage courses and previously placed, loose fill, if present, may be susceptible to seismic-induced liquefaction, settlement, or lateral spreading. Potential geologic hazards would be explored more fully during the course of a design-level geotechnical investigation of the individual sites. Our opinion is that the primary seismic activity which may affect the site is moderate ground shaking associated with an offsite fault. Small scale, seismically induced slope instability could occur on cut or fill slopes established onsite, particularly if surface soil was saturated at the time of earthquake induced ground shaking. This hazard could be reduced by removing relatively loose fill, if present, and ensuring that cut and fill slopes established onsite are constructed and drained in accordance with recommendations provided in a design-level geotechnical report. Seismically induced settlement could be a factor for buildings placed directly on the unconsolidated fill areas.

- In general, the sites are expected to contain relatively shallow residual soils derived from the weathering of underlying rock. Provided that future residential development is restricted to areas with native slope gradients of 30 percent or less, our preliminary opinion is that it is unlikely that large scale slope instability would impact the subject sites. Steeper slopes may experience shallow, long term slope displacement or creep, and over-steepened cut or fill slopes may be susceptible to slumping. The potential magnitude for creep and confirmation of subsurface conditions in areas of proposed development should be performed as a part of future, design-level geotechnical investigations at the individual sites.
- The sites are located in the Sierra Foothills, a region associated with past and present mining. Based on our literature review, Site 3 is the only location with documented historical mining activity. However, significant prospecting, exploratory excavation, and smaller scale mining has occurred in the area which may not be described in historical literature. Abandoned mining features such as glory holes, adits, or stockpiles may be encountered during the course of future investigations or grading and construction which will require mitigation on a case-by-case basis.

5 PRELIMINARY RECOMMENDATIONS

The following preliminary geotechnical engineering recommendations are included to provide an awareness of the practices in the area and are based on our literature review, our field observations during site surface reconnaissance and previous subsurface investigations, and our experience in the area. The recommendations are preliminary, and are provided for planning purposes. The preliminary conclusions and recommendations presented in this report should be confirmed by a design-level geotechnical engineering investigation and project specific design criteria established by subsurface observation and laboratory testing.

5.1 GRADING

5.1.1 Clearing and Grubbing

Areas proposed for fill placement, paved areas, and building pads should be cleared and grubbed of vegetation and other deleterious materials as described below.

1. Strip and remove organic surface soil containing shallow vegetation and any other deleterious materials. Organic soil can be stockpiled onsite and used in landscape areas, but is not suitable for use as fill. The actual depth of stripping may vary across the site. Areas of deeper organic surface soil may be encountered in drainage swales and low lying areas.
2. Over excavate any loose fill, debris and/or other onsite excavations to underlying, competent material. Possible excavations include exploratory trenches, glory holes, mantles or soil test pits, tree stump holes and abandoned drainage improvements.
3. Remove rocks greater than 8 inches in greatest dimension (oversized rock) by scarifying to a depth of 12 inches or to resistant weathered rock, if shallower, in proposed building pads and areas to support pavement, slabs-on-grade, and other flatwork. Oversized rock should be placed in deep fill per the recommendations of the project geotechnical engineer, stockpiled for later use in landscape areas, drainage features, or stacked rock walls, or placed outside areas of proposed improvements.
4. Vegetation, tree stumps and exposed root systems, and any other deleterious materials and oversized rocks not used in landscape areas should be removed from areas of proposed improvements.

5.1.2 Preparation for Fill Placement

Upon completion of site clearing, grubbing and over excavation, the exposed native soil should be observed by the project geotechnical engineer prior to placement of fill at the project site. Fill placed on slopes steeper than 5:1, H:V, should be benched and keyed into the existing slope to allow placement of fill in horizontal lifts.

5.1.3 Fill Placement

Fill should be placed according to the following guidelines:

1. Material used for fill construction should consist of uncontaminated, predominantly granular, non-expansive native soil or approved import soil. Rock used in fill should be no larger than 8 inches in diameter. Rocks larger than 8 inches are considered oversized material and should be placed in deep fill per the recommendations of the project geotechnical engineer, stockpiled for use in landscape areas or rock walls, or removed from the site.
2. Imported fill material should be predominantly granular, non-expansive and free of deleterious or organic material.
3. Potentially expansive clay soil, if encountered, is typically not suitable for use in building pads or beneath pavements without mitigation. Options to mitigate potentially expansive soil include overexcavation and replacement with predominantly granular soil, mixing with suitable material, project specific moisture conditioning and compaction specifications, and the use of mitigative foundation design.
4. Fill should be uniformly moisture conditioned and placed in maximum 8-inch thick loose lifts (layers) prior to compacting.
5. The moisture content, density and relative compaction of fill needs to be confirmed by routine testing and observation during placement.

5.1.4 Slope Grading

1. Cut and fill slopes should generally be no steeper than 2:1, H:V. Based on our experience in the area, steeper cut slope gradients will be feasible in areas that have significant rock structure. Steeper cut slope gradients must be verified based on the results of laboratory testing and observation of slope conditions. Steeper fill slope gradients may be feasible with the use of geotextile reinforcement, increased compaction specifications, or the use of rock buttressing or facing.

2. Fill slopes should be constructed by overbuilding the slope face and then cutting it back to the design slope gradient. Fill slopes should not be constructed or extended horizontally by placing soil on an existing slope face and/or compacted by track walking.
3. Benching during placement of fill on an existing slope must extend through loose surface soil into firm material, and be performed at intervals such that no loose soil is left beneath the fill.

5.1.5 Excavation

Our observation of rock outcrops across the site and our experience in the area has shown that areas of moderately or slightly weathered rock that is difficult to excavate with conventional grading equipment may be encountered during grading or trenching. Pre-ripping, blasting, or splitting may be required in these areas. The scope of a future design-level investigation should include excavation of exploratory trenches along proposed road and utility trench alignments to allow observation of subsurface soil and rock conditions.

5.1.6 Erosion Control

Graded portions of the sites should be seeded following grading to allow vegetation to become established prior to and during the rainy season. In addition, grading that results in greater than one acre of soil disturbance or in sensitive areas may require the preparation of a storm water pollution prevention plan. As a minimum, the following controls should be installed prior to and during grading to reduce erosion.

1. Prior to commencement of site work, fiber rolls should be installed down slope of the proposed area of disturbance to reduce migration of sediment and small rocks from the site.
2. Soil exposed in permanent slope faces should be hydroseeded or hand seeded/strawed with an appropriate seed mixture compatible with the soil and climate conditions of the site as recommended by the local Resource Conservation District or other local agency.
3. Following seeding, jute netting or erosion control blankets should be placed and secured over graded slopes steeper than 2:1, H:V, to keep seeds and straw from being washed or blown away. Tackifiers or binding agents may be used in lieu of jute netting.
4. Surface water drainage ditches should be established as necessary to intercept and redirect concentrated surface water away from cut and fill slope

faces. Surface water should not be directed over slope faces. The intercepted water should be discharged into natural drainage courses or into other collection and disposal structures.

5.1.7 Subsurface Drainage

If grading is performed during or immediately following the rainy season, seepage will likely be encountered. If groundwater or saturated soil conditions are encountered during grading, we anticipate that dewatering may be possible by gravity or by temporary installation of sump pumps in excavations.

Control of subsurface seepage at the base of fill areas can typically be accomplished by placement of an area drain. Underlying, saturated soil is typically removed and replaced with free draining, granular drain rock enveloped in geotextile fabric to an elevation above the encountered groundwater. Fill soil can be placed over the granular rock. H&K should review proposed drainage improvements with regard to the site conditions prior to construction.

5.1.8 Surface Water Drainage

Proper surface water drainage is important to the successful development of the project. The following measures are typically adopted to reduce surface water drainage problems:

1. Slope final grade adjacent to structural areas so that surface water drains away from building pad finish subgrades at a minimum 2 percent slope for a minimum distance of 10 feet. Where interior slabs-on-grade are proposed, we recommend that the exterior subgrade have a minimum slope of 4 percent away from the structure for a minimum distance of 10 feet. Additional drainage and slab-on-grade construction recommendations would be provided in a design-level geotechnical report.
2. Compact and slope all soil placed adjacent to building foundations such that water is not retained to pond or infiltrate. Backfill should be free of deleterious material.
3. Direct rain-gutter downspouts to a solid collector pipe which discharges flow to positive drainage and away from building foundations.

5.2 FOUNDATION SYSTEMS

Our preliminary opinion is that conventional shallow spread footings will be suitable for relatively lightly loaded, framed structures across much of the subject sites. Footings should be founded on native, undisturbed soil, weathered rock or

compacted and tested fill. Project specific foundation design criteria and construction recommendations are typically provided as part of a design-level geotechnical engineering report.

Footings should be deepened through expansive clay soil, if encountered at the base of the footing excavations. Expansive clay soil is typically encountered in relatively thin layers near the soil/weathered rock interface.

Shallow, resistant rock may be encountered during construction which limits footing excavation. The presence of shallow rock within building footprints may require the use of rock anchors or dowels to provide uplift and sliding resistance. H&K can provide site specific anchor recommendations during construction if requested.

6 REFERENCES

- Anderson Geotechnical Consultants, 1990. *Report Letter on Preliminary Percolation Study*. September 11.
- ASFE, 2004. Important Information About Your Geotechnical Engineering Report Copyright
- Division of Mines and Geology (CDMG), 1990. *Maps of the Mineral Land Classification of Nevada County, California*. Special Report 164. California Department of Conservation.
- California Geological Survey (CGS), 1997. *Fault Rupture Hazard Zones in California*. Special Publication 42. California Department of Conservation.
- Holdrege &Kull (H&K), 1996. *Preliminary Geotechnical Investigation for Darkhorse Golf Course and Residential Community*. August 14.
- H&K, 2001. *Geotechnical Engineering Report for Proposed Darkhorse Golf Course*. May 2.
- H&K, 2002. *Geotechnical Investigation Report for Cross Creek Oaks Residential Development*. July 24.
- H&K, 2002a. *Geotechnical Engineering Report for Serene Hill and Darkhorse Lower Tanks*. July 2.
- H&K, 2002b. *Higgins Corner Project, Additional Percolation Testing*. January 18.
- H&K, 2002c. *Higgins Village Wastewater Disposal Field, Mantle Trench Observations*. September 11.
- H&K, 2002d. *Monitoring Well and Sampling Report for the Proposed Higgins Village Disposal Area*. June 1.

- H&K 2002e. *Preliminary Wastewater Disposal Field Design Report for Proposed Penn Valley Oaks Residential Development*. November 22.
- H&K, 2003. *Soil Evaluation Report for Darkhorse Clubhouse, APN 11-181-10*. May 15.
- H&K, 2004. *Proposed Darkhorse Wastewater Disposal Fields, Soil Evaluation for Additional Disposal Areas*. September 20.
- H&K, 2006. *Preliminary Endangerment Assessment of North Star Property, Nevada County, California*. December 27.
- H&K, 2007. *Preliminary Endangerment Assessment of La Barr Meadows Property*. January 12.
- H&K, 2008. *Final Removal Action Workplan for La Barr Meadows Property, APNs 09-620-10 and 12, 22-150-23 and 30, and 29-350-12, Nevada County, California*. September 8.
- H&K, 2011. *Phase I Environmental Site Assessment, North Star Property, Grass Valley, Nevada County, California*. March 23.
- Jennings, 1994. *Fault Activity Map of California and Adjacent Areas*. California Geological Survey.
- Johnson, W.D., Jr., 1940. *Geologic Map of the Grass Valley Quadrangle and Adjacent Area, Nevada County, California*.
- Lindgren, Waldemar, 1896. Nevada City Special Folio, California: U.S. Geological Survey Folio 29.
- Saucedo, G. J., and Wagner, D. L., 1992. *Geologic Map of the Chico Quadrangle, California*.
- Tuminas, Alvydas, 1983. *Structural and Stratigraphic Relations in the Grass Valley Colfax Area of the Northern Sierra Nevada foothills, California*. Unpublished thesis.
- United States Bureau of Land Management, 1874. *Survey Map of Township 16 North, Range 8 East, Mt. Diablo Meridian*.
- United States Department of Agriculture (USDA), Soil Conservation Service, 1975. *Soil Survey of Nevada County Area, California*. Reissued 1993. and the USDA Websoil Survey. Soil Survey Staff, Natural Resources Conservation Service, Available online at <http://websoilsurvey.nrcs.usda.gov/>. Accessed May 2012.

7 LIMITATIONS

The following limitations apply to the findings, conclusions and recommendations presented in this report:

1. Our professional services were performed consistent with the generally accepted geotechnical engineering principles and practices employed in northern California. This warranty is in lieu of all other warranties, either expressed or implied.
2. These services were performed consistent with our agreement with our client. We are not responsible for the impacts of any changes in environmental standards, practices or regulations subsequent to performance of our services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report. This report is solely for the use of our client. Any reliance on this report by a third party is at the risk of that party.
3. If changes are made to the nature or design of the project as described in this report, then the conclusions and recommendations presented in this report should be considered invalid by all parties. Only our firm can determine the validity of the conclusions and recommendations presented in this report. Therefore, we should be retained to review all project changes and prepare written responses with regards to their impacts on our conclusions and recommendations. Subsurface investigation and laboratory testing will be required to develop design-level recommendations.
4. The analyses, conclusions and recommendations presented in this report are preliminary, based on site conditions as they existed at the time we performed our surface observations. The subsurface conditions should be confirmed by a design-level geotechnical investigation prior to construction.
5. Our scope of services did not include evaluating the project site for the presence of hazardous materials. Project personnel should be careful and take the necessary precautions should hazardous materials be encountered during construction.
6. The findings of this report are valid as of the present date. Changes in the conditions of the property can occur with the passage of time. The changes may be due to natural processes or to the works of man, on the project site or adjacent properties. In addition, changes in applicable or appropriate standards can occur, whether they result from legislation or the broadening of

knowledge. Therefore, the recommendations presented in this report should not be relied upon after a period of two years from the issue date without our review.

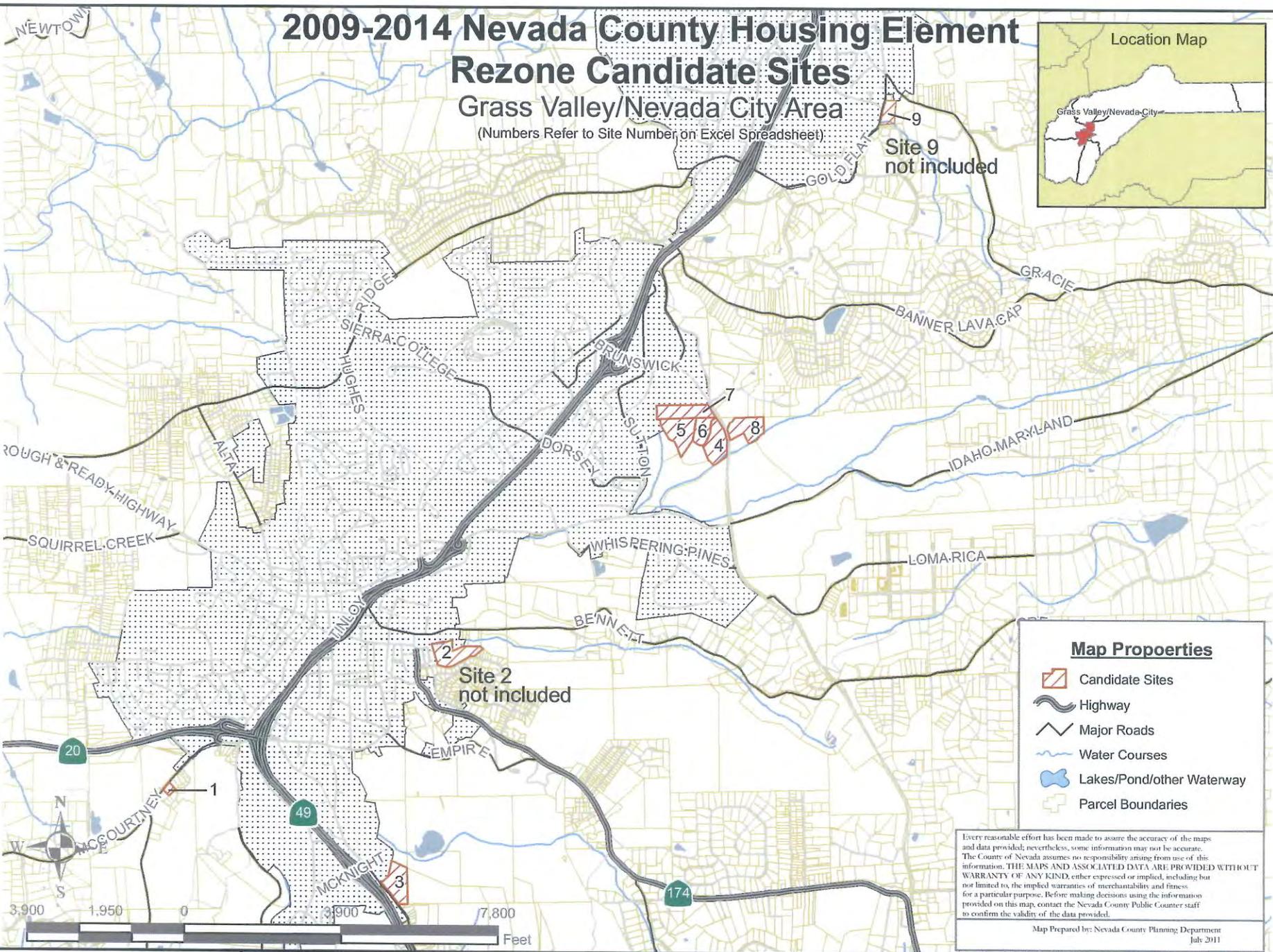
FIGURES

- Figure 1** **Location Map - Grass Valley/Nevada City Area**
- Figure 2** **Location Map - Penn Valley Area**
- Figure 3** **Location Map - Lake of the Pines**
- Figure 4** **Soil Map - Site 1**
- Figure 5** **Soil Map - Site 3**
- Figure 6** **Soil Map - Site 4 through 8**
- Figure 7** **Soil Map - Sites 10 and 11**
- Figure 8** **Soil Map - Site 12**
- Figure 9** **Soil Map - Site 13**
- Figure 10** **Soil Map - Site 14**
- Figure 11** **Soil Map - Sites 15 and 16**
- Figure 12** **Soil Map - Sites 17**
- Figure 13** **Soil Map - Site 18**
- Figure 14** **Geology Map - Grass Valley/Nevada City Area**
- Figure 15** **Geology Map - Penn Valley**
- Figure 16** **Geology Map - Lake of the Pines**
- Figure 17** **Fault Activity Map**

2009-2014 Nevada County Housing Element Rezone Candidate Sites

Grass Valley/Nevada City Area

(Numbers Refer to Site Number on Excel Spreadsheet)



Map Properties

- Candidate Sites
- Highway
- Major Roads
- Water Courses
- Lakes/Pond/other Waterway
- Parcel Boundaries

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Map Prepared by: Nevada County Planning Department
July 2011

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LOCATION MAP - GRASS VALLEY / NEVADA CITY AREA
2009-2014 HOUSING ELEMENT REZONE
NEVADA COUNTY, CALIFORNIA

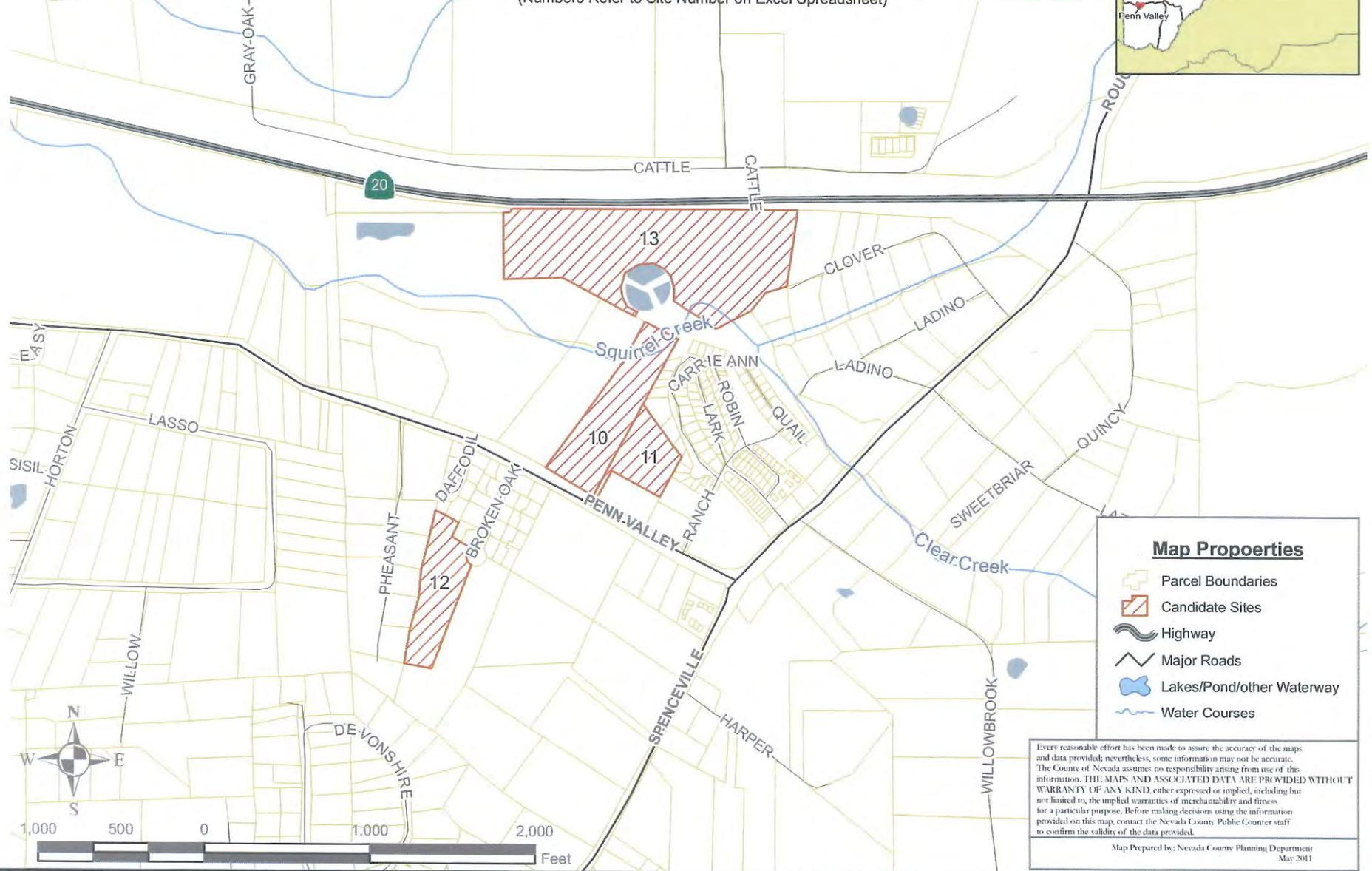
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FIGURE
1

2009-2014 Nevada County Housing Element Rezone Candidate Sites

Penn Valley Area

(Numbers Refer to Site Number on Excel Spreadsheet)



Map Properties

- Parcel Boundaries
- Candidate Sites
- Highway
- Major Roads
- Lakes/Pond/other Waterway
- Water Courses

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LOCATION MAP - PENN VALLEY AREA
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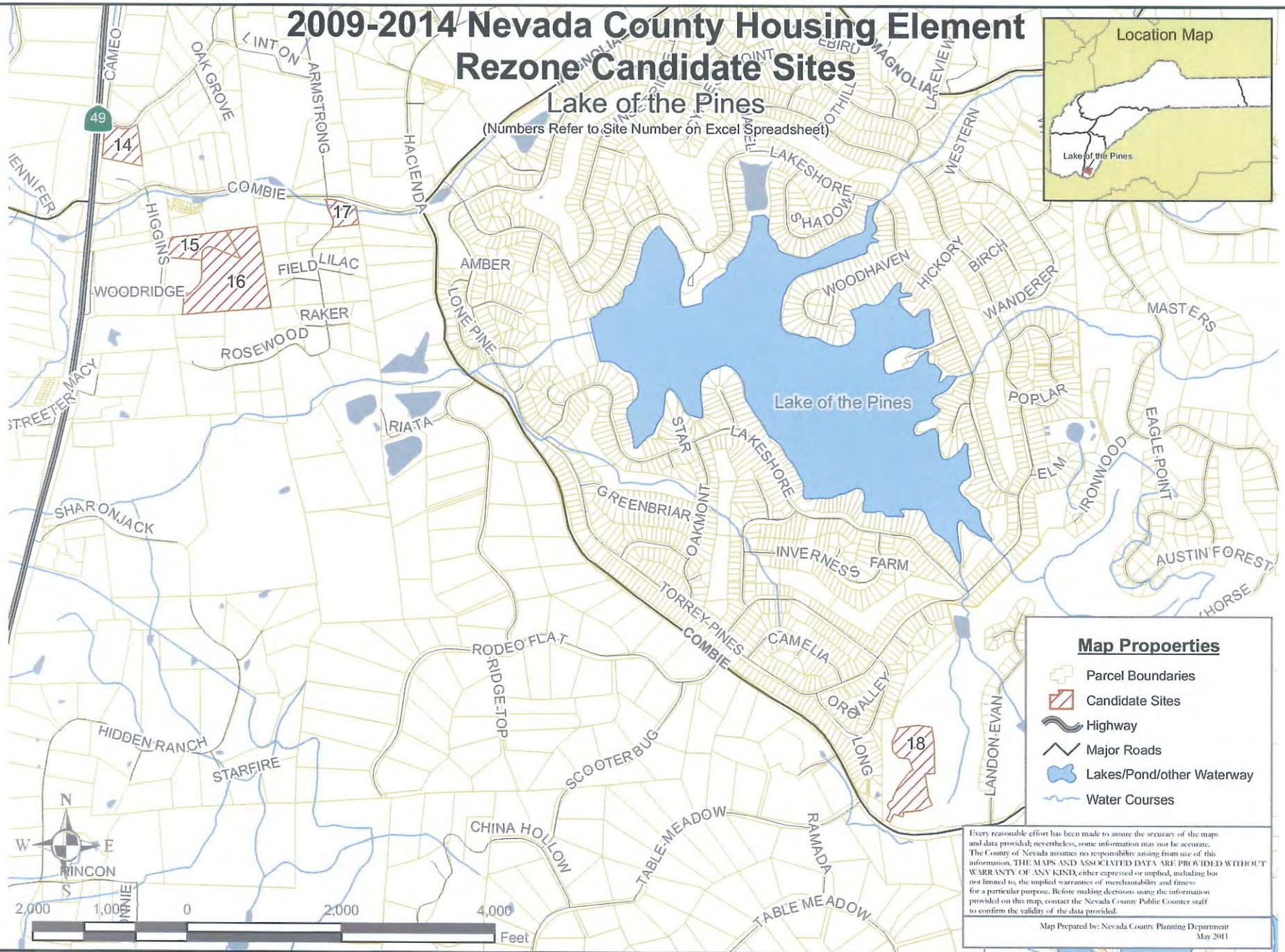
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FIGURE
2

2009-2014 Nevada County Housing Element Rezone Candidate Sites

Lake of the Pines

(Numbers Refer to Site Number on Excel Spreadsheet)

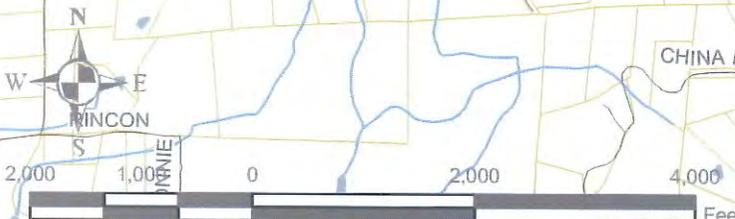


Map Properties

- Parcel Boundaries
- Candidate Sites
- Highway
- Major Roads
- Lakes/Pond/other Waterway
- Water Courses

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LOCATION MAP - LAKE OF THE PINES
2009-2014 HOUSING ELEMENT REZONE
NEVADA COUNTY, CALIFORNIA

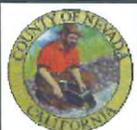
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FIGURE
3

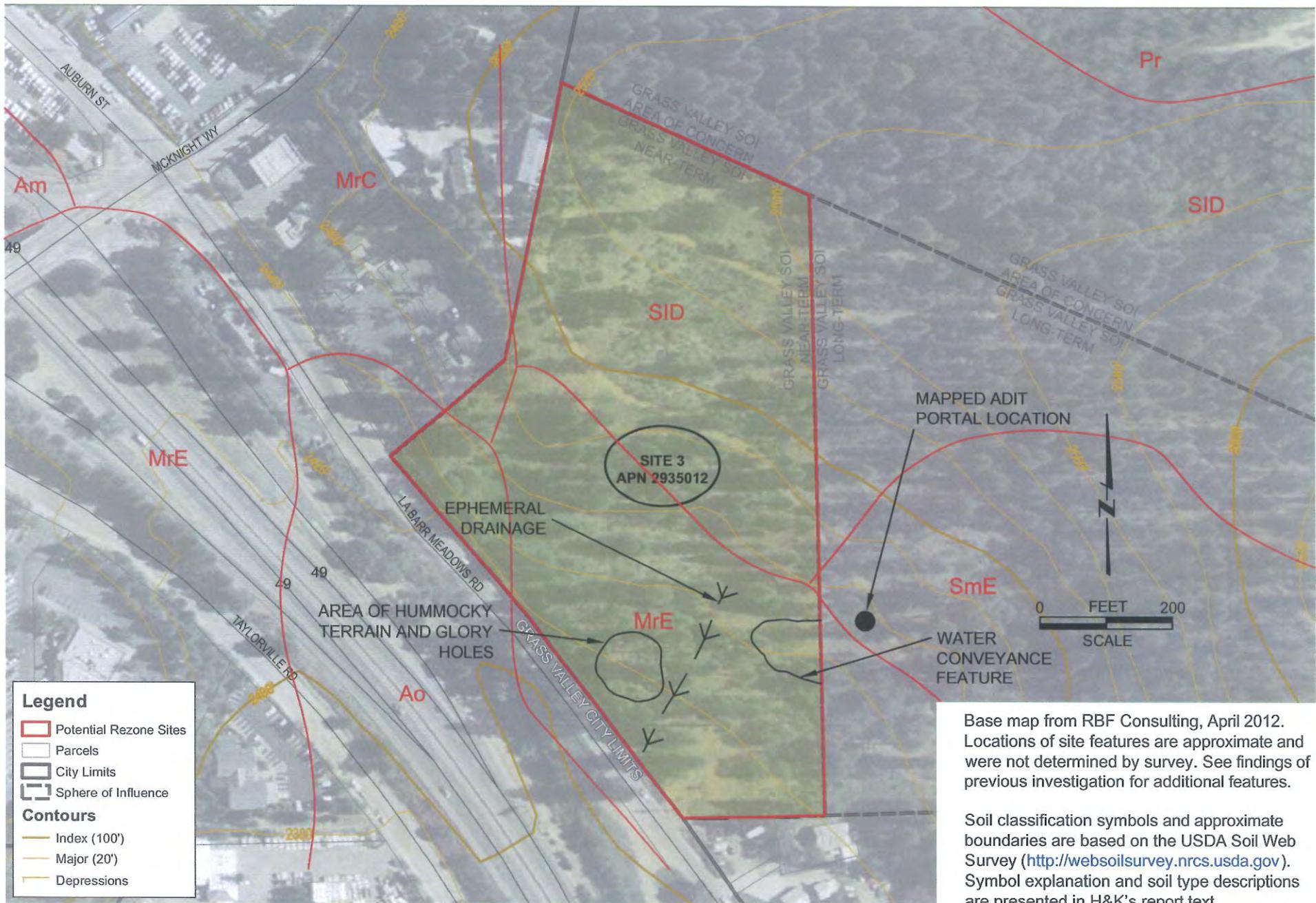


Base map from RBF Consulting, April 2012

Soil classification symbols and approximate boundaries are based on the USDA Soil Web Survey (<http://websoilsurvey.nrcs.usda.gov>). Symbol explanation and soil type descriptions are presented in H&K's report text.



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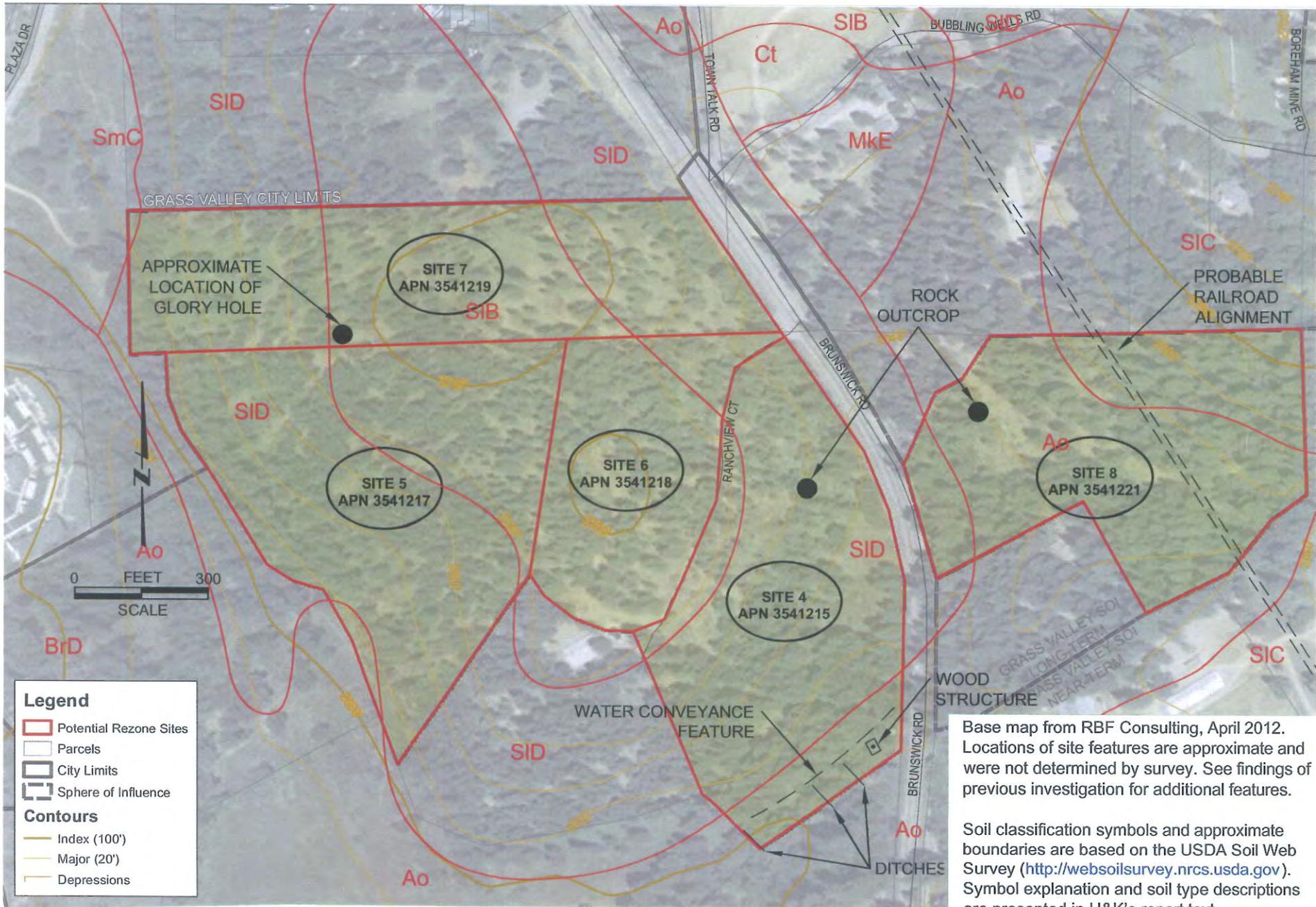


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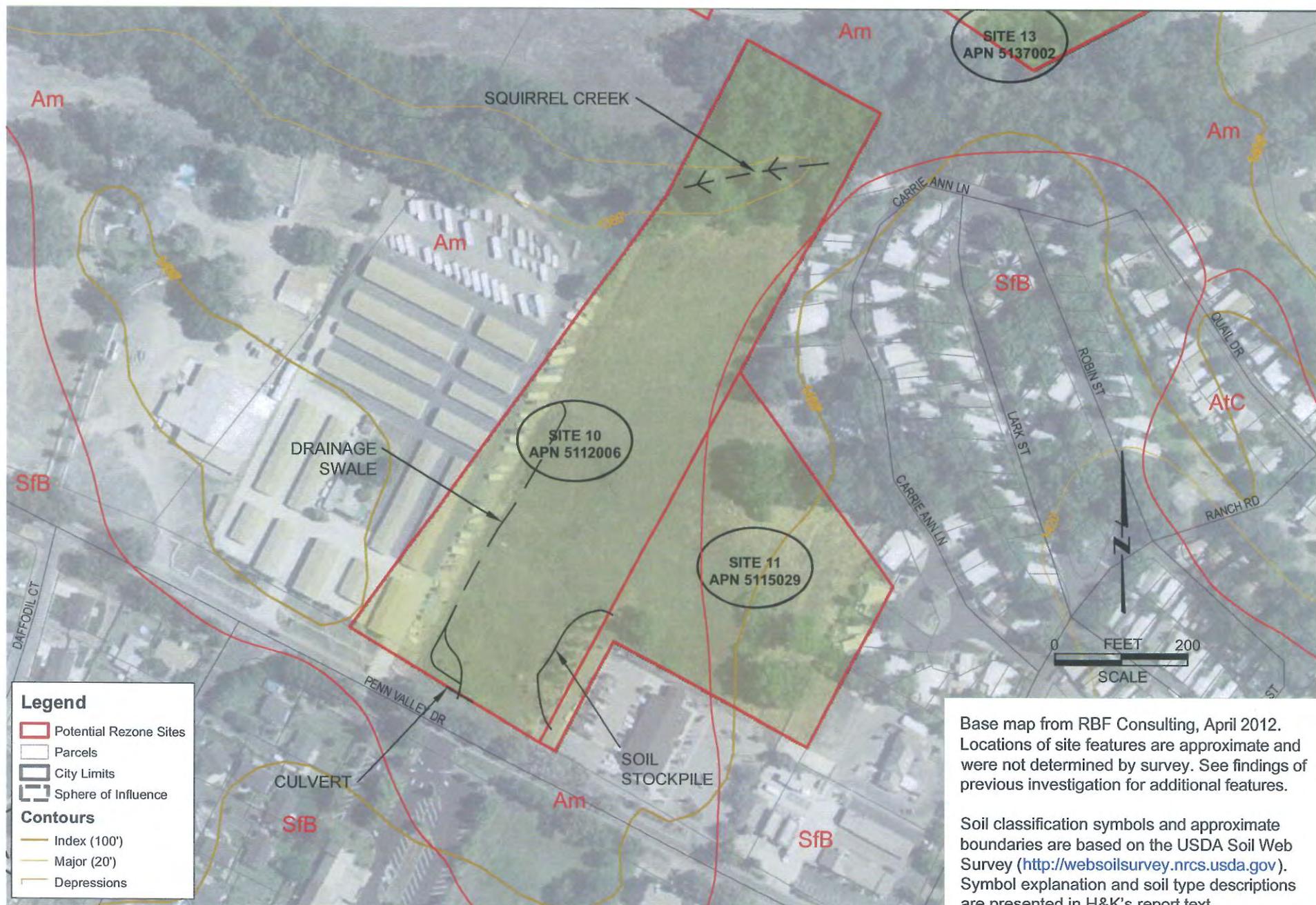


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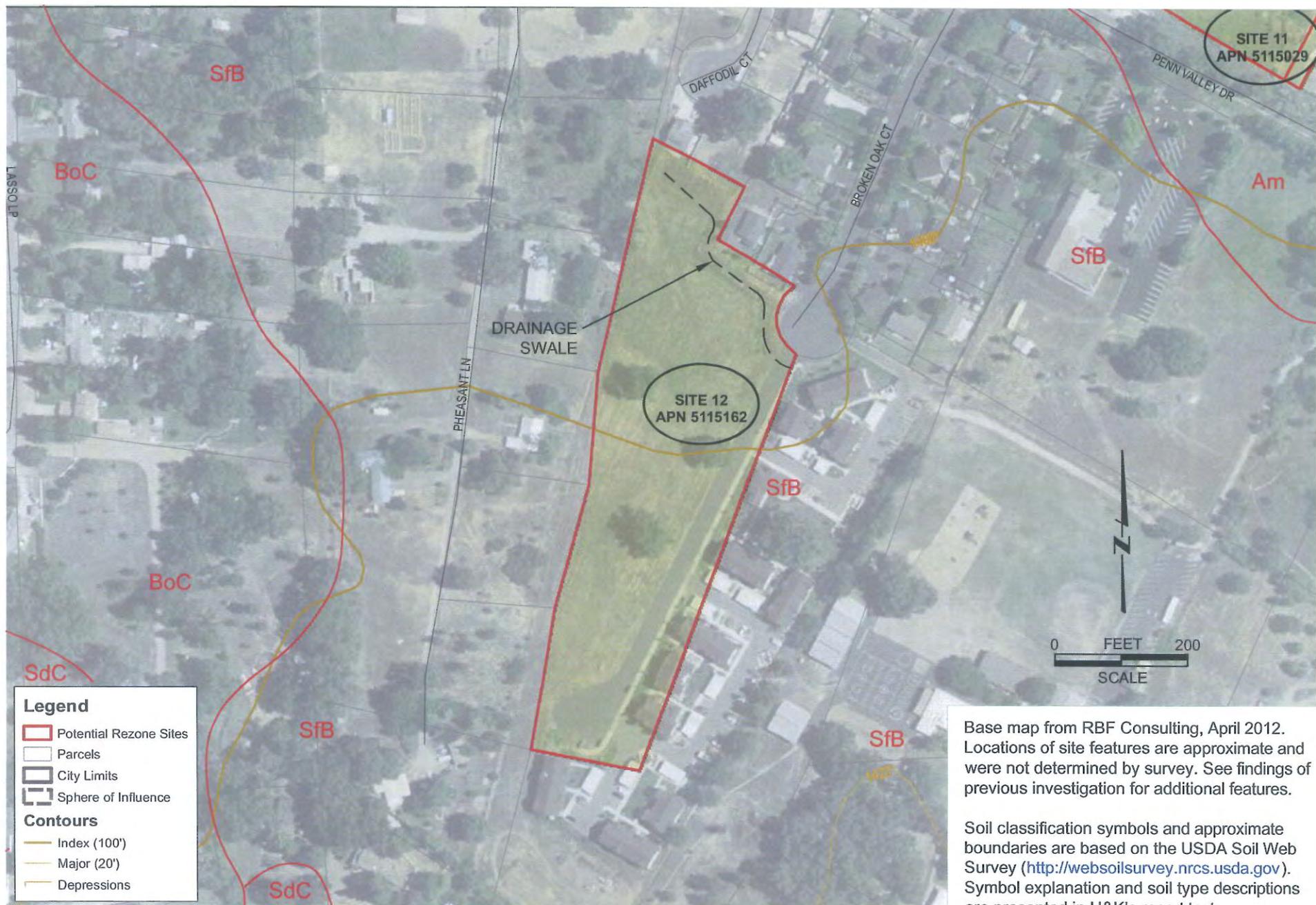


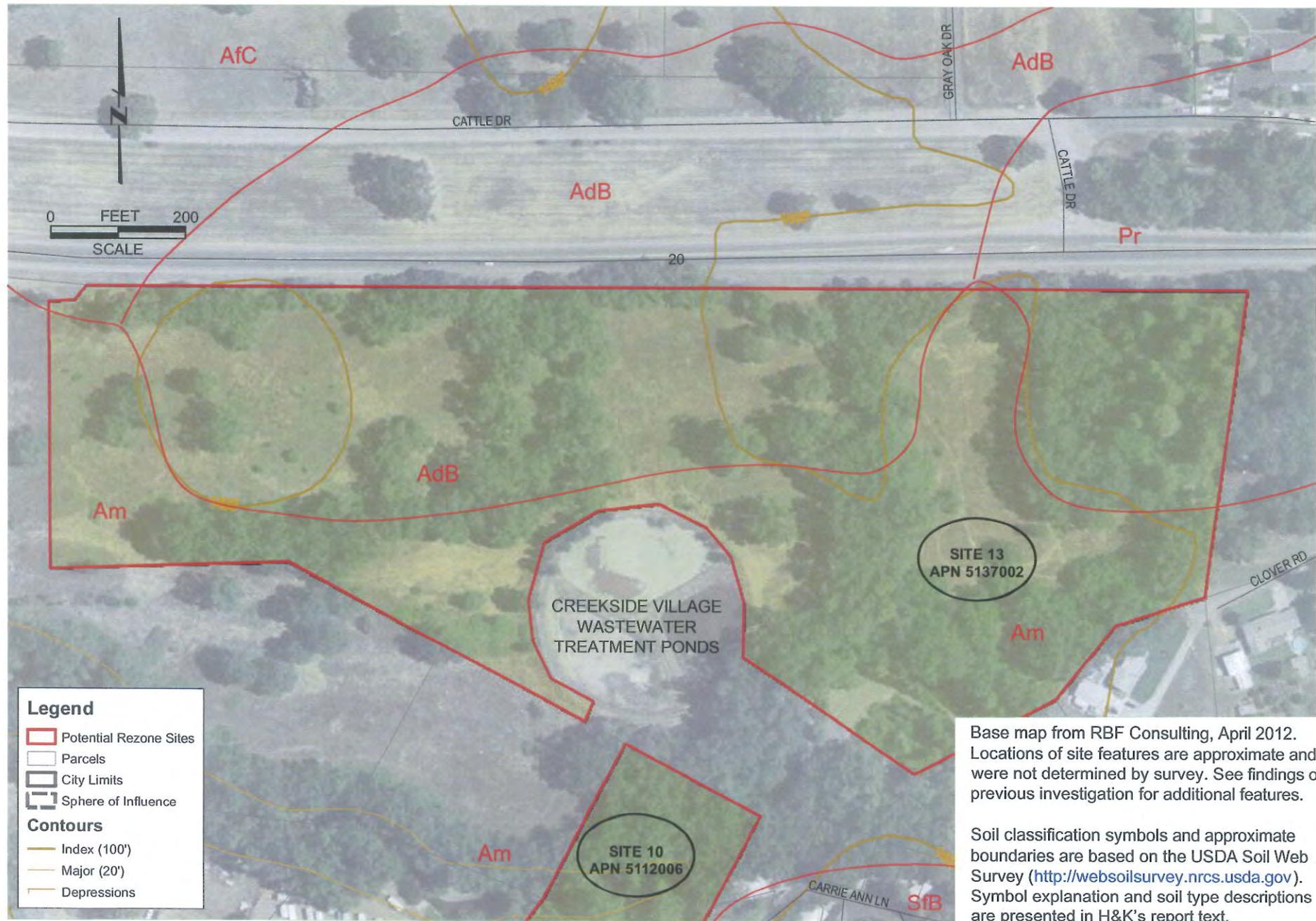
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Legend

- Potential Rezone Sites
- Parcels
- City Limits
- Sphere of Influence

Contours

- Index (100')
- Major (20')
- Depressions

Base map from RBF Consulting, April 2012. Locations of site features are approximate and were not determined by survey. See findings of previous investigation for additional features.

Soil classification symbols and approximate boundaries are based on the USDA Soil Web Survey (<http://websoilsurvey.nrcs.usda.gov>). Symbol explanation and soil type descriptions are presented in H&K's report text.

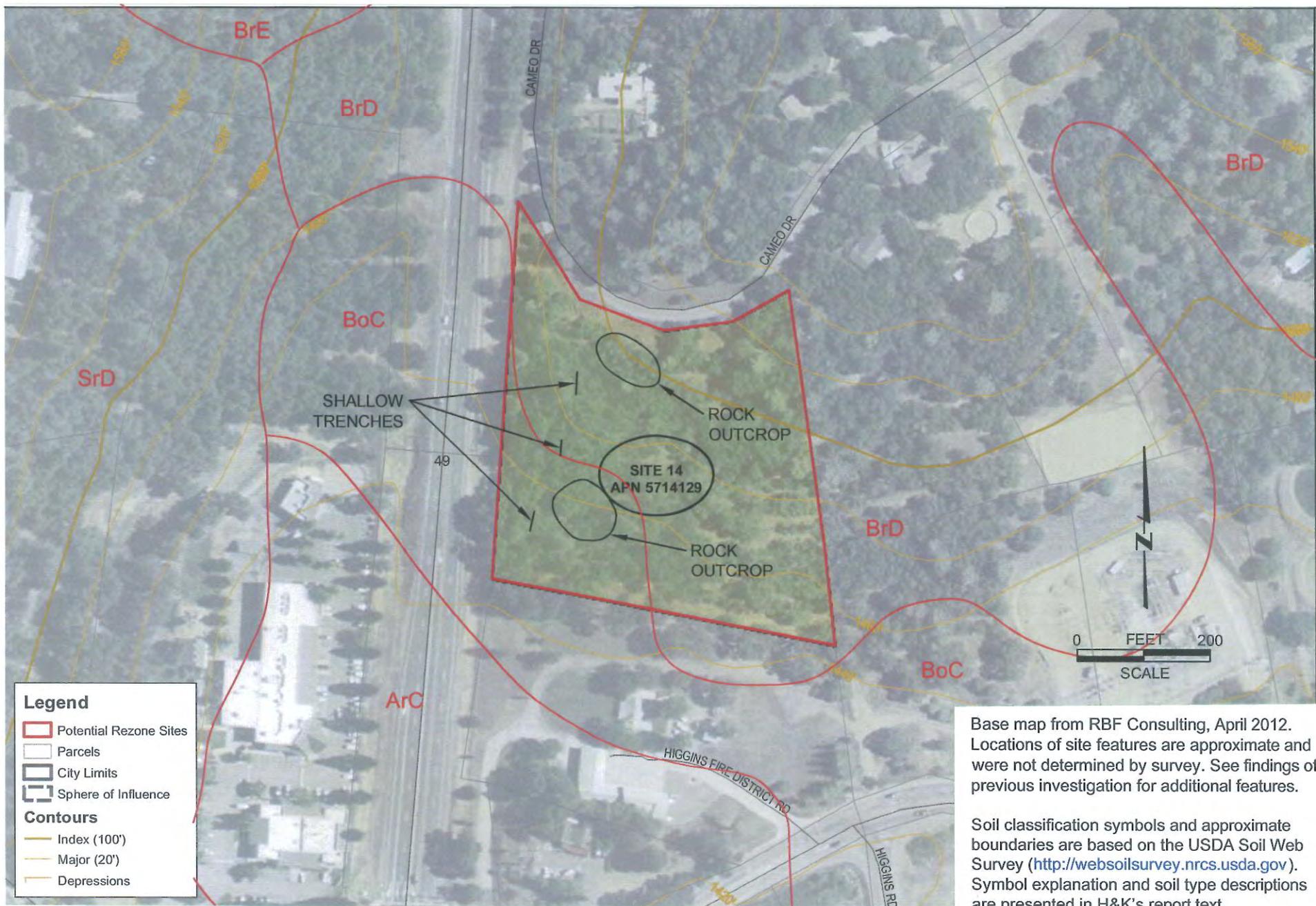
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SOIL MAP - SITE 13
2009-2014 HOUSING ELEMENT REZONE
 NEVADA COUNTY, CALIFORNIA

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FIGURE
9



Legend

- Potential Rezone Sites
- Parcels
- City Limits
- Sphere of Influence

Contours

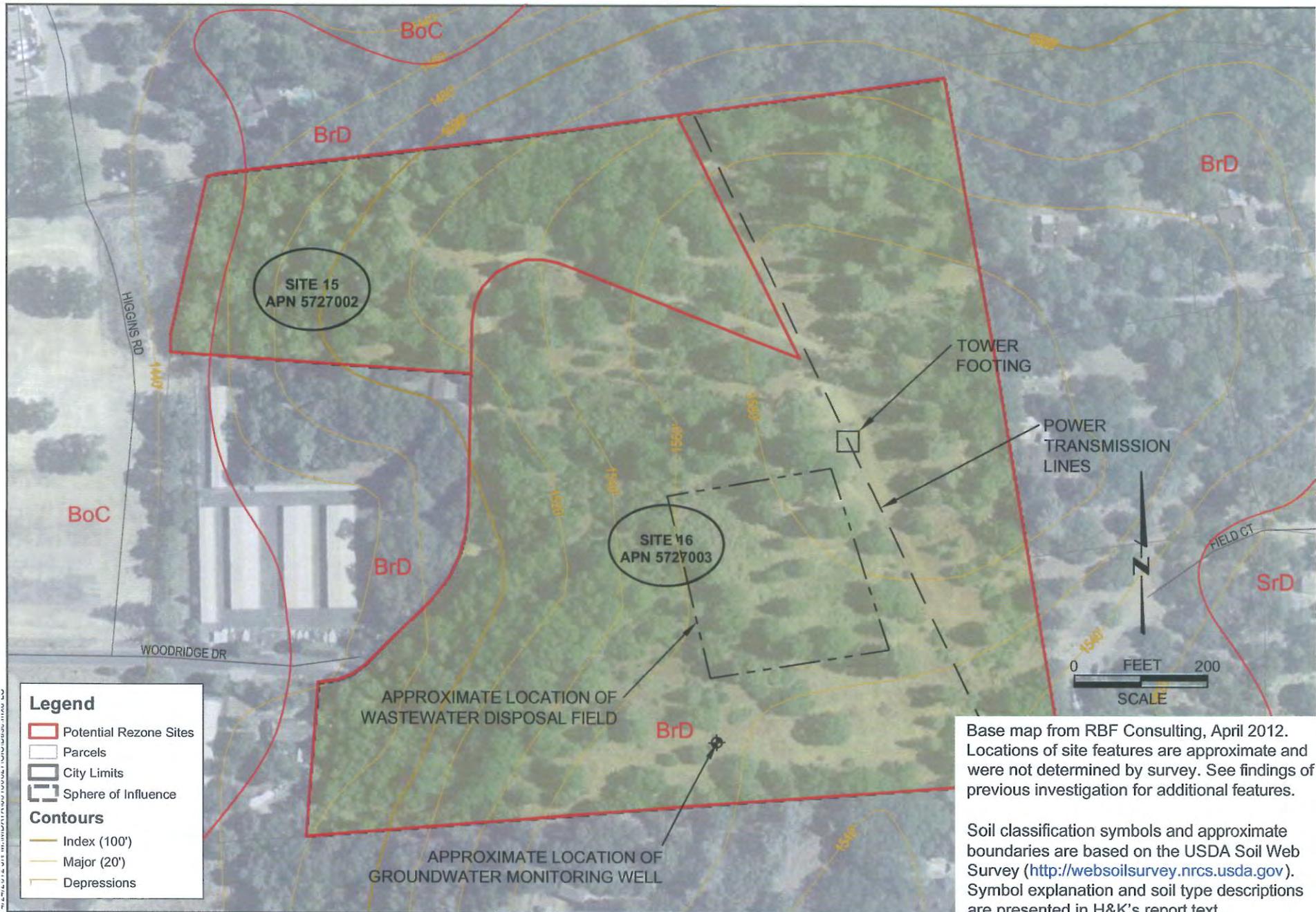
- Index (100')
- Major (20')
- Depressions

Base map from RBF Consulting, April 2012. Locations of site features are approximate and were not determined by survey. See findings of previous investigation for additional features.

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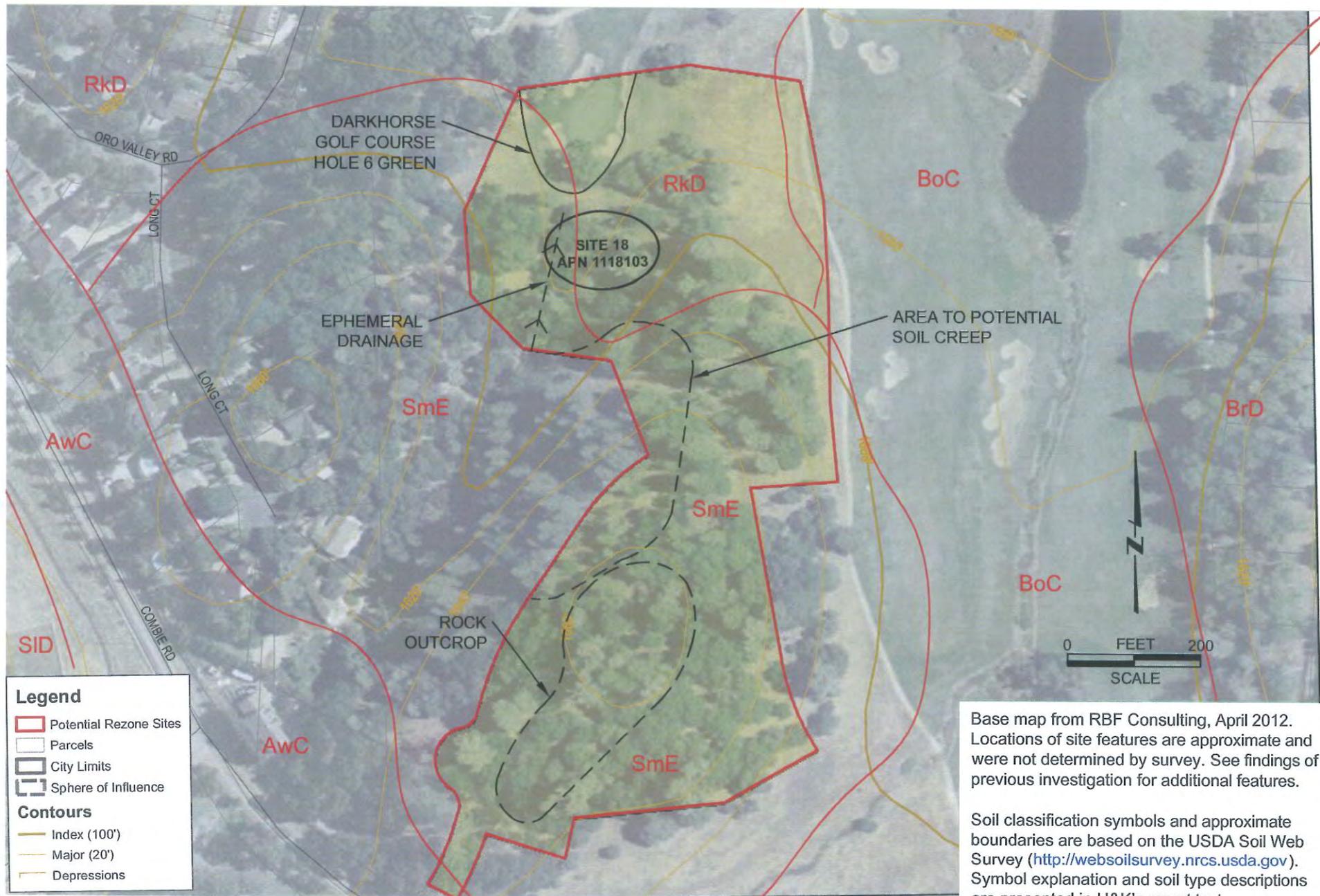
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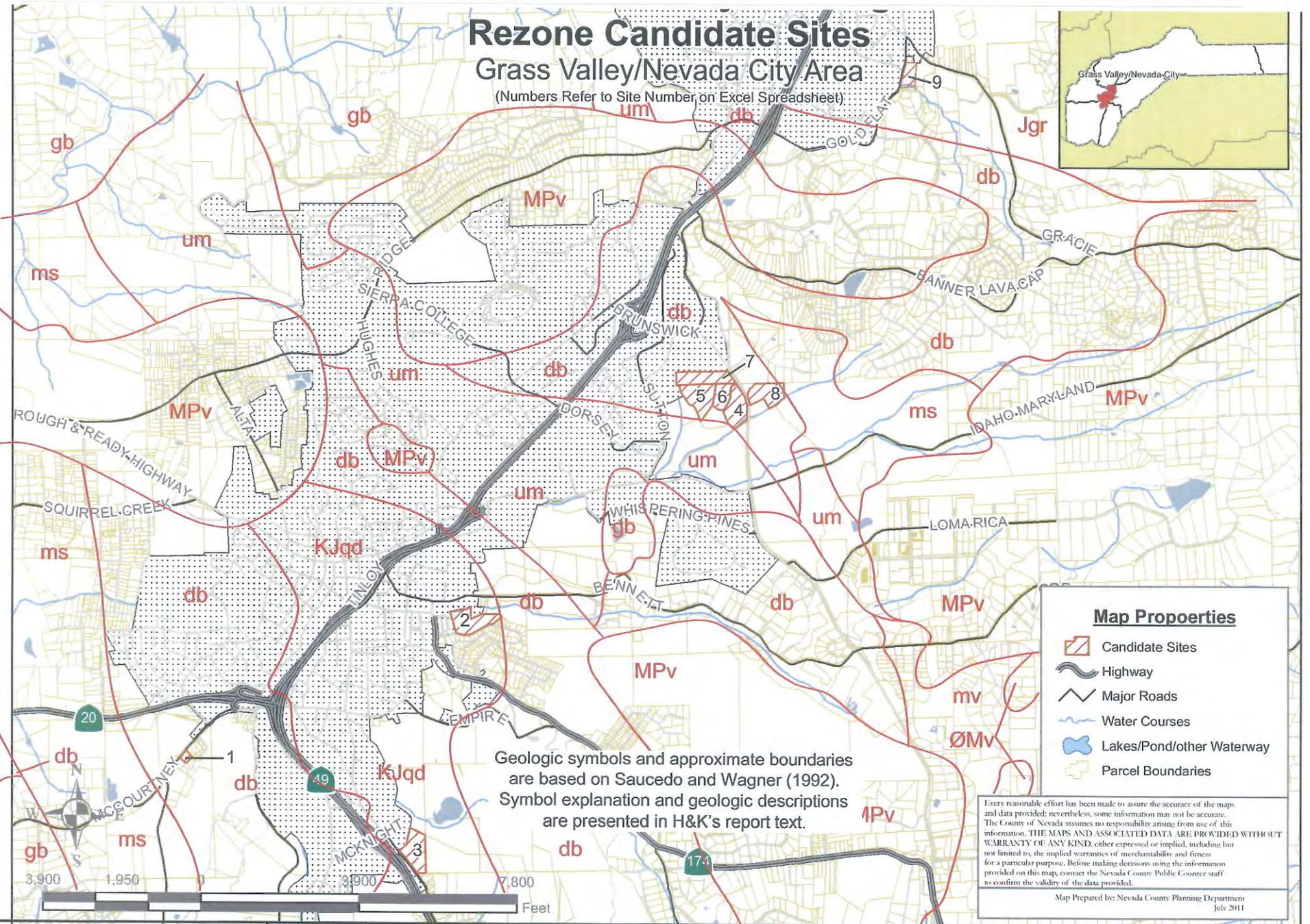
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Rezone Candidate Sites Grass Valley/Nevada City Area

(Numbers Refer to Site Number on Excel Spreadsheet)



Geologic symbols and approximate boundaries are based on Saucedo and Wagner (1992). Symbol explanation and geologic descriptions are presented in H&K's report text.

Map Properties

- Candidate Sites
- Highway
- Major Roads
- Water Courses
- Lakes/Pond/other Waterway
- Parcel Boundaries

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GEOLOGY MAP - GRASS VALLEY / NEVADA CITY AREA
2009-2014 HOUSING ELEMENT REZONE
NEVADA COUNTY, CALIFORNIA

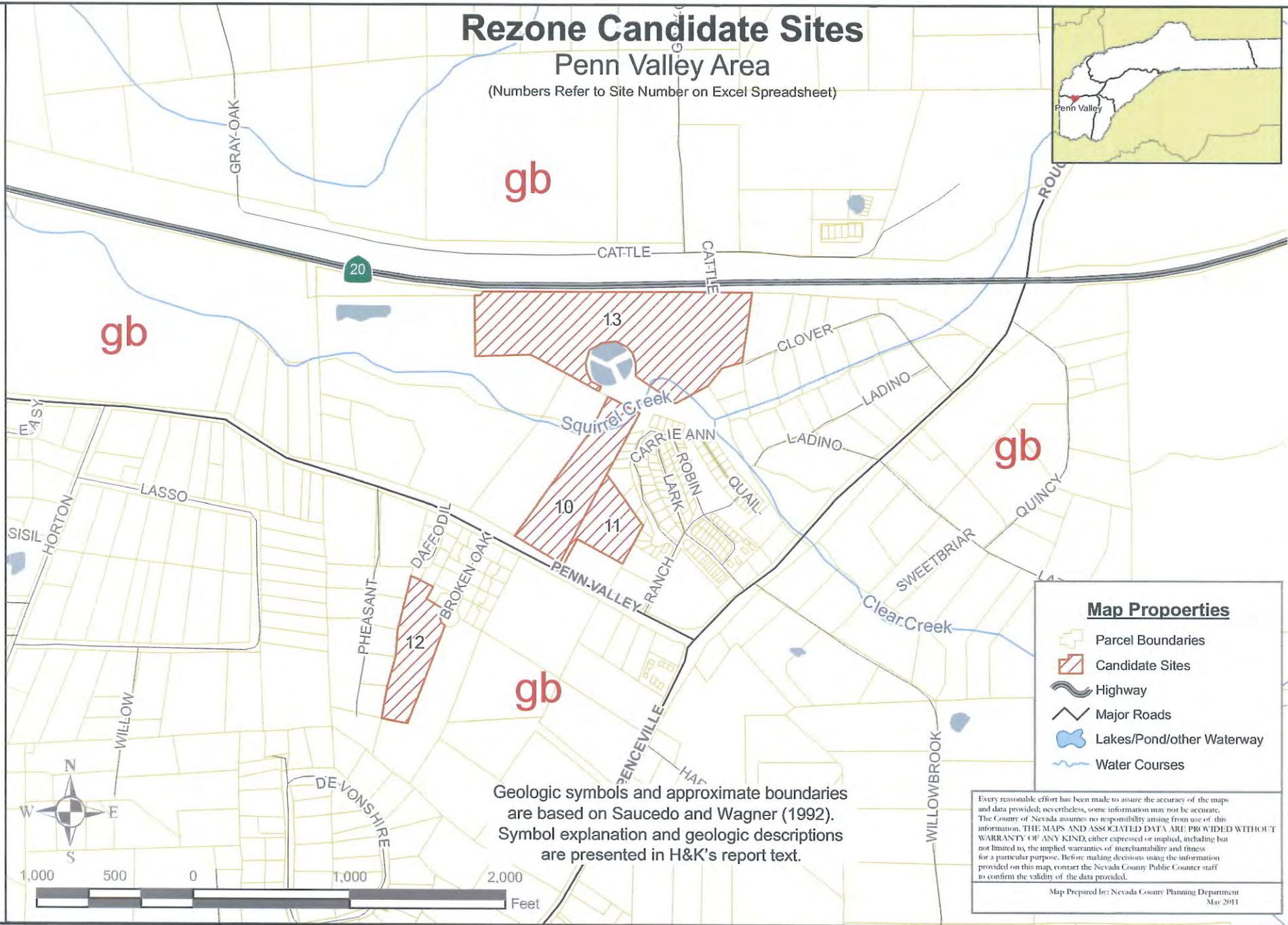
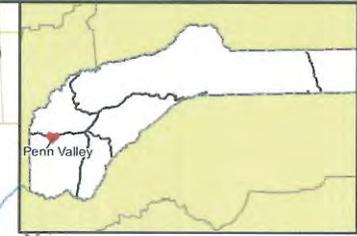
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FIGURE
14

Rezone Candidate Sites

Penn Valley Area

(Numbers Refer to Site Number on Excel Spreadsheet)



Map Properties

- Parcel Boundaries
- Candidate Sites
- Highway
- Major Roads
- Lakes/Pond/other Waterway
- Water Courses

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GEOLOGY MAP - PENN VALLEY AREA
2009-2014 HOUSING ELEMENT REZONE
NEVADA COUNTY, CALIFORNIA

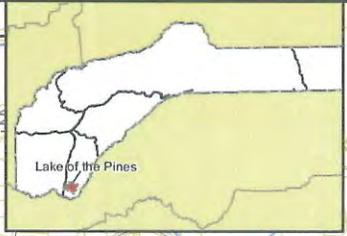
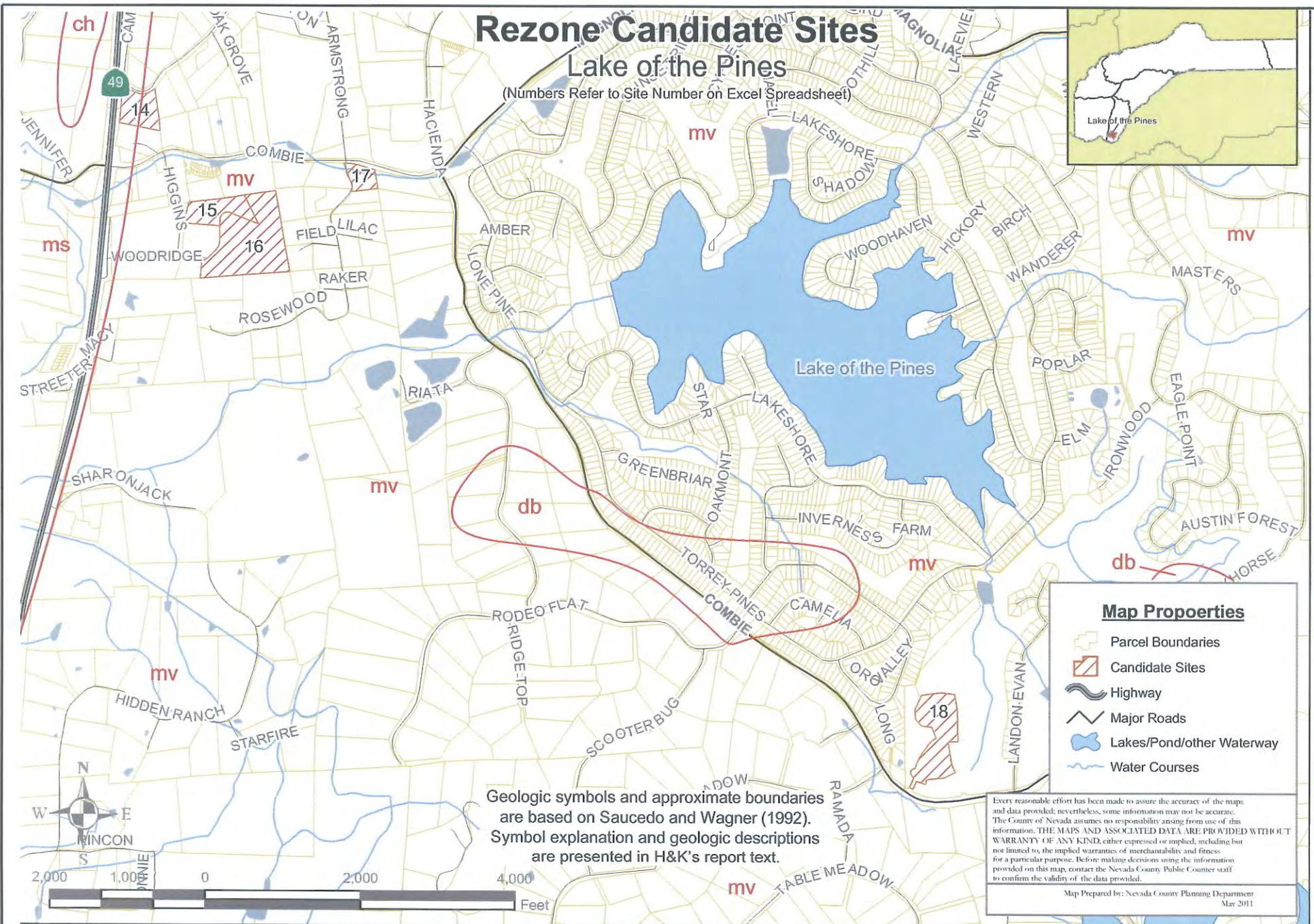
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DATE:	JUNE 2012

FIGURE
15

Rezone Candidate Sites

Lake of the Pines

(Numbers Refer to Site Number on Excel Spreadsheet)



Geologic symbols and approximate boundaries are based on Saucedo and Wagner (1992). Symbol explanation and geologic descriptions are presented in H&K's report text.

Map Properties

- Parcel Boundaries
- Candidate Sites
- Highway
- Major Roads
- Lakes/Pond/other Waterway
- Water Courses

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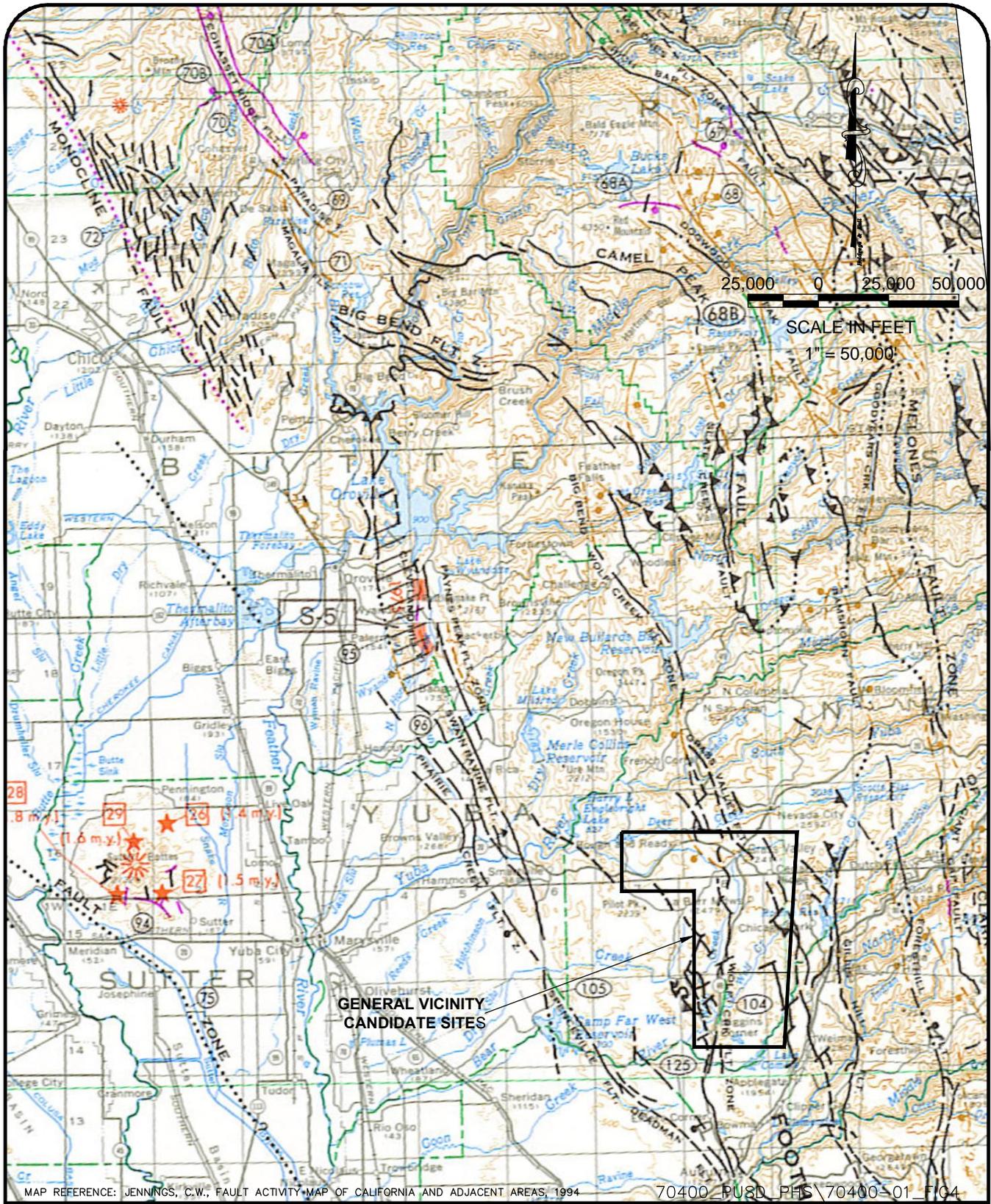
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GEOLOGY MAP - LAKE OF THE PINES
2009-2014 HOUSING ELEMENT REZONE
NEVADA COUNTY, CALIFORNIA

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H&K PROJECT:	4033-01
DATE:	JUNE 2012

FIGURE
16



MAP REFERENCE: JENNINGS, C.W., FAULT ACTIVITY MAP OF CALIFORNIA AND ADJACENT AREAS, 1994

70400_PUSD_PHS\70400-01_FIG4



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**FAULT ACTIVITY MAP
 HOUSING ELEMENT REZONE
 NEVADA COUNTY, CALIFORNIA**

PROJ NO.: 4033-01

DATE: JUNE, 2012

FIGURE NO.: **17**

TABLES

Table 1 Site Information

Table 2 Site Soils

Table 1. Site Information

Preliminary Geotechnical Investigation Report
 Housing Element Rezone, Nevada County

Area	Site Number	Nevada County General Plan Zoning Designation	Latitude (decimal degrees)	Longitude (decimal degrees)	APN	Acreage	Elevation Minimum (feet msl)	Elevation Maximum (feet msl)	Relief (feet)	Waterways	Slope	FEMA Floodzone Designation	Soils	Geology	Active Fault
Grass Valley	1	OP	39.206051	-121.075986	07-380-17	1.08	2450	2463	13	No	Less than 30%	X	Sites Loam	LC db	No
	3	BP	39.199532	-121.056031	29-350-12	11.36	2398	2542	144	No	Less than 30%	X	Sites Loam, Musick Sandy Loam, Alluvial Lands	KJqd	No
	4	UMD	39.229574	-121.027402	35-412-15	9.15	2598	2680	82	Yes: stream along property line	Less than 30%	X	Sites Loam	gb	No, Prequaternary fault trace.
	5	UMD	39.230234	-121.030748	35-412-17	11.35	2588	2693	105	No	Less than 30%	X	Sites Loam	gb	No
	6	UMD	39.230338	-121.028841	35-412-18	4.50	2644	2693	49	No	Less than 30%	X	Sites Loam	gb	No
	7	UMD	39.23151	-121.030289	35-412-19	9.70	2591	2703	112	No	Less than 30%	X	Sites Loam	gb	No
	8	UMD	39.230462	-121.024821	35-412-21	9.90	2621	2693	72	Yes: stream along property line	Less than 30%	X	Sites Loam/ Majority of site is shown as Alluvial Lands	gb	No
Penn Valley	10	CC	39.199817	-121.179644	51-120-06	5.95	1400	1400	0	Yes: stream along property line	Less than 30%	X, large area of Zone A and D	Alluvial Land	gb	No
	11	CC	39.199065	-121.178973	51-150-29	3.10	1400	1407	7	No	Less than 30%	X	Sierra Sandy Loam and Alluvial Land	gb	No
	12	UMD	39.196791	-121.183528	51-151-62	4.37	1397	1414	17	No	Less than 30%	X	Sierra Sandy Loam	gb	No
	13	PD	39.202677	-121.178772	51-370-02	20.10	1391	1404	13	Yes: Intermittent Stream through site	Less than 30%	X and A, 0.2% chance of flooding	Ahwanhee Sandy Loam, Placer Diggins and Alluvial Lands	gb	No
Lake of the Pines	14	OP	39.044592	-121.09333	57-141-29	5.00	1436	1525	89	No	Less than 30%	X	Boomer Rock Outcrop and Boomer loam	LCmv	No, Wolf Creek Fault within 500 feet
	15	PD	39.041087	-121.089877	57-270-02	5.00	1453	1581	128	No	Some areas over 30%	X	Boomer-Rock Outcrop Complex	LCmv	No Wolf Creek Fault within 2000 feet
	16	PD	39.039981	-121.08827	57-270-03	18.12	1463	1591	128	No	Some area over 30%	X	Boomer-Rock Outcrop Complex	LCmv	No Wolf Creek Fault within 2000 feet
	17	UMD	39.042149	-121.083175	57-270-06	2.36	1436	1482	46	Yes: Ragsdale Creek	Less than 30%	X	Boomer Loam	LCmv	No Wolf Creek Fault within 4000 feet
	18	USF	39.022457	-121.056963	11-181-03	11.03	1587	1689	102	No	Majority of site less than 30%, some avoidable areas under 30%	X	Sites Very Stony Loam, 15 to 30% slopes; Rescue-Rock Outcrop Complex, 5 to 30% slopes, Boomer Loam, 5 to 15%	LCmv	No

gb Lake Combie Complex, Gabbroic Rocks
 LCdb Early Mesozoic Lake Combie Complex, massive Diabase
 LCmv Early Mesozoic Lake Combie Complex, meta Volcanics
 KJqd Mesozoic Plutonic Rock, quartz diorite, tonalite, tonalite, tonalite, quartz monzonite
 msl mean sea level

Table 2. Site Soils

Preliminary Geotechnical Investigation Report
Housing Element Rezone, Nevada County

USDA Soil		
Site Number	Map Symbol	Map Unit Description
Grass Valley Area		
1	SIB	Sites loam, 2 to 9 percent slopes
3	SID	Sites loam, 15 to 30 percent slopes
	MrE	Musick sandy loam, 15 to 50 percent slopes
	Ao	Alluvial land, clayey
	MrC	Musick sandy loam, 5 to 15 percent slopes
	SmE	Sites very stony loam, 15 to 50 percent slopes
4	SID	Sites loam, 15 to 30 percent slopes
	Ao	Alluvial land, clayey
	SIB	Sites loam, 2 to 9 percent slopes
5	SID	Sites loam, 15 to 30 percent slopes
	Ao	Alluvial land, clayey
	SIB	Sites loam, 2 to 9 percent slopes
6	SID	Sites loam, 15 to 30 percent slopes
	SIB	Sites loam, 2 to 9 percent slopes
7	SID	Sites loam, 15 to 30 percent slopes
	SIB	Sites loam, 2 to 9 percent slopes
	SmC	Sites very stony loam, 2 to 15 percent slopes
8	Ao	Alluvial land, clayey
	SIC	Sites loam, 9 to 15 percent slopes
	SID	Sites loam, 15 to 30 percent slopes
Penn Valley Area		
10	Am	Alluvial land, loamy
	SfB	Sierra sandy loam, 2 to 9 percent slopes
11	SfB	Sierra sandy loam, 2 to 9 percent slopes
	Am	Alluvial land, loamy
12	SfB	Sierra sandy loam, 2 to 9 percent slopes
	BoC	Boomer loam, 5 to 15 percent slopes
13	AdB	Ahwahnee sandy loam, 2 to 9 percent slopes
	Am	Alluvial land, loamy
	Pr	Placer diggins
	AfC	Aiken loam, 9 to 15 percent slopes
Lake of the Pines Area		
14	BrD	Boomer-Rock outcrop complex, 5 to 30 percent slopes
	BoC	Boomer loam, 5 to 15 percent slopes
15	BrD	Boomer-Rock outcrop complex, 5 to 30 percent slopes
	Boc	Boomer loam, 5 to 15 percent slopes
16	BrD	Boomer-Rock outcrop complex, 5 to 30 percent slopes
17	BoC	Boomer loam, 5 to 15 percent slopes
	BrD	Boomer-Rock outcrop complex, 5 to 30 percent slopes
18	SmE	Sites very stony loam, 15 to 50 percent slopes
	RkD	Rescue-Rock outcrop complex, 5 to 30 percent slopes
	Awc	Auburn-Argonaut complex, 2 to 15 percent slopes Auburn part Argonaut part

Soil designations are from the *Soil Survey of Nevada County Area, California* (USDA Soil Conservation Service, 1975, reissued 1993) and the USDA's online Websoil Survey (<http://websoilsurvey.nrcs.usda.gov/> Accessed [May 2012]).

APPENDIX A PROPOSAL



Proposal No. PN11130
August 23, 2011

RBF Consulting
500 Ygnacio Valley Road, Suite 270
Walnut Creek, CA 94596

Attention: Kristie Wheeler

Reference: *Housing Element Rezone Program Implementation*
Nevada County, California

Subject: *Proposal for Geotechnical Engineering Services*

Dear Ms. Wheeler,

Holdrege & Kull (H&K) proposes to provide geotechnical engineering services on an as-needed basis for the Nevada County Housing Element Rezone Program Implementation. We understand that RBF Consulting may require technical studies related to the evaluation and/or environmental review of certain candidate properties. Based on our experience in the area, we can offer local knowledge of geotechnical, geologic and hazardous materials conditions on several of the candidate properties and the general vicinity.

For example, we have previously performed site characterization and developed a cleanup plan for one of the candidate properties. The cleanup plan was reviewed and approved by the California EPA, and presents mitigation measures for past mining activity on the site. Our experience with this property and other candidate properties can streamline the environmental review process.

SCOPE OF SERVICES

Our proposed scope of services is based on our review of the County's request for proposals (July 15, 2011) and our discussion of the project with you. We would be able to modify the scope of geotechnical feasibility study as needed for specific candidate properties, and we would also be able to consult regarding hazardous materials conditions, if needed.

H&K's services will be managed by Jason Muir, P.E., G.E., or Rob Fingerson, P.E., G.E. Field services will be performed by an engineer or geologist from our firm. Resumes and representative projects are attached.

Literature Review

H&K will review pertinent geologic, soil survey and historic mining literature to ascertain the potential for recorded geologic constraints on each candidate site.

Field Investigation

Field investigation typically includes surface reconnaissance, but can be modified to include subsurface investigation and soil sampling, if required. The field reconnaissance will focus on the areas most likely suitable for development, and potential constraints areas as identified during the literature review.

Preliminary Geotechnical Report

Following completion of the above tasks, we will compile a report that will include:

- Conclusions regarding the feasibility of the project from a preliminary geotechnical standpoint;
- Description of site geology, soil types and existing site conditions;
- A site map depicting significant features identified during the investigation;
- Discussion of anticipated materials and conditions to be encountered during site development, based on our local experience; and
- Proposed mitigation measures, as appropriate.

FEE

H&K's fee will vary from property to property depending upon the parcel size and level of review required, which is dictated by existing property conditions. Typical fees for preliminary geotechnical investigation range from to per site.

SCHEDULE

We can typically complete a preliminary geotechnical investigation within four weeks of receiving authorization to proceed. We would be able to expedite our services if needed.

If this proposal meets with your approval, please contact us to develop a services agreement for the project. We appreciate the opportunity to provide this proposal and we look forward to working with you. Please contact us if you have any questions.

Sincerely,

HOLDREGE & KULL



Jason W. Muir, P.E., G.E.
Principal Engineer

Attached: Resumes
Example Projects

F:\2 Proposals\PN1130 Nev Co Housing Element Rezone\PN1130 Nev Co Housing - Geotechnical Proposal.doc

APPENDIX B **IMPORTANT INFORMATION ABOUT YOUR
GEOTECHNICAL ENGINEERING REPORT (Included with
permission of ASFE, Copyright 2004)**

Important Information About Your Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

The following information is provided to help you manage your risks.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you — should apply the report for any purpose or project except the one originally contemplated.*

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,

- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final*, because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time to perform additional study.* Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that

have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely on Your ASFE-Member Geotechnical Engineer for Additional Assistance

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.

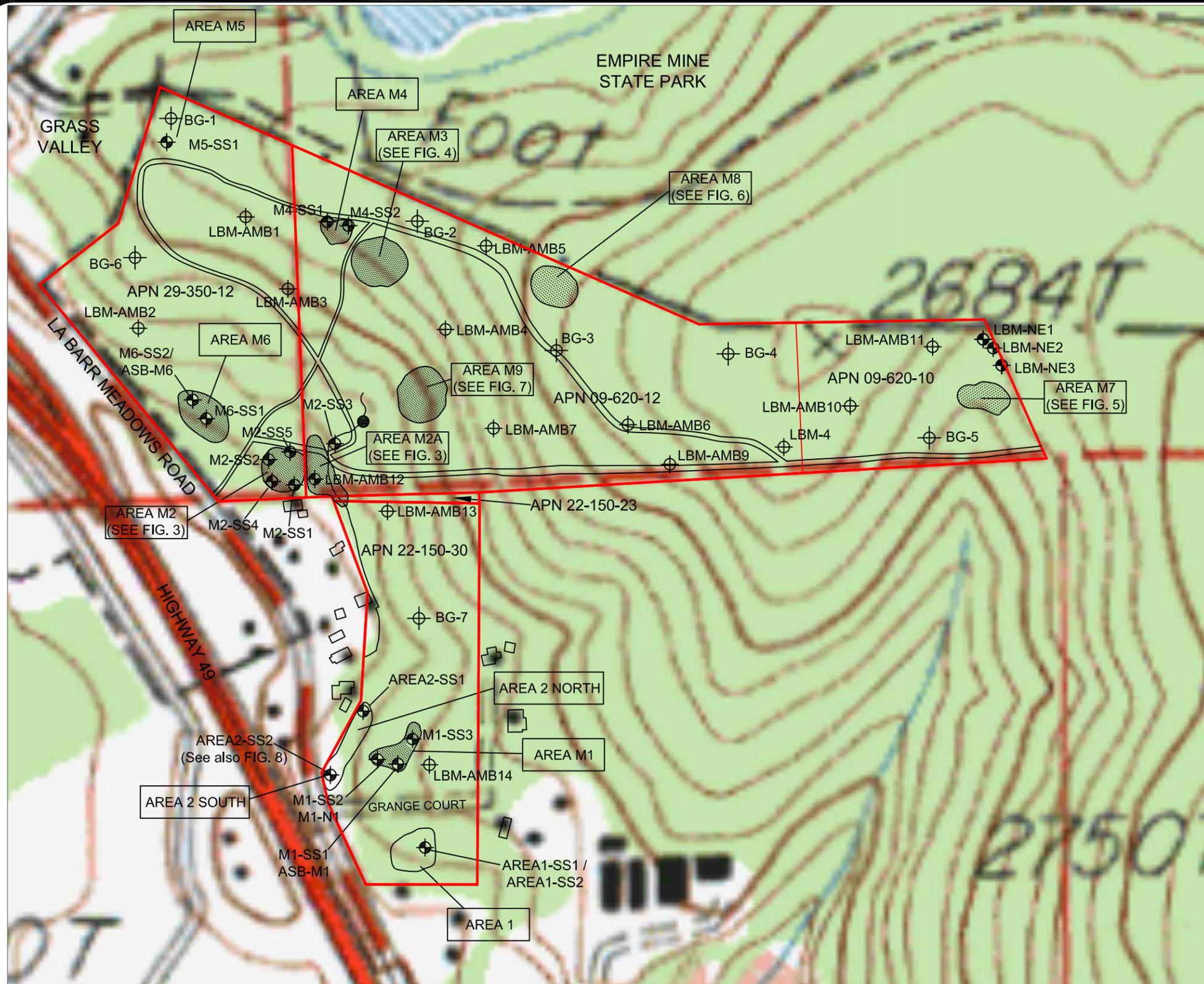


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APPENDIX C

**FIGURE 2 FROM PRELIMINARY ENDANGERMENT
ASSESSMENT OF LA BARR MEADOWS PROPERTY
(H&K, JANUARY 2007)**



APPROXIMATE SCALE IN FEET
1" = 300'

- LEGEND**
-  APPROXIMATE LOCATION OF APPARENT FORMER MINING AREA
 -  APPROXIMATE LOCATION OF AREA OF FORMER SCATTERED DEBRIS
 - APN 09-620-12 ASSESSOR'S PARCEL NUMBERS
 - M1-SS1  SOIL SAMPLE LOCATION
 - BG-1  AMBIENT SAMPLE LOCATION
 -  APPROXIMATE LOCATION OF GROUNDWATER SEEP/SPRING
 -  PVC CONDUIT PIPE FROM GROUNDWATER SEEP/SPRING TO RESIDENCE AT APN 22-150-18
 -  EXISTING UNIMPROVED ROAD / TRAIL

1928-11-FIG2

HK **HOLDREGE & KULL**
CONSULTING ENGINEERS • GEOLOGISTS
792 SEARLS AVENUE
NEVADA CITY, CA 95959
(530) 478-1305 FAX 478-1019

SITE MAP
LA BARR MEADOWS PROPERTY
NEVADA COUNTY, CALIFORNIA

DRAWN BY: DFD	CHECKED BY: SLD
PROJECT NO.: 1928-11	
DATE: OCTOBER 2007	
FIGURE NO.: 2	

**County of Nevada
Housing Element Rezone Implementation Program EIR
September 2013**

Technical Appendices

Appendix H

Hazardous Materials Databases

- Envirostor Database**
- Geotracker Database**
- Nevada County CDOCAO List**
- Waste Constituents Current List**

ENVIROSTOR ID	SITE / FACILITY NAME	SITE / FACILITY TYPE	STATUS	STATUS DATE	ADDRESS DESCRIPTION	CITY	ZIP	COUNTY	SITE CODE	LATITUDE	LONGITUDE
60000877	4022 GAGE AVENUE & VICINITY	STATE RESPONSE	BACKLOG	4/1/2010	4022 GAGE AVENUE	BELL	90201	LOS ANGELES	301410	33.97866662	-118.1954358
38990005	518 MINNA STREET APARTMENTS	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	12/28/1994	518 MINNA STREET	SAN FRANCISCO	94103	SAN FRANCISCO	200324	37.78037798	-122.4085951
19330371	A Z DECASING COMPANY	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	6/30/2003	1420 SOUTH SIGNAL DRIVE	POMONA	91766	LOS ANGELES	300248	34.046286	-117.726905
19000031	AAD	STATE RESPONSE	ACTIVE	1/1/2007	2306 E. 38TH STREET	VERNON	90058	LOS ANGELES	300461	34.00779331	-118.2324559
39340018	ACME-STOCKTON GALVANIZING WORKS	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	1/30/1991	540 WEST SCOTTS AVENUE	STOCKTON	95203	SAN JOAQUIN	100001	37.94369128	-121.2967877
60000742	AEROJET GENERAL CORP.	STATE RESPONSE	ACTIVE	10/19/2007	9100 FLAIR DRIVE	EL MONTE	91731	LOS ANGELES	301377	34.0715	-118.0688
34370002	AEROJET GENERAL CORPORATION	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	1/1/1983	HIGHWAY 50 AND AEROJET ROAD	RANCHO CORDOVA	95670	SACRAMENTO	100002	38.6149745	-121.2067694
19970004	AIR FORCE PLANT #42, PALMDALE	STATE RESPONSE	ACTIVE	7/1/1994	5832 ACRES; BETWN PALMDALE AND LANCASTER	PALMDALE	93550	LOS ANGELES	300002	34.62961285	-118.0916972
60000133	AJ COMMERCIAL LAUNDRY/ALL CHEM SUPPLY	STATE RESPONSE	ACTIVE	4/19/2005	1173-1175 CAMPBELL AVENUE	SAN JOSE	95126	SANTA CLARA	201631	37.3462716	-121.9283315
1970005	ALAMEDA NAS	FEDERAL SUPERFUND - LISTED	ACTIVE	7/21/2010	2,616 ACRES IN ALAMEDA, CALIFORNIA	ALAMEDA	94501	ALAMEDA	201209	37.78611111	-122.3097222
71000003	ALAMEDA, NAVAL AND MARINE RESERVE CENTER	STATE RESPONSE	ACTIVE	9/23/2011	2144 CLEMENT AVENUE	ALAMEDA	94501	ALAMEDA	201109	37.77222	-122.2442
33340002	ALARK HARD CHROME	FEDERAL SUPERFUND - LISTED	ACTIVE	4/19/1996	2777 MAIN STREET	RIVERSIDE	92501	RIVERSIDE	400003	33.99166667	-117.3680556
19340753	ALCO PACIFIC	STATE RESPONSE	ACTIVE	7/1/2001	16914 SOUTH BROADWAY	CARSON	90248	LOS ANGELES	300353	33.8781519	-118.2776796
70000030	ALLEN RANCH TAILINGS	STATE RESPONSE	ACTIVE	8/26/2005	APPROXIMATELY ONE HALF MILE WEST OF ALLEN RANCH ROAD, AND TWO MILES NORTH OF STATE ROUTE 104	JACKSON	95968	AMADOR	101767	38.38126	-120.814103
43100001	ALMADEN QUICKSILVER COUNTY PARK	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	12/29/1999	ALAMITOS ROAD & HICKS ROAD	SAN JOSE	95110	SANTA CLARA	200005	37.17392044	-121.8377175
1390001	AMCO CHEMICAL	FEDERAL SUPERFUND - LISTED	ACTIVE	5/1/2002	1414 THIRD STREET	OAKLAND	94607	ALAMEDA	200687	37.80283875	-122.2948781
3240002	AMERICAN FOREST PRODUCTS - MARTELL	STATE RESPONSE	BACKLOG	10/5/1981	HIGHWAY 49 AND HIGHWAY 88 JUNCTION	MARTELL	95654	AMADOR	100010	38.368085	-120.79755
19290155	AMOCO CHEMICALS CORP (2)	STATE RESPONSE	BACKLOG	11/9/2010	1225 WEST 196TH STREET	TORRANCE	90502	LOS ANGELES	401382	33.85349734	-118.2979944
19400012	AMTRAK REDONDO JUNCTION FACILITY	STATE RESPONSE	ACTIVE	1/10/2003	2435 E. WASHINGTON BLVD.	LOS ANGELES	90021	LOS ANGELES	300204, 300691, 300719	34.01915871	-118.2264626
19290306	ANGELES CHEMICAL COMPANY INC	STATE RESPONSE	ACTIVE	4/22/2010	8915 SORENSEN AVENUE	SANTA FE SPRINGS	90670	LOS ANGELES	301566	33.95882191	-118.063014
60001335	AREA 3 (SAN GABRIEL VALLEY SUPERFUND SITE)	FEDERAL SUPERFUND - LISTED	ACTIVE	5/25/2010	COVERS CITY OF SAN GABRIEL, PORTIONS OF CITIES OF ALHAMBRA, ROSEMEAD, TEMPLE CITY, SAN MARINO AND SOUTH PASADENA	ALHAMBRA	91778	LOS ANGELES	301178, 301284	34.09858579	-118.1165886
3100002	ARGONAUT MINE	STATE RESPONSE	ACTIVE	8/10/2005	ARGONAUT LANE	JACKSON	95642	AMADOR	100347	38.357706	-120.789426
60001242	ARLENE'S CLEANERS	STATE RESPONSE	ACTIVE	8/8/2011	2017 CHESTNUT STREET	SAN FRANCISCO	94123	SAN FRANCISCO	201871	37.800588	-122.436511
30490018	ASCON LANDFILL	STATE RESPONSE	ACTIVE	1/1/1984	21641 MAGNOLIA STREET	HUNTINGTON BEACH	92646	ORANGE	400007, 400852	33.64775865	-117.9729253
15420001	ASSURED TRANSPORTATION SITE	STATE RESPONSE	ACTIVE	6/13/1997	3228 GIBSON ST	BAKERSFIELD	93308	KERN	100562	35.3904494	-119.051671
10320044	ATLAS ASBESTOS MINE	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	1/1/1983	20 MILES NW OF COALINGA-LOS GATOS CK RD	COALINGA	93210	FRESNO	100161, 101717	36.32118701	-120.5911861
60001560	AVALON PROPERTY	STATE RESPONSE	ACTIVE	10/6/2011	200 FALLS CANYON ROAD	CITY OF AVALON	90704	LOS ANGELES	404868	33.33852386	-118.3327317
15490015	AVENUE A UNAUTHORIZED DISPOSAL SITE	STATE RESPONSE	ACTIVE	10/2/1996	AVENUE A 1-1/2 MILE EAST HIGHWAY 14	ROSAMOND	93560	KERN	101339	34.8208	-118.1392
43360085	AYDIN ENERGY	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	9/30/1997	3180 HANOVER STREET	PALO ALTO	94304	SANTA CLARA	200010	37.41464829	-122.145716
56750014	B & S AUTO PARTS/SALVAGE	STATE RESPONSE	BACKLOG	9/8/2011	89 PEKING STREET	VENTURA	93001	VENTURA	301405	34.2833	-119.30583
80000136	BAKERSFIELD MUNICIPAL AIRPORT - (J09CA0230)	MILITARY EVALUATION	ACTIVE	2/9/2011		BAKERSFIELD		KERN		35.42777778	-119.0444444
60001336	BALDWIN PARK (SAN GABRIEL VALLEY SUPERFUND SITE)	FEDERAL SUPERFUND - LISTED	ACTIVE	5/25/2010	COVERS PORTIONS OF CITIES OF AZUSA, IRWINDALE, BALDWIN PARK AND WEST COVINA	BALDWIN PARK	91706	LOS ANGELES	300345	34.08678666	-117.9602051
36970001	BARSTOW MCLB	FEDERAL SUPERFUND - LISTED	ACTIVE	5/1/1986	5,688 ACRES; MIDDLE OF THE MOJAVE DESERT	BARSTOW	92311	SAN BERNARDINO	400092	34.87333333	-116.9525
19290278	BASIN BY-PRODUCTS	STATE RESPONSE	ACTIVE	1/1/1985	3031 EAST I STREET	WILMINGTON	90744	LOS ANGELES	400015	33.78395545	-118.2255452
70000015	BAYVIEW PLUME STUDY AREA	STATE RESPONSE	BACKLOG	7/26/2011	NEAR INTERSECTION OF SHAFTER AVENUE AND HAWES STREET	SAN FRANCISCO	94124	SAN FRANCISCO	201572	37.72695651	-122.38348
71000008	BAYWOOD PARK TRAINING AREA (J09CA0031)	STATE RESPONSE	ACTIVE	3/30/2005	13 MI NW OF SAN LUIS OBISPO	BAYWOOD PARK	93402	SAN LUIS OBISPO	101047	35.30611111	-120.8725
58940001	BEALE AFB - IR/MMRP	STATE RESPONSE	ACTIVE	5/1/1986	22,944 ACRES; 10MI EA OF MARYSVILLE, CA	BEALE AFB	95903	YUBA	100018	39.12621232	-121.435125
60000159	BEAUMON TRUST PROPERTY	STATE RESPONSE	ACTIVE	1/30/2006	12525 PARK AVENUE	SANTA FE SPRINGS	90670	LOS ANGELES	301280	33.940833	-118.064069
54360008	BECKMAN INSTRUMENTS, PORTERVILLE PLANT	FEDERAL SUPERFUND - LISTED	ACTIVE	9/30/2005	167 WEST POPLAR AVENUE	PORTERVILLE	93257	TULARE	100019	36.05077962	-119.0240278
15280253	BENHAM AND JOHNSON	STATE RESPONSE	ACTIVE	8/30/2010	340 DANIELS LN	BAKERSFIELD	93307	KERN	100020	35.34861111	-118.9991667
60001389	BF GOODRICH	FEDERAL SUPERFUND - LISTED	ACTIVE	12/20/2010	3196 NORTH LOCUST AVE.	RIALTO	92377	SAN BERNARDINO	401553	34.155923	-117.414193
80000155	BIG LAGOON BOMBING TARGET (IND RESERV) (J09CA0064)	MILITARY EVALUATION	ACTIVE	11/15/2011		BIG LAGOON		HUMBOLDT	201941	41.16111111	-124.1236111
70000175	BIO-RAD LABORATORIES	STATE RESPONSE	ACTIVE	6/1/2005	3110 REGATTA BOULEVARD	RICHMOND	94804	CONTRA COSTA	201286	37.91409586	-122.339148
19490005	BKK SANITARY LANDFILL / CLASS I AREA	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	11/18/2004	2210 SOUTH AZUZA AVENUE	WEST COVINA	91792	LOS ANGELES	300012	34.03630192	-117.9131699
7490012	BLAIR SOUTHERN PACIFIC LANDFILL	STATE RESPONSE	ACTIVE	12/22/2005	AT THE FOOT OF SOUTH 51ST STREET	RICHMOND	94804	CONTRA COSTA	200060	37.91027852	-122.3264122
60001382	BLUE LEDGE MINE	FEDERAL SUPERFUND - LISTED	ACTIVE	3/2/2011	2 MILES SOUTH OF OREGON ON ROAD 1060	ROGUE RIVER NATIONAL FOREST	0	SISKIYOU	102152	41.95894758	-123.1072998
60001614	BOLINAS AVENUE CENTER	STATE RESPONSE	ACTIVE	12/19/2011	4&8 BOLINAS AVENUE & 21 SAN ANSELMO AVENUE	SAN ANSELMO	94960	MARIN	201927	37.9696087	-122.5612357
80001037	BORDER FIELD STATE PARK	STATE RESPONSE	ACTIVE	7/1/2012	1/2 MILE NORTH OF U.S. & MEXICO BORDER	IMPERIAL BEACH	92154	SAN DIEGO	401363	32.56666667	-117.1291667
37970028	BORREGO SITES (J09CA701100 AND J09CA701800 AND OTHER ANZA BORREGO IMPACT AREAS)	STATE RESPONSE	ACTIVE	8/7/2001	ANZA-BORREGO DESERT STATE PARK	BORREGO SPRINGS	92004	SAN DIEGO	400918	33.19611111	-116.1638889
19290289	BORTZ OIL COMPANY	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	8/1/1996	1746 NORTH SPRING STREET	LOS ANGELES	90012	LOS ANGELES	300017	34.07	-118.2252778

ENVIROSTOR ID	SITE / FACILITY NAME	SITE / FACILITY TYPE	STATUS	STATUS DATE	ADDRESS DESCRIPTION	CITY	ZIP	COUNTY	SITE CODE	LATITUDE	LONGITUDE
71002231	BOWMAN PLATING CO., INC.	STATE RESPONSE	ACTIVE	10/3/2011	2631 E. 126TH STREET	COMPTON	90222	LOS ANGELES		33.918047	-118.2247242
15280037	BRIDGES AND SON TRUCKING	STATE RESPONSE	ACTIVE	5/1/2006	1200 ORANGE AVENUE	ROSAMOND	93560	KERN	100179	34.8570417	-118.1523854
10280077	BRITZ FERTILIZERS, INC - FIVE POINTS	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	2/19/2004	21817 SOUTH COALINGA ROAD	FIVE POINTS	93624	FRESNO	100024	36.41972222	-120.1211111
15280010	BROWN AND BRYANT - SHAFER FACILITY	STATE RESPONSE	ACTIVE	3/1/1985	135 COMMERCIAL DRIVE	SHAFER	93263	KERN	100026	35.49884444	-119.2682806
15280011	BROWN AND BRYANT INC ARVIN FACILITY	FEDERAL SUPERFUND - LISTED	ACTIVE	3/1/1985	600 S DERBY ST	ARVIN	93203	KERN	100025	35.20314691	-118.8231039
60001268	BUENA PARK DRY CLEANERS	STATE RESPONSE	ACTIVE	3/9/2010	6522 STANTON AVENUE	BUENA PARK	90621	ORANGE	401478	33.8658	-117.9938
60000405	BUENA VISTA/KLAU MERCURY MINES	FEDERAL SUPERFUND - LISTED	ACTIVE	9/15/2006	12 MILES WEST OF PASO ROBLES, SAN LUIS OBISPO COUNTY.	PASO ROBLES	93447	SAN LUIS OBISPO	101804	35.625899	-120.896666
80000179	CADIZ LAKE SONIC TARGET #4	STATE RESPONSE	ACTIVE	7/1/2012	40 MILES NORTHEAST OF 29 PALMS	CADIZ	4824	SAN BERNARDINO	401416	34.39805556	-115.3847222
19490019	CAL COMPACT LANDFILL	STATE RESPONSE	ACTIVE	4/18/1996	20400 MAIN ST	CARSON	90745	LOS ANGELES	401325, 401580	33.84260475	-118.2723333
1340118	CAL TECH METALS	STATE RESPONSE	ACTIVE	5/2/2006	825, 829, 841 31ST STREET	OAKLAND	94608	ALAMEDA	200882	37.82086944	-122.2744684
60001302	CALICO TAILINGS AREA	STATE RESPONSE	BACKLOG	4/4/2013	SITE OF FORMER MILLS APN: 051-708-119, 051-708-120, 051-708-122, 051-708-123, 051-709-106, 051-709-107, 053-703-221, 053-703-220	YERMO	92398	SAN BERNARDINO	401479	34.923231	-116.866698
60001551	CALIFORNIA ARMY NATIONAL GUARD	MILITARY EVALUATION	ACTIVE	12/1/2010	CALIFORNIA JOINT FORCES HEADQUARTERS 10620 MATHER BLVD. (VARIOUS LOCATIONS-SEE COMMUNITY INVOLVEMENT SCREEN)	MATHER	95655	SACRAMENTO	102150	38.552461	-121.297989
60000137	CALSOL INC.	STATE RESPONSE	ACTIVE	12/15/2005	822 WEST COMMERCIAL	POMONA	91761	LOS ANGELES	301274	34.05904873	-117.7638349
19990003	CALTRANS I-105 #16 & 17	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	6/30/1994	I-5 FWY BTW NORMANDIE BLV & IMPERIAL HWY	LOS ANGELES	90047	LOS ANGELES	300203	33.92888889	-118.3
19990002	CALTRANS I-105 FWY PROJECT 3, PARCEL 15	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	4/9/1996	NE OF INTRSECTN OF WESTERN AVE & 120 ST	ATHENS	90047	LOS ANGELES	300202	33.92366078	-118.3086294
41280108	CALTRANS/SSF MAINTENANCE STATION	STATE RESPONSE	BACKLOG	4/26/2006	166 HARBOR WAY	S SAN FRANCISCO	94080	SAN MATEO	200875	37.65239339	-122.4010086
36970013	CAMA DESERT SITES	MILITARY EVALUATION	BACKLOG	11/16/2005	MOJAVE DESERT-VARIOUS SITES	NEEDLES	92363	SAN BERNARDINO		0	0
19390043	CAMEO	STATE RESPONSE	ACTIVE	12/8/1993	6904 EAST SLAUSON AVENUE	COMMERCE	90040	LOS ANGELES	300546	33.98020703	-118.1412194
58970001	CAMP BEALE (J09CA0136) - MMRP	STATE RESPONSE	ACTIVE	7/12/2001	97.74 SQ MI; 40 MI N OF SACRAMENTO	MARYSVILLE	95901	YUBA	101188, 101800	39.12833333	-121.2480556
37970025	CAMP ELLIOTT-J09CA0067	STATE RESPONSE	ACTIVE	9/21/1998	NORTHERN PORTION OF SAN DIEGO	SAN DIEGO	92103	SAN DIEGO	400690	32.82277778	-117.1033333
80000214	CAMP HAAN RIFLE RANGE J09CA0280	STATE RESPONSE	BACKLOG	5/23/2012	SOUTH-WEST OF MARCH AIR FORCE BASE AND WEST OF HIGHWAY 215	RIVERSIDE	92518	RIVERSIDE		33.87222222	-117.2916667
71000062	CAMP HAAN, SITE Y (J09CA0279)	STATE RESPONSE	ACTIVE	12/6/2012	WEST AND NORTH OF THE INTERSECTION OF NANDINA AVE AND FWY 215	RIVERSIDE	92518	RIVERSIDE	401244	35	-119
36970011	CAMP IBIS (J09CA028300)	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE	1/6/2009	21 MILES NORTHWEST OF NEEDLES	NEEDLES	92363	SAN BERNARDINO	400765	34.96694444	-114.8169444
37970030	CAMP LOCKETT (J09CA707800)	STATE RESPONSE	ACTIVE	7/1/2012	CAMPO	CAMPO	91906	SAN DIEGO	400767	32.608336	-116.466948
71000024	CAMP MCQUAIDE (J09CA0769) (MILITARY RESERVATION)	STATE RESPONSE	ACTIVE	5/16/2012	MONTEREY BAY ACADEMY, WATSONVILLE, OFF OF HWY 1 ON SAN ANDRES DR.	SANTA CRUZ	95077	SANTA CRUZ	200632	36.90305556	-121.8238889
37970009	CAMP PENDLETON MCB	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	5/1/1986	125,000 ACRES; 35 MI NO OF SAN DIEGO, CA	OCEANSIDE	92055	SAN DIEGO	400025	33.36527778	-117.4227778
40910001	CAMP SAN LUIS OBISPO - IR/MMRP	STATE RESPONSE	ACTIVE	12/21/2005	7 MILES W OF SAN LUIS OBISPO/HWY 1	SAN LUIS OBISPO	93401	SAN LUIS OBISPO	200604	35.33333333	-120.7
71000026	CAMP STONEMAN IR-MMRP (J09CA0773)	STATE RESPONSE	ACTIVE	5/16/2012	RAILROAD AVENUE	PITTSBURG	94563	CONTRA COSTA	200633	38.00914823	-121.9008636
57340006	CAPITOL PLATING CORPORATION	STATE RESPONSE	ACTIVE	8/16/2006	319 3RD STREET	WEST SACRAMENTO	95605	YOLO	100327	38.58783504	-121.5097518
42490025	CASMALIA RESOURCES	FEDERAL SUPERFUND - LISTED	ACTIVE	5/8/1995	3300 NTU ROAD	CASMALIA	93429	SANTA BARBARA	300208	34.87588338	-120.5526482
13280019	CASPIAN INC	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	6/30/1998	287 WEST ATEN ROAD	EL CENTRO	92243	IMPERIAL	400201, 401639	32.82179474	-115.5600224
80001230	CASTLE AFB/COUNTY OF MERCED PARCELS	FEDERAL SUPERFUND - LISTED	ACTIVE	7/10/2008	5 MI NW OF MERCED	ATWATER	95342	MERCED	101914	37.386649	-120.58614
24970001	CASTLE AIR FORCE BASE	FEDERAL SUPERFUND - LISTED	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	9/26/2007	2,777 ACRES; 5 MI NW OF MERCED, CA	ATWATER	95342	MERCED	100029	37.36277778	-120.5666667
1350119	CATERPILLAR INC	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE	5/9/1997	800 DAVIS STREET	SAN LEANDRO	94577	ALAMEDA	200113	37.7239684	-122.1649577
3100003	CENTRAL EUREKA MINE	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	7/16/2008	OLD RIDGE ROAD AND EUREKA ROAD	SUTTER CREEK	95685	AMADOR	100449	38.38394355	-120.8031009
24280039	CENTRAL VALLEY FERTILIZER CO, INC (2)	STATE RESPONSE	ACTIVE	6/29/1998	7657 AZUSA AVE	DOS PALOS	93620	MERCED	101085	37.04805	-120.6295944
19281216	CHARLES CAINE COMPANY, INC.	STATE RESPONSE	ACTIVE	7/2/2001	8325 HINDRY AVENUE	LOS ANGELES	90045	LOS ANGELES	300997	33.9627787	-118.3738661
37490029	CHATHAM BROTHERS BARREL YARD	STATE RESPONSE	ACTIVE	4/18/1996	2257 BERNARDO AVE	ESCONDIDO	92029	SAN DIEGO	400029	33.09302716	-117.0890821
7280017	CHEMICAL AND PIGMENT COMPANY	STATE RESPONSE	ACTIVE	10/31/2001	600 NICHOLS ROAD	BAY POINT	94565	CONTRA COSTA	200019	38.04266168	-121.9890551
60001251	CHICAGO MUSICAL INSTRUMENTS (FORMER)	STATE RESPONSE	ACTIVE	2/16/2010	350 SOUTH RAYMOND AVENUE	FULLERTON	92831	ORANGE	401489	33.86791	-117.90693
4880002	CHICO - SKYWAY SUBDIVISION GROUNDWATER PLUME	STATE RESPONSE	ACTIVE	6/21/2004	HAGEN LANE/SKYWAY AVENUE	CHICO	95928	BUTTE	101681	39.70847425	-121.8116856
4990003	CHICO GROUNDWATER - CENTRAL PLUME	STATE RESPONSE	ACTIVE	6/13/1997	CHICO AREA GROUNDWATER	CHICO	95926	BUTTE	100035	39.73517821	-121.8353051
4990002	CHICO GROUNDWATER - SOUTHWEST PLUME	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	8/14/2003	CHICO AREA GROUNDWATER	CHICO	95926	BUTTE	100504	39.73333333	-121.8477778
4450006	CHICO MUNICIPAL AIRPORT	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	1/1/1985	651 AND 681 LIBERATOR STREET	CHICO	95926	BUTTE	100036, 100187	39.79508417	-121.8477774
60000800	CHICO SCRAP METAL - 20TH STREET	STATE RESPONSE	ACTIVE	1/31/2008	878 EAST 20TH STREET	CHICO	95928	BUTTE	101937	39.72518856	-121.816735

ENVIROSTOR ID	SITE / FACILITY NAME	SITE / FACILITY TYPE	STATUS	STATUS DATE	ADDRESS DESCRIPTION	CITY	ZIP	COUNTY	SITE CODE	LATITUDE	LONGITUDE
60000799	CHICO SCRAP METAL - SOUTH	STATE RESPONSE	ACTIVE	1/31/2008	766 ORO-CHICO HIGHWAY	DURHAM	95938	BUTTE	101939	39.6483	-121.725876
15970006	CHINA LAKE NAVAL WEAPONS STATION (NAWS)	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	5/1/1986	APPROX 1,710 SQ MI; 120 MILES NORTHEAST OF LOS ANGELES	RIDGECREST	93555	KERN	100038	35.6	-117.4797222
19350473	CHROME CRANKSHAFT, COMPANY	STATE RESPONSE	ACTIVE	1/25/1999	6845 FLORENCE PL	BELL GARDENS	90201	LOS ANGELES	300736	33.96572161	-118.14191
1890017	CINTAS/DEDOMENICO SITE	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	10/2/2006	777 139TH AVENUE	SAN LEANDRO	94578	ALAMEDA	200642	37.70990676	-122.1448666
10330041	CITY OF COALINGA ASBESTOS SITE	FEDERAL SUPERFUND - DELISTED	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	6/25/1991	AREA SE OF LUCILLE AVENUE & HWY 198	COALINGA	93210	FRESNO	100289, 102100	36.12775	-120.37
19000010	CITY OF CUDAHY PARK	STATE RESPONSE	ACTIVE	6/30/2001	5240 SANTA ANA STREET	CUDAHY	90201	LOS ANGELES	301008	33.95916667	-118.1744444
60001550	CLA-VAL FACILITY	STATE RESPONSE	ACTIVE	4/19/2011	1701 PLACENTIA AVENUE	COSTA MESA	92627	ORANGE	401579	33.637057	-117.933065
10140003	COALINGA ASBESTOS MINE	FEDERAL SUPERFUND - DELISTED	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	6/30/1994	PINE CANYON, 15 MILES NW OF COALINGA	COALINGA	93210	FRESNO	100043	36.30962674	-120.529418
23240013	COAST WOOD PRESERVING	FEDERAL SUPERFUND - LISTED	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	5/10/2011	PLANT RD & TAYLOR DR	UKIAH	95482	MENDOCINO	200021	39.11150785	-123.1944475
43360115	COHERENT INC	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE	7/11/1996	3210 PORTER DR	PALO ALTO	94304	SANTA CLARA	200138	37.40725141	-122.1473956
1720110	COMMERCIAL BUILDINGS	STATE RESPONSE	ACTIVE	6/10/2003	1250-1276, 1284 W. GRAND & 2232 POPLAR	OAKLAND	94607	ALAMEDA	201386	37.8165492	-122.2865959
10340074	COMMERCIAL ELECTROPLATERS	STATE RESPONSE	ACTIVE	4/28/1993	2940 SOUTH ELM AVENUE	FRESNO	93706	FRESNO	100044	36.69436919	-119.7920036
15330008	COMMODITY REFINING EXCHANGE	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	6/27/2003	11847 UNITED STREET	MOJAVE	93501	KERN	100175	34.9935	-118.1500417
80000563	CONCORD ARMY AIR FIELD (J09CA0787)	MILITARY EVALUATION	ACTIVE	12/26/2012		CONCORD		CONTRA COSTA	201683	37.988889	-122.057222
80000634	CONCORD NAVAL WEAPONS STATION	MILITARY EVALUATION	ACTIVE	12/26/2012		CONCORD		CONTRA COSTA		38.00222222	-122.0169444
7970005	CONCORD NAVAL WEAPONS STATION - INLAND AREA	FEDERAL SUPERFUND - LISTED	ACTIVE	11/13/1990	12,922 ACRES; 30 MI NE OF SAN FRANCISCO	CONCORD	94520	CONTRA COSTA	201776	38.02111111	-122.0258333
7360035	COOK BATTERY (OAKLEY BATTERY)	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE	6/28/2006	139 HILL AVENUE	OAKLEY	94561	CONTRA COSTA	200072	37.97360159	-121.6924775
7280154	COOPER CHEMICAL	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	3/7/1997	2801 GIANT ROAD	RICHMOND	94806	CONTRA COSTA	200023	37.97481946	-122.3557234
19500052	COOPER DRUM	FEDERAL SUPERFUND - LISTED	ACTIVE	12/12/1996	9316 ATLANTIC AVENUE	SOUTH GATE	90280	LOS ANGELES	300251	33.94776667	-118.1816278
19360279	CORNELL-DUBILIER ELECTRONICS	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	4/18/1996	4144 GLENCOE AVENUE	MARINA DEL REY	90292	LOS ANGELES	300040	33.98898075	-118.44116
30970004	COSTA MESA AIR NATIONAL GUARD	STATE RESPONSE	ACTIVE	6/28/2011	S OF PRESIDIO DR & WEST OF NEWPORT BLVD	COSTA MESA	92626	ORANGE	400498	33.67166667	-117.8888889
60001065	CROWN CITY PLATING	STATE RESPONSE	ACTIVE	3/1/2009	4350 TEMPLE CITY BOULEVARD 4350 TEMPLE CITY BOULEVARD	EL MONTE	91731	LOS ANGELES	301394, 301584	34.08600473	-118.0552197
50970001	CROWS LANDING NALF	STATE RESPONSE	ACTIVE	7/1/1994	1.5 MI NW OF CROWS LANDING; (T6S R8E)	CROWS LANDING	95313	STANISLAUS	100245, 101696	37.40722222	-121.1083333
36970016	CUDDEBACK LAKE AIR FORCE RANGE	STATE RESPONSE	ACTIVE	2/10/2004	RIDGECREST	RIDGECREST	93555	SAN BERNARDINO	400870	35.28674866	-117.382658
36500010	D & M DRUM CO	STATE RESPONSE	ACTIVE	4/11/2003	137 LILAC AVENUE	RIALTO	92376	SAN BERNARDINO	401078	34.0986689	-117.3787352
19281215	DAVIS CHEMICAL COMPANY	STATE RESPONSE	ACTIVE	9/6/2000	1550 NORTH BONNIE BEACH PLACE	LOS ANGELES	90063	LOS ANGELES	300432	34.0591752	-118.1826778
60000691	DAVIS MILL/HOGE MINE	STATE RESPONSE	BACKLOG	12/6/2011	13145 NORTH BLOOMFIELD-GRANITEVILLE ROAD	NEVADA CITY	95959	NEVADA	102007	39.29139848	-120.9802008
39970003	DEFENSE DISTRIBUTION SAN JOAQUIN (DDJC) TRACY	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	5/1/1986	25600 S CHRISMAN RD	TRACY	95304	SAN JOAQUIN	100048	37.71446275	-121.397575
39970002	DEFENSE DISTRIBUTION SAN JOAQUIN CA (DDJC) SHARPE	FEDERAL SUPERFUND - LISTED	ACTIVE	5/1/1986	60 MI EA OF SAN FRANCISCO, CA	LATHROP	95331	SAN JOAQUIN	100131	37.84	-121.2686111
19970007	DEFENSE FUEL SUPPLY POINT, SAN PEDRO 1	STATE RESPONSE	ACTIVE	3/4/2009	3171 NORTH GAFFEY STREET	SAN PEDRO	90731	LOS ANGELES	400046, 400770	33.77805556	-118.2958333
19300230	DEL AMO FACILITY	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	4/22/1996	DEL AMO BLVD & VERMONT AVE	LOS ANGELES	90020	LOS ANGELES	400048, 400851, 401628	33.8497	-118.292
8420001	DEL NORTE PESTICIDE STORAGE	FEDERAL SUPERFUND - DELISTED	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	9/26/2012	2650 W WASHINGTON BLVD	CRESCENT CITY	95531	DEL NORTE	200025	41.77172778	-124.2378028
60000349	DELIA'S CLEANERS	STATE RESPONSE	ACTIVE	10/26/2006	7335 BOLINGER ROAD	CUPERTINO	95014	SANTA CLARA	201670	37.3125692	-122.033584
7750026	DELTA AUTO WRECKER	STATE RESPONSE	ACTIVE	6/5/2009	6 INDUSTRY ROAD	PITTSBURG	94565	CONTRA COSTA	201333	38.02988144	-121.876072
60000286	DERRY LANE MIXED USE DEVELOPMENT	STATE RESPONSE	ACTIVE	5/1/2006	DERRY LANE	MENLO PARK	94025	SAN MATEO	201659	37.45577218	-122.1846618
60001272	DIESEL LOGISTICS	STATE RESPONSE	ACTIVE	4/6/2010	1331 E. WARNER AVE	SANTA ANA	92705	ORANGE	401519, 401607	33.71594	-117.85298
48970003	DIXON NAVAL RESERVE TRAINING FACILITY	STATE RESPONSE	ACTIVE	7/22/1997	7200 RADIO STATION ROAD	DIXON	95620	SOLANO	100278	38.37416667	-121.7744444
80001095	DRAKES BAY RANGE - (J09CA7289) MMRP	MILITARY EVALUATION	ACTIVE	9/1/2009	1 BEAR VALLEY ROAD (POINT REYES NATIONAL SEASHORE)	POINT REYES STATION	94956	MARIN	201820	38.03	-122.9119444
7500035	DREW SALES	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	1/30/1990	1156 CASTRO STREET	RICHMOND	94804	CONTRA COSTA	200026	37.94969409	-122.3678856
80000411	DRY CANYON ARTILLERY RANGE	STATE RESPONSE	ACTIVE	7/1/2012	53 MILES NORTHWEST OF THE CITY OF VENTURA	DRY CANYON	93222	VENTURA	301338	34.75	-119.2419444
1390006	DUTCH BOY #3	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	12/18/2008	4825 SAN LEANDRO STREET	OAKLAND	94601	ALAMEDA	201426	37.7670514	-122.2135515
1990002	DWA PLUME	STATE RESPONSE	ACTIVE	12/31/1999	SAN LEANDRO (GROUNDWATER CONTAMINATION)	SAN LEANDRO	94578	ALAMEDA	200327	37.7089751	-122.1433914
49240001	ECODYNE POND	STATE RESPONSE	ACTIVE	5/1/1986	930 SHILOH RD	WINDSOR	95492	SONOMA	200028	38.52575556	-122.7940306
15970001	EDWARDS AIR FORCE BASE - IR/MMRP	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	5/1/1986	470 SQ MI; 60 MI NE OF LOS ANGELES, CA	EDWARDS	93523	KERN	100052	34.90604444	-117.8825083

ENVIROSTOR ID	SITE / FACILITY NAME	SITE / FACILITY TYPE	STATUS	STATUS DATE	ADDRESS DESCRIPTION	CITY	ZIP	COUNTY	SITE CODE	LATITUDE	LONGITUDE
12240119	EEL RIVER SAWMILLS, MILL A	STATE RESPONSE	ACTIVE	6/16/1999	1053 NORTHWESTERN AVE	FORTUNA	95540	HUMBOLDT	200757	40.51455887	-124.1255118
60001337	EL MONTE (SAN GABRIEL VALLEY SUPERFUND SITE)	FEDERAL SUPERFUND - LISTED	ACTIVE	5/25/2010	COVERS PORTIONS OF CITIES OF EL MONTE, ROSEMEAD, AND TEMPLE CITY	EL MONTE	91732	LOS ANGELES	301369, 301370	34.08010449	-118.0405426
44490005	EL PUEBLO ROAD PLUME	STATE RESPONSE	BACKLOG	9/29/2005	EL PUEBLO ROAD	SCOTTS VALLEY	95066	SANTA CRUZ	200030	37.05388889	-122.0086111
30970003	EL TORO MCAS	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	5/1/1986	4,741 ACRES; 9MI NE OF NEWPORT BEACH, CA	IRVINE	92709	ORANGE	400055	33.68305556	-117.7338889
1330044	ELECTRO FORMING CO.	STATE RESPONSE	ACTIVE	5/2/2006	130 NEVIN AVENUE	RICHMOND	94801	CONTRA COSTA	201414	37.93657778	-122.36785
29100003	EMPIRE MINE STATE PARK	STATE RESPONSE	ACTIVE	11/1/2005	10791 E EMPIRE ST	GRASS VALLEY	95945	NEVADA	100235	39.20776111	-121.0432139
15490019	ENVIRONMENTAL PROTECTION CORP-EASTSIDE D	STATE RESPONSE	ACTIVE	7/1/1994	ROUND MOUNTAIN ROAD	BAKERSFIELD	93301	KERN	100054	35.59527778	-118.8597222
4720001	ESPLANADE CLEANERS	STATE RESPONSE	ACTIVE	2/7/2011	164 E 2ND AVE	CHICO	95926	BUTTE	100263	39.73946069	-121.8458742
60001218	FAIR ANSELM CENTER, INC.	STATE RESPONSE	ACTIVE	11/25/2009	709 & 711 CENTER BOULEVARD	FAIRFAX	94930	MARIN	201866	37.98577935	-122.5835395
37970003	FALLBROOK NWS	STATE RESPONSE	ACTIVE	9/1/1995	14 SQ MI; 53 MI NORTH OF SAN DIEGO, CA	FALLBROOK	92028	SAN DIEGO	400270	33.38138889	-117.2572222
7330030	FASS METALS	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	11/6/2012	818 W. GERTRUDE AVENUE	RICHMOND	94801	CONTRA COSTA	200037	37.9544852	-122.3775673
38330005	FEDERATED FRY METALS DIVISION OF ASARCO	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	7/6/2012	1901 CESAR CHAVEZ	SAN FRANCISCO	94124	SAN FRANCISCO	201731	37.74907183	-122.3950563
70000165	FIRESTONE - ENGLE SOUTHERN PARCEL	STATE RESPONSE	ACTIVE	4/19/1996	8440 ALAMEDA STREET	SOUTH GATE	90280	LOS ANGELES	301249	33.96035827	-118.230325
19300231	FIRESTONE - PARCEL 1A	STATE RESPONSE	ACTIVE	4/19/1996	2525 FIRESTONE BLVD	SOUTH GATE	90280	LOS ANGELES	300341	33.95877428	-118.2290912
70000166	FIRESTONE - PARCEL 1B	STATE RESPONSE	ACTIVE	6/6/2012	2525 EAST FIRESTONE BOULEVARD	SOUTH GATE	90012	LOS ANGELES	301600	33.95798451	-118.2266232
4720002	FIRST AVENUE CLEANERS	STATE RESPONSE	ACTIVE	6/26/2003	1082 EAST 1ST AVENUE	CHICO	95927	BUTTE	100264	39.746039	-121.830673
4720003	FLAIR CUSTOM CLEANERS	STATE RESPONSE	ACTIVE	7/26/2010	660 MANGROVE AVE	CHICO	95926	BUTTE	100185	39.735	-121.8352778
10280013	FMC CORPORATION - FRESNO	STATE RESPONSE	ACTIVE	1/1/1985	2501 SOUTH SUNLAND AVENUE	FRESNO	93725	FRESNO	100056	36.71260989	-119.7695504
7280011	FMC CORPORATION - RICHMOND	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	5/29/1992	855 PARR BLVD	RICHMOND	94801	CONTRA COSTA	200033	37.96783041	-122.3570449
34920001	FOLSOM PRISON	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	8/16/2005	N OF FOLSOM CITY; ADJ TO AMERICAN RIVER	REPRESA	95671	SACRAMENTO	100058	38.69394255	-121.1567284
19340792	FORMER APEX METAL POLISHING	STATE RESPONSE	ACTIVE	6/16/2006	5977 W. WASHINGTON BLVD.	CULVER CITY	90232	LOS ANGELES	301290	34.03210547	-118.376106
10400004	FORMER BURLINGTON NORTHERN SANTA FE ICE HOUSE	STATE RESPONSE	ACTIVE	12/20/2001	3090 E CHURCH AVE	FRESNO	93721	FRESNO	101503	36.71417778	-119.7727472
60001051	FORMER COUNTRY CLUB CLEANERS	STATE RESPONSE	ACTIVE	1/2/2009	5214 AND 5240 W. WALNUT AVENUE - RAISED BLDG.	VISALIA	93277	TULARE	101997	36.31292	-119.34915
60001235	FORMER D.L. GIN CLEANERS & LAUNDRY	STATE RESPONSE	ACTIVE	11/1/2009	4032 GAGE AVENUE	BELL	90201	LOS ANGELES	301486	33.97893	-118.19525
60000535	FORMER DYNAMIC PLATING COMPANY SITE	STATE RESPONSE	ACTIVE	1/31/2007	1102 WEST ISABEL STREET	BURBANK	91506	LOS ANGELES	301328	34.18206879	-118.3233058
60001561	FORMER GOLDBERG/GOSS-JEWETT	STATE RESPONSE	ACTIVE	10/31/2011	220 WEST GUTIERREZ STREET	SANTA BARBARA	93101	SANTA BARBARA	301548	34.413245	-119.697147
1240036	FORMER J. H. BAXTER FACILITY, ALAMEDA	STATE RESPONSE	ACTIVE	10/26/2005	2201 CLEMENT AVENUE	ALAMEDA	94501	ALAMEDA	201525, 201575, 201632, 201790	37.77372484	-122.2421722
60001055	FORMER LAMOURE'S CLEANERS AND LAUNDRY, NOBLE	STATE RESPONSE	ACTIVE	1/2/2009	1415 E. NOBLE AVENUE	VISALIA	93291	TULARE	101998	36.32626	-119.27952
60000594	FORMER LANE METAL FINISHERS	STATE RESPONSE	ACTIVE	3/15/2007	2942 SAN PABLO AVENUE	OAKLAND	94608	ALAMEDA	201736	37.82015182	-122.2759637
60001352	FORMER WEBSTER CLEANERS	STATE RESPONSE	ACTIVE	9/1/2010	4634 W. MINERAL KING AVENUE	VISALIA	93291	TULARE	102107	36.328	-119.342
71000009	FORT BARRY (J09CA3107)	STATE RESPONSE	ACTIVE	2/10/2010	9 MILES NORTHWEST OF SAN FRANCISCO IN TE GOLDEN GATE NATIONAL RECREATION AREA (GGNRA)	SAUSILITO	94965	MARIN	201269, 201821	37.8275	-122.5233333
27940001	FORT HUNTER LIGGETT - IR/MMRP	STATE RESPONSE	ACTIVE	9/30/1991	164,636 ACRES; 10 MI SE OF KING CITY, CA	JOLON	93928	MONTEREY	200243	36.01333333	-121.2444444
36970003	FORT IRWIN NATIONAL TRAINING CENTER	STATE RESPONSE	ACTIVE	2/2/2010	36313 ACRES; 36 MI EAST OF BARSTOW, CA	FORT IRWIN	92310	SAN BERNARDINO	400063	35.25	-116.625
80001041	FORT MASON	STATE RESPONSE	ACTIVE	4/24/2008	LOCATED BETWEEN FISHERMAN'S WHARF AND THE GOLDEN GATE BRIDGE ON SAN FRANCISCO BAY	SAN FRANCISCO	94123	SAN FRANCISCO	201778	37.80555556	-122.4291667
71000007	FORT MCDOWELL - MMRP	STATE RESPONSE	ACTIVE	5/16/2012	4 MILES NORTH OF SAN FRANCISCO	ANGEL ISLAND	93933	MARIN	201263	37.8625	-122.4227778
80001196	FORT ORD - EAST GARRISON (VCA)	FEDERAL SUPERFUND - LISTED	ACTIVE	11/3/2011	NORTHEAST SIDE OF FORMER FORT ORD BASE	FORT ORD	93941	MONTEREY	201648	36.654	-121.731
80001198	FORT ORD REUSE AUTHORITY (EARLY TRANSFER)	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	3/2/2007	3500 ACRES OF THE FORMER FORT ORD; 5 MILES N OF MONTEREY, CA	FORT ORD	93941	MONTEREY	201729	36.636044	-121.782558
80001228	FORT ORD REUSE AUTHORITY MOA	FEDERAL SUPERFUND - LISTED	ACTIVE	6/24/2008	5 MILES N OF MONTEREY, CA	MONTEREY	93941	MONTEREY	201816	36.636044	-121.782558
80001207	FORT ORD STATE PARK-MOU WITH DPR	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	12/27/2007	INTERSECTION OF HWY 1 AND 8TH STREET	CITY OF MARINA	93933	MONTEREY	201772	36.6524796	-121.8230152
80001229	FORT ORD YORK SCHOOL AGREEMENT	FEDERAL SUPERFUND - LISTED	ACTIVE	6/24/2008	5 MILES N OF MONTEREY, CA	MONTEREY	93941	MONTEREY	201815	36.575225	-121.804361
27970002	FORT ORD, CA	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	5/1/1986	28,016 ACRES; 5 MILES N OF MONTEREY, CA	FORT ORD	93941	MONTEREY	200040	36.629511	-121.791469
80001194	FORT ORD-DEL REY OAKS DEVELOPMENT	FEDERAL SUPERFUND - LISTED	ACTIVE	8/18/2006	DEL REY OAKS	MONTEREY	93941	MONTEREY	201679	36.590789	-121.821456
19320112	FRANCISCAN CERAMICS, INC.	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	12/30/1994	2901 LOS FELIZ BOULEVARD	LOS ANGELES	90039	LOS ANGELES	300065	34.12656111	-118.2629333
60000835	FREEMAN PRODUCTS / AVNET INC.	STATE RESPONSE	ACTIVE	2/29/2008	2040 ARTESIA BOULEVARD	TORRANCE	90504	LOS ANGELES	401377	33.87166164	-118.3148182
10450005	FRESNO AIR TERMINAL/OLD HAMMER FIELD (J09CA0823)	STATE RESPONSE	ACTIVE	1/1/1990	MCKINLEY AND CLOVIS AVENUES	FRESNO	93727	FRESNO	100242, 102182	36.76611111	-119.7102778
10000002	FRESNO BATTERY EXCHANGE	STATE RESPONSE	ACTIVE	10/25/2000	1403 EAST JENSEN AVENUE	FRESNO	93706	FRESNO	101375	36.70718622	-119.7941494
10490097	FRESNO SANITARY LANDFILL	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	1/1/1989	SW CORNER OF JENSEN & WEST AVENUES	FRESNO	93706	FRESNO	100246	36.70388889	-119.8269444
57070001	FRONTIER FERTILIZER	FEDERAL SUPERFUND - LISTED	ACTIVE	4/1/1985	SECOND STREET/BTWN PENA & MACE BLVD.	DAVIS	95616	YOLO	100060	38.55251176	-121.7032063
60000511	FULLERTON UNION PACIFIC PARK	STATE RESPONSE	ACTIVE	12/14/2006	TRUSLOW & HARBOR BOULEVARD	FULLERTON	92832	ORANGE	401331	33.86696	-117.92433
7440009	FULTON SHIPYARD	STATE RESPONSE	ACTIVE	1/27/2005	307 FULTON SHIPYARD ROAD	ANTIOCH	94509	CONTRA COSTA	201495	38.01658683	-121.8010426

ENVIROSTOR ID	SITE / FACILITY NAME	SITE / FACILITY TYPE	STATUS	STATUS DATE	ADDRESS DESCRIPTION	CITY	ZIP	COUNTY	SITE CODE	LATITUDE	LONGITUDE
5032003	GALLO GLASS - SISK RANCH	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE	6/30/1995	3666 W SERVICE RD	MODESTO	95358	STANISLAUS	100062	37.58007572	-121.0609567
60001648	GARDEN TRACT ROAD PROPERTY	STATE RESPONSE	ACTIVE	4/13/2012	1880 GARDEN TRACT ROAD	RICHMOND	94801	CONTRA COSTA	201935	37.9596111	-122.3760817
19490135	GARDENA SUMPS	STATE RESPONSE	ACTIVE	9/25/1995	SW CRNR OF NORMANDIE AVE & ARTESIA BLVD	GARDENA	90247	LOS ANGELES	401218	33.87235301	-118.30025
19420029	GATX ANNEX TERMINAL-SAN PEDRO	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	5/28/2002	208 EAST 22ND STREET	SAN PEDRO	90731	LOS ANGELES	400066, 400066	33.72680261	-118.2775444
7490038	GBF / PITTSBURG DUMPS	FEDERAL SUPERFUND - DELISTED	ACTIVE - LAND USE RESTRICTIONS	1/1/1988	SOMERVILLE RD & JAMES DONLON BLVD	ANTIOCH	94509	CONTRA COSTA	200041	37.98815342	-121.8468607
36370024	GE ENGINE SERVICES TEST CELL FACILITY (AKA GE AIRCRAFT)	STATE RESPONSE	ACTIVE	4/23/1996	2264 E. AVION PLACE	ONTARIO	91761	SAN BERNARDINO	400070	34.04933056	-117.5999583
1360059	GENERAL ELECTRIC - OAKLAND	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	6/25/1997	5441 EAST 14TH STREET	OAKLAND	94601	ALAMEDA	200135	37.7653202	-122.205937
23240008	GEORGIA-PACIFIC CORPORATION	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	8/1/2006	90 WEST REDWOOD AVENUE	FORT BRAGG	95437	MENDOCINO	200402	39.43198347	-123.8120985
43490064	GILROY - MGP - 1	STATE RESPONSE	BACKLOG	9/6/1991	MONTEREY/6TH/OLD GILROY	GILROY	95020	SANTA CLARA		37.00682377	-121.5679371
80000412	GOFFS CPSITE	STATE RESPONSE	ACTIVE	11/15/2011	35 MILES WEST OF NEEDLES	GOFFS	92363	SAN BERNARDINO	401352	34.925	-115.0625
19290167	GOLDEN EAGLE REFINERY (FORMER)	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	8/25/1995	12000 SOUTH FIGUEROA STREET	CARSON	90745	LOS ANGELES	400072	33.83800133	-118.2848126
60000746	GORDON RESEARCH COMPANY	STATE RESPONSE	ACTIVE	10/15/2007	1085 SOUTH UNION ROAD	MANTECA	95336	SAN JOAQUIN	101924	37.78831044	-121.2355002
54270005	GOSHEN AVENUE AND SHIRK ROAD SITE	STATE RESPONSE	ACTIVE	5/1/1986	6941 AND 6707 WEST GOSHEN AVENUE	VISALIA	93291	TULARE	100022	36.3411	-119.3667
15100008	GROSSI/CALANDRI PROPERTY	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	2/7/1997	INTERSECTION OF MARIE AVE & W 15TH ST	ROSAMOND	93560	KERN	100184	34.8496	-118.1574
10330038	H S MANN METAL WASTE COMPANY	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	1/1/1984	5404 SOUTH DEL REY AVENUE	DEL REY	93616	FRESNO	100101	36.65746745	-119.5904383
56330002	HALACO ENGINEERING COMPANY	FEDERAL SUPERFUND - PROPOSED	ACTIVE	3/28/2007	6200 PERKINS ROAD	OXNARD	93033	VENTURA	301331	34.13919493	-119.1830134
19240022	HALBERT'S LUMBER, INC.	STATE RESPONSE	BACKLOG	1/16/2008	2026 ABALONE AVENUE	TORRENCE	90501	LOS ANGELES		33.82722222	-118.3116667
71000039	HALF MOON BAY FLIGHT STRIP	MILITARY EVALUATION	ACTIVE	5/16/2012	5.5 NW OF HALF MOON BAY	HALF MOON BAY	94019	SAN MATEO	201110	37.50944444	-122.5069444
21970010	HAMILTON AAF (J09CA7062) (GSA PHASE II_LF26) IR	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	8/18/1995	HIGHWAY 101; 3 MI N OF LUCAS VALLEY ROAD	NOVATO	94947	MARIN	201268	38.06188333	-122.52285
21970012	HAMILTON AAF - (J09CA7062) - NORTH ANTENNA FIELD - IR/MMRP	STATE RESPONSE	ACTIVE	7/20/1999	HIGHWAY 101; 3 MI N OF LUCAS VALLEY ROAD	NOVATO	94947	MARIN	200714	38.06444444	-122.4922222
21970009	HAMILTON GSA LOT 7	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE	6/28/1996	HIGHWAY 101; 3 MI N OF LUCAS VALLEY ROAD	NOVATO	94947	MARIN	200714	38.05675	-122.5091667
70000178	HARBORFRONT TRACT	STATE RESPONSE	ACTIVE	7/1/2005	MEADE SOUTH 49TH EAST MONTGOMERY	RICHMOND	94804	CONTRA COSTA	201598, 201734	37.9123439	-122.3281288
7340024	HARBOUR WAY SOUTH	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	10/15/2007	738 HARBOUR WAY SOUTH	RICHMOND	94804	CONTRA COSTA	200043	37.92166635	-122.3598292
1870003	HARD CHROME ENGINEERING	STATE RESPONSE	ACTIVE	4/30/2003	750 107TH AVENUE	OAKLAND	94603	ALAMEDA	201529	37.73250552	-122.175043
19340231	HARD CHROME PRODUCTS	STATE RESPONSE	ACTIVE	7/1/2001	617 EAST 56TH STREET	LOS ANGELES	90011	LOS ANGELES	300457	33.99183625	-118.2643676
54070051	HARMON FIELD	STATE RESPONSE	ACTIVE	5/1/1985	1494 SOUTH AIRPORT DRIVE	PIXLEY	93256	TULARE	100073	35.9609	-119.3047
1720109	HARRIS DRY CLEANERS	STATE RESPONSE	ACTIVE	6/16/2000	2801 MARTIN LUTHER KING JR. WAY	OAKLAND	94609	ALAMEDA	201253	37.81812886	-122.2716659
1970009	HAYWARD ANG'S, HAYWARD CA	STATE RESPONSE	ACTIVE	12/19/2005	1525 WEST WINTON AVENUE	HAYWARD	94545	ALAMEDA	200588	37.65478808	-122.1220958
7280156	HERCULES INC	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	11/25/1992	CORNER OF SAN PABLO & SYCAMORE AVENUE	HERCULES	94547	CONTRA COSTA	200044	38.01340861	-122.2803426
7280016	HERCULES PROPERTIES, LTD.	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	6/9/1997	560 RAILROAD AVENUE	HERCULES	94547	CONTRA COSTA	200045, 201950	38.02071154	-122.288518
43360078	HEWLETT PACKARD BUILDING 15	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE	7/31/1995	3215 PORTER DRIVE	PALO ALTO	94304	SANTA CLARA	200119	37.40897956	-122.1480903
43350089	HEWLETT PACKARD BUILDINGS 28A, B, AND C	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE	6/30/1995	CORNER OF PAGE MILL RD AND PORTER DRIVE	PALO ALTO	94304	SANTA CLARA	200142	37.40970952	-122.1520673
43490059	HILLVIEW - ELEANOR AREA PLUME	STATE RESPONSE	BACKLOG	10/5/2005	BTW HILLVIEW;ELEANOR AVE&SAN ANTONIO RD	LOS ALTOS	94022	SANTA CLARA	200047	37.3789	-122.1103
43360077	HILLVIEW PORTER PLUME	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE	6/30/1997	HILLVIEW AVENUE AND PORTER DRIVE	PALO ALTO	94304	SANTA CLARA	200048	37.40777778	-122.1497222
19281213	HOLCHEM, INC.	STATE RESPONSE	ACTIVE	5/13/1997	13546 DESMOND STREET	PACOIMA	91331	LOS ANGELES	300593	34.27496191	-118.4271708
1440006	HOWARD MARINE TERMINAL SITE	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	11/4/2004	EMBARCADERO WEST AND MARKET STREETS	OAKLAND	94604	ALAMEDA	201089	37.79722222	-122.2825
38440002	HUNTERS POINT NAVAL SHIPYARD, PARCEL B *	FEDERAL SUPERFUND - LISTED	ACTIVE	5/1/1986	965 ACRES; SE PORTION OF SF, CA	SAN FRANCISCO	94124	SAN FRANCISCO	200050	37.72972222	-122.3638889
38440003	HUNTERS POINT NAVAL SHIPYARD, PARCEL C *	FEDERAL SUPERFUND - LISTED	ACTIVE	5/1/1986	965 ACRES; SE PORTION OF SF, CA	SAN FRANCISCO	94124	SAN FRANCISCO	200050	37.72611111	-122.3588889
38440004	HUNTERS POINT NAVAL SHIPYARD, PARCEL D	FEDERAL SUPERFUND - LISTED	ACTIVE	5/1/1986	965 ACRES; SE PORTION OF SF, CA	SAN FRANCISCO	94124	SAN FRANCISCO	200050	37.72111111	-122.3641667
38440005	HUNTERS POINT NAVAL SHIPYARD, PARCEL E *	FEDERAL SUPERFUND - LISTED	ACTIVE	5/1/1986	965 ACRES; SE PORTION OF SF, CA	SAN FRANCISCO	94124	SAN FRANCISCO	200050	37.71972222	-122.3713889
38440007	HUNTERS POINT NAVAL SHIPYARD, PARCEL F	FEDERAL SUPERFUND - LISTED	ACTIVE	7/21/1999	965 ACRES; SE PORTION OF SF, CA	SAN FRANCISCO	94124	SAN FRANCISCO	200050	37.71888889	-122.3741667
60000629	HYTONE CLEANERS	STATE RESPONSE	ACTIVE	5/1/2007	2702 MOUNTAIN VIEW ROAD	EL MONTE	91732	LOS ANGELES	301319	34.05952302	-118.0245687
1440005	IKEA (FORMER BARBARY COAST)	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	9/19/2000	4300 EASTSHORE HIGHWAY	EMERYVILLE	94608	ALAMEDA	200312, 201062	37.82950322	-122.2918116

ENVIROSTOR ID	SITE / FACILITY NAME	SITE / FACILITY TYPE	STATUS	STATUS DATE	ADDRESS DESCRIPTION	CITY	ZIP	COUNTY	SITE CODE	LATITUDE	LONGITUDE
37970008	IMPERIAL BEACH OUTLYING LANDING FIELD	STATE RESPONSE	ACTIVE	5/27/2009	OFF ROUTE 75 BORDERING THE LANDING FIELD	IMPERIAL BEACH	92032	SAN DIEGO	400041, 400080	32.566108	-117.113306
19390044	INTERNATIONAL LEAD CO.	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	12/30/2007	2182 EAST 11TH STREET	LOS ANGELES	90021	LOS ANGELES	300591	34.02421476	-118.2338372
71000047	INYOKERN AIRFIELD (J09CA0401)	MILITARY EVALUATION	ACTIVE	5/3/2011	KERN COUNTY	INYOKERN	93517	KERN	101043	35.66944444	-117.8291667
45100001	IRON MOUNTAIN MINE	FEDERAL SUPERFUND - LISTED	ACTIVE	1/1/1983	OFF HWY 299 - 9 MI NW OF REDDING	REDDING	96001	SHASTA	100077	40.67083333	-122.5277778
47240001	J H BAXTER CO	FEDERAL SUPERFUND - LISTED	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	5/14/2007	422 MILL STREET	WEED	96094	SISKIYOU	100016	41.43287665	-122.3696368
15070030	J R SIMPLOT, EDISON (CANOPY AREA)	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	5/1/1986	430 PEPPER DRIVE	EDISON	93220	KERN	100133	35.35147831	-118.8778
15070028	J R SIMPLOT, EDISON (POND AREA)	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	9/4/1996	430 PEPPER DRIVE	EDISON	93220	KERN	100133	35.35147831	-118.8778
19340358	J&S CHROME PLATING	STATE RESPONSE	ACTIVE	8/15/1995	6863 FLORENCE PL	BELL GARDENS	90201	LOS ANGELES	300255	33.96564596	-118.1411438
1750025	JENKINS AUTO WRECKERS	STATE RESPONSE	BACKLOG	6/22/2010	1778 10TH STREET	OAKLAND	94607	ALAMEDA	200869	37.81093286	-122.3007
19970008	JET PROPULSION LABORATORY	FEDERAL SUPERFUND - LISTED	ACTIVE	9/20/1993	4800 OAK GROVE DRIVE	PASADENA	91109	LOS ANGELES	300318	34.198649	-118.174585
15330004	JOHN ALEXANDER RESEARCH INC	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE	3/7/2003	1753 SIERRA HIGHWAY	ROSAMOND	93560	KERN	100006	34.84571914	-118.1601906
19340779	JUNIPERO AVENUE SITE	STATE RESPONSE	BACKLOG	6/6/2011	2740-2760 JUNIPERO AVENUE	SIGNAL HILL	90806	LOS ANGELES	400828	33.80707565	-118.162824
15500001	K & D SALVAGE	STATE RESPONSE	ACTIVE	6/29/1998	600 SOUTH UNION AVENUE	BAKERSFIELD	93307	KERN	101086	35.34895145	-119.002306
1330048	K & L PLATING - 89TH AVE	STATE RESPONSE	ACTIVE	3/19/1998	981/989/995 89TH AVENUE	OAKLAND	94603	ALAMEDA	200475	37.74751898	-122.1816521
1990015	KAISER AEROSPACE & ELECTRONICS COMPANY	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	1/25/2013	880 DOOLITTLE DRIVE	SAN LEANDRO	94577	ALAMEDA	200559	37.72002842	-122.1880666
54070060	KAWEAH CROP DUSTER-GREEN ACRES AIRPORT	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	9/14/2011	2530 WEST GOSHEN	VISALIA	93219	TULARE	100081	36.3374	-119.3199
60000424	KELLY PIPE CO., LLC	STATE RESPONSE	BACKLOG	4/26/2007	11700 BLOOMFIELD	SANTA FE SPRINGS	90670	LOS ANGELES		33.92636324	-118.0626412
70000051	KEN'S BUFF AND PLATING	STATE RESPONSE	BACKLOG	9/14/2010	1816 21ST STREET	SACRAMENTO	95814	SACRAMENTO	101737	38.56694381	-121.4829226
4240001	KOPPERS INDUSTRIES INC (OROVILLE PLANT)	FEDERAL SUPERFUND - LISTED	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	2/14/2004	BAGGETT-MARYSVILLE ROAD	OROVILLE	95965	BUTTE	100084	39.46949237	-121.5620889
48990004	LAB FOR ENERGY RELATED HEALTH RESEARCH	FEDERAL SUPERFUND - LISTED	ACTIVE	2/7/1995	U.C., DAVIS (ITEH) - OLD DAVIS ROAD	DAVIS	95616	SOLANO	100424, 101566	38.519278	-121.756883
80000783	LAKE CHABOT MACHINE GUN RANGE (J09CA1017)	STATE RESPONSE	ACTIVE	11/18/2011	20 MILES SOUTHEAST OF ALAMEDA @ N37.44.55 LATITUDE W122.04.32 LONGITUDE	LAKE CHABOT	94546	ALAMEDA	201779	37.75444444	-122.075
60001052	LAMOUR'S CLEANERS, MOONEY	STATE RESPONSE	ACTIVE	11/8/2010	2911 S. MOONEY BLVD.	VISALIA	93277	TULARE	102000	36.30486178	-119.3141708
29100004	LAVA CAP MINE	FEDERAL SUPERFUND - LISTED	ACTIVE	11/25/1996	14501 LAVA CAP MINE ROAD	NEVADA CITY	95959	NEVADA	100337, 102145	39.22738306	-120.9705234
39730018	LAWRENCE LIVERMORE NAT LAB 300(USDOE)	FEDERAL SUPERFUND - LISTED	ACTIVE	1/1/1991	CORRAL HOLLOW ROAD	TRACY	94550	SAN JOAQUIN	200180	37.65518407	-121.5338889
1730095	LAWRENCE LIVERMORE NATIONAL LAB (USDOE)	FEDERAL SUPERFUND - LISTED	ACTIVE	5/1/1986	7000 EAST AVENUE	LIVERMORE	94550	ALAMEDA	200057	37.68710631	-121.705877
16970001	LEMOORE NAS	STATE RESPONSE	ACTIVE	1/1/1983	39,823 ACRES; 35 MI SOUTH OF FRESNO, CA	LEMOORE	93245	KINGS	100087	36.25555556	-119.9083333
7290039	LIQUID GOLD OIL CORP	FEDERAL SUPERFUND - DELISTED	ACTIVE - LAND USE RESTRICTIONS	6/1/2005	HOFFMAN BLVD & S 47TH ST	RICHMOND	94804	CONTRA COSTA	200060	37.91010922	-122.3235369
43280130	LOCKHEED MISSILES AND SPACE CO BLDG 255	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE	4/30/1997	3170 PORTER DRIVE	PALO ALTO	94304	SANTA CLARA	200139	37.40690493	-122.151627
33370039	LOCKHEED PROPULSION-BEAUMONT NO. 1	STATE RESPONSE	ACTIVE	5/13/2008	HIGHLAND SPRINGS ROAD	BEAUMONT	92223	RIVERSIDE	400200	33.8638	-116.9326
33370038	LOCKHEED PROPULSION-BEAUMONT NO. 2	STATE RESPONSE	ACTIVE	12/15/2006	JACK RABBIT TRAIL	BEAUMONT	92223	RIVERSIDE	400261	33.93	-117.0311111
80000582	LOCKWOOD GAP FILLER ANNEX, Z-2A (J09CA0856)	MILITARY EVALUATION	ACTIVE	2/22/2013		LOCKWOOD		MONTEREY	201697	35.95138889	-121.0016667
19970011	LONG BEACH NAVAL COMPLEX (STATION & SHIPYARD)	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	7/26/1999	OFF OCEAN BLVD & NAVY WAY	LONG BEACH	90822	LOS ANGELES	400289, 400735	33.75833333	-118.2333333
43300026	LORENTZ BARREL & DRUM COMPANY	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	1/1/1985	1507 SOUTH 10TH STREET	SAN JOSE	95112	SANTA CLARA	200061	37.31864479	-121.8655467
19970021	LOS ANGELES NAVAL & MARINE CORPS RES.CEN	STATE RESPONSE	ACTIVE	11/23/1999	1700 STADIUM WAY	LOS ANGELES	90012	LOS ANGELES	300784	34.06903044	-118.2421137
4240002	LOUISIANA-PACIFIC CORP - CHICO	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	6/29/1999	WEST 16TH STREET	CHICO	95926	BUTTE	100186	39.71805556	-121.83
19290153	LUBRICATION COMPANY OF AMERICA	STATE RESPONSE	ACTIVE	2/14/2012	12500 LANG STATION ROAD	CANYON COUNTRY	91350	LOS ANGELES	300087	34.43229965	-118.3699513
60000506	MACDONALD SAN PABLO WALL 45TH PLUME	STATE RESPONSE	BACKLOG	6/6/2008	SAN PABLO WALL 45TH PLUME	EL CERRITO AND RICHMOND	94804	CONTRA COSTA	201678	37.92968554	-122.32505
20240001	MACGILLIS AND GIBBS	STATE RESPONSE	ACTIVE	8/1/1985	11272 ROAD 32	MADERA	93639	MADERA	100098	36.913662	-119.9648076
43280031	MANSION GROVE	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE	11/15/1996	4101 LICK MILL BOULEVARD	SANTA CLARA	95054	SANTA CLARA	200117	37.398975	-121.9490111
33970002	MARCH AIR FORCE BASE	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	5/1/1986	3430 BUNDY AVE.,	RIVERSIDE	92518	RIVERSIDE	400090	33.87518889	-117.29695
33970004	MARCH AIR RESERVE BASE	FEDERAL SUPERFUND - LISTED	ACTIVE	7/13/1998	3,545 ACRES; EAST OF RIVERSIDE	RIVERSIDE	92518	RIVERSIDE	400689	34.09	-117.2630556
48330003	MARE ISLAND LENNAR	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	3/1/2003	900 WALNUT AVENUE, QUARTERS D	VALLEJO	94592	SOLANO	201383	38.095397	-122.269631
48970002	MARE ISLAND NAVAL SHIPYARD	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	5/1/1989	W END OF TENNESSEE STREET, MARE ISLAND	VALLEJO	94590	SOLANO	201208	38.08083333	-122.2625

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48000004	MARE ISLAND WESTON	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	7/22/2008	750 DUMP ROAD - PO BOX 2135	VALLEJO	94592	SOLANO	201437	38.095397	-122.269631
60001632	MARINE CORPS LOGISTICS BASE, BARSTOW (J09CA7045)	STATE RESPONSE	ACTIVE	3/1/2012	MIDDLE OF THE MOJAVE DESERT	BARSTOW	92311	SAN BERNARDINO	401512	34.925	-117.68
19970022	MARINE CORPS RESERVE CENTER, PICO RIVERA	STATE RESPONSE	ACTIVE	11/8/2007	3551 SAN GABRIEL RIVER PARKWAY	PICO RIVERA	90660	LOS ANGELES	301029	34.01416667	-118.0580556
39240014	MARLEY COOLING TOWER COMPANY	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	1/1/1985	150 N SINCLAIR AVE	STOCKTON	95215	SAN JOAQUIN	100102	37.96879329	-121.2337724
60000250	MARSHALL STEEL CLEANERS	STATE RESPONSE	ACTIVE	3/16/2006	20457 REDWOOD ROAD	CASTRO VALLEY	94546	ALAMEDA	201654	37.69689944	-122.0744783
34970003	MATHER AIR FORCE BASE	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	1/1/1987	5,485 ACRES; 12 MI EA OF SACRAMENTO, CA	SACRAMENTO	95655	SACRAMENTO	100104	38.55972222	-121.2961111
60001549	MAURER MARINE INC.	STATE RESPONSE	ACTIVE	8/4/2011	873 WEST 17TH STREET	COSTA MESA	92627	ORANGE	401578	33.635591	-117.93501
37970010	MCAS MIRAMAR	STATE RESPONSE	ACTIVE	7/23/1997	OFF OF MIRAMAR BOULEVARD	SAN DIEGO	92136	SAN DIEGO	400097	32.87916667	-117.1252778
80001199	MCLELLAN AFB P. A5 SAC. CO. RECOVERY (VCA)	FEDERAL SUPERFUND - LISTED	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	2/25/2008	4450 ROSEVILLE ROAD	NORTH HIGHLANDS	95660	SACRAMENTO	101873	38.64899587	-121.3908171
34970005	MCLELLAN AFB- AREA D	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE	2/8/1989	5200 WATT AVE	SACRAMENTO	95652	SACRAMENTO	100105	38.6705	-121.415928
34970002	MCLELLAN AIR FORCE BASE	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	5/1/1986	APPROX 5200 WATT AVE	SACRAMENTO	95652	SACRAMENTO	100105	38.66	-121.3991667
80001223	MCLELLAN BUSINESS PARK	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	2/29/2008	APPROX 5200 WATT AVE	MCLELLAN AFB	95652	SACRAMENTO	102047, 102194	38.66	-121.3991667
80001195	MCLELLAN PARK MOA	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	10/16/2006	CORNER OF BELL AVE AND PARKER STREET	SACRAMENTO	95652	SACRAMENTO	101850	38.66	-121.3991667
39240001	MCCORMICK & BAXTER CREOSOTING CO	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	5/1/1986	1214 W. WASHINGTON STREET	STOCKTON	95203	SAN JOAQUIN	100108	37.94860306	-121.3065083
34370069	MCDONNELL DOUGLAS - INACTIVE TEST SITE	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	1/12/1988	11505 DOUGLAS RD	RANCHO CORDOVA	95742	SACRAMENTO	100295, 102127	38.5616011	-121.211306
19280440	MCKESSON CHEMICAL COMPANY	STATE RESPONSE	ACTIVE	4/19/1996	9005 SORENSEN AVENUE	SANTA FE SPRINGS	90670	LOS ANGELES	300094	33.95795966	-118.0634653
12240115	MCNAMARA AND PEEPE LUMBER MILL	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	3/9/1998	1619 GLENDALE DRIVE	ARCATA	95521	HUMBOLDT	200066	40.90077154	-124.0191305
41650007	MIDWAY VILLAGE	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	5/13/2003	47 MIDWAY DRIVE	DALY CITY	94014	SAN MATEO	200212	37.70212415	-122.4141741
7970004	MILITARY OCEAN TERMINAL CONCORD	FEDERAL SUPERFUND - LISTED	ACTIVE	2/10/2011	PORT CHICAGO HIGHWAY	CONCORD	94520	CONTRA COSTA	200022	38.05349816	-122.02
60000242	MILLERS DRY CLEANERS	STATE RESPONSE	ACTIVE	12/2/2008	110 NORTH WILLIS	VISALIA	93291	TULARE		36.330455	-119.29757
60000969	MISSION UNIFORM	STATE RESPONSE	ACTIVE	9/15/2008	520 E. MINERAL KING AVENUE	VISALIA	93292	TULARE	102051	36.32745842	-119.2871851
15330011	MOBILE SMELTING	STATE RESPONSE	ACTIVE	6/29/1998	UNITED STREET & REED ROAD	MOJAVE	93501	KERN	100188	34.98296379	-118.1507492
60001154	MODERN DRY CLEANERS	STATE RESPONSE	ACTIVE	5/6/2010	609 WALNUT STREET	RED BLUFF	96080	TEHAMA	102020	40.17663544	-122.238822
50950002	MODESTO GROUNDWATER CONTAMINATION	FEDERAL SUPERFUND - LISTED	ACTIVE	1/1/1989	NEAR MODESTO	MODESTO	95351	STANISLAUS	100111, 100309	37.6566704	-120.9941804
19300002	MOEN FOAM COMPANY	STATE RESPONSE	BACKLOG	10/16/1991	16627 AVALON BLVD	CARSON	90746	LOS ANGELES	300256	33.88020367	-118.2658631
80000950	MOJAVE GUNNERY RANGE - (J09CA7281) MMRP	STATE RESPONSE	ACTIVE	9/14/2006	2 MILE SW OF 21000 HACIENDA BLVD	MOJAVE	93505	KERN	101450	35.075808	-117.998142
60001010	MOMIN LODGE	STATE RESPONSE	ACTIVE	12/5/2008	1918 ARTESIA BOULEVARD	TORRANCE	90504	LOS ANGELES	401470	33.8727	-118.312
60001027	MONO LAKE BOMBING TARGET-HAWTHORNE ARMY DEPOT-MMRP	STATE RESPONSE	ACTIVE	12/23/2008	WATER TARGET IN THE SOUTHERN PORTION OF MONO LAKE-THERE IS NO PHYSICAL ADDRESS	MONO LAKE	93546	MONO	101988	38.007059	-119.012259
19281200	MONSANTO CHEMICAL COMPANY	STATE RESPONSE	ACTIVE	4/23/1996	2100 EAST 223RD STREET	CARSON	90810	LOS ANGELES	400266	33.82291974	-118.2383829
19280024	MONTRORSE CHEMICAL CORP	FEDERAL SUPERFUND - LISTED	ACTIVE	4/22/1996	20201 NORMANDIE AVENUE	TORRANCE	90502	LOS ANGELES	400100, 401628	33.84769546	-118.3019521
71000033	MOUNT OWEN RIFLE RANGE- IR/MMRP(J09CA0877)	STATE RESPONSE	ACTIVE	5/20/2008	APPROXIMATELY 6 MILES NORTHEAST OF CLOVIS	CLOVIS	93911	FRESNO	101191, 101947	36.889506	-119.628067
3390001	MP ASSOCIATES, INC.	STATE RESPONSE	ACTIVE	3/31/2003	6555 JACKSON VALLEY ROAD	IONE	95640	AMADOR	101568	38.30762561	-120.9020184
1340110	MYERS DRUM - EMERYVILLE	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	5/11/2001	4500 SHELLMOUND STREET	EMERYVILLE	94608	ALAMEDA	200144	37.83300833	-122.2926889
1340111	MYERS DRUM - OAKLAND	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	12/21/2004	6549 SAN PABLO AVENUE	OAKLAND	94608	ALAMEDA	200143	37.8485725	-122.2864493
80000632	NAD PORT CHICAGO	MILITARY EVALUATION	ACTIVE	12/26/2012		PORT CHICAGO		CONTRA COSTA		38.03472222	-122.0175
28490008	NAPA GAS & ELECTRIC	STATE RESPONSE	BACKLOG	3/15/1995	5TH BETWEEN MAIN & BROWN	NAPA	94559	NAPA		38.29613412	-122.2833949
13970001	NAVAL AIR FACILITY EL CENTRO	STATE RESPONSE	ACTIVE	1/1/1995	OFF OLD HWY 80, 7 MILES W OF EL CENTRO	EL CENTRO	92243	IMPERIAL	400054	32.875	-115.875
37970013	NAVAL AMPHIBIOUS BASE-CORONADO	STATE RESPONSE	ACTIVE	7/1/1994	NAVAL AMPHIBIOUS BASE, CORONADO	SAN DIEGO	92155	SAN DIEGO	400041	32.67416667	-117.1663889
60001869	NAVAL AMPHIBIOUS BASE-CORONADO (MMRP)	STATE RESPONSE	ACTIVE	7/1/1994	NAVAL AMPHIBIOUS BASE-CORONADO	SAN DIEGO	92155	SAN DIEGO	400041	32.67416667	-117.1663889
80001077	NAVAL AUXILIARY AIR STATION, VERNALIS (J09CA7293)	MILITARY EVALUATION	ACTIVE	5/16/2012	3401 GAFFERY ROAD	VERNALIS	95385	STANISLAUS	101899	37.6	-121.3136111
37970012	NAVAL BASE SAN DIEGO	STATE RESPONSE	ACTIVE	7/1/1994	SAN DIEGO BAY, 113 NAVAL BASE 610	SAN DIEGO	92136	SAN DIEGO	400125	32.68277778	-117.1263889
60001866	NAVAL BASE SAN DIEGO MMRP	STATE RESPONSE	ACTIVE	7/1/1994	SAN DIEGO BAY, 113 NAVAL BASE 610	SAN DIEGO	92136	SAN DIEGO	400125	32.68277778	-117.1263889
56970002	NAVAL BASE VENTURA COUNTY, PORT HUENEME	STATE RESPONSE	ACTIVE	3/3/2006	1000 23RD AVE	PORT HUENEME	93043	VENTURA	300120	34.16160556	-119.1978861
60001865	NAVAL BASE VENTURA COUNTY, PORT HUENEME MMRP	STATE RESPONSE	ACTIVE	5/9/2011	1000 23RD AVE	PORT HUENEME	93043	VENTURA	300120	34.16160556	-119.1978861
19970020	NAVAL INFORMATION RESEARCH FOUNDATION	STATE RESPONSE	ACTIVE	8/12/2011	3202 E FOOTHILL BLVD	PASADENA	91107	LOS ANGELES	300702, 301355	34.14922062	-118.0849118
38370044	NAVAL STATION TREASURE ISLAND	STATE RESPONSE	ACTIVE	1/1/1991	550 ACRES; BETWN SAN FRANCISCO & OAKLAND	SAN FRANCISCO	94130	SAN FRANCISCO	200231, 201210	37.81673056	-122.3709806
60001092	NAVAL STATION TREASURE ISLAND/SITE 12-OLD BUNKER AREA	STATE RESPONSE	ACTIVE	1/1/1991	TREASURE ISLAND, BETWEEN SAN FRANCISCO AND OAKLAND	SAN FRANCISCO	94130	SAN FRANCISCO	201210	37.8284295	-122.3755932

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60001093	NAVAL STATION TREASURE ISLAND/SITE 21-VESSEL WASTE OIL RECOVERY AREA	STATE RESPONSE	ACTIVE	1/1/1991	TREASURE ISLAND, BETWEEN SAN FRANCISCO AND OAKLAND	SAN FRANCISCO	94130	SAN FRANCISCO	201210	37.81897171	-122.3648
60001094	NAVAL STATION TREASURE ISLAND/SITE 24-DRY CLEANING FACILITY	STATE RESPONSE	ACTIVE	1/1/1991	TREASURE ISLAND, BETWEEN SAN FRANCISCO AND OAKLAND	SAN FRANCISCO	94130	SAN FRANCISCO	201210	37.82463297	-122.367053
60001095	NAVAL STATION TREASURE ISLAND/SITE 27-CLIPPER COVE SKEET RANGE	STATE RESPONSE	ACTIVE	1/1/1991	TREASURE ISLAND, BETWEEN SAN FRANCISCO AND OAKLAND	SAN FRANCISCO	94130	SAN FRANCISCO	201210	37.8166664	-122.3673749
60001096	NAVAL STATION TREASURE ISLAND/SITE 28-WEST SIDE ON/OFF RAMP	STATE RESPONSE	ACTIVE	1/1/1991	YERBA BUENA ISLAND, BETWEEN SAN FRANCISCO AND OAKLAND	SAN FRANCISCO	94130	SAN FRANCISCO	201210	37.8090126	-122.369467
60001097	NAVAL STATION TREASURE ISLAND/SITE 30-DAY CARE CENTER	STATE RESPONSE	ACTIVE	1/1/1991	TREASURE ISLAND, BETWEEN SAN FRANCISCO AND OAKLAND	SAN FRANCISCO	94130	SAN FRANCISCO	201210	37.82561602	-122.3732114
60001098	NAVAL STATION TREASURE ISLAND/SITE 31-FORMER SITE STORAGE YARD	STATE RESPONSE	ACTIVE	1/1/1991	TREASURE ISLAND, BETWEEN SAN FRANCISCO AND OAKLAND	SAN FRANCISCO	94130	SAN FRANCISCO	201210	37.82629398	-122.373662
60001099	NAVAL STATION TREASURE ISLAND/SITE 32-FORMER TRAINING AND STORAGE AREA	STATE RESPONSE	ACTIVE	1/1/1991	TREASURE ISLAND, BETWEEN SAN FRANCISCO AND OAKLAND	SAN FRANCISCO	94130	SAN FRANCISCO	201210	37.83081918	-122.3694134
60001100	NAVAL STATION TREASURE ISLAND/SITE 33-WATER LINE REPLACEMENT AREA	STATE RESPONSE	ACTIVE	1/1/1991	TREASURE ISLAND, BETWEEN SAN FRANCISCO AND OAKLAND	SAN FRANCISCO	94130	SAN FRANCISCO	201210	37.82219224	-122.3661947
60001091	NAVAL STATION TREASURE ISLAND/SITE 6-FIRE TRAINING SCHOOL	STATE RESPONSE	ACTIVE	1/1/1991	TREASURE ISLAND, BETWEEN SAN FRANCISCO AND OAKLAND	SAN FRANCISCO	94130	SAN FRANCISCO	201210	37.83053107	-122.3711085
37970015	NAVAL SUBMARINE BASE SAN DIEGO	STATE RESPONSE	ACTIVE	7/1/1994	140 SYLVESTER ROAD (CODE 12)	SAN DIEGO	92106	SAN DIEGO	400267	32.68444444	-117.24
19970010	NCCOSC MORRIS DAM	STATE RESPONSE	ACTIVE	7/1/1994	STATE HWY 39, 4.5 MI NORTHEAST OF AZUSA	ANGELES N FOREST	91702	LOS ANGELES	400318	34.18187922	-117.872014
19280515	NEVILLE CHEMICAL COMPANY	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	4/21/2006	12800 IMPERIAL HWY	SANTA FE SPRINGS	90670	LOS ANGELES	300102	33.91649653	-118.0590309
35100001	NEW IDRIA MINE	FEDERAL SUPERFUND - PROPOSED	ACTIVE	6/15/2011	NEW IDRIA	NEW IDRIA	95043	SAN BENITO	201921	35.4144	-120.6736
60000714	NEWCROW II	STATE RESPONSE	ACTIVE	9/21/2007	6141 TO 6241 RANDOLPH STREET	COMMERCE	90040	LOS ANGELES	301321	33.97852759	-118.1534207
36990002	NEWMARK GROUNDWATER CONTAMINATION	FEDERAL SUPERFUND - LISTED	ACTIVE	4/22/1996	BUNKER HILL GROUND WATER BASIN	SAN BERNARDINO	92408	SAN BERNARDINO	400259	34.1821	-117.3454
60000798	NOR CAL RECYCLING	STATE RESPONSE	ACTIVE	1/31/2008	1855 KUSEL ROAD	OROVILLE	95966	BUTTE	101938	39.46182836	-121.5583839
4720004	NORGE VILLAGE CLEANERS	STATE RESPONSE	BACKLOG - LAND USE RESTRICTIONS	2/14/2006	254 EAST FIRST STREET	CHICO	95926	BUTTE	101168	39.731577	-121.839782
34480006	NORTH HIGHLANDS AIR NATIONAL GUARD	MILITARY EVALUATION	ACTIVE	11/4/2011	8 ACRES;6 MI NORTHEAST OF SACRAMENTO, CA	SACRAMENTO	95660	SACRAMENTO	100519	38.64027778	-121.4027778
37970011	NORTH ISLAND NAVAL AIR STATION	STATE RESPONSE	ACTIVE	5/1/1991	2520 ACRES; ADJACENT TO CORONADO, CA	SAN DIEGO	92135	SAN DIEGO	400105	32.69833333	-117.2094444
4720005	NORTH VALLEY PLAZA CLEANERS	STATE RESPONSE	ACTIVE	7/1/1995	801 EAST AVENUE	CHICO	95926	BUTTE	100506	39.75812124	-121.8461519
1340123	NORTHWESTERN VENETIAN SUPPLY CORP. SITE	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	5/7/2012	1218 24TH STREET	OAKLAND	94607	ALAMEDA	201574	37.81773854	-122.284933
36970004	NORTON AIR FORCE BASE	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	5/1/1986	2,208 ACRES;58 MI EA OF LOS ANGELES, CA	SAN BERNARDINO	92409	SAN BERNARDINO	400108	34.0966	-117.2478
21970011	NOVATO DOD HOUSING	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	8/14/1995	HIGHWAY 101 3 MI N OF LUCAS VALLEY ROAD	NOVATO	94947	MARIN	200529	38.04592812	-122.5140381
30970001	NWS SEAL BEACH	STATE RESPONSE	ACTIVE	5/1/1986	SEAL BEACH BLVD AND WESTMINSTER AVE	SEAL BEACH	90740	ORANGE	400136	33.75888889	-118.0772222
1970006	OAKLAND ARMY BASE	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	1/15/1988	2475-D WEST 12TH STREET	OAKLAND	94607	ALAMEDA	200233	37.82	-122.3
1970016	OAKLAND GATEWAY DEVELOPMENT AREA	STATE RESPONSE	ACTIVE	7/14/2004	700 MURMANSK STREET, SUITE 3	OAKLAND	94607	ALAMEDA	201537	37.810333	-122.312048
19280436	OMEGA CHEMICAL CORPORATION	FEDERAL SUPERFUND - LISTED	ACTIVE	11/23/1993	12504 WHITTIER BLVD	WHITTIER	90602	LOS ANGELES	300223	33.96957301	-118.0438266
60000236	ONE HOUR MARTINIZING	STATE RESPONSE	ACTIVE	10/31/2008	717 WEST MAIN STREET	VISALIA	93291	TULARE	102049	36.329928	-119.299603
19490207	OPERATING INDUSTRIES, INC. LANDFILL	FEDERAL SUPERFUND - LISTED	CERTIFIED / OPERATION & MAINTENANCE	8/2/2012	900 POTRERO GRANDE DR	MONTEREY PARK	91755	LOS ANGELES	300110	34.03649751	-118.1040144
60000689	OPHIR ROAD PROPERTY	STATE RESPONSE	ACTIVE	8/1/2007	ASSESSOR'S PARCEL NUMBERS (APNS)078-010-006, 078-010-038	OROVILLE	95965	BUTTE	101886	39.46655743	-121.5708639
71002520	ORANGE COUNTY METAL PROCESSING	STATE RESPONSE	ACTIVE	12/20/2007	1711 E. KIMBERLY AVENUE	FULLERTON	92634	ORANGE	401605	33.8631939	-117.8969409
34280048	ORCHARD SUPPLY COMPANY	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	9/10/1997	1731 17TH STREET	SACRAMENTO	95814	SACRAMENTO	100116	38.56899231	-121.4868585
11720001	ORLAND CLEANERS	STATE RESPONSE	ACTIVE	6/30/1992	726 FIFTH STREET	ORLAND	95963	GLENN	100348	39.74654654	-122.1958423
15330001	OSAGE INDUSTRIES, 15TH STREET	STATE RESPONSE	ACTIVE	6/8/1995	2001 15TH STREET, WEST	ROSAMOND	93560	KERN	100257	34.85191768	-118.1591499
15330005	OSAGE INDUSTRIES, 60TH STREET WEST	STATE RESPONSE	ACTIVE	6/2/1994	60TH STREET WEST T9N,R13W,S10 SE CORNER	ROSAMOND	93560	KERN	101534	34.88333333	-118.2333333
60001244	OTH BRS TULELAKE - IR	STATE RESPONSE	ACTIVE	11/15/2011	N 41.710423; W 121.178084	TULELAKE	96134	MODOC	102075	41.710423	-121.178084
39280005	OXYCHEM-LATHROP	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE	1/1/1984	2715 E LOUISE AVE	LATHROP	95330	SAN JOAQUIN	100114	37.8043106	-121.2791552
56130038	PACIFIC COAST PIPE LINES	FEDERAL SUPERFUND - LISTED	ACTIVE	7/12/2012	67 EAST TELEGRAPH ROAD	FILLMORE	93015	VENTURA	300156	34.40436031	-118.9047718
1330031	PACIFIC STATES STEEL - PHASE III	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	9/22/2006	35124 ALVARADO-NILES ROAD	UNION CITY	94587	ALAMEDA	200073	37.58439561	-122.0096788
19340646	PALACE PLATING	STATE RESPONSE	ACTIVE	5/5/2010	710 EAST 29TH STREET	LOS ANGELES	90011	LOS ANGELES	301391	34.01844918	-118.2626672
19490181	PALOS VERDES LANDFILL	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	4/13/1999	25706 HAWTHORNE BLVD.	ROLLING HILLS ESTATES	90274	LOS ANGELES	400116	33.784775	-118.3483611
19460003	PALOS VERDES SHELF	FEDERAL SUPERFUND - LISTED	ACTIVE	2/26/1999	PACIFIC OCEAN - WHITE POINT OUTFALL	PALOS VERDES	90000	LOS ANGELES	400645	33.7105	-118.3219
60000240	PARAGON DRY CLEANERS	STATE RESPONSE	ACTIVE	10/31/2008	119 SOUTH WILLIS STREET	VISALIA	93291	TULARE	102050	36.329547	-119.297814
80000158	PARKS AIR FORCE BASE (J09CA0083)	MILITARY EVALUATION	ACTIVE	3/22/2013		PLEASANTON		ALAMEDA		37.70305556	-121.8922222
1970012	PARKS RESERVE FORCES TRAINING AREA	STATE RESPONSE	ACTIVE	4/1/1994	BLDG. 790, 5TH STREET	DUBLIN	94568	ALAMEDA	201104, 201541	37.70916667	-121.9002778

ENVIROSTOR ID	SITE / FACILITY NAME	SITE / FACILITY TYPE	STATUS	STATUS DATE	ADDRESS DESCRIPTION	CITY	ZIP	COUNTY	SITE CODE	LATITUDE	LONGITUDE
54070063	PARMENTER AND BRYAN	STATE RESPONSE	BACKLOG	9/15/2011	13133 AVENUE 416	OROSI	93647	TULARE	100275	36.54472222	-119.2791667
60001187	PECHINEY	STATE RESPONSE	ACTIVE	10/27/2009	3200 FRUITLAND AVENUE	VERNON	90058	LOS ANGELES	301396	33.996665	-118.210832
19281217	PEMACO FORMER CHEMICAL CORPORATION	FEDERAL SUPERFUND - LISTED	ACTIVE	7/1/2001	5040-5050 SLAUSON BLVD.	MAYWOOD	90270	LOS ANGELES	300705	33.98605	-118.1749611
60000979	PETER PAN CLEANERS	STATE RESPONSE	ACTIVE	9/8/2008	2231 MENDOCINO AVENUE	SANTA ROSA	95403	SONOMA	201825	38.461806	-122.717896
41360100	PG&E - MARTIN SERVICE DALY CITY YARD	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	5/4/1995	731 SCHWERIN STREET	DALY CITY	94014	SAN MATEO	200075, 900243	37.70480652	-122.4122858
41360093	PG&E - MARTIN SERVICE LEVISON OU-2	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	6/30/2003	731 SCHWERIN STREET	DALY CITY	94014	SAN MATEO	200075	37.70287114	-122.4097538
34490048	PG&E - SACRAMENTO SITE	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	1/1/1987	2000 FRONT STREET	SACRAMENTO	95818	SACRAMENTO	100160	38.57219285	-121.5114211
35490002	PG&E HOLLISTER MAINTANENCE STATION	STATE RESPONSE	BACKLOG	6/8/1994	1980 SANTA ANA ROAD	HOLLISTER	95023	SAN BENITO		36.855	-121.3644444
10990001	PINEDALE AREA GROUNDWATER	STATE RESPONSE	BACKLOG	9/8/2008	PINEDALE/N. FRESNO AREA	FRESNO	93650	FRESNO	100168	36.83972222	-119.785
29100010	PINEWOOD GLEN ESTATES SITE	STATE RESPONSE	BACKLOG	1/1/2008	NORTH BLOOMFIELD ROAD	NEVADA CITY	95959	NEVADA	101487	39.28944444	-120.9888889
43360069	PLESSEY MICRO SCIENCE	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE	6/28/2007	2274 MORA DRIVE	MOUNTAIN VIEW	94040	SANTA CLARA	200080	37.40324211	-122.1014845
23970001	POINT ARENA AIR FORCE STATION	STATE RESPONSE	ACTIVE	6/8/1994	EUREKA HILL ROAD; EA OF POINT ARENA, CA	POINT ARENA	95468	MENDOCINO	200585	38.8911	-123.5501
37970016	POINT LOMA COMPLEX (SPAWAR-PLC)	STATE RESPONSE	ACTIVE	7/1/1994	SYLVESTER & HUMPHRIES	SAN DIEGO	92152	SAN DIEGO	400272	32.70833333	-117.2416667
56970001	POINT MUGU NAWES	STATE RESPONSE	ACTIVE	2/17/2006	4500 ACRES; 50 MI NW OF LOS ANGELES, CA	POINT MUGU	93042	VENTURA	300113	34.11694444	-119.1038889
60001864	POINT MUGU NAWES MMRP	STATE RESPONSE	ACTIVE	5/9/2011	4500 ACRES; 50 MI NW OF LOS ANGELES	POINT MUGU	93042	VENTURA	300113	34.11694444	-119.1038889
19970023	POINT VICENTE	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	1/6/2009	PALOS VERDES DR. AND HAWTHORNE BLVD.,	RANCHO PALOS VER	90275	LOS ANGELES	400953	33.74166667	-118.4055556
60001301	POND MINE	STATE RESPONSE	BACKLOG	5/8/2012	NEAR 6501 PATENT ROAD (SITE OF FORMER HYDRAULIC MINING OPERATION)APN: 255-110-018, 255-110-020, 255-100-046	FORESTHILL	95613	PLACER	102008	39.001134	-120.84725
1510021	PORT OF OAKLAND - EMBARCADERO COVE	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	3/28/1997	DENNISON AND EMBARCADERO STREETS	OAKLAND	94606	ALAMEDA	200083	37.7797739	-122.2432444
1280092	PORT OF OAKLAND, BERTH 25 AND 26	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	9/20/2011	2500 7TH STREET	OAKLAND	94607	ALAMEDA	201392	37.81086891	-122.3215199
7370030	PORT OF RICHMOND (SHIPYARD #3)	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	9/22/2006	1312 CANAL BLVD	RICHMOND	94804	CONTRA COSTA	200084, 201232	37.90898782	-122.3698278
60001612	PRECISION OPTICAL INCORPORATED FACILITY	STATE RESPONSE	ACTIVE	12/13/2011	865 AND 869 WEST 17TH STREET	COSTA MESA	92627	ORANGE	401409	33.6360809	-117.9346999
38970002	PRESIDIO OF SAN FRANCISCO	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	1/1/1991	1,400 AC; N-MOST TIP OF THE SF PENINSULA	SAN FRANCISCO	94129	SAN FRANCISCO	201239	37.79777778	-122.4716667
60001660	PRESIDIO OF SAN FRANCISCO FILL SITE 6B	STATE RESPONSE	ACTIVE	1/1/1991	HALLECK ST AND LINCOLN BLVD./GORGAS AVE	SAN FRANCISCO	94129	SAN FRANCISCO	201239	37.8025745	-122.4544796
60001764	PRESIDIO OF SAN FRANCISCO LOBOS CREEK	STATE RESPONSE	ACTIVE	1/1/1991	BETWEEN 14TH AVENUE AND BAKER BEACH NORTH OF LAKE STREET	SAN FRANCISCO	94129	SAN FRANCISCO	201239	37.792222	-122.481186
60001638	PRESIDIO OF SAN FRANCISCO/BAKER BEACH DISTURBED AREA 2	STATE RESPONSE	ACTIVE	1/1/1991	LINCOLN BLVD.	SAN FRANCISCO	94129	SAN FRANCISCO	201239	37.7748401	-122.265938
60001317	PRESIDIO OF SAN FRANCISCO/BAKER BEACH DISTURBED AREA, AREA 1 (BBDAA1)	STATE RESPONSE	ACTIVE	1/1/1991	MERCHANT ROAD AND LINCOLN BLVD.	SAN FRANCISCO	94129	SAN FRANCISCO	201239	37.8044125	-122.4756494
60001647	PRESIDIO OF SAN FRANCISCO/BARNARD AVENUE PROTECTED RANGE	STATE RESPONSE	ACTIVE	1/11/2012	BARNARD AVENUE AND FERNANDEZ STREET	SAN FRANCISCO	94129	SAN FRANCISCO	201239	37.79618668	-122.4575508
60001177	PRESIDIO OF SAN FRANCISCO/FILL SITE 1, LANDFILL 2	STATE RESPONSE	ACTIVE	11/1/1991	SE PORTION OF PRESIDIO OF SAN FRANCISCO	SAN FRANCISCO	94129	SAN FRANCISCO	201239	37.79187979	-122.455169
60001318	PRESIDIO OF SAN FRANCISCO/LANDFILL E	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	12/5/2012	BARNARD AND FERNANDEZ AVENUE	SAN FRANCISCO	94129	SAN FRANCISCO	201239	37.79527107	-122.4579048
60001401	PRESIDIO OF SAN FRANCISCO/LEAD-BASED PAINT SITES	STATE RESPONSE	ACTIVE	1/1/1991	NORTHERN TIP OF SF PENINSULA	SAN FRANCISCO	94129	SAN FRANCISCO	201239	37.77493	-122.419415
60001846	PRESIDIO OF SAN FRANCISCO/LENDRUM COURT	MILITARY EVALUATION	ACTIVE	1/3/2013	LENDRUM COURT	SAN FRANCISCO	94129	SAN FRANCISCO	201239	37.8050114	-122.4711498
60001316	PRESIDIO OF SAN FRANCISCO/MERCHANT ROAD FILL SITE	STATE RESPONSE	ACTIVE	1/1/1991	NORTHWEST PORTION OF PRESIDIO OF SAN FRANCISCO	SAN FRANCISCO	94129	SAN FRANCISCO	201239	37.8044125	-122.4756494
60001369	PRESIDIO OF SAN FRANCISCO/MOUNTAIN LAKE	STATE RESPONSE	ACTIVE	1/1/1992	HIGHWAY 1 AND PACIFIC AVENUE	SAN FRANCISCO	94129	SAN FRANCISCO	201239	37.78801355	-122.4711227
15130013	PRODUCTS RESEARCH & CHEMICAL CORP	STATE RESPONSE	BACKLOG	6/8/1995	11601 UNITED STREET	MOJAVE	93501	KERN	100308	35.01277778	-118.15
60001338	PUEENTE VALLEY (SAN GABRIEL VALLEY SUPERFUND SITE)	FEDERAL SUPERFUND - LISTED	ACTIVE	5/25/2010	COVERS MOST OF CITY OF INDUSTRY, PORTIONS OF THE CITY OF LA PUEENTE AND UNINCORPORATED LOS ANGELES COUNTY	CITY OF INDUSTRY	91744	LOS ANGELES	301404, 301425, 301502	34.02933124	-117.9674149
15330010	PURDY COMPANY	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	2/28/1997	12901 UNITED ROAD	MOJAVE	93501	KERN	100176, 101671	35.00891111	-118.1501472
13070097	PUREGRO COMPANY	STATE RESPONSE	ACTIVE	3/25/2004	1025 RIVER DRIVE	BRAWLEY	92227	IMPERIAL	401121	32.9881438	-115.525568
16070076	PUREGRO-CORCORAN	STATE RESPONSE	ACTIVE	10/1/1990	6991 NEVADA AVENUE	CORCORAN	93212	KINGS	100274	36.137	-119.5812
34170001	PURITY OIL SALES - DELTA GUNITE	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	9/12/2000	WHITE ROCK ROAD & KILGORE ROAD	RANCHO CORDOVA	95813	SACRAMENTO	100123	38.58911792	-121.2697828
10500005	PURITY OIL SALES, INC	FEDERAL SUPERFUND - LISTED	ACTIVE	1/1/1985	3265 SOUTH MAPLE AVENUE	MALAGA	93726	FRESNO	100122	36.82738468	-119.7313392
7280013	REACTION PRODUCTS	STATE RESPONSE	ACTIVE	11/7/1996	840 MORTON AVENUE	RICHMOND	94806	CONTRA COSTA	200599	37.98192026	-122.3565367
80000697	RED BLUFF AIR FORCE STATION (J09CA0913)	MILITARY EVALUATION	ACTIVE	11/18/2011	1760 AIRPORT BLVD	RED BLUFF	96080	TEHAMA	101802	40.14694444	-122.3044444
80000698	REDDING ARMY AIRFIELD (J09CA0915)	STATE RESPONSE	ACTIVE	5/22/2008	6751 WOODRUM CIRCLE	REDDING	96002	SHASTA	101902	40.51138889	-122.2919444

ENVIROSTOR ID	SITE / FACILITY NAME	SITE / FACILITY TYPE	STATUS	STATUS DATE	ADDRESS DESCRIPTION	CITY	ZIP	COUNTY	SITE CODE	LATITUDE	LONGITUDE
39650001	RENOWN HOMES	STATE RESPONSE	BACKLOG	6/8/1995	CORNER OF TRACY BLVD AND BEECHNUT AVE	TRACY	95376	SAN JOAQUIN	100237	37.7363	-121.4355
19340643	RENU PLATING COMPANY INC	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	6/28/2001	1531 EAST 32ND STREET	LOS ANGELES	90011	LOS ANGELES	301014	34.01273742	-118.2472721
70000045	RESOURCE RENEWAL TECHNOLOGY, INC.-MARICOPA FACILITY	STATE RESPONSE	ACTIVE	9/14/2011	24306 HIGHWAY 166	MARICOPA	93252	KERN	101650	35.05835048	-119.356842
60000408	RICHARDS CLEANERS	STATE RESPONSE	ACTIVE	8/16/2006	538 WEST 5TH STREET	SAN PEDRO	90731	LOS ANGELES	401317	33.73992073	-118.2888496
7990005	RICHMOND TOWNHOUSE APARTMENTS	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	6/19/2002	2887 AND 2989 PULLMAN AVENUE	RICHMOND	94804	CONTRA COSTA	201508	37.92861695	-122.3407086
50340001	RIVERBANK ARMY AMMUNITION DEPOT	FEDERAL SUPERFUND - LISTED	ACTIVE	5/1/1986	5300 CLAUS ROAD	RIVERBANK	95367	STANISLAUS	100125	37.715	-120.9219278
33820001	RIVERSIDE COMMUNITY COLLEGE-NORCO CAMPUS	STATE RESPONSE	ACTIVE	12/30/2011	2001 3RD ST	NORCO	92860	RIVERSIDE	400202	33.91536944	-117.5687944
19360068	ROSEN'S ELECTRICAL EQUIPMENT	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	1/19/2010	8226 E. WHITTIER BLVD.	PICO RIVERA	90660	LOS ANGELES	300369	34.00580267	-118.0957422
15100009	S R KILBY PROPERTY	STATE RESPONSE	ACTIVE	6/29/1998	2021 WEST 15TH STREET	ROSAMOND	93560	KERN	100183	34.85037831	-118.158775
34970004	SACRAMENTO ARMY DEPOT	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	5/1/1986	8350 FRUITRIDGE ROAD	SACRAMENTO	95813	SACRAMENTO	100126	38.51861111	-121.3958333
80000701	SACRAMENTO MUNICIPAL AIRPORT (J09CA0923)	MILITARY EVALUATION	ACTIVE	11/18/2011		SACRAMENTO		SACRAMENTO		38.50888889	-121.5044444
34370014	SACRAMENTO PLATING INC	STATE RESPONSE	ACTIVE	6/12/1997	2809 S STREET	SACRAMENTO	95816	SACRAMENTO	100247	38.56410628	-121.4727616
71000031	SALINAS ARMY AIRFIELD - IR/MMRP (J09CA0925)	STATE RESPONSE	ACTIVE	5/22/2008	LOCATED IN THE TOWN OF SALINAS IN MONTEREY COUNTY	SALINAS	93901	MONTEREY	201545	36.664	-121.6147
80000433	SALINE VAL ATA GUN RG	STATE RESPONSE	ACTIVE	12/23/2010	APPROXIMATELY 10 MILES EAST OF CA HWY 395	INDEPENDENCE	93562	INYO	102052	36.70694444	-117.6
60001020	SAN DIEGO AIRFORCE SPACE SURVEILLANCE STATION	STATE RESPONSE	ACTIVE	1/8/2008	989 HERITAGE ROAD	SAN DIEGO	92154	SAN DIEGO	401413	32.57849739	-116.9783878
37970022	SAN DIEGO NISE-WEST (NOCCSC) OLD TOWN CAMPUS	STATE RESPONSE	ACTIVE	1/1/1995	4297 PACIFIC COAST HIGHWAY	SAN DIEGO	92186	SAN DIEGO	400495	32.7375	-117.2125
19990011	SAN FERNANDO VALLEY (AREA 1)	FEDERAL SUPERFUND - LISTED	ACTIVE	5/15/1996	NORTH HOLLYWOOD WELLFIELD AREA	LOS ANGELES	91601	LOS ANGELES	300126, 300173, 300287	34.1875	-118.3838889
19990012	SAN FERNANDO VALLEY (AREA 2)	FEDERAL SUPERFUND - LISTED	ACTIVE	1/1/1984	CRYSTAL SPRINGS WELLFIELD AREA	GLENDALE	91209	LOS ANGELES	300127, 300287, 300288	34.1575	-118.2847222
19990009	SAN FERNANDO VALLEY (AREA 4)	FEDERAL SUPERFUND - LISTED	CERTIFIED / OPERATION & MAINTENANCE	1/1/1999	POLLOCK WELLFIELD	LOS ANGELES	90086	LOS ANGELES	300127, 300129, 300287	34.12944444	-118.2641667
80000548	SAN FRANCISCO NIKE 31	STATE RESPONSE	ACTIVE	7/24/2012		SAN LEANDRO		ALAMEDA		37.70777778	-122.1513889
80000608	SAN FRANCISCO NIKE BATTERY 08-09 (J09CA0936)	MILITARY EVALUATION	ACTIVE	11/18/2011		BERKELEY		CONTRA COSTA		37.89805556	-122.24
19990006	SAN GABRIEL GROUNDWATER BASIN (1-4)*	FEDERAL SUPERFUND - LISTED	ACTIVE	5/25/2010	10-20 MI E OF L.A. ON HWY 10 IN AZUSA	EL MONTE	91732	LOS ANGELES	300131, 300132, 300345, 300347, 300502, 301178, 301284, 301369, 301370, 301404, 301425	34.07239518	-118.0325
15340023	SAN JOAQUIN DRUM COMPANY	STATE RESPONSE	ACTIVE	9/1/2010	3930 GILMORE AVENUE	BAKERSFIELD	93308	KERN	100128, 101658, 101704, 101955, 102099	35.38970158	-119.0517528
38340157	SCHLAGE LOCK COMPANY	STATE RESPONSE	ACTIVE	4/30/1994	BAYSHORE BLVD AND SUNNYDALE AVE.	SAN FRANCISCO	94134	SAN FRANCISCO	200454, 201789	37.71013701	-122.4031448
7330031	SELBY SLAG	STATE RESPONSE	ACTIVE	1/1/1983	SHORELINE&MARSH ADJ. TO CARQUINEZ STRAIT	SELBY	94802	CONTRA COSTA	200009	38.05383569	-122.2490918
10240051	SELMA TREATING COMPANY	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	1/1/1983	1735 DOCKERY AVE & ADJOINING	SELMA	93662	FRESNO	100129	36.557233	-119.6047166
19970013	SEPULVEDA AIR NATIONAL GUARD	MILITARY EVALUATION	ACTIVE	7/1/2012	15900 VICTORY BLVD.	VAN NUYS	91406	LOS ANGELES	300307	34.18638889	-118.4791667
15070029	SHAFTER AIRPORT	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	2/7/1992	LERDO HIGHWAY AT HIGHWAY 99	SHAFTER	93263	KERN	100130	35.5003	-119.1829
42290014	SHELL- FORMER HERCULES GAS PLANT	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	4/19/1996	14730 HIGHWAY 101	GOLETA	93117	SANTA BARBARA	300138	34.4767387	-120.1346827
60000189	SHERWIN WILLIAMS	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	1/25/2013	1450 SHERWIN AVENUE	EMERYVILLE	94608	ALAMEDA	200956	37.83294587	-122.2897931
45500010	SHORT'S SCRAP IRON AND METAL, INC	STATE RESPONSE	BACKLOG	8/19/2011	2041 GIRVAN ROAD	REDDING	96001	SHASTA	100502	40.51141806	-122.3789833
18940001	SIERRA ARMY DEPOT - IR/MMRP	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	5/1/1986	50 MI NORTH OF RENO, NV	HERLONG	96113	LASSEN	100132	40.14555556	-120.1280556
18940002	SIERRA ARMY DEPOT-HERLONG AND HONEY LAKE	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	7/1/1995	50 MI. NORTH OF RENO, NV	HERLONG	96113	LASSEN	100657	40.26527778	-120.2058333
4240024	SIERRA PACIFIC OROVILLE	STATE RESPONSE	BACKLOG	10/2/1995	1980 KUSEL ROAD	OROVILLE	95966	BUTTE	100342	39.45814894	-121.5575784
15500002	SILVER QUEEN JUNKYARD	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	6/30/2006	BACK LOT AT 11847 UNITED STREET	MOJAVE	93501	KERN	100273	34.99468216	-118.1524501
70000019	SIMS METAL SITE	STATE RESPONSE	ACTIVE	10/30/2004	130 NORTH 12 STREET; AT INTERSECTION OF NORTH B STREETS	SACRAMENTO	95814	SACRAMENTO	101762	38.59030652	-121.4876878
1360094	SINGER FRIDEN	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE	4/28/2003	2350 AND 2450 WASHINGTON AVENUE	SAN LEANDRO	94577	ALAMEDA	200251	37.71604425	-122.1483564
43360079	SMITHKLINE AND FRENCH LABORATORIES	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE	4/29/1996	3400 HILLVIEW AVENUE	PALO ALTO	94304	SANTA CLARA	200118	37.40406129	-122.148765
54830001	SO CAL GAS/DINUBA MGP	STATE RESPONSE	ACTIVE	5/1/1986	216 S O ST	DINUBA	93618	TULARE	100050	36.53751913	-119.3915901
19490179	SO CAL GAS/OLYMPIC BASE MGP	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	12/24/1991	2424 E OLYMPIC BLVD	LOS ANGELES	90021	LOS ANGELES	300144	34.02559167	-118.2265722
42490036	SO CAL GAS/SANTA BARBARA (QUARANTINA MGP	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	7/18/1994	630 EAST MONTECITO STREET	SANTA BARBARA	93103	SANTA BARBARA	300174	34.42197222	-119.6853861

ENVIROSTOR ID	SITE / FACILITY NAME	SITE / FACILITY TYPE	STATUS	STATUS DATE	ADDRESS DESCRIPTION	CITY	ZIP	COUNTY	SITE CODE	LATITUDE	LONGITUDE
54490015	SO CAL GAS/VISALIA MGP	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	6/25/1998	300 NORTH TIPTON STREET	VISALIA	93277	TULARE	100277	36.33242651	-119.285175
71003449	SONIC PLATING CO., INC. - GARDENA	STATE RESPONSE	ACTIVE	10/4/2011	1930 W. ROSECRANS AVENUE	GARDENA	90249	LOS ANGELES		33.901618	-118.312582
19340737	SOS - PLACERITA CANYON	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE	4/23/1996	25977 SAND CANYON RD	SANTA CLARITA	91387	LOS ANGELES	300149	34.37252556	-118.4159682
43490060	SOUTH BAY ASBESTOS AREA	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	1/1/1985	FT OF LIBERTY ST GUADALUPE RIV	SAN JOSE	95002	SANTA CLARA	200091	37.44105833	-121.9825444
60001403	SOUTH CENTRAL DISCOVERY PROJECT	STATE RESPONSE	ACTIVE	6/30/2009	SOUTH CENTRAL LOS ANGELES AREA	LOS ANGELES	90001	LOS ANGELES	301494	0	0
60001339	SOUTH EL MONTE (SAN GABRIEL VALLEY SUPERFUND SITE)	FEDERAL SUPERFUND - LISTED	ACTIVE	5/25/2010	COVERS ALL OF CITY OF SOUTH EL MONTE AND PORTIONS OF EL MONTE AND ROSEMEAD	SOUTH EL MONTE	91733	LOS ANGELES	300347	34.05337055	-118.0420876
60000706	SOUTH FRESNO PCE GROUNDWATER PLUME	STATE RESPONSE	ACTIVE	10/17/2003	2376 S. RAILROAD AVENUE	FRESNO	93721	FRESNO	101591	36.71497861	-119.7754383
10400005	SOUTH FRESNO REGIONAL GROUNDWATER PLUME	STATE RESPONSE	ACTIVE	11/26/2002	NORTH OF CHURCH AVENUE AT SOUTH EAST AVE	FRESNO	93721	FRESNO	101491, 101569, 101569, 101595	36.71850241	-119.7725
60001509	SOUTHERN CALIFORNIA EDISON LAFAYETTE SUBSTATION	STATE RESPONSE	ACTIVE	1/5/2012	1680 MONROVIA AVENUE	COSTA MESA	92627	ORANGE	401558	33.635403	-117.936194
19470006	SOUTHERN PACIFIC - TAYLOR YARD	STATE RESPONSE	ACTIVE	4/23/1996	2800 KERR STREET	LOS ANGELES	90039	LOS ANGELES	300358	34.10988056	-118.247125
1400010	SOUTHERN PACIFIC -WEST OAKLAND RAIL YARD	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	5/28/2009	CYPRESS CORRIDOR	OAKLAND	94607	ALAMEDA	200486	37.80305556	-122.2994444
19290003	SOUTHLAND OIL	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	8/16/2002	5619-5621 RANDOLPH STREET	COMMERCE	90040	LOS ANGELES	300148	33.97994717	-118.1651623
60000999	SOUTHWEST MARINE TERMINAL ISLAND FACILITY	STATE RESPONSE	ACTIVE	11/5/2008	985 SEASIDE AVENUE	PORT OF LOS ANGELES	90731	LOS ANGELES	401456	33.73449	-118.26963
36330036	SOUTHWEST METAL COMPANY	STATE RESPONSE	ACTIVE	11/15/2011	740 CONGRESS STREET	SAN BERNARDINO	92410	SAN BERNARDINO		34.09865542	-117.3000934
34510082	SP-PURITY OIL	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	6/28/1993	1324 A STREET	SACRAMENTO	95814	SACRAMENTO	100366	38.58859379	-121.4850354
31400007	SP-ROSEVILLE-SOUTH YARD	STATE RESPONSE	ACTIVE	1/1/1983	SP ROSEVILLE RAILYARD	ROSEVILLE	95678	PLACER	100138	38.7291	-121.3083
31400006	SP-ROSEVILLE: NORTH YARD	STATE RESPONSE	ACTIVE	10/1/1990	SP ROSEVILLE RAILYARD	ROSEVILLE	95678	PLACER	100138	38.7473	-121.2883
60000305	SPENCE PROPERTY AKA DRY CLEANER IN EAGLE ROCK	STATE RESPONSE	ACTIVE	5/5/2006	7047-7051 NORTH FIGUEROA STREET	LOS ANGELES	90042	LOS ANGELES	301285	35.138611	-118.188611
71003183	STANDARD NICKEL CHROMIUM PLATING CO.	STATE RESPONSE	ACTIVE	6/4/2004	826 E. 62ND STREET	LOS ANGELES	90001	LOS ANGELES		33.982915	-118.260409
19280083	STAUFFER CHEMICAL, CARSON	STATE RESPONSE	ACTIVE	4/25/1996	2112 EAST 223RD STREET	CARSON	90745	LOS ANGELES	400264	33.82323486	-118.2356228
80000767	STINSON BEACH FIRE CONTROL STATION (J09CA0959)	MILITARY EVALUATION	ACTIVE	5/16/2012		SAN RAFAEL		MARIN		37.88833333	-122.6275
39420010	STOCKTON, ROUGH AND READY ISLAND	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	10/1/2003	2201 W. WASHINGTON STREET	STOCKTON	95201	SAN JOAQUIN	101662	37.948955	-121.3567173
33490001	STRINGFELLOW HAZARDOUS WASTE SITE	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	1/1/1983	3450 PYRITE STREET	RIVERSIDE	92509	RIVERSIDE	400152	34.02943794	-117.4544692
17100001	SULPHUR BANK MERCURY MINE	FEDERAL SUPERFUND - LISTED	ACTIVE	1/1/1984	SULPHUR BANK ROAD	CLEARLAKE	95422	LAKE	100142	39.00388889	-122.6647222
37590003	SUNFLOWER PROPERTIES INC.	STATE RESPONSE	ACTIVE	7/24/1998	9755 DISTRIBUTION AVENUE	SAN DIEGO	92121	SAN DIEGO	400700	32.8844915	-117.1622173
60001870	SWISS CLEANERS	STATE RESPONSE	ACTIVE	2/25/2013	14540 CAMDEN AVENUE	SAN JOSE	95124	SANTA CLARA	201961	37.26126359	-121.9230949
43360114	SYNTEX	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE	5/28/1996	3300 HILLVIEW AVE	PALO ALTO	94304	SANTA CLARA	200141	37.40687887	-122.1459461
10280334	T H AGRICULTURE & NUTRITION, L.L.C.	FEDERAL SUPERFUND - DELISTED	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	1/12/2006	7183 EAST MCKINLEY AVENUE	FRESNO	93727	FRESNO	100146	36.76415648	-119.6598411
19290138	TALLEY BROTHERS INC	STATE RESPONSE	ACTIVE	9/14/2007	2007 LAURA AVENUE	HUNTINGTON PARK	90255	LOS ANGELES	301368	33.98844513	-118.2356799
19510060	TCL CORP./TCL2 (PORT OF LONG BEACH)	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE	12/15/1997	420 N HENRY FORD AVE	WILMINGTON	90744	LOS ANGELES	400431	33.77495833	-118.2411917
19510062	TCL CORPORATION - TOYOTA PARCEL	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	8/2/1995	420 N HENRY FORD AVE	WILMINGTON	90744	LOS ANGELES	400154	33.77495833	-118.2411917
43360088	TELEDYNE MEC	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE	9/12/1995	3165 PORTER DR	PALO ALTO	94304	SANTA CLARA	200140	37.40901974	-122.1495288
43360073	TELEDYNE SINGER	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE	7/31/1995	3176 PORTER DRIVE	PALO ALTO	94304	SANTA CLARA	200096	37.40684476	-122.1492821
80001161	TEMECULA BOMB TARGET #107	STATE RESPONSE	ACTIVE	2/15/2007	5 MILES EAST OF DOWNTOWN TEMECULA	TEMECULA	92593	RIVERSIDE	401339	33.52916667	-117.0375
19270329	TETRA GRAPHICS SITE	STATE RESPONSE	ACTIVE	2/26/2013	10310 GLASGOW PLACE	LOS ANGELES	90045	LOS ANGELES	300990	33.9428822	-118.371275
33290115	THOMAS RANCH	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	12/21/2010	S OF PALISADES DR, W OF SERFAS CLUB DR	CORONA	91720	RIVERSIDE	400158	33.88022048	-117.614275
71000035	TORNEY GENERAL HOSPITAL	MILITARY EVALUATION	BACKLOG	4/1/2005	RIVERSIDE	RIVERSIDE	92503	RIVERSIDE	400999		
43590001	TOWN & COUNTRY VILLAGE SHOPPING CENTER	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	3/23/2005	2980 & 3030 STEVENS CREEK BOULEVARD	SAN JOSE	95113	SANTA CLARA	200916	37.31985057	-121.9489848
30970010	TRABUCO BOMBING RANGE (J09CA020900)	STATE RESPONSE	ACTIVE	8/7/2001	RANCHO SANTA MARGARITA	RANCHO SANTA MAG	92688	ORANGE	400921	33.66555556	-117.5875
71000056	TRACY AUXILIARY FIELD NO. 5 (J09CA0972)	MILITARY EVALUATION	ACTIVE	3/22/2013	TRACY BOULEVARD	TRACY	95376	SAN JOAQUIN	100574	37.68922025	-121.4360905
48970001	TRAVIS AFB - IR/MMRP	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	1/1/1990	5025 ACRES; 3 MILES EAST OF FAIRFIELD,CA	TRAVIS	94535	SOLANO	200208	38.26055556	-121.9444444
80000769	TRAVIS AFB NIKE 10 - (J09CA0974)	MILITARY EVALUATION	ACTIVE	10/24/2007	LEWIS RD AND HAY RD	ELMIRA	95687	SOLANO	100591	38.31638889	-121.8941667
10070021	TRI-AIR, INCORPORATED	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	5/1/1986	915 TENTH STREET	FIREBAUGH	93622	FRESNO	100149, 102192	36.85669471	-120.4638916

ENVIROSTOR ID	SITE / FACILITY NAME	SITE / FACILITY TYPE	STATUS	STATUS DATE	ADDRESS DESCRIPTION	CITY	ZIP	COUNTY	SITE CODE	LATITUDE	LONGITUDE
37340034	TRI-CITY PLATING, INCORPORATED	STATE RESPONSE	ACTIVE	9/10/2009	1307 SOUTH COAST HIGHWAY	OCEANSIDE	92054	SAN DIEGO	401562, 530034	33.18235503	-117.3685028
70000036	TRIPLE R BOYS RANCH	STATE RESPONSE	ACTIVE	8/31/2005	19520 GLENN ROAD	CORNING	96021	TEHAMA	101761	39.91820241	-122.294475
30970002	TUSTIN MARINE CORPS AIR STATION	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	6/1/1986	NEWPORT FREEWAY AT EDINGER AVENUE	TUSTIN	92710	ORANGE	400091, 401384	33.71638889	-117.8308333
36970007	TWENTY-NINE PALMS MARINE CORPS AGCC	STATE RESPONSE	ACTIVE	12/23/2010	595,367 ACRES;5MI NO OF TWENTYNINE PALMS	TWENTYNINE PALMS	92278	SAN BERNARDINO	400159	34.25027778	-116.0002778
60001867	TWENTY-NINE PALMS MARINE CORPS AGCC (MMRP)	STATE RESPONSE	ACTIVE	12/23/2010	595,367 ACRES;5MI NO OF TWENTYNINE PALMS	TWENTYNINE PALMS	92278	SAN BERNARDINO	400159	34.25027778	-116.0002778
42970004	UC SANTA BARBARA	MILITARY EVALUATION	BACKLOG	11/16/2005	SANTA BARBARA AIRPORT, DAVID LOVE PLACE	SANTA BARBARA	93111	SANTA BARBARA	300781	34.41666667	-119.8458333
37970031	UCSD (CAMP MATTHEWS)-J09CA111001	STATE RESPONSE	ACTIVE	7/1/2012	12 MILES NORTH OF SAN DIEGO	LA JOLLA	92103	SAN DIEGO	401221	32.89167	-117.24084
1400015	UNION PACIFIC OAKLAND COLISEUM SITE	STATE RESPONSE	ACTIVE	4/4/2002	700 73RD AVENUE	OAKLAND	94621	ALAMEDA	201420	37.75230556	-122.1976167
34400003	UNION PACIFIC RAILROAD, CURTIS PARK	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	1/1/1987	3675 WESTERN PACIFIC AVENUE	SACRAMENTO	95818	SACRAMENTO	100151, 102014, 102015	38.54088179	-121.4835119
7280015	UNITED HECKATHORN	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	1/1/1983	8TH & WRIGHT	RICHMOND	94804	CONTRA COSTA	200059	37.92097303	-122.3665786
15330007	UNITED METAL RECOVERY	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	6/1/1995	12433 UNITED STREET	MOJAVE	93501	KERN	100177	35.00248502	-118.1520432
1970014	UNITED STATES COAST GUARD	STATE RESPONSE	ACTIVE	4/10/2003	ELEVENTH COAST GUARD DISTRICT, B. 50-6	ALAMEDA	94501	ALAMEDA	520031	37.795	-122.317
7730003	UNIVERSITY OF CALIFORNIA, RICHMOND SE	STATE RESPONSE	ACTIVE	7/20/2005	1301 SOUTH 46TH STREET	RICHMOND	94804	CONTRA COSTA	201605	37.91536352	-122.3346847
34400009	UP, DOWNTOWN SAC - CAR SHOP NINE	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	6/3/1992	401 I STREET	SACRAMENTO	95814	SACRAMENTO	100139	38.58946175	-121.4996052
34400010	UP, DOWNTOWN SAC - CENTRAL CORRIDOR	STATE RESPONSE	ACTIVE	6/3/1992	401 I STREET	SACRAMENTO	95814	SACRAMENTO	100139	38.58557052	-121.5016973
34400004	UP, DOWNTOWN SAC - CENTRAL SHOPS	STATE RESPONSE	ACTIVE	1/1/1983	401 I STREET	SACRAMENTO	95814	SACRAMENTO	100139	38.58585566	-121.5016222
34400008	UP, DOWNTOWN SAC - LAGOON	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	6/3/1992	401 I STREET	SACRAMENTO	95814	SACRAMENTO	100139	38.58950368	-121.4968586
70000034	UP, DOWNTOWN SAC - MANUFACTURED GAS PLANT	STATE RESPONSE	ACTIVE	10/1/2004	400 I STREET	SACRAMENTO	95814	SACRAMENTO	100139	38.5833	-121.5008
34400007	UP, DOWNTOWN SAC - NORTHERN SHOPS/DRUM S	STATE RESPONSE	ACTIVE	1/1/1990	401 I STREET	SACRAMENTO	95814	SACRAMENTO	100139	38.58653496	-121.4998305
34400005	UP, DOWNTOWN SAC - PONDS AND DITCH	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	1/12/1996	401 I STREET	SACRAMENTO	95814	SACRAMENTO	100139	38.58849735	-121.4994335
60001378	UP, DOWNTOWN SAC - SHOPS ABATEMENT	STATE RESPONSE	ACTIVE	12/1/2009	401 I STREET	SACRAMENTO	95814	SACRAMENTO	102074	38.58585566	-121.5016222
60001447	UP, DOWNTOWN SAC - TRACK RELOCATION	STATE RESPONSE	ACTIVE	4/1/2011	401 I STREET	SACRAMENTO	95814	SACRAMENTO	102140	38.58585566	-121.5016222
10390001	VALLEY FOUNDRY AND MACHINE WORKS	STATE RESPONSE	ACTIVE	5/16/2011	2510 SOUTH EAST AVENUE	FRESNO	93717	FRESNO	101585	36.70973859	-119.7750365
45340001	VALLEY PLATING COMPANY	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	6/30/2012	3872 EL CAJON	SHASTA LAKE	96019	SHASTA	100152	40.67722222	-122.3774444
50240001	VALLEY WOOD PRESERVING, INC.	FEDERAL SUPERFUND - LISTED	ACTIVE - LAND USE RESTRICTIONS	1/1/1983	2237 SOUTH GOLDEN STATE BLVD	TURLOCK	95380	STANISLAUS	100153	37.47216573	-120.8243721
42970003	VANDENBERG AIR FORCE BASE	STATE RESPONSE	ACTIVE	5/1/1986	98400 ACRES;55MI NW OF SANTA BARBARA, CA	LOMPOC	93437	SANTA BARBARA	300162	34.71722222	-120.5558333
43360086	VARIAN	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE	8/21/1997	611 HANSEN WAY	PALO ALTO	94304	SANTA CLARA	200122	37.41999036	-122.1371564
56010004	VEHICLE PREPARATION CENTER	STATE RESPONSE	BACKLOG	6/8/1995	5601 EDISON DR	OXNARD	93033	VENTURA	300321	34.14591683	-119.1681325
10590001	VENDO COMPANY, THE	STATE RESPONSE	ACTIVE	10/1/1990	7209 NORTH INGRAM AVENUE	PINEDALE	93650	FRESNO	100249	36.84161016	-119.8061979
80000775	VHF SITE 4K4	MILITARY EVALUATION	ACTIVE	10/24/2007	.2 MI SE OF BIRDS LANDING	BIRDS LANDING	94585	SOLANO	101931	38.14833333	-121.9058333
4360003	VICTOR INDUSTRIES - 20TH STREET	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	10/1/1990	365 E 20TH ST	CHICO	95928	BUTTE	100178	39.72090827	-121.8212429
19490191	VICTORIA GOLF COURSE (FORMER BKK CARSON DUMP)	STATE RESPONSE	ACTIVE	6/9/2006	340 EAST 192ND STREET	CARSON	90746	LOS ANGELES	400579	33.85287095	-118.2715111
60000403	VISALIA DRY CLEANER INVESTIGATION	STATE RESPONSE	ACTIVE	8/4/2006	CENTRAL CITY AREA	VISALIA	93277	TULARE	101808	36.330278	-119.291111
19490194	WASTE DISPOSAL, INC.	FEDERAL SUPERFUND - LISTED	CERTIFIED / OPERATION & MAINTENANCE	9/14/2006	12731 LOS NIETOS RD	SANTA FE SPRINGS	90670	LOS ANGELES	300166	33.94860449	-118.0575585
43360076	WATKINS JOHNSON COMPANY (SRP)	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE	8/30/1996	3333 HILLVIEW AVENUE	PALO ALTO	94304	SANTA CLARA	200137	37.40808616	-122.1432596
10340137	WEIR FLOWAY INC.	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	10/24/1999	2494 SOUTH RAILROAD AVENUE, P.O. BOX 164	FRESNO	93707	FRESNO	101163	36.70778551	-119.7707781
60001827	WESTERN ELECTROCHEMICAL COMPANY	STATE RESPONSE	ACTIVE	10/3/2012	2348 EAST 8TH STREET	LOS ANGELES	90021	LOS ANGELES	301581	34.029322	-118.230725
19330383	WESTERN LEAD PRODUCTS, COMMERCE & UPR RIGHT-OF-WAY	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE	1/31/2012	4530 E PACIFIC WAY	COMMERCE	90040	LOS ANGELES	300590, 301145	34.00564486	-118.1773367
60001748	WHITE ROCK DUMPS 1 AND 2	STATE RESPONSE	ACTIVE	1/12/1988	WHITE ROCK DUMPS (WRD) 1 AND 2 ARE LOCATED ON AEROJET PROPERTY.WRD 1, SOUTH OF WHITE ROCK ROAD ON THE INACTIVE RANCHO CORDOVA TEST SITE (IRCTS). WRD 2, NORTH SIDE OF WHITE ROCK ROAD.	RANCHO CORDOVA	95742	SACRAMENTO	102127	38.6	-121.226389
19281203	WHITTAKER BERMITTE/RAIL STATION - SITE A	STATE RESPONSE	ACTIVE	9/9/2009	22116 WEST SOLEDAD CANYON ROAD	SANTA CLARITA	91350	LOS ANGELES	300245	34.41448643	-118.5251856
19281087	WHITTAKER/BERMITTE FACILITY	STATE RESPONSE	ACTIVE	4/14/1995	22116 SOLEDAD CANYON RD	SANTA CLARITA	91350	LOS ANGELES	300245	34.40098385	-118.5073843
60001340	WHITTIER NARROWS (SAN GABRIEL VALLEY SUPERFUND SITE)	FEDERAL SUPERFUND - LISTED	ACTIVE	5/25/2010	BETWEEN HIGHWAY 60 AND THE MONTEBELLO FOREBAY (NEAR WHITTIER NARROWS DAM)	WHITTIER	91770	LOS ANGELES	300132	34.03189196	-118.0563354
48240001	WICKES FOREST INDUSTRIES	STATE RESPONSE	CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS	3/11/1996	INTERSECTION OF HOLDENER & A STREETS	ELMIRA	95625	SOLANO	100164	38.35235422	-121.907325
19290312	WILLIAM MEAD HOMES	STATE RESPONSE	ACTIVE	10/5/2001	1300 CARDINAL STREET	LOS ANGELES	90012	LOS ANGELES	300545, 300855, 301015	34.06318	-118.229891
80000173	WINONA BOMB TARGET NO. 2 #91	STATE RESPONSE	ACTIVE	10/9/2008	4.85 MILES SOUTH OF HIGHWAY 86 AT SALTON SEA	SALTON SEA	92004	IMPERIAL	401393	33.225	-116.0002778

ENVIROSTOR ID	SITE / FACILITY NAME	SITE / FACILITY TYPE	STATUS	STATUS DATE	ADDRESS DESCRIPTION	CITY	ZIP	COUNTY	SITE CODE	LATITUDE	LONGITUDE
80000172	WINONA BOMB TARGET NO.1 #90	STATE RESPONSE	ACTIVE	1/13/2010	IN IMPERIAL COUNTY, CALIFORNIA, 3.88 MILES SOUTHWEST FROM THE CENTER OF SALTON CITY (AT HIGHWAY 86 AND SECTION 22)	EL CENTRO	92004	IMPERIAL	401513	33.225	-115.9791667
4750001	WORLD RADIATOR & AIR CONDITIONING	STATE RESPONSE	ACTIVE	8/2/2000	8336 SKYWAY	PARADISE	95969	BUTTE	101452	39.77852486	-121.6050957
33730084	WYLE LABS - NORCO FACILITY	STATE RESPONSE	ACTIVE	10/3/2004	1841 HILLSIDE AVENUE	NORCO	92860	RIVERSIDE	401144	33.91046077	-117.5416442
7280002	ZENECA RICHMOND AG PRODUCTS	STATE RESPONSE	ACTIVE - LAND USE RESTRICTIONS	11/6/2004	1415 SOUTH 47TH STREET	RICHMOND	94804	CONTRA COSTA	201567, 201621, 201622, 201623, 201624	37.91189761	-122.3314714

GLOBAL ID	FACILITY ID	SITE / FACILITY NAME	SITE / FACILITY TYPE	STATUS	ADDRESS (OR PARTIAL ADDRESS)	CITY	ZIP	COUNTY	SITE CODE
SL186302986		10 MINUTE LUBE (FORMER TEXACO EXPRESS LUBE)	CLEANUP PROGRAM SITE	OPEN - SITE ASSESSMENT	568, 582, 602 EAST MAIN STREET	GRASS VALLEY		NEVADA	
SLT5S0223063		49ER RENT ALL	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	10133 WOLF ROAD	GRASS VALLEY		NEVADA	
SLT5S0253066		A&A ASPHALT MAINTENANCE OF NORTHERN CALIFORNIA	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	620 KATE HAYES	GRASS VALLEY		NEVADA	
SLT5S0293070		AGATE SALES	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	11429 EAST BENNETT ROAD	GRASS VALLEY		NEVADA	
SLT5S0313072		AIRPLANE CRASH	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	18690 BILADEAU LANE	PENN VALLEY		NEVADA	
SL0605780956		ALLISON RANCH ROAD STREET SWEEPER WASTE	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	ALLISON RANCH ROAD	GRASS VALLEY		NEVADA	
T0605791605		ALTA HILL GAS	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	13054 RIDGE RD	GRASS VALLEY	95959	NEVADA	
T0605700126		ALTA SIERRA GAS STATION	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10032 ALTA SIERRA DR	GRASS VALLEY	95949	NEVADA	
	29-000-057613	ALTA SIERRA STATION	PERMITTED UNDERGROUND STORAGE TANK (UST)		10032 ALTA SIERRA DR.	GRASS VALLEY	95949	NEVADA	
T0605740603		AMERIGAS	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	11380 DONNER PASS ROAD	TRUCKEE	96161	NEVADA	
SL0605794889		AMERIGAS DIESEL SPILL	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	LIME KILN ROAD	GRASS VALLEY		NEVADA	
SL0605787017		AMERIGAS FACILITY	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	11380 DONNER PASS ROAD	TRUCKEE	96161	NEVADA	
T0605700005		ARCO #2077	LUST CLEANUP SITE	OPEN - REMEDIATION	11913 NEVADA CITY HWY	GRASS VALLEY	95945	NEVADA	
	29-000-049020	ARCO FACILITY NO. 2077	PERMITTED UNDERGROUND STORAGE TANK (UST)		11913 NEVADA CITY HWY	GRASS VALLEY	95945	NEVADA	
SL205743035		ARCO FORMER BULK PLANT (FORMERLY CRYSTAL)	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	1025 IDAHO-MARYLAND ROAD	GRASS VALLEY	95945	NEVADA	
SL0605774264		ARNOLD PROPERTY	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	10855,10925 WEST RIVER STREET	TRUCKEE	96161	NEVADA	
T0605700131		ART'S CEDAR RIDGE GAS	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	12685 HWY 174	CEDAR RIDGE	95924	NEVADA	
T0605700182		ASSUMPTION CATHOLIC CHURCH	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10124 EAST ST	TRUCKEE	96160	NEVADA	
T0605700035		AT&T WOLF CREEK	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	17498 WOLF MOUNTAIN RD	GRASS VALLEY	95949	NEVADA	
	29-000-230005	AT&T WOLF CREEK RADIL (CA0330)	PERMITTED UNDERGROUND STORAGE TANK (UST)		17498 WOLF MTN. RD.	GRASS VALLEY	95949	NEVADA	
T0605700070		BALLEWEG ESTATE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	12655 ROUGH & READY HWY	GRASS VALLEY	95945	NEVADA	
T10000004242		BEACON STATION	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT	22082 DONNER PASS ROAD	SODA SPRINGS	95728	NEVADA	
	29-000-058193	BEAR RIVER HIGH SCHOOL	PERMITTED UNDERGROUND STORAGE TANK (UST)		11130 MAGNOLIA ROAD	GRASS VALLEY	95949	NEVADA	
T0605791604		BEAR RIVER HIGH SCHOOL	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	11130 MAGNOLIA ROAD	GRASS VALLEY	95949	NEVADA	
SLT5S0483089		BEAR RIVER INCIDENT	CLEANUP PROGRAM SITE	OPEN - INACTIVE	STEEPHALLOW CREEK	BEAR RIVER		NEVADA	
T0605700108		BERRIGAN RESIDENCE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10319 MANOR DR	GRASS VALLEY	95945	NEVADA	
	29-000-012804	BERRY - HINCKLEY INDUSTRIES CARDLOCK	PERMITTED UNDERGROUND STORAGE TANK (UST)		10161CHURCH STREET	TRUCKEE	96161	NEVADA	
T0605700187		BERRY-HINCKLEY INDUS. CARDLOCK	LUST CLEANUP SITE	OPEN - REMEDIATION	10161 CHURCH ST	TRUCKEE	96161	NEVADA	
SL0605700929		BERRY-HINCKLEY INDUSTRIES TRUCKEE PLANT	CLEANUP PROGRAM SITE	OPEN - REMEDIATION	10250 WEST RIVER ROAD	TRUCKEE		NEVADA	
T0605700036		BEST GAS	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10055 WOLF RD	GRASS VALLEY	95949	NEVADA	
	29-000-012330	BEST GAS	PERMITTED UNDERGROUND STORAGE TANK (UST)		10055 WOLF ROAD	GRASS VALLEY	95949	NEVADA	
SL0605701904		BOCA ACCIDENT SITE	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	INTERSTATE 80	TRUCKEE	96161	NEVADA	
T0605700037		BOREAL RIDGE - MAIN LODGE (550 GAL)	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	19899-A BOREAL RIDGE RD	SODA SPRINGS	95728	NEVADA	
T0605700130		BOREAL RIDGE - MAINTENANCE(2-10 GAL)	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	19899-B BOREAL RIDGE RD	SODA SPRINGS	95728	NEVADA	
T0605700039		BOREAL SKI AREA (FORMER SHELL)	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	19795 BOREAL RIDGE RD	SODA SPRINGS	95728	NEVADA	
T0605700088		BOULDER STREET YARD	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	255 BOULDER ST	NEVADA CITY	95959	NEVADA	
T0605700093		BRET HARTE RETIREMENT INN	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	305 MAIN ST W	GRASS VALLEY	95945	NEVADA	
T0605700175		BRYANT PROPERTY	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	11568 WHITEHORSE RD	TRUCKEE	96160	NEVADA	
T0605700023		BUTTON WORKS	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	300 BROAD ST	NEVADA CITY	95959	NEVADA	
T0605700189		C.B. WHITEHOUSE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10292 DONNER PASS RD	TRUCKEE	96161	NEVADA	
	29-000-055172	CAL NEVADA TIRE, LTD.	PERMITTED UNDERGROUND STORAGE TANK (UST)		10009 HWY 267	TRUCKEE	96160	NEVADA	
T0605700166		CAL NEVADA TIRE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10009 HWY 267	TRUCKEE	96161	NEVADA	
T0605700125		CAL STATE HIGHWAY PATROL STN	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT	11900 SUTTON WAY	GRASS VALLEY	95945	NEVADA	
SL0605740303		CAL TRANS DIESEL SPILL	CLEANUP PROGRAM SITE	OPEN - INACTIVE	WESTBOUND I-80 (SODA SPRINGS EXIT)	SODA SPRINGS		NEVADA	
	29-000-017943	CALIF. HIGHWAY PATROL	PERMITTED UNDERGROUND STORAGE TANK (UST)		11900 SUTTON WAY	GRASS VALLEY	95945	NEVADA	
SL0605709431		CALTRANS	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	INTERSTATE-80 AT KINGVALE	KINGVALE		NEVADA	
T0605700081		CALTRANS 80/20 JUNCTION FUEL STN	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	I-80 & HWY 20	NEVADA CITY	95959	NEVADA	
T0605700183		CALTRANS BRIDGE STREET	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10099 BRIDGE ST	TRUCKEE	96161	NEVADA	
SL0605747508		CALTRANS EQUIPMENT BUILDING NO. 2	CLEANUP PROGRAM SITE	OPEN - INACTIVE	10152 KEISER	TRUCKEE	96161	NEVADA	
T0605700154		CALTRANS TRUCKEE MAINT. STAT.	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10152 KEISER AVE	TRUCKEE	96161	NEVADA	
T0605700163		CALTRANS TRUCKEE MAINT. YARD	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10022 KEISER AVE	TRUCKEE	96160	NEVADA	
SL0605795074		CALTRANS--SODA SPRINGS	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	INTERSTATE 80	SODA SPRINGS		NEVADA	
SLT5S0693110		CALVARY CHAPEL	CLEANUP PROGRAM SITE	OPEN - INACTIVE	10795 ALTA STREET	GRASS VALLEY		NEVADA	
T0605700017		CEDAR RIDGE TRADING POST	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	HWY 174	CEDAR RIDGE	95924	NEVADA	
T0605791606		CHERRY CREEK MINI MART	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	19226 CHERRY CREEK RD	GRASS VALLEY	95949	NEVADA	
	29-000-043282	CHERRY CREEK MINI MART	PERMITTED UNDERGROUND STORAGE TANK (UST)		19230 CHERRY CREEK RD.	GRASS VALLEY	95949	NEVADA	
T0605700071		CHEVRON #9-2368	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	451 MAIN ST E	GRASS VALLEY	95945	NEVADA	
T0605700032		CHEVRON #9-3525 (FORMER)	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	505 COYOTE ST	NEVADA CITY	95959	NEVADA	
	29-000-059525	CHEVRON 92139	PERMITTED UNDERGROUND STORAGE TANK (UST)		12353DEERFIELD DR.	TRUCKEE	95737	NEVADA	
T0605700147		CHEVRON SS #9-0612	LUST CLEANUP SITE	OPEN - REMEDIATION	10231 DONNER PASS RD	TRUCKEE	96161	NEVADA	

GLOBAL ID	FACILITY ID	SITE / FACILITY NAME	SITE / FACILITY TYPE	STATUS	ADDRESS (OR PARTIAL ADDRESS)	CITY	ZIP	COUNTY	SITE CODE
T0605700152		CHEVRON STATION #9-2139	LUST CLEANUP SITE	OPEN - ELIGIBLE FOR CLOSURE	12333 DEERFIELD DR	TRUCKEE	96161	NEVADA	
	29-000-054191	CHICAGO PARK STORE	PERMITTED UNDERGROUND STORAGE TANK (UST)		19077 HWY 174	CHICAGO PARK	95712	NEVADA	
T0605700144		CHICAGO PARK STORE	LUST CLEANUP SITE	OPEN - VERIFICATION MONITORING	19077 HWY 174 (AKA: COLFAX RD)	CHICAGO PARK	95712	NEVADA	
T0605700169		CHP INSPECTION/SCALES	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	12,800 I-80, P.O. BOX 8786	TRUCKEE	95737	NEVADA	
	29-000-017944	CHP TRUCKEE	PERMITTED UNDERGROUND STORAGE TANK (UST)		10077 SR 89 S	TRUCKEE	96161	NEVADA	
	29-000-009418	CIRCLE K STORE / 76 NO. 5428	PERMITTED UNDERGROUND STORAGE TANK (UST)		133 S. AUBURN STREET	GRASS VALLEY	95945	NEVADA	
T0605700097		CIRCLE-K #05428	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	133 AUBURN ST S	GRASS VALLEY	95945	NEVADA	
T0605700003		CITY HALL- POLICE STATION	LUST CLEANUP SITE	OPEN - ELIGIBLE FOR CLOSURE	125 MAIN ST E	GRASS VALLEY	95945	NEVADA	
T0605700049		CLAIR TAPPAN LODGE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	19940 DONNER PASS RD (HWY 40) CASE 1	NORDEN	95724	NEVADA	
T0605791603		CLAIR TAPPAN LODGE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	19940 DONNER PASS RD (HWY 40) CASE 2	NORDEN	95724	NEVADA	
SLT5S0983139		CLANDESTINE LAB WASTE- GRASS VALLEY	CLEANUP PROGRAM SITE	OPEN - INACTIVE	11145 LIMEKILN ROAD	GRASS VALLEY		NEVADA	
SLT5S0993140		CLANDESTINE LAB WASTE- NEVADA CITY	CLEANUP PROGRAM SITE	OPEN - INACTIVE	16059 MOUNTAIN VIEW DRIVE	NEVADA CITY		NEVADA	
SLT5S0963137		CLANDESTINE LAB WASTE- PENN VALLEY	CLEANUP PROGRAM SITE	OPEN - INACTIVE	15495 BIG DOG LANE	PENN VALLEY		NEVADA	
T0605789639		CLARK CHRIOPRACTIC BUILDING	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10870 OLD BROCKWAY ROAD	TRUCKEE	96161	NEVADA	
SLT5S1003141		CLEAR CREEK COPTERS	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	JAKSON MEADOWS RESEVOIR (WEST OF)	SODA SPRINGS		NEVADA	
SL0605774886		CLIPPER LANE	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	CLIPPER LANE	GRASS VALLEY		NEVADA	
T0605700090		COLQUHOUN PROPERTY	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	436 BROAD ST	NEVADA CITY	95959	NEVADA	
T0605700020		COMBIE GAS #106612	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10594 COMBIE RD	AUBURN	95603	NEVADA	
SLT5S1053146		COMMERCIAL ALLIANCE INTL CORPORATION	CLEANUP PROGRAM SITE	OPEN - INACTIVE	13270 GRACIE STREET	NEVADA CITY		NEVADA	
SL0605704535		CONTAMINATED PROPERTY	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	OAK DRIVE	GRASS VALLEY		NEVADA	
T0605700181		COUNTY TRANSPORTATION YARD	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	14528 NORTHWOODS BLVD	TRUCKEE	96160	NEVADA	
T0605700007		CRANMER ENGINEERING	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	1188 MAIN ST E	GRASS VALLEY	95945	NEVADA	
T0605700112		CRAWFORD PROPERTY	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10139 ALTA VISTA DR	GRASS VALLEY	95945	NEVADA	
SL0605702754		CROSSROADS CLEANERS	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	11357 DEERFIELD DRIVE	TRUCKEE	96161	NEVADA	
T0605700006		CRYSTAL CREAM AND BUTTER	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	1025 IDAHO-MARYLAND RD	GRASS VALLEY	95945	NEVADA	
T0605700057		DE ROLLINS ESTATE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	212 CLAY ST	NEVADA CITY	95959	NEVADA	
SLT5S4613719		DEER CREEK PARK ASSOCIATION	CLEANUP PROGRAM SITE	OPEN - INACTIVE	12016 PASQUALE ROAD	NEVADA CITY	95959	NEVADA	
SLT5S1163156		DEER CREEK RANCH	CLEANUP PROGRAM SITE	OPEN - INACTIVE	13491 MOONEY FLAT ROAD	SMARTVILLE		NEVADA	
T0605700059		DEL ORO THEATRE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	165 MILL ST	GRASS VALLEY	95945	NEVADA	
T0605700161		DEPARTMENT OF TRANSP. YARD	LUST CLEANUP SITE	OPEN - REMEDIATION	10257 WEST RIVER ST	TRUCKEE	96161	NEVADA	
SL0605799700		DEPENDABLE TOW	CLEANUP PROGRAM SITE	OPEN - VERIFICATION MONITORING	10260 WEST RIVER STREET	TRUCKEE	96160	NEVADA	
T0605700160		DONNER MEMORIAL STATE PARK	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	12593 DONNER PASS RD	TRUCKEE	96160	NEVADA	
SL0605735274		DONNER PARK INTERCHANGE	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	INTERSTATE 80	TRUCKEE	96161	NEVADA	
SL0605715256		DONNER SUMMIT REST AREA DIESEL SPILL	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	HIGHWAY 80	TRUCKEE		NEVADA	
T0605700004		DONNER TRAIL ELEMENTARY SCHOOL	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	52755 DONNER PASS RD (HWY 40)	KINGVALE	95728	NEVADA	
T0605700101		DOWNTOWN SHELL	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	201 MAIN ST E	GRASS VALLEY	95945	NEVADA	
SL0605727505		DR. RICK GANONG	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	10115 WEST RIVER ROAD	TRUCKEE	96161	NEVADA	
T0605700194		DRYDEN RESIDENCE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	16640 NORTHWOODS BLVD	TRUCKEE	96161	NEVADA	
T0605763139		DURHAM SCHOOL SERVICES	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10701 EAST BENNETT ROAD	GRASS VALLEY	95945	NEVADA	
T0605700042		DURHAM TRANSPORTATION	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10663 BENNETT RD E	GRASS VALLEY	95945	NEVADA	
	29-000-047733	DURHAM TRANSPORTATION	PERMITTED UNDERGROUND STORAGE TANK (UST)		10663 E BENNETT ST.	GRASS VALLEY	95945	NEVADA	
T0605700192		EATON RESIDENCE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	11916 HIGHWAY 89	TRUCKEE	96160	NEVADA	
T0605717639		ELKS BUILDING	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	305 COMMERCIAL STREET	NEVADA CITY	95959	NEVADA	
SL0605720375		ELSTER FAMILY TRUST - LONELY RANCH	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	20358 MCCOURTNEY RD.	GRASS VALLEY	95949	NEVADA	
T0605700025		EMPIRE MINE STATE PARK	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10791 EMPIRE ST	GRASS VALLEY	95945	NEVADA	
T0605700041		EMPTY BUILDING	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	120 AUBURN ST N	GRASS VALLEY	95945	NEVADA	
T0605700024		ENGBRIGHT LAKE PARK	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	12896 ENGBRIGHT DAM RD	SMARTVILLE	95977	NEVADA	
T0605700096		EVERHART HOTEL	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	105 CHURCH ST S	GRASS VALLEY	95945	NEVADA	
T0605700116		EXPRESS MART #7	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	234 AUBURN ST S	GRASS VALLEY	95945	NEVADA	
	29-000-004102	EXPRESS MART NO. 7	PERMITTED UNDERGROUND STORAGE TANK (UST)		234 S. AUBURN ST.	GRASS VALLEY	95945	NEVADA	
	29-000-230006	EXXON FORMER NO. 70134	PERMITTED UNDERGROUND STORAGE TANK (UST)		12008 PLAZA DR.	GRASS VALLEY	95945	NEVADA	
	29-000-000237	EXXON NO. 41	PERMITTED UNDERGROUND STORAGE TANK (UST)		12001 NEVADA CITY HWY	GRASS VALLEY	95945	NEVADA	
T0605700103		FALLOW FIELD RANCH	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	12660 LIME KILN RD	GRASS VALLEY	95949	NEVADA	
SL0605772561		FLORISTON BRIDGE WORK AREA	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	FLORISTON BRIDGE INTERSTATE 80	FLORISTON	96161	NEVADA	
SL0605732513		FLORISTON BRIDGE WORK AREA	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	FLORISTON BRIDGE INTERSTATE 80	FLORISTON	96161	NEVADA	
T0605783906		FLYER'S/EXXON	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	12008 PLAZA DRIVE	GRASS VALLEY	95945	NEVADA	
SL0605767407		FORMER SERVICE STATION, APN09-190-32	CLEANUP PROGRAM SITE	OPEN - INACTIVE	700 EAST MAIN STREET	GRASS VALLEY		NEVADA	
T0605700094		FORREST PROPERTY	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	11367 DEER CREEK LN	NEVADA CITY	95959	NEVADA	
T0605700173		FRAZER BUILDING	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10125 DONNER PASS RD	TRUCKEE	96161	NEVADA	
T0605700190		FRAZER/FRAZER BUILDING	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10125 DONNER PASS RD	TRUCKEE	96161	NEVADA	

GLOBAL ID	FACILITY ID	SITE / FACILITY NAME	SITE / FACILITY TYPE	STATUS	ADDRESS (OR PARTIAL ADDRESS)	CITY	ZIP	COUNTY	SITE CODE
T0605700016		FRED ANDERSON CHEVRON #9-0453	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	107 MCKNIGHT WAY E	GRASS VALLEY	95945	NEVADA	
SL205353006		FREDERICKSON TANK LINES - ALTA SIERRA SPILL	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	999 HIGHWAY 49 & LITTLE VALLEY DR	ALTA SIERRA		NEVADA	
T0605700065		GATES PROPERTY	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10505 WOODLAND WAY	GRASS VALLEY	95945	NEVADA	
T0605700155		GATEWAY AT DONNER PASS LTD	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	11170 DONNER PASS RD	TRUCKEE	95734	NEVADA	
T0605793605		GEORGE RESIDENCE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10533 ALTA ST	GRASS VALLEY	95945	NEVADA	
T0605700140		GILES & ADA MAY TRUST	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10069 BANNER LAVA CAP RD	NEVADA CITY	95959	NEVADA	
T0605700157		GLENSHIRE/DEVONSHIRE RES. ASSN	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	15276 GLENSHIRE DR	TRUCKEE	95734	NEVADA	
T0605700111		GOLD CENTER AUTOMOTIVE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	11960 PLAZA DR	GRASS VALLEY	95945	NEVADA	
T0605700055		GOLD FLAT SERVICE CENTER	LUST CLEANUP SITE	OPEN - REMEDIATION	747 ZION ST	NEVADA CITY	95959	NEVADA	
T0605700029		GOLD RUN SCHOOL	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	470 SEARLS AVE	NEVADA CITY	95959	NEVADA	
	29-000-064162	GOLD-N- GREEN RENTAL & SALES INC.	PERMITTED UNDERGROUND STORAGE TANK (UST)		302 RAILROAD AVE.	GRASS VALLEY	95945	NEVADA	
T0605700043		GOLDEN EMPIRE MARKET	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	105 EMPIRE ST W	GRASS VALLEY	95945	NEVADA	
T0605700092		GRASS VALLEY CORP YARD	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	556-A FREEMAN ST	GRASS VALLEY	95949	NEVADA	
T0605700018		GRASS VALLEY GROUP INC	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	13024 BITNEY SPRINGS RD	NEVADA CITY	95959	NEVADA	
T0605700050		GRASS VALLEY SHELL	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	892 MAIN ST E	GRASS VALLEY	95945	NEVADA	
T0605700077		GREEN BARN	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10020 BROAD ST E	NEVADA CITY	95959	NEVADA	
T0605700063		GREER PROPERTY	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10552 MANZANITA DR	GRASS VALLEY	95945	NEVADA	
T0605700110		HANSEN BROTHERS ENTERPRISES	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	11727 LA BARR MEADOWS RD	GRASS VALLEY	95945	NEVADA	
SL0605729420		HARMONY RIDGE	CLEANUP PROGRAM SITE	OPEN - INACTIVE	HIGHWAY 20	NEVADA CITY		NEVADA	
T0605700015		HEALTH EDUCATION & WELFARE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10433 WILLOW VALLEY RD	NEVADA CITY	95959	NEVADA	
SL0605700893		HEATING OIL SPILL	CLEANUP PROGRAM SITE	OPEN - INACTIVE	12364 CANNON WAY	GRASS VALLEY		NEVADA	
T0605700104		HEDMAN FURNITURE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	161 MILL ST	GRASS VALLEY	95945	NEVADA	
T0605700078		HEILDELMANN LODGE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	19880 DONNER PASS RD (HWY 40)	NORDEN	95724	NEVADA	
T0605700068		HENNING RESIDENCE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	18392 OAK TREE RD	NEVADA CITY	95959	NEVADA	
T10000003277		HIGHWAY 49 PARK & RIDE	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	HWY 49 AND STREETER RD.	GRASS VALLEY	95602	NEVADA	
L10005608227		HIRSCHDALE LANDFILL	LAND DISPOSAL SITE	OPEN	OLD HWY 40	HIRSCHDALE		NEVADA	
T0605700178		HOBART MILLS	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	14825 OLD HIGHWAY 89	TRUCKEE	96161	NEVADA	
T0605700099		HOFER RESIDENCE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	513 WALSH ST	GRASS VALLEY	95945	NEVADA	
SLT551583197		HOKANSEN PROPERTY	CLEANUP PROGRAM SITE	OPEN - INACTIVE	(RURAL NEVADA COUNTY, E OF NEVADA CITY)	NEVADA CITY		NEVADA	
SL0605711134		HOLLIDAY DEVELOPMENT	CLEANUP PROGRAM SITE	OPEN - INACTIVE	4.3-ACRE PARCEL WEST OF BALLOON TRACK	TRUCKEE	96161	NEVADA	
T0605700128		HOME SCHOOL	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	215 WASHINGTON ST	NEVADA CITY	95959	NEVADA	
T10000001624		HOTEL BLOCK, TRUCKEE RAILYARD (APN 19-420-71)	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	DONNER PASS ROAD	TRUCKEE	96161	NEVADA	
T0605700044		INDUSTRIAL ASPHALT	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	11825 LA BARR MEADOWS RD	GRASS VALLEY	95945	NEVADA	
SL0605729155		INTERSTATE 80- 1 MILE EASTBOUND OF DONNER SUMMIT	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	INTERSTATE 80	TRUCKEE	96161	NEVADA	
SL0605768524		INTERSTATE 80-MCCLANE TRUCKING	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	INTERSTATE 80	TRUCKEE		NEVADA	
	29-000-013281	J & L FOOD MART / JACK'S SHELL	PERMITTED UNDERGROUND STORAGE TANK (UST)		12105 DONNER PASS ROAD	TRUCKEE	96161	NEVADA	
T0605700153		J&L FOOD MART / JACK SHELL	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	12105 DONNER PASS RD	TRUCKEE	96161	NEVADA	
T0605700069		KEIL CHEVY/OLDS	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10400 BRUNSWICK RD	GRASS VALLEY	95945	NEVADA	
T0605791911		KETTMAN PROPERTY	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	14293 LODGEPOLE DR	PENN VALLEY		NEVADA	
SL0605787081		KINDER MORGAN	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	DONNER PASS ROAD	NORDEN		NEVADA	
T0605700031		KINGDOM HALL	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	15254 BRUNSWICK RD	GRASS VALLEY	95945	NEVADA	
T0605700002		KINGVALE MAINTENANCE STATION (CALTRANS)	LUST CLEANUP SITE	OPEN - REMEDIATION	51121 DONNER PASS RD (HWY 40)	KINGVALE	95728	NEVADA	
SLT551763215		KINGVALE YARD DIESEL SPILL	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	51121 DONNER PASS ROAD	KINGVALE		NEVADA	
T0605700171		KIRBY BUILDING	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10412 DONNER PASS RD	TRUCKEE	96160	NEVADA	
T0605700062		KUTCHAR PROPERTY	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	717 AUBURN ST S	GRASS VALLEY	95945	NEVADA	
T0605700010		LAKE OF THE PINES CLUBHOUSE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	11665 LAKESHORE DR N	AUBURN	95603	NEVADA	
T0605700052		LAKE WILDWOOD ASSOC.	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	11255 COTTONTAIL	PENN VALLEY	95946	NEVADA	
T0605700072		LANTERMAN RESIDENCE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	11654 LAKESHORE DR S	AUBURN	95603	NEVADA	
T0605700091		LATIMER RESIDENCE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10344 RIDGE RD	NEVADA CITY	95959	NEVADA	
L10001403466		LAVA CAP MINE	LAND DISPOSAL SITE	OPEN	10 MI SE OF NEVADA CITY	NEVADA (COUNTY)		NEVADA	
T0605700054		LEE PROPERTY	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	314 MAIN ST W	GRASS VALLEY	95945	NEVADA	
T0605700185		LIFT STATION #3	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	DONNER PASS RD	TRUCKEE	96161	NEVADA	
T0605700186		LIFT STATION #4	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	DONNER PASS RD	TRUCKEE	96161	NEVADA	
T0605759451		LITTON ENGINEERING LABORATORY	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	200 LITTON DRIVE	GRASS VALLEY	95945	NEVADA	
T0605700095		LYMAN GILMORE SCHOOL	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10840 GILMORE WAY	GRASS VALLEY	95949	NEVADA	
T0605700011		MAGNOLIA SCHOOL	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	22431 KINGSTON LN	GRASS VALLEY	95945	NEVADA	
T0605700120		MAIN ST REHABILITATION PROJECT	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	204 MAIN ST	GRASS VALLEY	95945	NEVADA	
SL0605715990		MALCOLM DRILLING, I-80, BRIDGE 13	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	BRIDGE 13 INTERSTATE 80	TRUCKEE	96161	NEVADA	
T0605700109		MARINA & MAINTENANCE YARD	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	LAKESHORE DR N	AUBURN	95602	NEVADA	
T0605700058		MC COURTNEY TRANSFER STN	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	14741 WOLF MOUNTAIN RD	GRASS VALLEY	95945	NEVADA	

GLOBAL ID	FACILITY ID	SITE / FACILITY NAME	SITE / FACILITY TYPE	STATUS	ADDRESS (OR PARTIAL ADDRESS)	CITY	ZIP	COUNTY	SITE CODE
T0605700073		MC PHERSON'S NURSURY	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	11293 HUBBARD RD	GRASS VALLEY	95945	NEVADA	
L10004835054		MCCOURTNEY ROAD LANDFILL	LAND DISPOSAL SITE	OPEN	MCCOURTNEY	GRASS VALLEY		NEVADA	
T0605700164		MCMANUS PROPERTY	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10156 DONNER PASS RD	TRUCKEE	96160	NEVADA	
SLT551903229		MERRILL/SIERRA VIEW PROPERTY	CLEANUP PROGRAM SITE	OPEN - INACTIVE	EAST MAIN STREET	GRASS VALLEY		NEVADA	
T0605700026		MINER'S MEDICAL CLINIC	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	700 ZION ST	NEVADA CITY	95959	NEVADA	
T0605700106		MOBIL SS (FORMER- VACANT LOT)	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	102 BOULDER ST	NEVADA CITY	95959	NEVADA	
SLT551963235		MOONEY FLAT GAS TANKER SPILL	CLEANUP PROGRAM SITE	OPEN - INACTIVE	1.5 MILE POST ON HIGHWAY 20	MOONEY FLAT		NEVADA	
T0605700127		MOUNT ST. MARY'S SCHOOL	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	400 CHURCH ST S	GRASS VALLEY	95945	NEVADA	
T0605703836		MOUNTAIN COMFORT FURNISHINGS	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	11464 DONNER PASS ROAD	TRUCKEE	96161	NEVADA	
T0605700124		NAGLER PROPERTY	LUST CLEANUP SITE	OPEN - REMEDIATION	141-143 MAIN ST E	GRASS VALLEY	95945	NEVADA	
T0605700098		NATIONAL HOTEL	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	211 BROAD ST	NEVADA CITY	95959	NEVADA	
T0605700118		NELLA 1-STOP #41 (EXXON)	LUST CLEANUP SITE	OPEN - VERIFICATION MONITORING	12001 NEVADA CITY HWY	GRASS VALLEY	95945	NEVADA	
T0605700145		NEVADA CITY GAS	LUST CLEANUP SITE	OPEN - VERIFICATION MONITORING	435 PINE ST S	NEVADA CITY	95959	NEVADA	
T0605793604		NEVADA CITY MAINTENANCE STATION (CALTRANS)	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10057 GOLD FLAT RD SITE B	NEVADA CITY	95959	NEVADA	
T0605700001		NEVADA CITY MAINTENANCE STATION, SPILL SITE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	GOLD FLAT RD SITE A	NEVADA CITY	95959	NEVADA	
T0605700113		NEVADA CITY PUBLIC WORKS	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT	775 ZION ST	NEVADA CITY	95959	NEVADA	
T0605793606		NEVADA CITY SHELL	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	100 UNION ST	NEVADA CITY	95959	NEVADA	
T0605700122		NEVADA CO AIR PARK	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	12812 LOMA RICA DR	GRASS VALLEY	95949	NEVADA	
T0605700074		NEVADA CO DEPT OF TRANS	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	12548 LOMA RICA DR	GRASS VALLEY	95945	NEVADA	
T0605700087		NEVADA COUNTY COURTHOUSE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	201 CHURCH ST	NEVADA CITY	95959	NEVADA	
SL0605763780		NEVADA COUNTY GOV'T CENTER (ERIC W. ROOD ADM. CENTER)	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	950 MAIDU AVE	NEVADA CITY	95959	NEVADA	
SL0605755108		NEVADA COUNTY JUVENILE DETENTION CENTER	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	15434 HIGHWAY 49	NEVADA CITY		NEVADA	
T0605700047		NEVADA IRRIGATION DIST.	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10836 ROUGH & READY HWY	GRASS VALLEY	95945	NEVADA	
T0605700174		NORCAL ELECTRIC	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10331 WEST RIVER ROAD	TRUCKEE	96161	NEVADA	
T0605700009		NORDEN RAILYARD	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	DONNER PASS RD (HWY 40) A	NORDEN	95724	NEVADA	
T0605791909		NORDEN SP RAILYARD	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	DONNER PASS RD (HWY 40) B	NORDEN	95734	NEVADA	
T0605700021		NORTH BLOOMFIELD STATION	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	21315 RELIEF HILL RD	NEVADA CITY	95959	NEVADA	
T0605700008		OK TIRE SHOP	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	421 COLFAX AVE	GRASS VALLEY	95945	NEVADA	
T0605700132		OLD LAUSMAN MILL	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	11352 BENNETT RD E	GRASS VALLEY	95945	NEVADA	
T0605700176		OROZCO RESIDENCE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	9921 RIVER RD	TRUCKEE	96161	NEVADA	
SLT552093248		P. L. TRUCKING DIESEL FUEL SPILL	CLEANUP PROGRAM SITE	OPEN - INACTIVE	698 WHITING STREET	GRASS VALLEY		NEVADA	
T0605700014		PAC BELL (TB-R01)	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	23337 HWY 49	GRASS VALLEY	95945	NEVADA	
	29-000-057450	PACIFIC BELL	PERMITTED UNDERGROUND STORAGE TANK (UST)		23337 HWY 49	GRASS VALLEY	95945	NEVADA	
	29-000-067814	PACIFIC BELL	PERMITTED UNDERGROUND STORAGE TANK (UST)		10022 SPRING ST.	TRUCKEE	96161	NEVADA	
	29-000-057600	PACIFIC BELL	PERMITTED UNDERGROUND STORAGE TANK (UST)		305 SPRING STREET	NEVADA CITY	95959	NEVADA	
T0605700089		PACIFIC BELL	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	21908 DONNER PASS RD (HWY 40)	SODA SPRINGS	95728	NEVADA	
	29-000-057451	PACIFIC BELL	PERMITTED UNDERGROUND STORAGE TANK (UST)		315 COLFAX AVE.	GRASS VALLEY	95945	NEVADA	
T0605700013		PACIFIC BELL (TB-035)	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	315 COLFAX AVE	GRASS VALLEY	95945	NEVADA	
T0605700177		PAT & OLLIES SIERRA SUPERSTOP	LUST CLEANUP SITE	OPEN - REMEDIATION	11015 DONNER PASS RD	TRUCKEE	96160	NEVADA	
	29-000-009964	PAT AND OLLIES PLACE	PERMITTED UNDERGROUND STORAGE TANK (UST)		11015 DONNER PASS RD.	TRUCKEE	96161	NEVADA	
T0605700188		PAT AND OLLIES TOO	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10145 DONNER PASS RD	TRUCKEE	96161	NEVADA	
	29-000-040172	PAT AND OLLIES TOO	PERMITTED UNDERGROUND STORAGE TANK (UST)		10145 DONNER PASS RD	TRUCKEE	96161	NEVADA	
SLT554623720		PEACEFUL VALLEY FARM SUPPLY	CLEANUP PROGRAM SITE	OPEN - INACTIVE	125 SPRINGHILL BLVD	GRASS VALLEY	95945	NEVADA	
T0605700048		PENN VALLEY APPLIANCE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	17593 PENN VALLEY DR	PENN VALLEY	95946	NEVADA	
	29-000-012394	PENN VALLEY COUNTRY STORE	PERMITTED UNDERGROUND STORAGE TANK (UST)		16978 PENN VALLEY DR.	PENN VALLEY	95946	NEVADA	
T0605700019		PENN VALLEY UNION 76	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	17562 PENN VALLEY DR	PENN VALLEY	95946	NEVADA	
	29-000-038416	PENN VALLEY UNION SQUARE	PERMITTED UNDERGROUND STORAGE TANK (UST)		17562 PENN VALLEY RD.	PENN VALLEY	95946	NEVADA	
T0605700061		PETERSON'S CORNER	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	26130 HWY 49	NEVADA CITY	95959	NEVADA	
T0605700066		PG&E	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	788 TAYLORVILLE RD	GRASS VALLEY	95949	NEVADA	
SL205513020		PG&E - GRASS VALLEY MGP	CLEANUP PROGRAM SITE	OPEN - VERIFICATION MONITORING	403 IDAHO-MARYLAND RD	GRASS VALLEY		NEVADA	
SL0605760726		PG&E CONSTRUCTION YARD, HYDRAULIC OIL SPILL	CLEANUP PROGRAM SITE	OPEN - INACTIVE	11028 BOWMAN LAKE ROAD	EMIGRANT GAP		NEVADA	
	29-000-024772	PG&E GRASS VALLEY SERVICE CENTER	PERMITTED UNDERGROUND STORAGE TANK (UST)		788 TAYLORVILLE ROAD	GRASS VALLEY	95949	NEVADA	
T0605700102		PG&E SPAULDING POWERHOUSE	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT	EMIGRANT GAP RD	NEVADA CITY	95959	NEVADA	
SL0605769790		PIONEER REDUCTION WORKS (FORMER)	CLEANUP PROGRAM SITE	OPEN - REMEDIATION	375 HOLLOW WAY	NEVADA CITY	95959	NEVADA	
SL0605786517		PRIVATE RESIDENCE	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	PRIVATE RESIDENCE	NEVADA CITY		NEVADA	
T0605791912		PRIVATE RESIDENCE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	PRIVATE RESIDENCE	GRASS VALLEY	95945	NEVADA	
T0605700121		PRIVATE RESIDENCE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	PRIVATE RESIDENCE	GRASS VALLEY	95945	NEVADA	
T0605731628		PRIVATE RESIDENCE	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT	PRIVATE RESIDENCE	NEVADA CITY	95959	NEVADA	
T0605784100		PRIVATE RESIDENCE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	PRIVATE RESIDENCE	GRASS VALLEY	95945	NEVADA	
SL0605782755		PROPOSED TACO BELL	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	12277 DEERFIELD DRIVE	TRUCKEE	96161	NEVADA	

GLOBAL ID	FACILITY ID	SITE / FACILITY NAME	SITE / FACILITY TYPE	STATUS	ADDRESS (OR PARTIAL ADDRESS)	CITY	ZIP	COUNTY	SITE CODE
T0605700040		QUIK STOP MARKET #107	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	148 HUGHES RD	GRASS VALLEY	95945	NEVADA	
T0605774236		QUINTANA PROPERTY	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10599 EAST RIVER ROAD	TRUCKEE	96109	NEVADA	
T0605700034		RESIDENCE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	337 CHURCH ST S	GRASS VALLEY	95945	NEVADA	
T0605700085		RESIDENTIAL PROPERTY	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	16120 JOHN WAY	GRASS VALLEY	95945	NEVADA	
T0605700100		RESIDENTIAL PROPERTY	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	223 CATHERINE LN	GRASS VALLEY	95945	NEVADA	
T0605700193		RICHARD AUTO SERVICE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	15720 DONNER PASS ROAD	TRUCKEE	96161	NEVADA	
T0605700075		RIEBE AUTOMOTIVE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	129 IDAHO & MARYLAND RD	GRASS VALLEY	95945	NEVADA	
	29-000-012732	ROBINSON CARDLOCK	PERMITTED UNDERGROUND STORAGE TANK (UST)		133 LOWER GRASS VALLEY RD.	NEVADA CITY	95959	NEVADA	
T0605700141		ROBINSON ENTERPRISES - BULK PLANT	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	122 HUGHES RD	GRASS VALLEY	95945	NEVADA	
T0605793607		ROBINSON ENTERPRISES SHOP	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	250 LOWER GRASS VALLEY RD	NEVADA CITY	95959	NEVADA	
T0605791602		ROBINSON OFFICE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	293 LOWER GRASS VALLEY RD B	NEVADA CITY	95959	NEVADA	
T0605700082		ROBINSON TIMBER INC.	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	293 LOWER GRASS VALLEY RD A	NEVADA CITY	95959	NEVADA	
T0605700028		ROUGH & READY EXXON	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	14506 ROUGH & READY HWY	ROUGH & READY	95975	NEVADA	
T0605700030		ROUGH & READY FIRE DEPT	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	11042 ROUGH & READY HWY	ROUGH & READY	95975	NEVADA	
T0605700146		S.P. RAILYARD - TRUCKEE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	WEST RIVER ST	TRUCKEE	95734	NEVADA	
T0605700046		SAMBOLD PROPERTY	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	603 MILL ST	GRASS VALLEY	95945	NEVADA	
T0605700027		SCOTTS FLAT LAKE MARINA	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	23333 SCOTTS FLAT RD	NEVADA CITY	95959	NEVADA	
T0605700060		SEWAGE TREATMENT PLANT	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	CONIFER DR	SODA SPRINGS	95728	NEVADA	
T0605700170		SHA NEVA	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10655 SHA NEVA RD	TRUCKEE	96161	NEVADA	
	29-000-009987	SHELL	PERMITTED UNDERGROUND STORAGE TANK (UST)		892 E. MAIN ST.	GRASS VALLEY	95945	NEVADA	
T0605745349		SHELL SERVICE STATION	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10278 HIGHWAY 89	TRUCKEE	96161	NEVADA	
SLT5S2553294		SHERRIT ROAD SPILL	CLEANUP PROGRAM SITE	OPEN - INACTIVE	SHERRIT ROAD	SODA SPRINGS		NEVADA	
T0605700051		SHOMAKER TRUST	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	535 MAIN ST E	GRASS VALLEY	95945	NEVADA	
	29-000-003123	SIERRA CARDLOCK NO. 22	PERMITTED UNDERGROUND STORAGE TANK (UST)		428 COLFAX ST.	GRASS VALLEY	95945	NEVADA	
T0605700080		SIERRA MOTOR SPORTS	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	12121 NEVADA CITY HWY	GRASS VALLEY	95945	NEVADA	
T0605700195		SIERRA MOUNTAINEER	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10019 JIBBOON STREET	TRUCKEE	96161	NEVADA	
T0605700119		SIERRA NEVADA MEMORIAL HOSPITAL	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	155 GLASSON WAY	GRASS VALLEY	95945	NEVADA	
	29-000-011219	SIERRA NEVADA MEMORIAL HOSPITAL	PERMITTED UNDERGROUND STORAGE TANK (UST)		155 GLASSON WAY	GRASS VALLEY	95945	NEVADA	
SLT5SN073593		SIERRA PACIFIC INDUSTRIES - BEAR RIVER SAW MILL	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	12270 LA BARR MEADOWS ROAD	GRASS VALLEY		NEVADA	
SL0605738327		SIERRA PACIFIC INDUSTRIES - GRASS VALLEY MILL	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	12503 BRUNSWICK ROAD	GRASS VALLEY	95945	NEVADA	
	29-000-051086	SIERRA STATION NO. 49/50 BULK PLANT	PERMITTED UNDERGROUND STORAGE TANK (UST)		325&335 RAILROAD AVE.	GRASS VALLEY	95945	NEVADA	
T0605700114		SIERRA SUPER STOP #11	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	202 MAIN ST E	GRASS VALLEY	95945	NEVADA	
T0605700107		SIERRA SUPER STOP #3	LUST CLEANUP SITE	OPEN - REMEDIATION	29405 HWY 49	NORTH SAN JUAN	95960	NEVADA	
	29-000-FA0000547	SIERRA SUPERSTOP #3	PERMITTED UNDERGROUND STORAGE TANK (UST)		29405 HIGHWAY 49	NORTH SAN JUAN	95960	NEVADA	
	29-000-037367	SIERRA SUPERSTOP IN TRUCKEE	PERMITTED UNDERGROUND STORAGE TANK (UST)		11572 DONNER PASS RD.	TRUCKEE	96161	NEVADA	
	29-000-000210	SIERRA SUPERSTOP NO. 16	PERMITTED UNDERGROUND STORAGE TANK (UST)		10069 PLEASANT VALLEY RD.	PENN VALLEY	95946	NEVADA	
SL0605745543		SILVER SPRINGS HIGH SCHOOL	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	12238 MCCOURTNEY RD	GRASS VALLEY		NEVADA	
T0605700105		SIMMONS PROPERTY	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	197 LUCAS ST	GRASS VALLEY	95945	NEVADA	
T0605700134		SIMMONS RESIDENCE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	13684 MEADOWVIEW RD	GRASS VALLEY	95945	NEVADA	
T0605700083		SJ1 PARTNERSHIP (FORMER GV EXXON)	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT	257 COLFAX AVE	GRASS VALLEY	95945	NEVADA	
T0605700045		SLAYTON RESIDENCE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10530 DEVONSHIRE CIRCLE	PENN VALLEY	95946	NEVADA	
T0605700180		SMALL MALL	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10164 DONNER PASS RD	TRUCKEE	96160	NEVADA	
T0605700076		SNOW MOUNTAIN (FORMER SS??)	LUST CLEANUP SITE	OPEN - VERIFICATION MONITORING	21816 DONNER PASS RD (HWY 40)	SODA SPRINGS	95728	NEVADA	
T0605700012		SODA SPRINGS SKI HILL	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	SODA SPRINGS RD	NORDEN	95724	NEVADA	
L10005239560		SPENCEVILLE MINE	LAND DISPOSAL SITE	OPEN	SPENCEVILLE	NEVADA (COUNTY)	95903	NEVADA	
L10005300776		SPENCEVILLE MINE	LAND DISPOSAL SITE	OPEN	SPENCEVILLE	NEVADA (COUNTY)	95903	NEVADA	
SL0605777821		SPRUCE CLEANERS (FORMER)	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	231 COLFAX AVENUE	GRASS VALLEY	95944-6843	NEVADA	
	29-000-021135	SS NO. 31163	PERMITTED UNDERGROUND STORAGE TANK (UST)		12373 DONNER PASS RD.	TRUCKEE	96161	NEVADA	
SL0605703494		STATE ROUTE 20/49 BENNETT ST UNDERCROSSING	CLEANUP PROGRAM SITE	OPEN - SITE ASSESSMENT	BENNETT STREET	GRASS VALLEY		NEVADA	
T0605700022		STATION #1 WATT PARK FIRE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	11329 MC COURTNEY RD	GRASS VALLEY	95949	NEVADA	
SLT5S2693307		STREAMBORN	CLEANUP PROGRAM SITE	OPEN - INACTIVE	20136 DONNER PASS ROAD	SODA SPRINGS		NEVADA	
SL375373647		SUTHERLAND OIL CO.	CLEANUP PROGRAM SITE	OPEN - INACTIVE	13421 HOLLOW WY	NEVADA CITY		NEVADA	
SL0605733603		SWANSON PROPERTY	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	15780 DONNER PASS ROAD	TRUCKEE	96161	NEVADA	
T0605700156		TAHOE DONNER ASSO. MAINT BLDG.	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	14515 NORTHWOOD BLVD	TRUCKEE	96161	NEVADA	
	29-000-042230	TAHOE FOREST	PERMITTED UNDERGROUND STORAGE TANK (UST)		10121 PINE AVE.	TRUCKEE	96161	NEVADA	
T0605700159		TAHOE FOREST HOSP. CHILD CARE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10121 PINE AVE	TRUCKEE	95734	NEVADA	
SLT5S3983690		TAHOE NATIONAL FOREST	CLEANUP PROGRAM SITE	OPEN - INACTIVE	HWY 49 & COYOTE STREET	NEVADA CITY	95959	NEVADA	
T0605700162		TAHOE TRUCKEE HIGH SCHOOL	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	11725 DONNER PASS RD	TRUCKEE	96161	NEVADA	
T0605700165		TAHOE TRUCKEE MAINTENANCE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	11839 DONNER PASS RD	TRUCKEE	96161	NEVADA	
T0605700149		TAYLOR'S TIRES	LUST CLEANUP SITE	OPEN - REMEDIATION	11464 DONNER PASS RD	TRUCKEE	95734	NEVADA	

GLOBAL ID	FACILITY ID	SITE / FACILITY NAME	SITE / FACILITY TYPE	STATUS	ADDRESS (OR PARTIAL ADDRESS)	CITY	ZIP	COUNTY	SITE CODE
T0605700129		TEKTRONIX AREA #1A.	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	12398 BITNEY SPRINGS RD	NEVADA CITY	95959	NEVADA	
T0605700135		TEKTRONIX AREA #2A	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	12398 BITNEY SPRINGS RD	NEVADA CITY	95959	NEVADA	
T0605700138		TEKTRONIX AREA #4A	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	12398 BITNEY SPRINGS RD	NEVADA CITY	95959	NEVADA	
T0605700136		TEKTRONIX AREA #2B	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	12398 BITNEY SPRINGS RD	NEVADA CITY	95959	NEVADA	
T0605700137		TEKTRONIX AREA #5	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	12398 BITNEY SPRINGS RD	NEVADA CITY	95959	NEVADA	
T0605700139		TEKTRONIX AREA #6	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	12398 BITNEY SPRINGS RD	NEVADA CITY	95959	NEVADA	
T0605700053		TERRIBLE HERBST / USA GAS #841	LUST CLEANUP SITE	OPEN - REMEDIATION	438 MAIN ST E	GRASS VALLEY	95945	NEVADA	
T0605700133		THE HAIR COMPANY	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	134 AUBURN ST S	GRASS VALLEY	95949	NEVADA	
T10000000591		THEATER BLOCK, TRUCKEE RAILYARD	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	APN 19-420-71	TRUCKEE	96161	NEVADA	
SL0605765284		THUNDERSHOWER RETREAT	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	37003 THUNDERSHOWER RETREAT	EMIGRANT GAP		NEVADA	
T0605751973		TOKI'S FOUNTAIN	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	29375 STATE HWY 49	NORTH SAN JUAN	95960	NEVADA	
SLT552833320		TOM'S SIERRA COMPANY - CEDAR RIDGE	CLEANUP PROGRAM SITE	OPEN - INACTIVE	13895 HWY 174	CEDAR RIDGE		NEVADA	
T10000000190		TOM'S SIERRA FORMER CARDLOCK	CLEANUP PROGRAM SITE	OPEN - SITE ASSESSMENT	428 COLFAX AVENUE	GRASS VALLEY	95945	NEVADA	
T0605700196		TOM'S SIERRA SUPERSTOP	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	11638 DONNER PASS ROAD	TRUCKEE		NEVADA	
T0605700064		TOMS SIERRA BULK PLANT	LUST CLEANUP SITE	OPEN - VERIFICATION MONITORING	335 RAILROAD AVE	GRASS VALLEY	95945	NEVADA	
	29-000-051087	TOMS SIERRA STATION NO. 22	PERMITTED UNDERGROUND STORAGE TANK (UST)		428 COLFAX AVE.	GRASS VALLEY	95945	NEVADA	
T0605700086		TOSCO - FACILITY #6096	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	11912 NEVADA CITY HWY	GRASS VALLEY	95945	NEVADA	
T0605700167		TOSCO - FACILITY #6391	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	12373 DONNER PASS RD	TRUCKEE	95734	NEVADA	
SL375473652		TOSCO REFINING CO BULK PLANT #0248 GRASS VALLEY	CLEANUP PROGRAM SITE	OPEN - VERIFICATION MONITORING	720 SOUTH AUBURN STREET	GRASS VALLEY		NEVADA	
T0605700150		TRUCK DON. PUD - CORP YARD	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	11570 DONNER PASS RD	TRUCKEE	96161	NEVADA	
SL0605771745		TRUCKEE DONNER PUBLIC UTILITY DISTRICT	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	PROSSER VILLAGE ROAD	TRUCKEE		NEVADA	
T0605700191		TRUCKEE ELEMENTARY	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	11911 DONNER PASS RD	TRUCKEE	96161	NEVADA	
	29-000-230016	TRUCKEE SHELL	PERMITTED UNDERGROUND STORAGE TANK (UST)		10278 STATE HWY 89 I-80	TRUCKEE	95734	NEVADA	
T0605700158		TRUCKEE-TAHOE AIRPORT DISTRICT	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10356 TRUCKEE AIRPORT RD	TRUCKEE	96161	NEVADA	
T0605700148		TSD - ALDER CREEK PUMP STATION	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	ALDER CREEK RD	TRUCKEE	95734	NEVADA	
T0605700115		UNION HILL SCHOOL	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	11638 HWY 174	GRASS VALLEY	95945	NEVADA	
SL0605702638		UNION PACIFIC RAILROAD	CLEANUP PROGRAM SITE	OPEN - INACTIVE	MILEPOST 189.6	SODA SPRINGS		NEVADA	
T0605701958		UNION PACIFIC RAILROAD	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	19195 DONNER PASS ROAD	NORDEN	95724	NEVADA	
SL185622930		UNION PACIFIC RAILROAD - NORDEN SNOWSHED SPILL	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	999 OLD HWY 40	NORDEN		NEVADA	
	29-000-230015	UNITED TRAILS RIV	PERMITTED UNDERGROUND STORAGE TANK (UST)		10068 HIRSCHDALE RD.	TRUCKEE	96161	NEVADA	
T0605700038		UNOCAL #0248	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	720 AUBURN ST S	GRASS VALLEY	95945	NEVADA	
	29-000-013280	UNOCAL 541	PERMITTED UNDERGROUND STORAGE TANK (UST)		10041 COMMERCIAL ROW / HWY 267	TRUCKEE	95734	NEVADA	
T0605700151		UNOCAL SERVICE STATION #0541	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10041 COMMERCIAL ROW	TRUCKEE	95734	NEVADA	
	29-000-060375	UNOCAL SITE NO. 6069	PERMITTED UNDERGROUND STORAGE TANK (UST)		11912 NEVADA CITY HWY.	GRASS VALLEY	95945	NEVADA	
T10000003486		UPRR NORDEN SNOW SHED	CLEANUP PROGRAM SITE	OPEN - SITE ASSESSMENT	999 DONNER PASS ROAD	NORDEN	95724	NEVADA	
T0605700117		VACANT (ROAD WORK)	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	116 MAIN ST W	GRASS VALLEY	95945	NEVADA	
T0605700458		VAIL BUILDING	LUST CLEANUP SITE	OPEN - REMEDIATION	21455 DONNER PASS ROAD	SODA SPRINGS	95728	NEVADA	
SLT553053341		VALET CLEANERS	CLEANUP PROGRAM SITE	OPEN - SITE ASSESSMENT	640 E. MAIN STREET	GRASS VALLEY		NEVADA	
T0605700079		W.H. LITTLE & SONS	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	12072 HIDDEN VALLEY RD	GRASS VALLEY	95945	NEVADA	
T0605791910		WASHINGTON GENERAL STORE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	15382 WASHINGTON RD	WASHINGTON	95986	NEVADA	
SLT553133349		WASTE MANAGEMENT	CLEANUP PROGRAM SITE	OPEN - INACTIVE	11229 MCCOURTNEY RAOD	GRASS VALLEY		NEVADA	
T0605700142		WASTEWATER TREATMENT PLANT	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	556-B FREEMAN LN	GRASS VALLEY	95945	NEVADA	
T0605700033		WENDT PROPERTY	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	21784 DONNER PASS RD (HWY 40)	SODA SPRINGS	95728	NEVADA	
SL0605714093		WERNER TRUCKING	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	DONNER LAKE INTERSTATE 80	TRUCKEE	96161	NEVADA	
T0605700168		WESTGATE CENTER	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	11429 DONNER PASS RD	TRUCKEE	96160	NEVADA	
SL0605796572		WESTWIND HELICOPTES, INC. (CRASH)	CLEANUP PROGRAM SITE	COMPLETED - CASE CLOSED	14024 LILY CREEK TRAIL	NEVADA CITY		NEVADA	
T0605700143		WILSON APARTMENTS	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	219 CHURCH ST S	GRASS VALLEY	95945	NEVADA	
T0605700123		WILSON PROPERTY	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	10385 ALTA ST	GRASS VALLEY	95945	NEVADA	
T0605700067		YUBA RIVER LUMBER	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	12391 NEVADA CITY HWY	GRASS VALLEY	95945	NEVADA	
T0605700084		ZINOLA ESTATE	LUST CLEANUP SITE	COMPLETED - CASE CLOSED	123 BANK ST	GRASS VALLEY	95945	NEVADA	

REGI N	ACILITY ID	ACILITY NAME	AGENCY NAME	LACE TY E	LACE S TY E	ACILITY TY E	AGENCY TY E	AGENCIES
5S	244141	Nevada City WWTP	Nevada City	Facility	Wastewater Treatment Facility	Municipal/Domestic	City Agency	1
6A	224678	FLORISTON WASTE TRT FACILITY	FLORISTON, COMMUNITY OF	Facility		Municipal/Domestic	City Agency	1
5S	247940	Penn Valley WWTP	Nevada CSD No 1	Facility	Wastewater Treatment Facility	Municipal/Domestic	County Agency	1
5S	213432	Cascade Shores WWTP	Nevada CSD No 1	Facility	Wastewater Treatment Facility	Municipal/Domestic	County Agency	1
5S	213432	Cascade Shores WWTP	Nevada CSD No 1	Facility	Wastewater Treatment Facility	Municipal/Domestic	County Agency	1
5S	220548	Donner Summit PUD WWTP	Donner Summit Public Utilities District	Facility	Wastewater Treatment Facility	Municipal/Domestic	Special District	1
5S	738847	Spanish Mine	Soper Company	Facility		Industrial	Privately-Owned Business	1
5S	227818	Grass Valley City WWTP	Grass Valley City	Facility	Wastewater Treatment Facility	Municipal/Domestic	City Agency	1
5S	222733	Empire Mine State Historic Park		Facility		Industrial		
6A	639069	Wallway Residence		Facility				
5S	222733	Empire Mine State Historic Park		Facility		Industrial		
6A	229863	HAYDEN, HANNAGAN & SPEERS	HAYDEN, HANNAGAN & SPEERS	Facility		Industrial	Privately-Owned Business	1
6A	229863	HAYDEN, HANNAGAN & SPEERS	HAYDEN, HANNAGAN & SPEERS	Facility		Industrial	Privately-Owned Business	1
6A	230064	HENRIKSON, OLIVER & CAROLYN	HENRIKSON, OLIVER & CAROLYN	Facility		All other facilities	Privately-Owned Business	1
6A	216172	CROMAN CORP/THP 2-94-446	C&K PROPERTIES, CROMAN CORP	Facility		All other facilities	Privately-Owned Business	1
6A	256985	SIERRA TAVERN BUILDING	BRANDOS, SCOTT	Facility		All other facilities	Privately-Owned Business	1
6A	247760	PAT & OLLIES GAS STATION	CROSE, OLIVER	Facility		All other facilities	Privately-Owned Business	1
6A	247760	PAT & OLLIES GAS STATION	CROSE, OLIVER	Facility		All other facilities	Privately-Owned Business	1
6A	222866	EQUESTRIAN CENTER	Tahoe Donner Association	Facility		All other facilities	Privately-Owned Business	1

REGI N	ACILITY ID	LACE ADDRESS	LACE CITY	LACE I	LACE C NTY	LACE LATIT DE	LACE L NGIT DE	SIC C DE	SIC DESC
5S	244141	650 Jordon	Nevada City	95959	Nevada	39.25975	121.03075	4952	Sewerage Systems
6A	224678	BETWEEN TWO TUNNELS ON FLOR RD	FLORISTON	96111	Nevada			4952	Sewerage Systems
5S	247940	12382 Spenceville	Penn Valley	95946	Nevada	39.175262	-121.196349	4952	Sewerage Systems
5S	213432	14326 Gas Canyon Road	Nevada City	95959	Nevada			4952	Sewerage Systems
5S	213432	14326 Gas Canyon Road	Nevada City	95959	Nevada			4952	Sewerage Systems
5S	220548	53823 Sherritt Lane	Soda Springs	95728	Nevada	39.326667	120.4025	4952	Sewerage Systems
5S	738847	Spanish Mine Road	Washington	94986	Nevada				
5S	227818	556 Freeman Lane	Grass Valley	95945	Nevada				
5S	222733	10556 East Empire Street	Grass Valley	95945	Nevada	39.207761	-121.043585	1041	Gold Ores
6A	639069	15780 Donner Pass Road	Truckee		Nevada				
5S	222733	10556 East Empire Street	Grass Valley	95945	Nevada	39.207761	-121.043585	1041	Gold Ores
6A	229863	TIMBER HARVEST AT GRAY CREEK	TRUCKEE		Nevada			811	Timber Tracts
6A	229863	TIMBER HARVEST AT GRAY CREEK	TRUCKEE		Nevada			811	Timber Tracts
6A	230064	11036 WEST RIVER ST	TAHOE CITY	96145	Nevada				
6A	216172		TRUCKEE	96160	Nevada			2411	Logging
6A	256985	10112 DONNER PASS ROAD	TRUCKEE	96160	Nevada				
6A	247760	10145 DONNER PASS RD	TRUCKEE		Nevada				
6A	247760	10145 DONNER PASS RD	TRUCKEE		Nevada				
6A	222866	15275 ALDER CREEK RD	TRUCKEE		Nevada				

REGI N	ACILITY ID	SIC C DE	SIC DESC	NAICS C DE	NAICS DESC	LACES	SOURCE ACILITY	DESIGN L	TT	COMPLEITY
5S	244141						1 Reg Meas	0.69	2	B
6A	224678	8811	Private Households				1 Reg Meas	0.0097	3	C
5S	247940						1 Reg Meas	0.1256	2	B
5S	213432						1 Reg Meas	0.026	3	C
5S	213432						1 Reg Meas	0.026	3	C
5S	220548						1 Reg Meas	0.52	2	B
5S	738847						1 Reg Meas	0.065	2	B
5S	227818						1 Reg Meas	2.78	1	A
5S	222733			212221	Gold Ore Mining		1 Enf Action			
6A	639069						1 Enf Action			
5S	222733			212221	Gold Ore Mining		1 Enf Action			
6A	229863						1 Reg Meas			
6A	229863						1 Reg Meas			
6A	230064						1 Reg Meas			
6A	216172						1 Reg Meas			
6A	256985						1 Reg Meas			
6A	247760						1 Reg Meas			
6A	247760						1 Reg Meas			
6A	222866						1 Reg Meas			

REGI N	ACILITY ID	RETREATMENT	ACILITY TYPE	PROGRAM	PROGRAMS	DID	REG MEASURE ID	REG MEASURE TYPE
5S	244141	N - POTW does not have EPA approved pretreatment prog.	Designated domestic sewage	NPDES	1	5A290101001	131257	NPDES Permits
6A	224678	X - Facility is not a POTW	Designated domestic sewage	NON15	1	6A290002225	144902	WDR
5S	247940	N - POTW does not have EPA approved pretreatment prog.		NON15	1	5A290104006	148303	WDR
5S	213432	N - POTW does not have EPA approved pretreatment prog.	Designated domestic sewage	NPDES	1	5A290107002	148701	NPDES Permits
5S	213432	N - POTW does not have EPA approved pretreatment prog.	Designated domestic sewage	NPDES	1	5A290107002	351555	NPDES Permits
5S	220548	N - POTW does not have EPA approved pretreatment prog.	Nonhazardous domestic sewage	NPDES	1	5A290105001	365530	NPDES Permits
5S	738847	X - Facility is not a POTW		NPDES	1	5A29NP00001	366555	NPDES Permits
5S	227818	N - POTW does not have EPA approved pretreatment prog.	Nonhazardous domestic sewage	NPDES	1	5A290100001	367978	NPDES Permits
5S	222733			LNDISP	1			
6A	639069			UNREGS	1			
5S	222733			LNDISP	1			
6A	229863			UNREGS	1	6A299508N70	160789	Unregulated
6A	229863			UNREGS	1	6A299508N70	160789	Unregulated
6A	230064			NON15	1	6A298803N70	161509	Unregulated
6A	216172			UNREGS	1	6A299706N01	161451	Unregulated
6A	256985			UNREGS	1	6A299209N70	160125	Unregulated
6A	247760			TANKS	1	6A290007N03	164879	Unregulated
6A	247760			TANKS	1	6A290007N03	164879	Unregulated
6A	222866			UNREGS	1	6A290408N01	173836	Unregulated

REGI N	ACILITY ID	REGI N	RDER	NDES CA	MA R MIN R	NDES TY E	RECLAMATI N		STAT S	STAT S DATE	E ECTIVE DATE	E IRATI N REVIE DATE
5S	244141	5S	R5-2002-0050	CA0079901	Minor	MUN	N - No	N	Historical	2/25/2009	4/26/2002	4/26/2007
6A	224678	6A	88-050				N - No		Active	11/10/2009	4/14/1988	1/1/2015
5S	247940	5S	01-210				N - No		Active	8/18/2010	9/6/2001	9/6/2011
5S	213432	5S	R5-2001-0177	CA0083241	Minor	MUN	N - No	N	Historical	9/2/2008	6/14/2001	6/1/2006
5S	213432	5S	R5-2008-0111	CA0083241	Minor	MUN	N - No	N	Active	9/2/2008	7/31/2008	7/1/2013
5S	220548	5S	R5-2009-0034	CA0081621	Minor	MUN	N - No	N	Active	9/7/2011	6/14/2009	4/1/2014
5S	738847	5S	R5-2008-0104	CA0085286	Minor		N - No		Active	12/2/2010	9/20/2008	9/20/2013
5S	227818	5S	R5-2009-0067	CA0079898	Major	MUN	N - No	N	Active	3/23/2010	7/31/2009	6/12/2014
5S	222733											
6A	639069											
5S	222733											
6A	229863	6A							Active	6/17/2005		
6A	229863	6A							Active	6/17/2005		
6A	230064	6A							Active	6/17/2005		
6A	216172	6A							Active	6/17/2005		
6A	256985	6A							Active	6/17/2005		
6A	247760	6A							Active	6/17/2005		
6A	247760	6A							Active	6/17/2005		
6A	222866	6A							Active	6/17/2005		

REGI N	ACILITY ID	TERMINATI N DATE	STAT S ENR LLEE	INDIVID AL GENERAL	EE C DE	STA ASSIGNED	STA ASSIGNED
5S	244141	1/22/2009	N	I	66 - NPDES Based on Flow		
6A	224678		N	I	58 - Non15 Based on (TTWQ)/CPLX)	Eric Taxer	1
5S	247940		N	I	58 - Non15 Based on (TTWQ)/CPLX)	Guy Childs	1
5S	213432		N	I	66 - NPDES Based on Flow		
5S	213432		N	I	66 - NPDES Based on Flow	Barry Hilton	1
5S	220548		N	I	66 - NPDES Based on Flow	Michael Fischer	1
5S	738847		N	I	66 - NPDES Based on Flow		
5S	227818		N	I	66 - NPDES Based on Flow	Barry Hilton	1
5S	222733						
6A	639069						
5S	222733						
6A	229863		N				
6A	229863		N				
6A	230064		N				
6A	216172		N				
6A	256985		N			Scott Ferguson	1
6A	247760		N			Tammy Lundquist	1
6A	247760		N			Tammy Lundquist	1
6A	222866		N			Cadie Olsen	1

REGION	FACILITY ID	DIRECTION/VOICE	ENFORCEMENT ID/EID	REGION	ORDER RESOLUTION NUMBER	ENFORCEMENT ACTION TYPE	EFFECTIVE DATE	YEAR EFFECTIVE
5S	244141	Passive	254245	5S	R5-2002-0051-A01	Cease and Desist Order	4/25/2003	2003
6A	224678	Passive	225303	6A	LT981015	Clean-up and Abatement Order	10/15/1998	1998
5S	247940	Passive	371477	5S	R5-2009-0077	Cease and Desist Order	8/13/2009	2009
5S	213432	Passive	308272	5S	R5-2005-0714	Clean-up and Abatement Order	8/23/2005	2005
5S	213432	Passive	351562	5S	R5-2008-0112	Cease and Desist Order	7/31/2008	2008
5S	220548	Passive	365541	5S	R5-2009-0035	Cease and Desist Order	4/24/2009	2009
5S	738847	Passive	370510	5S	R5-2008-0105	Cease and Desist Order	7/31/2008	2008
5S	227818	Passive	374462	5S	R5-2010-0050	Cease and Desist Order	5/27/2010	2010
5S	222733		374326	5S	R5-2009-0714	Clean-up and Abatement Order	7/30/2009	2009
6A	639069		372884	6A	R6T-2009-0134-A1	Clean-up and Abatement Order	1/25/2010	2010
5S	222733		352448	5S	R5-2006-0731	Clean-up and Abatement Order	10/5/2006	2006
6A	229863	Passive	222666	6A	95-097	Clean-up and Abatement Order	8/25/1995	1995
6A	229863	Passive	222665	6A	95-097A1	Clean-up and Abatement Order	9/28/1995	1995
6A	230064	Passive	220261	6A	88-037	Clean-up and Abatement Order	3/16/1988	1988
6A	216172	Passive	219362	6A	97-076	Clean-up and Abatement Order	6/13/1997	1997
6A	256985	Passive	223118	6A	91-932	Clean-up and Abatement Order	11/5/1991	1991
6A	247760	Passive	249534	6A	R6T-2002-0004-A1	Clean-up and Abatement Order	7/24/2002	2002
6A	247760	Passive	240614	6A	R6T-2002-0004	Clean-up and Abatement Order	1/18/2002	2002
6A	222866	Passive	327986	6A	R6T-2007-0015	Clean-up and Abatement Order	4/25/2007	2007

REGION	FACILITY ID	ADDITIONAL ISSUANCE DATE	STATUS	TITLE
5S	244141	4/25/2003	Active	CDO R5-2002-0051-A01 for Nevada City, Nevada City WWTP
6A	224678		Active	Enforcement - 6A290002225
5S	247940	8/13/2009	Active	CDO R5-2009-0077 for Nevada Cnty Sanitary District No 1, Penn Valley WWTP
5S	213432	8/23/2005	Active	CAO R5-2005-0714 for Nevada Cnty & Nevada CSD 1
5S	213432	7/31/2008	Active	CDO R5-2008-0112 for Nevada Cnty SD No 1, Cascade Shores WWTP
5S	220548	4/24/2009	Active	CDO R5-2009-0035 for Donner Summit PUD WWTP
5S	738847	7/31/2008	Active	CDO R5-2008-0105 for Soper Company, Spanish Mine
5S	227818	5/27/2010	Active	CDO R5-2010-0050 for Grass Valley City, Grass Valley City WWTP
5S	222733	7/30/2009	Active	CAO R5-2009-0714 for California Dept of Parks and Recreation, Empire Mine State
6A	639069	1/25/2010	Active	Amended CAO-Unpermitted Creek Realignment 01/25/2010
5S	222733	10/5/2006	Active	CAO R5-2006-0731 for California Dept of Parks and Recreation, Empire Mine State
6A	229863		Active	Enforcement - 6A299508N70
6A	229863		Active	Enforcement - 6A299508N70
6A	230064		Active	Enforcement - 6A298803N70
6A	216172		Active	Enforcement - 6A299706N01
6A	256985		Active	Enforcement - 6A299209N70
6A	247760		Active	Enforcement - 6A290007N03
6A	247760		Active	Enforcement - 6A290007N03
6A	222866		Active	Enforcement - CAO 6A290408N01-4/25/2007

REGION	FACILITY ID	DESCRIPTION
5S	244141	Cease and Desist Order for existing and threatened violations of effluent limitations contained in Order # R5-2002-0051-A01 for ammonia, nitrate + nitrite, nitrite and pH.
6A	224678	
5S	247940	Discharger violated its WDR order # 5-01-210 in the spring of 2006 by applying wastewater to land application areas during storm events. CDO issued for discharger to implement measures necessary to ensure long-term compliance v
5S	213432	Failure to conduct improvement to stabilize hillside &/or protect WWTP from continued landslides, which have potential to cause WWTP to violate 5-01-177. Reqs submittal workplan for removal &/or mitigation of threat presented by in
5S	213432	CDO issued to give discharger time to comply with effluent limitations for nitrate and total coliform until 6/14/2011. Also, the ammonia limitation is more restrictive in the NPDES Permit R5-2008-0111 therefore the discharger has up to
5S	220548	CDO issued to assure discharger comply with the ammonia, nitrate, copper, cyanide, dichlorobromomethane, aldrin, alpha BHC, manganese, silver, and zinc effluent limitations contained in Waste Discharge Requirement Order No. R5
5S	738847	CDO issued for Discharger to comply with WDR Order No. R5-2008-0104. Discharger will submit progress reports, time schedule describing what BMPs shall be installed to reduce the discharge of AMD, begin installation of BMPs ider
5S	227818	CDO issued for The City of Grass Valley to comply with time schedule to ensure compliance with the effluent limitations for manganese and nitrate plus nitrite required in Waste Discharge Requirements Order No. R5-2009-0067.
5S	222733	The respondents shall conduct the activities consistent with Health & Safety code, Water code, National contingency Plan, US EPA & DTSC Superfund guidance documents regarding site investigation and remediation, Communicator
6A	639069	Mr. Wallway realigned a creek on his property without a permit.
5S	222733	
6A	229863	CLEANUP & ABATE EFFECTS OF WASTE MATERIAL DISCHARGED BY TIMBER HARVESTING AT GRAY CREEK, TRUCKEE RIV
6A	229863	AMENDMENT TO 95-97 TO ADD CHARLES SPEERS TO AGENCY NAME, NO SUBMITTAL DATES AMENDED.
6A	230064	TO CLEANUP AND ABATE WASTE DISCHARGE TO THE GROUNDWATERS OF THE TRUCKEE RIVER HYDROLOGIC UNIT.
6A	216172	TIMBER HARVEST ACTIVITIES RESULTED IN WASTE EARTHEN MATERIALS TO BE DISCHARGED INTO TRUCKEE RIVER.
6A	256985	ON 3/11/91 APPROX. 150-300 GALLONS OF HEATING OIL WAS DISCHARGED FROM PIPELINE CONNECTED TO AGT.
6A	247760	Changing status of monitoring from monthly to quarterly
6A	247760	Restore aquifer to background conditions.
6A	222866	Discharging horse manure and sediment to the Truckee River

REGION	FACILITY ID	PROGRAM	PROGRAMS	ASSIGNED STAFF	ASSIGNED STAFF	SUPERVISOR	SUPERVISORS	LATEST MILESTONE COMPLETION DATE
5S	244141	NPDES	1					
6A	224678	NON15	1					
5S	247940	NON15	1	Guy Childs	1			
5S	213432	NPDES	1					
5S	213432	NPDES	1					
5S	220548	NPDES	1					
5S	738847	NPDES	1	David Kirn	1			
5S	227818	NPDES	1	Barry Hilton	1			
5S	222733	LNDISP	1	Victor J. Izzo	1	Steve Rosenbaum	1	
6A	639069	UNREGS	1	John Steude	1			7/26/2010
5S	222733	LNDISP	1			Steve Rosenbaum	1	
6A	229863	UNREGS	1					
6A	229863	UNREGS	1					
6A	230064	NON15	1					
6A	216172	UNREGS	1					
6A	256985	UNREGS	1					
6A	247760	TANKS	1			Doug Smith	1	2/15/2003
6A	247760	TANKS	1			Doug Smith	1	8/1/2002
6A	222866	UNREGS	1			Scott Ferguson	1	

REGION	FACILITY ID	TOTAL ASSESSMENT AMOUNT	INITIAL ASSESSED AMOUNT	LIABILITY AMOUNT	PROJECT AMOUNT	LIABILITY AID	PROJECT COMPLETED
5S	244141	0	0	0	0	0	0
6A	224678	0	0	0	0	0	0
5S	247940	0	0	0	0	0	0
5S	213432	0	0	0	0	0	0
5S	213432	0	0	0	0	0	0
5S	220548	0	0	0	0	0	0
5S	738847	0	0	0	0	0	0
5S	227818	0	0	0	0	0	0
5S	222733	0	0	0	0	0	0
6A	639069	0	0	0	0	0	0
5S	222733	0	0	0	0	0	0
6A	229863	0	0	0	0	0	0
6A	229863	0	0	0	0	0	0
6A	230064	0	0	0	0	0	0
6A	216172	0	0	0	0	0	0
6A	256985	0	0	0	0	0	0
6A	247760	0	0	0	0	0	0
6A	247760	0	0	0	0	0	0
6A	222866	0	0	0	0	0	0

REGI N	ACILITY ID	TAL AID COMPLETED AMOUNT	AGENCY ISSUING EN	DATE OF LDEST VIOLATION LINED TO ENFORCEMENT ACTION	RAN VIOLATIONS	RAN VIOLATIONS
5S	244141	0		5/19/2001	0	0
6A	224678	0			0	0
5S	247940	0			0	0
5S	213432	0		5/9/2005	0	0
5S	213432	0		7/31/2008	0	0
5S	220548	0		11/2/2009	0	42
5S	738847	0			0	0
5S	227818	0			0	0
5S	222733	0			0	0
6A	639069	0			0	0
5S	222733	0			0	0
6A	229863	0			0	0
6A	229863	0			0	0
6A	230064	0			0	0
6A	216172	0			0	0
6A	256985	0			0	0
6A	247760	0			0	0
6A	247760	0		12/22/2001	0	0
6A	222866	0			0	0

REGION	FACILITY ID	RAN VIOLATIONS	UNCLASSIFIED VIOLATIONS	AT VIOLATIONS	MIN VIOLATIONS	ASIN LAN RATION VIOLATIONS	CAT VIOLATIONS
5S	244141	0	0	0	0	0	63
6A	224678	0	0	0	0	0	0
5S	247940	0	0	0	0	0	0
5S	213432	0	0	0	0	0	0
5S	213432	2	0	0	0	0	15
5S	220548	1	0	0	0	0	50
5S	738847	0	0	0	0	0	0
5S	227818	0	0	0	0	0	0
5S	222733	0	0	0	0	0	0
6A	639069	0	0	0	0	0	0
5S	222733	0	0	0	0	0	0
6A	229863	0	0	0	0	0	0
6A	229863	0	0	0	0	0	0
6A	230064	0	0	0	0	0	0
6A	216172	0	0	0	0	0	0
6A	256985	0	0	0	0	0	0
6A	247760	0	0	0	0	0	0
6A	247760	0	0	0	0	0	0
6A	222866	0	0	0	0	0	0

REGI N	ACILITY ID	CAT VI LATI NS	CT VI LATI NS	DE ICIENT M NIT RING VI LATI NS	DE ICIENT RE RT VI LATI NS	EN RCEMENT ACTI N VI LATI NS
5S	244141	20	0	0	0	0
6A	224678	0	0	0	0	0
5S	247940	0	0	0	0	0
5S	213432	0	0	0	0	0
5S	213432	1	0	1	0	0
5S	220548	26	0	0	0	0
5S	738847	0	0	0	0	0
5S	227818	0	0	0	0	0
5S	222733	0	0	0	0	0
6A	639069	0	0	0	0	0
5S	222733	0	0	0	0	0
6A	229863	0	0	0	0	0
6A	229863	0	0	0	0	0
6A	230064	0	0	0	0	0
6A	216172	0	0	0	0	0
6A	256985	0	0	0	0	0
6A	247760	0	0	0	0	0
6A	247760	0	0	0	0	0
6A	222866	0	0	0	0	0

REGION	FACILITY ID	FEES VIOLATIONS	GROUNDWATER VIOLATIONS	YDR MODIFICATION VIOLATIONS	LATE REPORT VIOLATIONS	EV VIOLATIONS	TIER CODES VIOLATIONS
5S	244141	0	0	0	0	9	0
6A	224678	0	0	0	0	0	0
5S	247940	0	0	0	0	0	0
5S	213432	0	0	0	0	0	0
5S	213432	0	0	0	0	2	0
5S	220548	0	0	0	0	0	0
5S	738847	0	0	0	0	0	0
5S	227818	0	0	0	0	0	0
5S	222733	0	0	0	0	0	0
6A	639069	0	0	0	0	0	0
5S	222733	0	0	0	0	0	0
6A	229863	0	0	0	0	0	0
6A	229863	0	0	0	0	0	0
6A	230064	0	0	0	0	0	0
6A	216172	0	0	0	0	0	0
6A	256985	0	0	0	0	0	0
6A	247760	0	0	0	0	0	0
6A	247760	0	1	0	0	0	0
6A	222866	0	0	0	0	0	0

REGION	FACILITY ID	PERMIT CONDITION VIOLATIONS	RETREATMENT VIOLATIONS	REPORTING FAILURE NOTIFICATION VIOLATIONS	SS VIOLATIONS	SURFACE WATER VIOLATIONS
5S	244141	0	0	0	0	0
6A	224678	0	0	0	0	0
5S	247940	0	0	0	0	0
5S	213432	0	0	0	1	0
5S	213432	0	0	0	0	0
5S	220548	0	0	0	0	0
5S	738847	0	0	0	0	0
5S	227818	0	0	0	0	0
5S	222733	0	0	0	0	0
6A	639069	0	0	0	0	0
5S	222733	0	0	0	0	0
6A	229863	0	0	0	0	0
6A	229863	0	0	0	0	0
6A	230064	0	0	0	0	0
6A	216172	0	0	0	0	0
6A	256985	0	0	0	0	0
6A	247760	0	0	0	0	0
6A	247760	0	0	0	0	0
6A	222866	0	0	0	0	0

REGION	FACILITY ID	SERIAL VIOLATIONS	NATURAL DISCHARGE VIOLATIONS	PRIORITY VIOLATIONS	TOTAL MM VIOLATIONS	EXCELLENT MM SERIALS	CHRONIC MM
5S	244141	0	0	33	0	0	0
6A	224678	0	0	0	0	0	0
5S	247940	0	0	0	0	0	0
5S	213432	0	0	0	0	0	0
5S	213432	0	0	16	1	1	0
5S	220548	0	0	36	1	1	0
5S	738847	0	0	0	0	0	0
5S	227818	0	0	0	0	0	0
5S	222733	0	0	0	0	0	0
6A	639069	0	0	0	0	0	0
5S	222733	0	0	0	0	0	0
6A	229863	0	0	0	0	0	0
6A	229863	0	0	0	0	0	0
6A	230064	0	0	0	0	0	0
6A	216172	0	0	0	0	0	0
6A	256985	0	0	0	0	0	0
6A	247760	0	0	0	0	0	0
6A	247760	0	0	0	0	0	0
6A	222866	0	0	0	0	0	0

REGION	FACILITY ID	REPORTING MM	SERIALS	TOTAL VIOLATIONS LINKED TO THIS ENFORCEMENT ACTION	ECONOMIC BENEFIT	STATUS	MAXIMUM POTENTIAL LIABILITY
5S	244141		0	92			
6A	224678		0	0			
5S	247940		0	0			
5S	213432		0	1			
5S	213432		0	19			
5S	220548		0	76			
5S	738847		0	0			
5S	227818		0	0			
5S	222733		0	0			
6A	639069		0	0	0	0	0
5S	222733		0	0			
6A	229863		0	0			
6A	229863		0	0			
6A	230064		0	0			
6A	216172		0	0			
6A	256985		0	0			
6A	247760		0	0			
6A	247760		0	1			
6A	222866		0	0			

SITES IDENTIFIED WITH WASTE CONSTITUENTS ABOVE HAZARDOUS WASTE LEVELS OUTSIDE THE WASTE MANAGEMENT UNIT

COUNTY	CITY	REGION	SWAT I	WASTE DISCHARGER SYSTEM NO.	SOLID WASTE ID NO.	WASTE MANAGEMENT UNIT NAME	FACILITY NAME	AGENCY NAME
DEL NORTE	CRESCENT CITY	1	2	1A880520NSL-01		DEL NORTE COUNTY- PESTICIDE STORAGE	DEL NORTE PESTICIDE STORAGE AR	DEL NORTE, COUNTY OF
CONTRA COSTA	PITTSBURG	2	1	2 071059002-02	07-A1-0001	U.S. STEEL CORP.-PITTSBURG SITE LA	WDR-USS-POSCO	USS-POSCO
SOLANO	VALLEJO	2	1	2 482011003-01	48-AA-0008	US NAVY MARE ISLAND SANITARY LANDFILL	WDR-NAVAL SHIPYARD/CLASS I LAN	MARE ISLAND NAVAL SHIPYARD
CONTRA COSTA	RICHMOND	2	3	2 071007002-01		CHEVRON CHEMICAL COMPANY-OLD SITES	WDR-ORTHO DIV-RICHMOND PLANT	CHEVRON CHEMICAL COMPANY
MONTEREY	FORT ORD (Marina)	3	1	3 270301004-01	27-AA-0015	FORT ORD LANDFILL	SANITARY LANDFILL	U.S. ARMY, FORT ORD
SANTA BARBARA	LOMPOC	3	3	3 420305001-01	42-AA-0017	LOMPOC CITY LANDFILL	SOLID WASTE DISPOSAL SITE	LOMPOC CITY
LOS ANGELES	MONTEREY PARK	4	1	4B190332001-01	19-AM-0001	OPERATING INDUSTRIES LANDFILL	OPERATING INDUSTRIES, INC.	OPERATING INDUSTRIES, INC.
TULARE	WOODLAKE	5F	1	5D540300010-01	54-AA-0007	TULARE COUNTY-WOODLAKE LANDFILL	WOODLAKE SWDS	TULARE, COUNTY OF
FRESNO	FRESNO	5F	2	5D100300001-01		MCKINLEY AVE. YARD	T.H. AGRICULTURE AND NUTRITION	NORTH AMERICAN PHILLIPS
KINGS	CORCORAN	5F	2	5D160302001-01	16-AA-0011	KINGS COUNTY-CORCORAN LANDFILL	CORCORAN SWDS	KINGS COUNTY WASTE MGMT AUTH.
FRESNO	FRESNO	5F	3	5D100319001-01	10-AA-0013	ORANGE AVENUE DISPOSAL COMPANY	ORANGE AVENUE LANDFILL	ORANGE AVENUE DISP CO. INC
TULARE	EXETER	5F	3	5D540300003-01	54-AA-0002	TULARE COUNTY-EXETER DISPOSAL SITE	EXETER SWDS	TULARE, COUNTY OF
MERCED	ATWATER	5F	4	5C240115001-01		ATWATER CITY	BERT CRANE ROAD LANDFILL	ATWATER, CITY OF
FRESNO	FOWLER	5F	5	5D100325N01-01		FOWLER CITY	FOWLER CITY LANDFILL (OLD)	FOWLER, CITY OF
BUTTE	OROVILLE	5R	2	5A042005001-01		KOPPERS COMPANY-OROVILLE SITE	KOPPERS WOOD PRESERVING ISW	KOPPERS INDUSTRIES INC.
BUTTE	CHICO	5R	4	5A040302N01-01		CHICO CITY BURN DUMP	HUMBOLDT ROAD LANDFILL	CHICO, CITY OF
SACRAMENTO	SACRAMENTO	5S	1	5A340700003-01	34-AA-0008	US AIR FORCE-MCCLELLAN AFB LANDFILL	CLASS III SITE 8 (CLOSURE)	US AIR FORCE-MCCLELLAN AFB
SACRAMENTO	MATHER (Rancho Cordova)	5S	2	5A340700001-01		US AIR FORCE-MATHER FIELD LANDFILL	MATHER AFB ENVIRONMENTAL MGMT	US AIR FORCE - MATHER AFB
SACRAMENTO	SACRAMENTO	5S	3	5B342000N01-01		SACRAMENTO ARMY DEPOT	SACRAMENTO ARMY DEPOT	U.S. ARMY
SAN JOAQUIN	STOCKTON	5S	3	5 390002NUR-01	39-AA-0006	US NAVY COMMUNICATIONS LANDFILL	U.S.N. COMMUNICATION STA. LANDF	U.S. NAVY COMMUNICATIONS
SAN JOAQUIN	FRENCH CAMP	5S	3	5 390003NUR-01		US ARMY-SHARPE ARMY DEPOT	US ARMY-SHARPE ARMY DEPOT	US ARMY
SAN JOAQUIN	TRACY	5S	5	5 390006NUR-01		SITE 300 (OTHER 39 WMUS)	LAWRENCE LIVERMORE LAB	LAWRENCE LIVERMORE LABS
INYO	KEELER	6V	1	6B142000041-01	14-AA-0008	US TUNGSTEN OWENS LAKE LANDFILL	OWENS LAKE LANDFILL	UMETCO MINERALS CORPORATION
ORANGE	FULLERTON	8	1	8300002NUR-01		MCCOLL SITE	MCCOLL SLUDGE DISPOSAL SITE	TOXIC SUBSTANCES CONTROL DIVIS
RIVERSIDE	RIVERSIDE	8	1	8 330325001-01		STRINGFELLOW QUARRY ACID PITS	STATE OF CALIFORNIA-STRINGFELLOW	TOXIC PROGRAM MANAGEMENT SECT

**County of Nevada
Housing Element Rezone Implementation Program EIR
September 2013**

Technical Appendices

Appendix I

Noise Modeling Data

**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

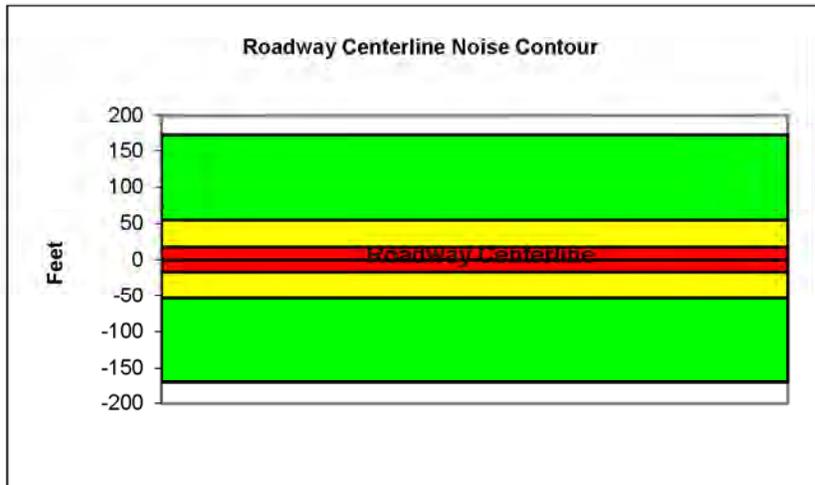
Project Name: Nevada County Housing Element Rezone Scenario: Existing
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Nevada City Highway
 Road Segment: Dorsey to Brunswick

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	9945			
Receiver Barrier Dist:	0	Peak Hour Traffic:	994.5			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	40			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions HARD SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	0	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	49.7	58.5	56.7	50.6	59.3	59.9
Medium Trucks:	59.4	51.4	45.0	43.4	51.9	52.1
Heavy Trucks:	64.7	52.7	43.7	44.9	54.8	54.9
Vehicle Noise:	67.1	60.5	57.3	52.6	61.2	61.6

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	171
65 dBA	54
70 dBA	17
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

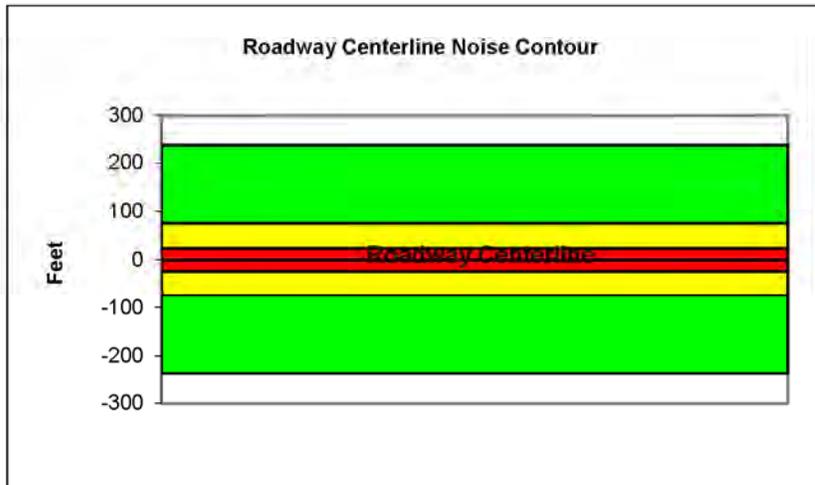
Project Name: Nevada County Housing Element Rezone Scenario: Existing
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Nevada City Highway
 Road Segment: North of Brunswick

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	13707			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1370.7			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	40			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions HARD SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	0	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	51.1	59.9	58.1	52.0	60.7	61.3
Medium Trucks:	60.8	52.8	46.4	44.8	53.3	53.5
Heavy Trucks:	66.1	54.1	45.1	46.3	56.2	56.3
Vehicle Noise:	68.5	61.9	58.7	54.0	62.6	63.0

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	236
65 dBA	75
70 dBA	24
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

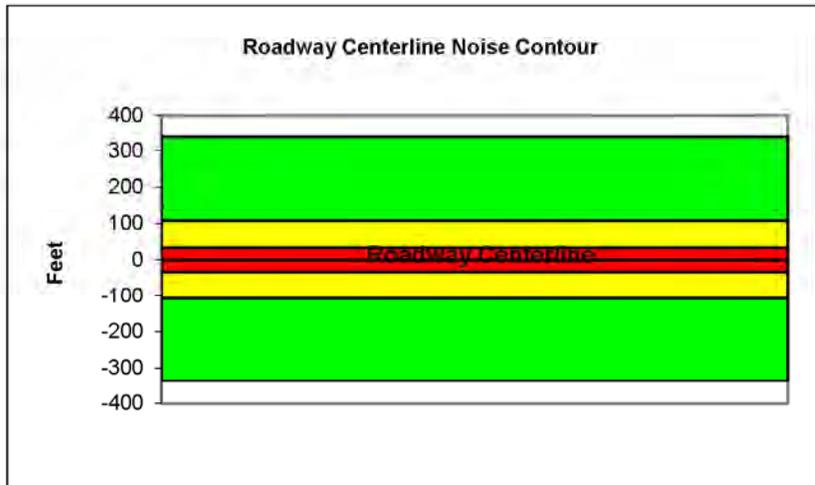
Project Name: Nevada County Housing Element Rezone Scenario: Existing
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: SR-20
 Road Segment: SB On-Ramp

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	19620			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1962			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	40			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions HARD SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	0	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	52.7	61.5	59.7	53.6	62.2	62.8
Medium Trucks:	62.4	54.3	47.9	46.4	54.9	55.1
Heavy Trucks:	67.6	55.7	46.6	47.8	57.7	57.9
Vehicle Noise:	70.1	63.4	60.2	55.5	64.1	64.6

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	338
65 dBA	107
70 dBA	34
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

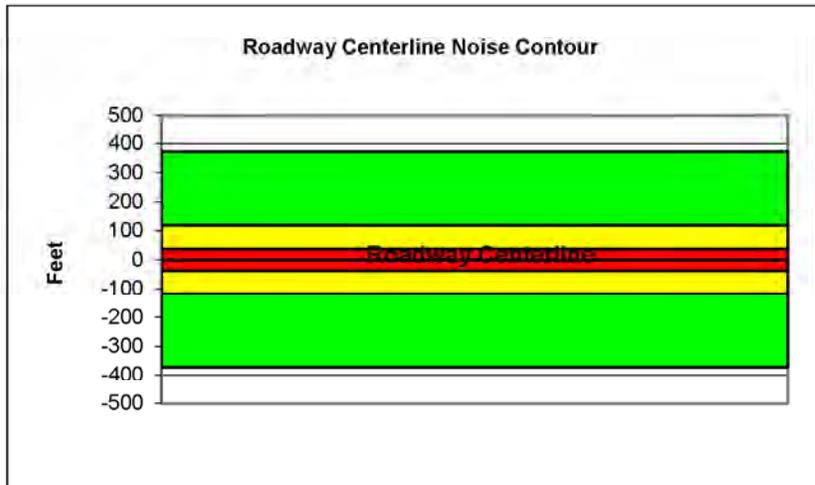
Project Name: Nevada County Housing Element Rezone Scenario: Existing
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Brunswick
 Road Segment: SR-20 to Sutton Way

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	21,618			
Receiver Barrier Dist:	0	Peak Hour Traffic:	2161.8			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	50			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions HARD SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	0	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	53.0	61.7	59.9	53.9	62.5	63.1
Medium Trucks:	62.7	54.6	48.2	46.6	55.1	55.4
Heavy Trucks:	67.9	56.0	46.9	48.1	58.0	58.1
Vehicle Noise:	70.3	63.7	60.5	55.8	64.4	64.8

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	372
65 dBA	118
70 dBA	37
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

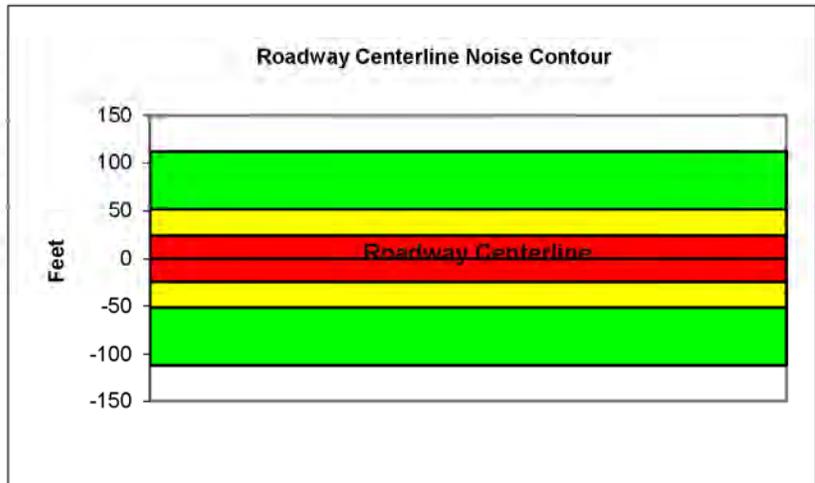
Project Name: Nevada County Housing Element Rezone Scenario: Existing
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Brunswick
 Road Segment: Sutton to Old Tunnel

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	12654			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1265.4			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	50			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	47.5	56.3	54.5	48.4	57.0	57.7
Medium Trucks:	57.2	49.1	42.8	41.2	49.7	49.9
Heavy Trucks:	62.4	50.5	41.4	42.6	52.6	52.7
Vehicle Noise:	64.9	58.2	55.0	50.3	58.9	59.4

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	111
65 dBA	52
70 dBA	24
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

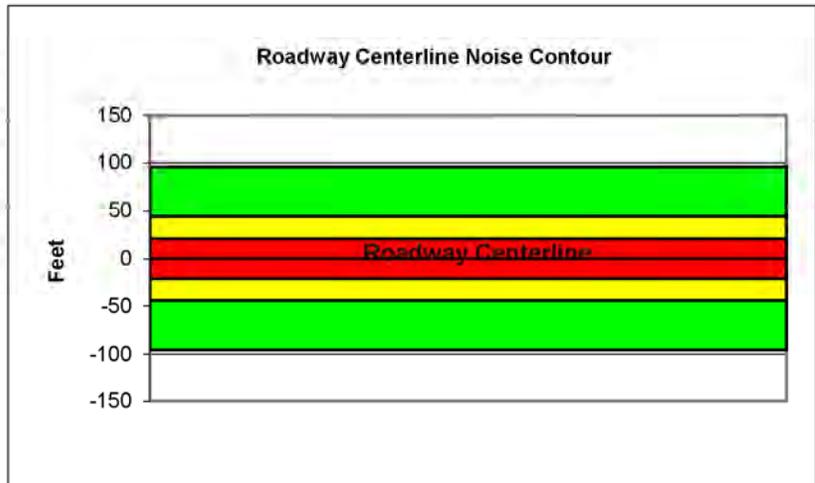
Project Name: Nevada County Housing Element Rezone Scenario: Existing
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Brunswick
 Road Segment: Old Tunnel to Idaho-Maryland Rd

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	10107			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1010.7			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	50			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	46.5	55.3	53.5	47.4	56.1	56.7
Medium Trucks:	56.2	48.2	41.8	40.2	48.7	48.9
Heavy Trucks:	61.4	49.5	40.5	41.7	51.6	51.7
Vehicle Noise:	63.9	57.2	54.1	49.4	57.9	58.4

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	96
65 dBA	44
70 dBA	21
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

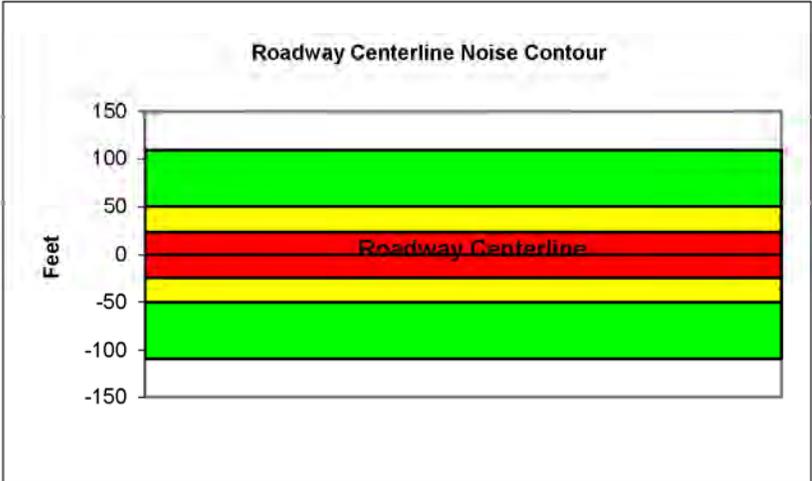
Project Name:	Nevada County Housing Element Rezone	Scenario:	Existing
Analyst:	Achilles Malisos	Job #:	60100827
Roadway:	Brunswick		
Road Segment:	South of Idaho-Maryland Rd		

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	12240			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1224			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	50			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90	Lft View: -90	Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	47.3	56.1	54.3	48.3	56.9	57.5
Medium Trucks:	57.1	49.0	42.6	41.0	49.5	49.8
Heavy Trucks:	62.3	50.3	41.3	42.5	52.4	52.5
Vehicle Noise:	64.7	58.1	54.9	50.2	58.8	59.2

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	109
65 dBA	50
70 dBA	23
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

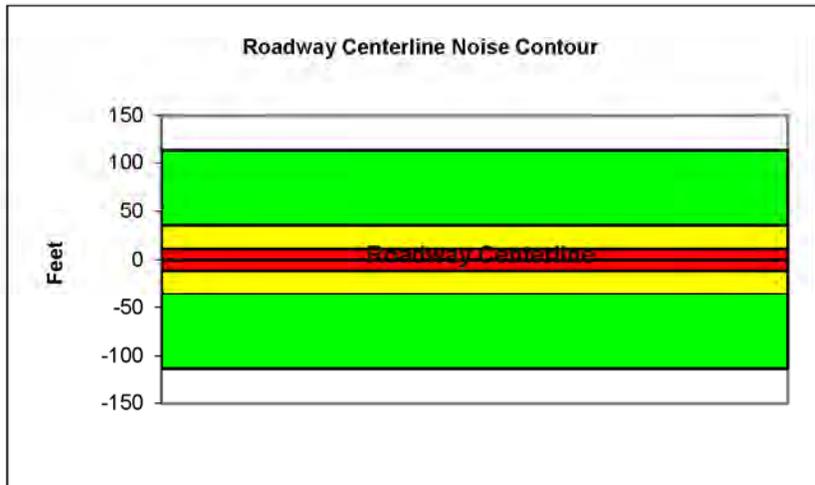
Project Name: Nevada County Housing Element Rezone Scenario: Existing
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Sutton Way
 Road Segment: North of Brunswick Road

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	6,561			
Receiver Barrier Dist:	0	Peak Hour Traffic:	656.1			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	50			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions HARD SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	0	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	47.8	56.6	54.8	48.7	57.3	57.9
Medium Trucks:	57.5	49.4	43.0	41.5	50.0	50.2
Heavy Trucks:	62.7	50.8	41.7	42.9	52.8	53.0
Vehicle Noise:	65.1	58.5	55.3	50.6	59.2	59.7

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	113
65 dBA	36
70 dBA	11
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

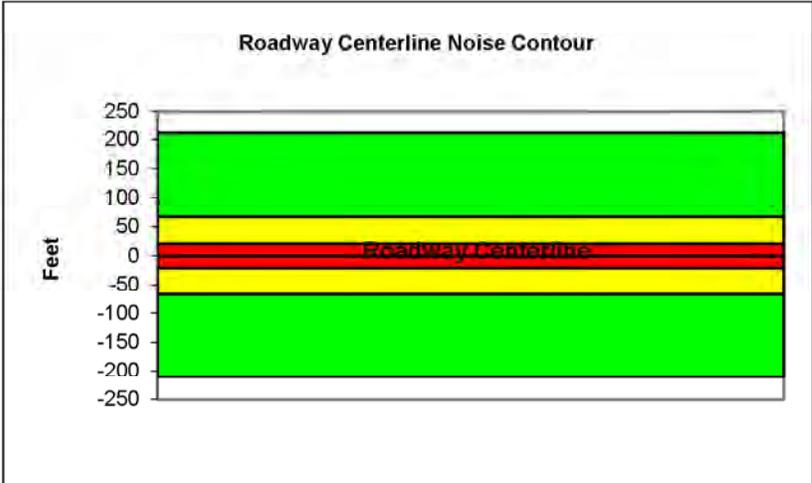
Project Name: Nevada County Housing Element Rezone Scenario: Existing
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Sutton Way
 Road Segment: South of Brunswick Road

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	12,249			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1224.9			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	50			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions HARD SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	0	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	50.5	59.3	57.5	51.4	60.0	60.7
Medium Trucks:	60.2	52.1	45.8	44.2	52.7	52.9
Heavy Trucks:	65.4	53.5	44.4	45.6	55.6	55.7
Vehicle Noise:	67.9	61.2	58.0	53.3	61.9	62.4

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	211
65 dBA	67
70 dBA	21
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

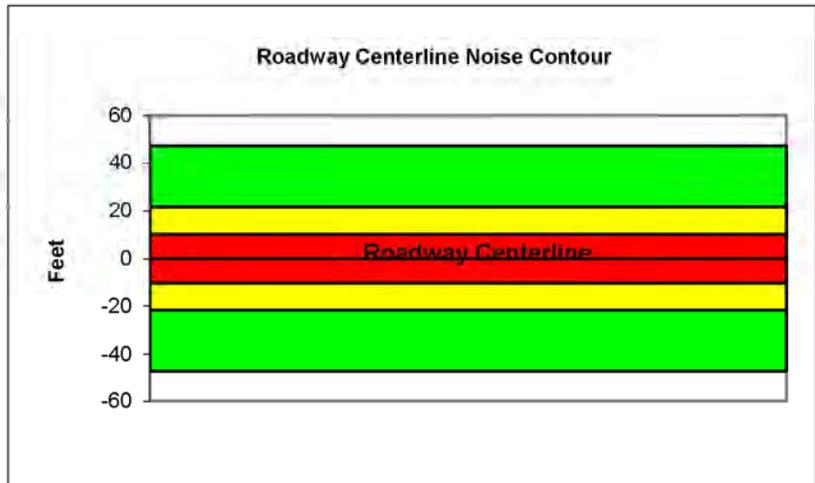
Project Name: Nevada County Housing Element Rezone Scenario: Existing
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Idaho-Maryland Road
 Road Segment: West of Brunswick Road

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	3465			
Receiver Barrier Dist:	0	Peak Hour Traffic:	346.5			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	36			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	42.2	51.0	49.2	43.1	51.7	52.3
Medium Trucks:	51.9	43.8	37.4	35.9	44.4	44.6
Heavy Trucks:	57.1	45.2	36.1	37.3	47.2	47.4
Vehicle Noise:	59.6	52.9	49.7	45.0	53.6	54.1

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	47
65 dBA	22
70 dBA	10
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

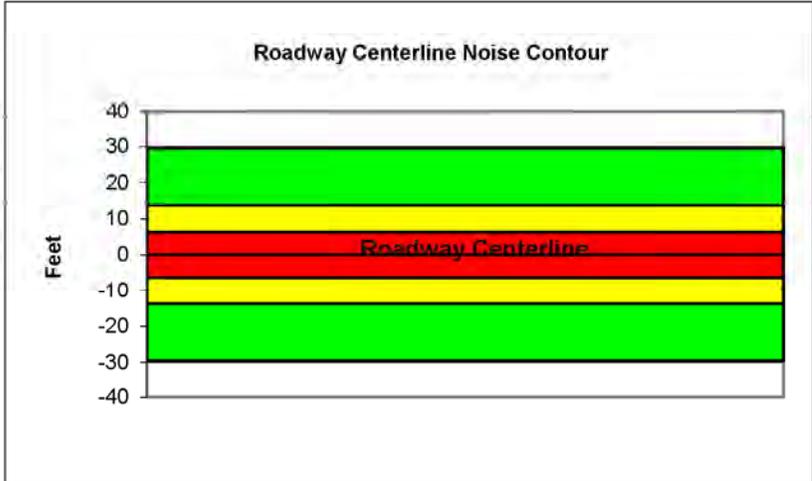
Project Name:	Nevada County Housing Element Rezone	Scenario:	Existing
Analyst:	Achilles Malisos	Job #:	60100827
Roadway:	Idaho-Maryland Road		
Road Segment:	East of Brunswick Road		

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	1737			
Receiver Barrier Dist:	0	Peak Hour Traffic:	173.7			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	36			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90	Lft View: -90	Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	39.2	48.0	46.2	40.1	48.7	49.3
Medium Trucks:	48.9	40.8	34.4	32.9	41.4	41.6
Heavy Trucks:	54.1	42.2	33.1	34.3	44.2	44.4
Vehicle Noise:	56.6	49.9	46.7	42.0	50.6	51.1

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	30
65 dBA	14
70 dBA	6
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

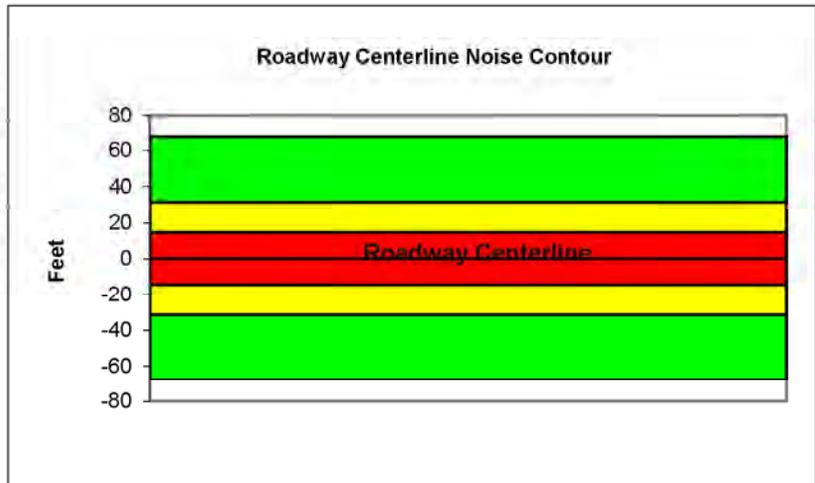
Project Name: Nevada County Housing Element Rezone Scenario: Existing
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: McCourtney Road
 Road Segment: South of Personeni Road

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	6003			
Receiver Barrier Dist:	0	Peak Hour Traffic:	600.3			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	36			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	44.6	53.3	51.6	45.5	54.1	54.7
Medium Trucks:	54.3	46.2	39.8	38.3	46.8	47.0
Heavy Trucks:	59.5	47.6	38.5	39.7	49.6	49.8
Vehicle Noise:	61.9	55.3	52.1	47.4	56.0	56.5

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	68
65 dBA	31
70 dBA	15
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

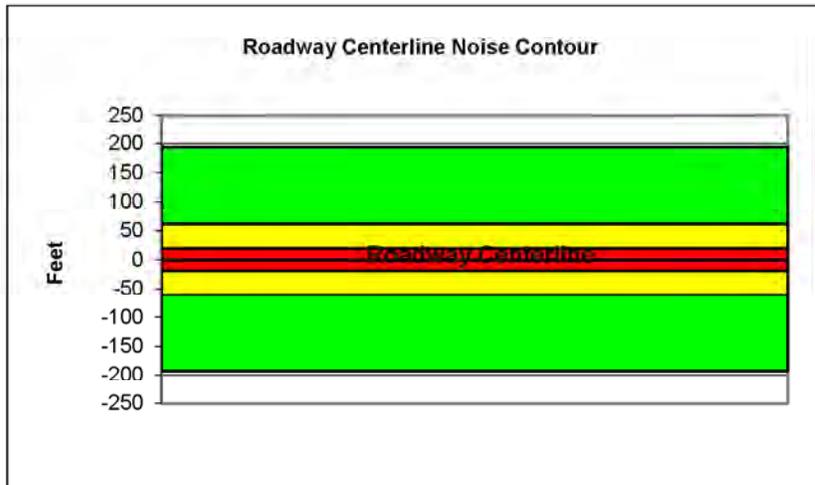
Project Name: Nevada County Housing Element Rezone Scenario: Existing
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: McKnight Way
 Road Segment: East of SR-49

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	11,196			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1119.6			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	50			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions HARD SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	0	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	50.1	58.9	57.1	51.0	59.7	60.3
Medium Trucks:	59.8	51.7	45.4	43.8	52.3	52.5
Heavy Trucks:	65.0	53.1	44.0	45.3	55.2	55.3
Vehicle Noise:	67.5	60.8	57.6	53.0	61.5	62.0

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	193
65 dBA	61
70 dBA	19
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

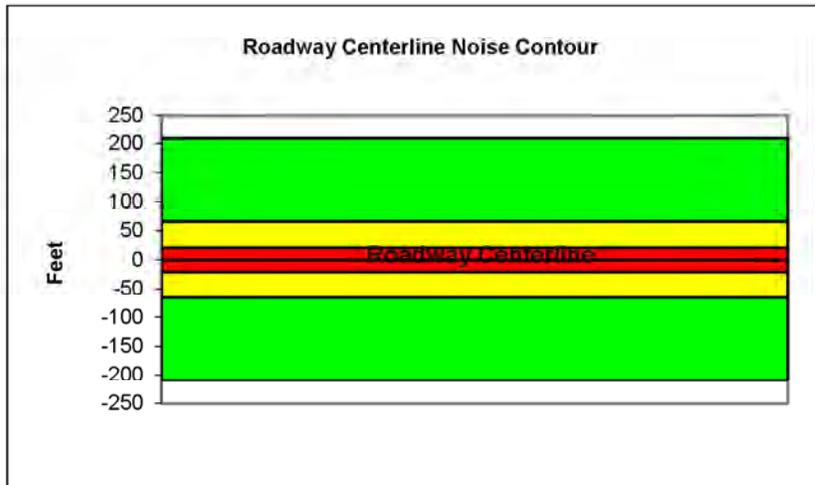
Project Name: Nevada County Housing Element Rezone Scenario: Existing
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: McKnight Way
 Road Segment: SR-49 NB ramps to SB ramps

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	12,159			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1215.9			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	50			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions HARD SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	0	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	50.5	59.2	57.4	51.4	60.0	60.6
Medium Trucks:	60.2	52.1	45.7	44.1	52.6	52.9
Heavy Trucks:	65.4	53.5	44.4	45.6	55.5	55.6
Vehicle Noise:	67.8	61.2	58.0	53.3	61.9	62.3

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	209
65 dBA	66
70 dBA	21
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

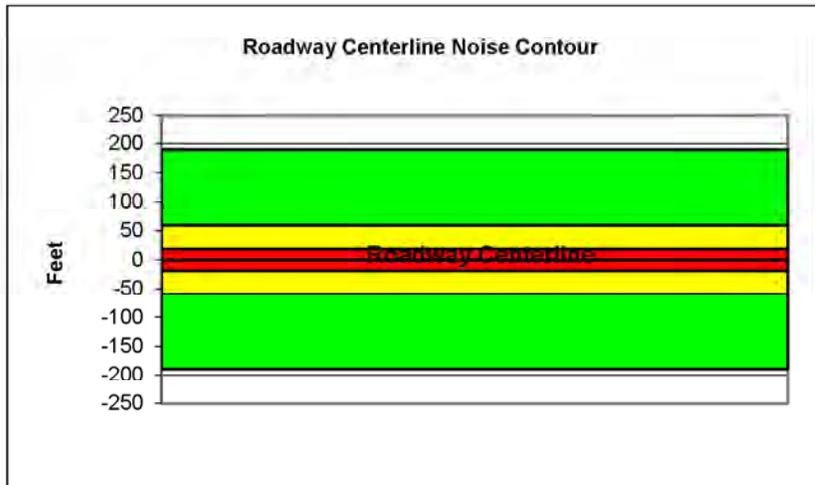
Project Name: Nevada County Housing Element Rezone Scenario: Existing
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: McKnight Way
 Road Segment: SR-49 ramps to Auburn Street

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	10,980			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1098			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	50			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions HARD SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	0	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	50.0	58.8	57.0	50.9	59.6	60.2
Medium Trucks:	59.7	51.7	45.3	43.7	52.2	52.4
Heavy Trucks:	64.9	53.0	44.0	45.2	55.1	55.2
Vehicle Noise:	67.4	60.7	57.6	52.9	61.4	61.9

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	189
65 dBA	60
70 dBA	19
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

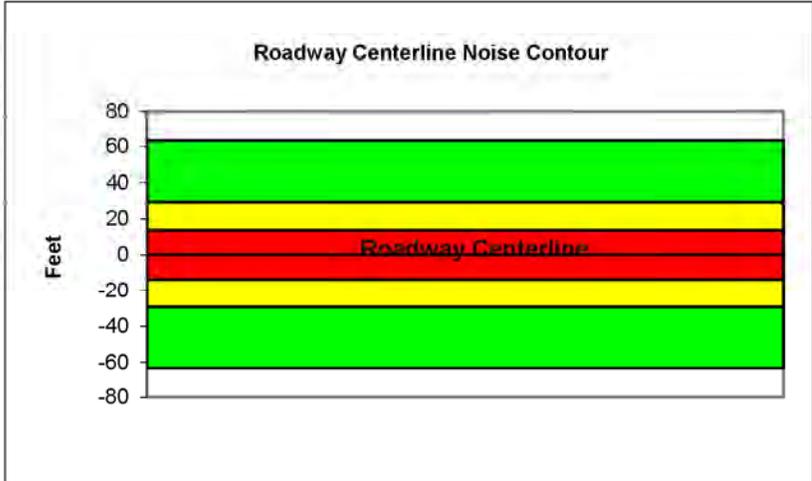
Project Name:	Nevada County Housing Element Rezone	Scenario:	Existing
Analyst:	Achilles Malisos	Job #:	60100827
Roadway:	Auburn Street		
Road Segment:	North of McKnight		

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	5436			
Receiver Barrier Dist:	0	Peak Hour Traffic:	543.6			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	40			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90	Lft View: -90	Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	44.0	52.8	51.0	45.0	53.6	54.2
Medium Trucks:	53.8	45.7	39.3	37.7	46.2	46.5
Heavy Trucks:	59.0	47.0	38.0	39.2	49.1	49.2
Vehicle Noise:	61.4	54.8	51.6	46.9	55.5	55.9

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	63
65 dBA	29
70 dBA	14
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

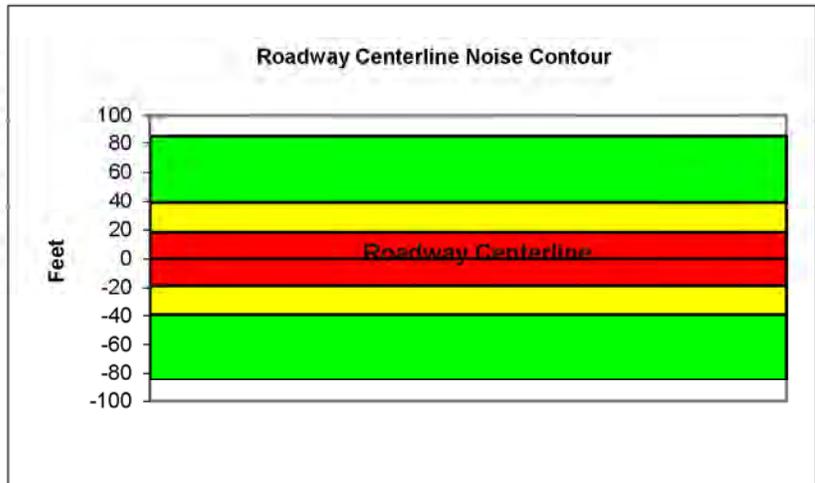
Project Name: Nevada County Housing Element Rezone Scenario: Existing
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: La Barr Meadows Road
 Road Segment: South of McKnight

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	8442			
Receiver Barrier Dist:	0	Peak Hour Traffic:	844.2			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	40			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	46.0	54.7	52.9	46.9	55.5	56.1
Medium Trucks:	55.7	47.6	41.2	39.6	48.1	48.4
Heavy Trucks:	60.9	49.0	39.9	41.1	51.0	51.1
Vehicle Noise:	63.3	56.7	53.5	48.8	57.4	57.8

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	85
65 dBA	39
70 dBA	18
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

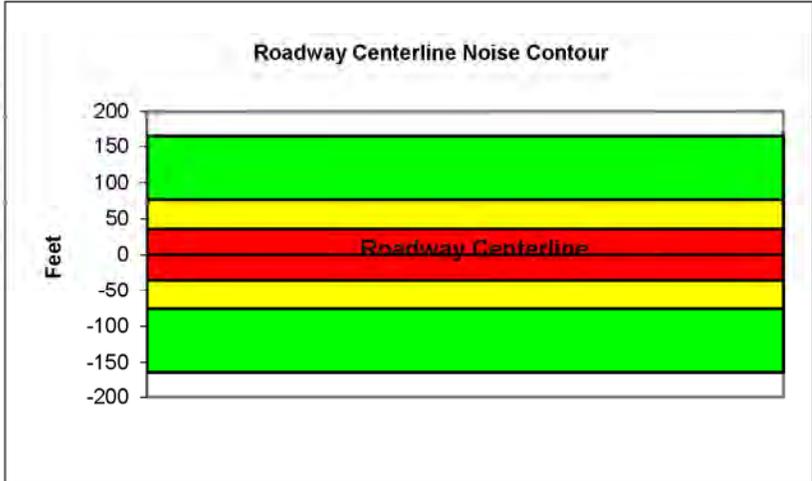
Project Name: Nevada County Housing Element Rezone Scenario: Existing
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: SR-20
 Road Segment: West of Pleasant Valley Road

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	7641			
Receiver Barrier Dist:	0	Peak Hour Traffic:	764.1			
Centerline Dist. To Observer:	100	Vehicle Speed:	55			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	51.3	60.1	58.3	52.2	60.9	61.5
Medium Trucks:	58.4	50.4	44.0	42.4	50.9	51.1
Heavy Trucks:	62.4	50.4	41.4	42.6	51.9	52.0
Vehicle Noise:	64.7	61.0	58.5	53.1	61.7	62.3

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	164
65 dBA	76
70 dBA	35
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

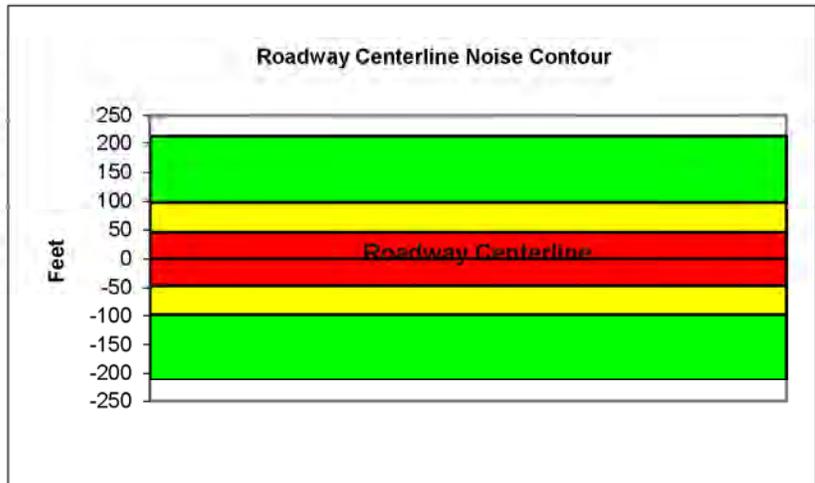
Project Name: Nevada County Housing Element Rezone Scenario: Existing
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: SR-20
 Road Segment: Pleasant Valley Road to Rough and Ready Hwy

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	11160			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1116			
Centerline Dist. To Observer:	100	Vehicle Speed:	55			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	52.9	61.7	59.9	53.8	62.5	63.1
Medium Trucks:	60.1	52.0	45.6	44.0	52.5	52.8
Heavy Trucks:	64.0	52.1	43.0	44.3	53.5	53.6
Vehicle Noise:	66.3	62.7	60.2	54.8	63.4	63.9

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	212
65 dBA	98
70 dBA	46
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

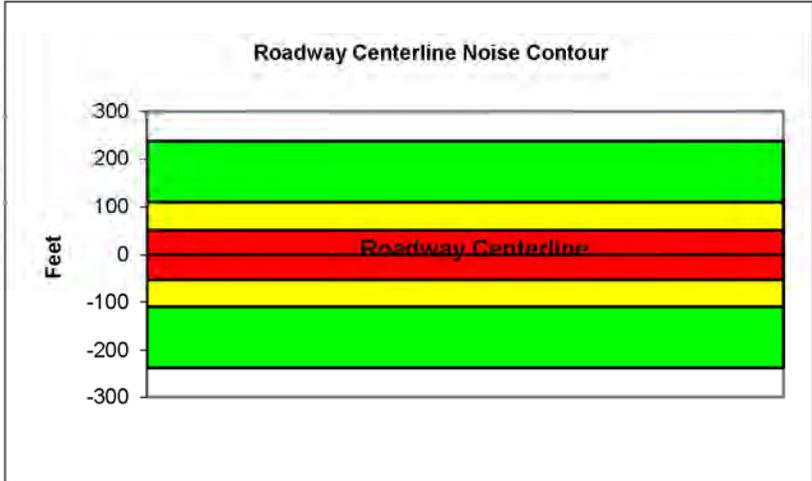
Project Name: Nevada County Housing Element Rezone Scenario: Existing
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: SR-20
 Road Segment: East of Rough and Ready Hwy

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	13140			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1314			
Centerline Dist. To Observer:	100	Vehicle Speed:	55			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	53.6	62.4	60.6	54.6	63.2	63.8
Medium Trucks:	60.8	52.7	46.3	44.8	53.2	53.5
Heavy Trucks:	64.7	52.8	43.7	45.0	54.2	54.3
Vehicle Noise:	67.0	63.4	60.9	55.5	64.1	64.6

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	236
65 dBA	110
70 dBA	51
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

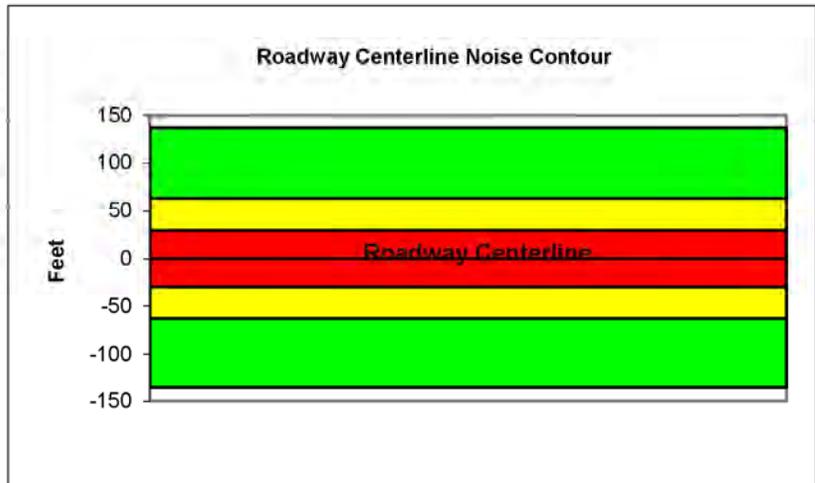
Project Name: Nevada County Housing Element Rezone Scenario: Existing
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Pleasant Valley Road
 Road Segment: North of SR-20

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	9495			
Receiver Barrier Dist:	0	Peak Hour Traffic:	949.5			
Centerline Dist. To Observer:	100	Vehicle Speed:	45			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	49.7	58.5	56.7	50.6	59.3	59.9
Medium Trucks:	58.0	49.9	43.6	42.0	50.5	50.7
Heavy Trucks:	62.5	50.6	41.5	42.7	52.3	52.4
Vehicle Noise:	64.9	59.8	57.1	51.9	60.5	61.0

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	136
65 dBA	63
70 dBA	29
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

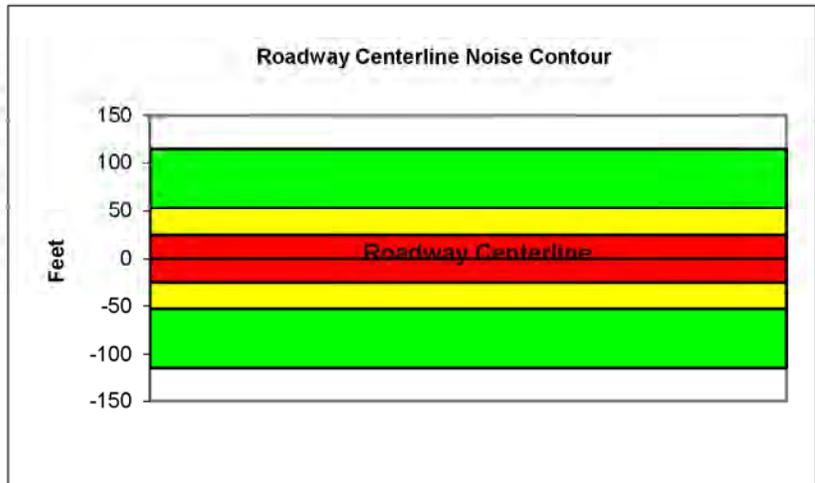
Project Name: Nevada County Housing Element Rezone Scenario: Existing
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Penn Valley Drive
 Road Segment: Pleasant Valley Road to Horton Street

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	7290			
Receiver Barrier Dist:	0	Peak Hour Traffic:	729			
Centerline Dist. To Observer:	100	Vehicle Speed:	45			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	48.6	57.4	55.6	49.5	58.1	58.7
Medium Trucks:	56.9	48.8	42.4	40.8	49.3	49.6
Heavy Trucks:	61.4	49.4	40.4	41.6	51.1	51.3
Vehicle Noise:	63.7	58.7	55.9	50.8	59.4	59.9

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	114
65 dBA	53
70 dBA	25
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

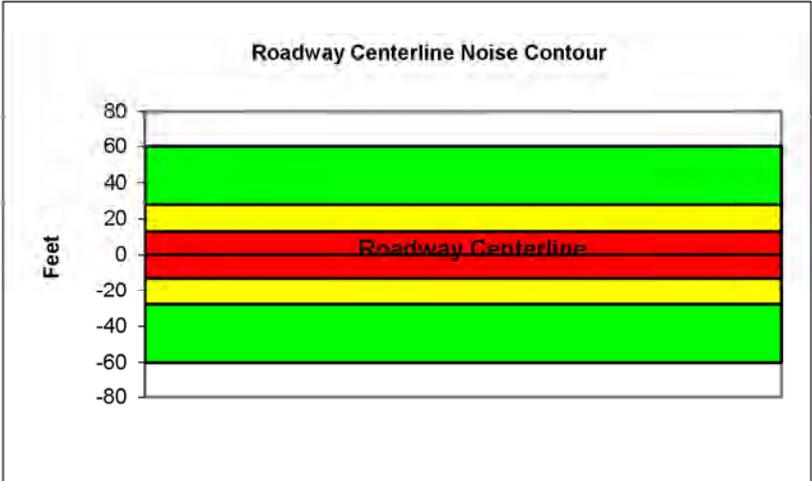
Project Name:	Nevada County Housing Element Rezone	Scenario:	Existing
Analyst:	Achilles Malisos	Job #:	60100827
Roadway:	Penn Valley Drive		
Road Segment:	Horton Street to Broken Oak Court		

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	2790			
Receiver Barrier Dist:	0	Peak Hour Traffic:	279			
Centerline Dist. To Observer:	100	Vehicle Speed:	45			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90	Lft View: -90	Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	44.4	53.2	51.4	45.3	54.0	54.6
Medium Trucks:	52.7	44.6	38.2	36.7	45.1	45.4
Heavy Trucks:	57.2	45.3	36.2	37.4	47.0	47.1
Vehicle Noise:	59.5	54.5	51.8	46.6	55.2	55.7

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	60
65 dBA	28
70 dBA	13
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

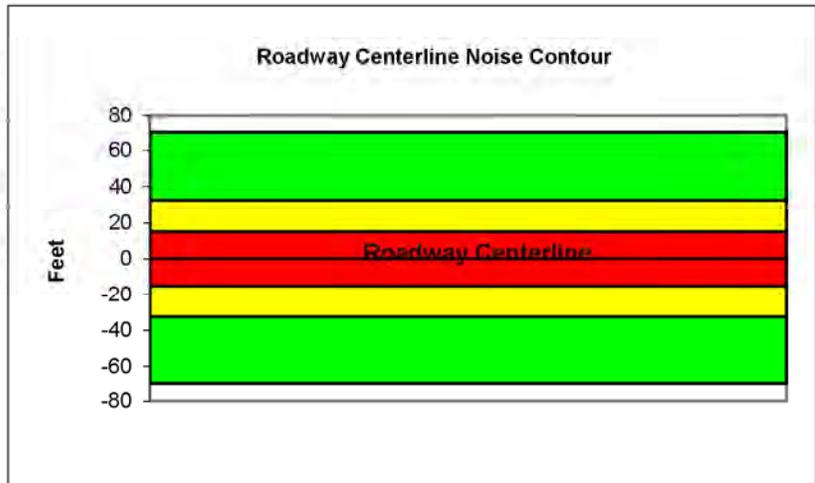
Project Name: Nevada County Housing Element Rezone Scenario: Existing
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Penn Valley Drive
 Road Segment: Broken Oak Court to Spenceville

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	3519			
Receiver Barrier Dist:	0	Peak Hour Traffic:	351.9			
Centerline Dist. To Observer:	100	Vehicle Speed:	45			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	45.4	54.2	52.4	46.3	55.0	55.6
Medium Trucks:	53.7	45.6	39.2	37.7	46.2	46.4
Heavy Trucks:	58.2	46.3	37.2	38.4	48.0	48.1
Vehicle Noise:	60.5	55.5	52.8	47.6	56.2	56.7

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	70
65 dBA	33
70 dBA	15
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

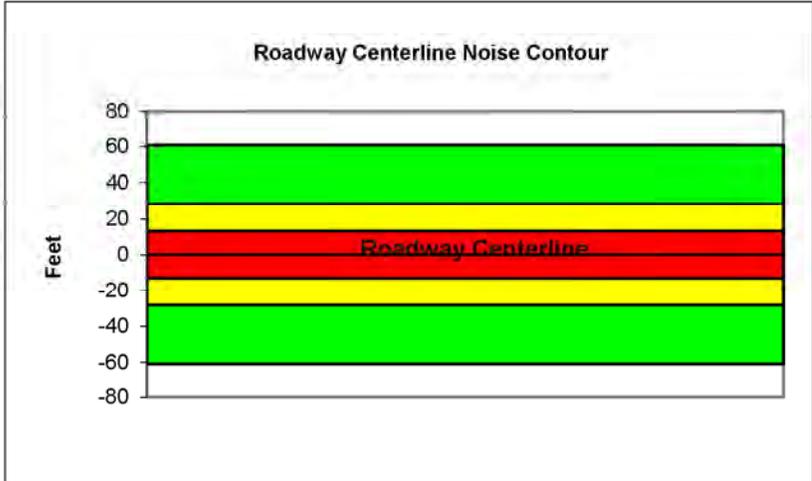
Project Name:	Nevada County Housing Element Rezone	Scenario:	Existing
Analyst:	Achilles Malisos	Job #:	60100827
Roadway:	Rough and Ready Hwy		
Road Segment:	North of SR-20		

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	2853			
Receiver Barrier Dist:	0	Peak Hour Traffic:	285.3			
Centerline Dist. To Observer:	100	Vehicle Speed:	45			
Barrier Near Lane CL Dist:	0	Centerline Separation:	30			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	44.6	53.4	51.6	45.5	54.2	54.8
Medium Trucks:	52.9	44.8	38.5	36.9	45.4	45.6
Heavy Trucks:	57.4	45.5	36.4	37.7	47.2	47.3
Vehicle Noise:	59.8	54.7	52.0	46.8	55.4	55.9

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	61
65 dBA	28
70 dBA	13
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

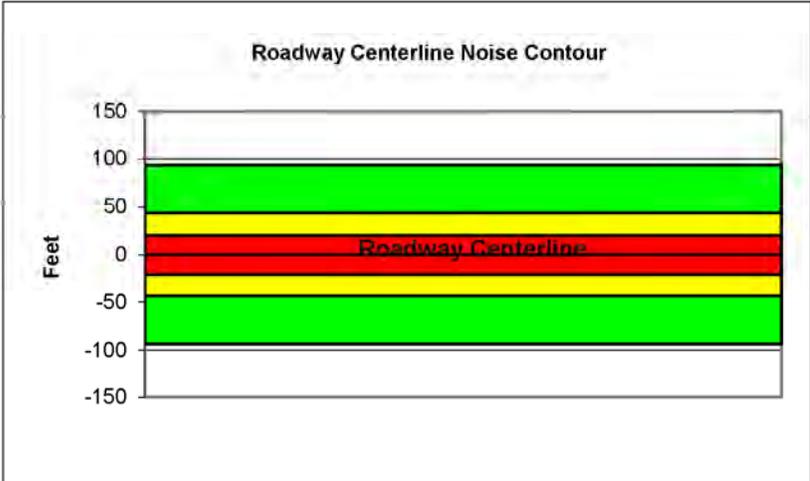
Project Name:	Nevada County Housing Element Rezone	Scenario:	Existing
Analyst:	Achilles Malisos	Job #:	60100827
Roadway:	Rough and Ready Hwy		
Road Segment:	South of SR-20		

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	5436			
Receiver Barrier Dist:	0	Peak Hour Traffic:	543.6			
Centerline Dist. To Observer:	100	Vehicle Speed:	45			
Barrier Near Lane CL Dist:	0	Centerline Separation:	30			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90	Lft View: -90	Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	47.4	56.2	54.4	48.3	57.0	57.6
Medium Trucks:	55.7	47.6	41.3	39.7	48.2	48.4
Heavy Trucks:	60.2	48.3	39.2	40.4	50.0	50.1
Vehicle Noise:	62.6	57.5	54.8	49.6	58.2	58.7

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	94
65 dBA	43
70 dBA	20
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

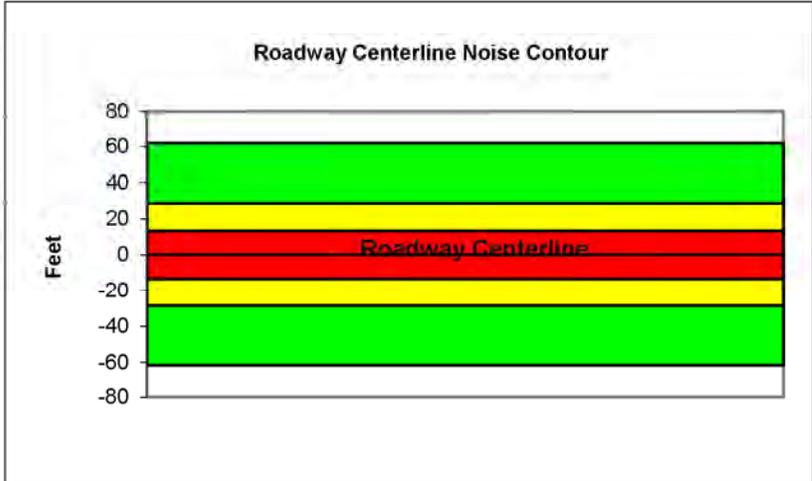
Project Name:	Nevada County Housing Element Rezone	Scenario:	Existing
Analyst:	Achilles Malisos	Job #:	60100827
Roadway:	Spenceville Road		
Road Segment:	South of Penn Valley Drive		

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	3843			
Receiver Barrier Dist:	0	Peak Hour Traffic:	384.3			
Centerline Dist. To Observer:	100	Vehicle Speed:	40			
Barrier Near Lane CL Dist:	0	Centerline Separation:	24			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90	Lft View: -90	Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	44.6	53.4	51.6	45.5	54.2	54.8
Medium Trucks:	53.6	45.5	39.1	37.5	46.0	46.3
Heavy Trucks:	58.4	46.5	37.4	38.6	48.3	48.5
Vehicle Noise:	60.8	55.0	52.0	47.1	55.7	56.2

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	62
65 dBA	29
70 dBA	13
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

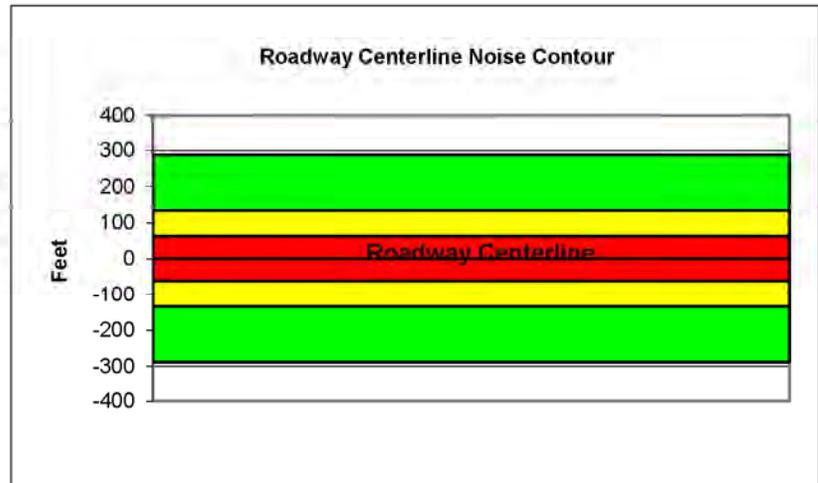
Project Name: Nevada County Housing Element Rezone Scenario: Existing
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: SR-49
 Road Segment: North of Cameo Drive

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	17676			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1767.6			
Centerline Dist. To Observer:	100	Vehicle Speed:	55			
Barrier Near Lane CL Dist:	0	Centerline Separation:	40			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.8	63.6	61.8	55.7	64.4	65.0
Medium Trucks:	61.9	53.9	47.5	45.9	54.4	54.6
Heavy Trucks:	65.9	54.0	44.9	46.1	55.4	55.5
Vehicle Noise:	68.2	64.5	62.1	56.7	65.3	65.8

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	288
65 dBA	134
70 dBA	62
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

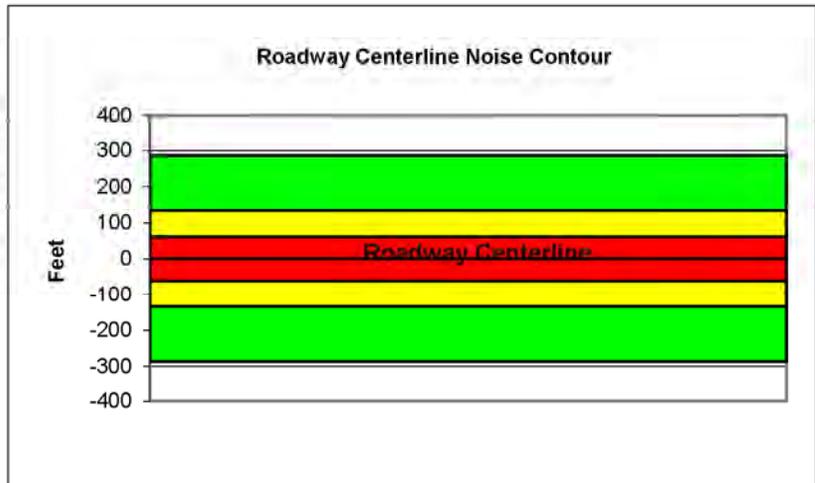
Project Name: Nevada County Housing Element Rezone Scenario: Existing
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: SR-49
 Road Segment: Cameo Drive to Combie Road

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	17604			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1760.4			
Centerline Dist. To Observer:	100	Vehicle Speed:	55			
Barrier Near Lane CL Dist:	0	Centerline Separation:	40			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.8	63.6	61.8	55.7	64.4	65.0
Medium Trucks:	61.9	53.9	47.5	45.9	54.4	54.6
Heavy Trucks:	65.9	53.9	44.9	46.1	55.4	55.5
Vehicle Noise:	68.2	64.5	62.1	56.6	65.2	65.8

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	287
65 dBA	133
70 dBA	62
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

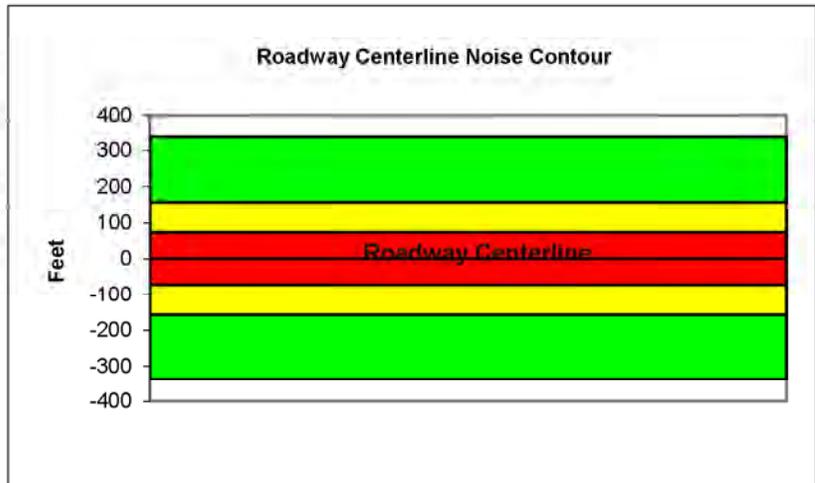
Project Name: Nevada County Housing Element Rezone Scenario: Existing
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: SR-49
 Road Segment: Combie Road to Woodridge Drive

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	22410			
Receiver Barrier Dist:	0	Peak Hour Traffic:	2241			
Centerline Dist. To Observer:	100	Vehicle Speed:	55			
Barrier Near Lane CL Dist:	0	Centerline Separation:	40			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	55.8	64.6	62.8	56.8	65.4	66.0
Medium Trucks:	63.0	54.9	48.5	47.0	55.4	55.7
Heavy Trucks:	66.9	55.0	45.9	47.2	56.4	56.5
Vehicle Noise:	69.2	65.6	63.1	57.7	66.3	66.8

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	337
65 dBA	156
70 dBA	73
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

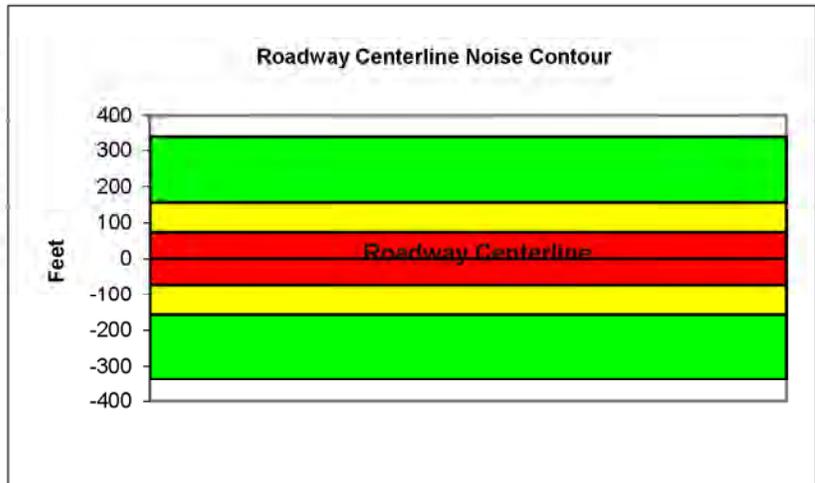
Project Name: Nevada County Housing Element Rezone Scenario: Existing
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: SR-49
 Road Segment: South of Woodridge Drive

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	22482			
Receiver Barrier Dist:	0	Peak Hour Traffic:	2248.2			
Centerline Dist. To Observer:	100	Vehicle Speed:	55			
Barrier Near Lane CL Dist:	0	Centerline Separation:	40			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	55.9	64.6	62.9	56.8	65.4	66.0
Medium Trucks:	63.0	54.9	48.5	47.0	55.5	55.7
Heavy Trucks:	66.9	55.0	46.0	47.2	56.4	56.6
Vehicle Noise:	69.3	65.6	63.1	57.7	66.3	66.8

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	338
65 dBA	157
70 dBA	73
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

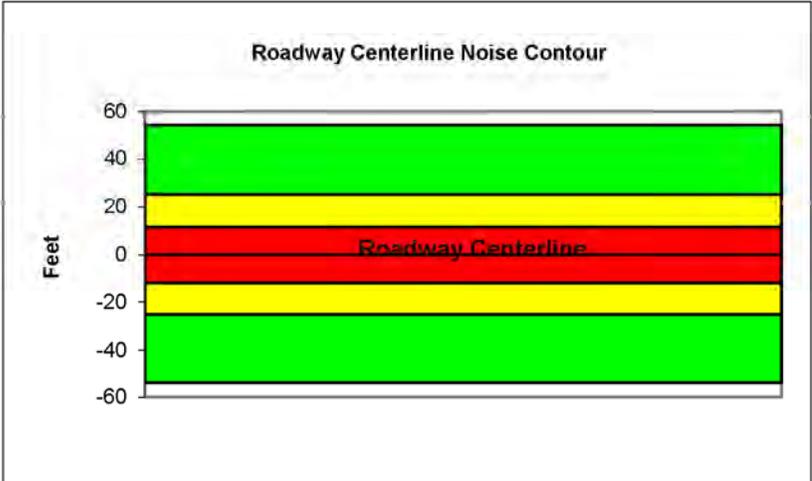
Project Name:	Nevada County Housing Element Rezone	Scenario:	Existing
Analyst:	Achilles Malisos	Job #:	60100827
Roadway:	Combie Road		
Road Segment:	West of SR-49		

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	4275			
Receiver Barrier Dist:	0	Peak Hour Traffic:	427.5			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90	Lft View: -90	Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	43.1	51.9	50.1	44.0	52.7	53.3
Medium Trucks:	52.8	44.8	38.4	36.8	45.3	45.5
Heavy Trucks:	58.1	46.1	37.1	38.3	48.2	48.3
Vehicle Noise:	60.5	53.9	50.7	46.0	54.5	55.0

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	54
65 dBA	25
70 dBA	12
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

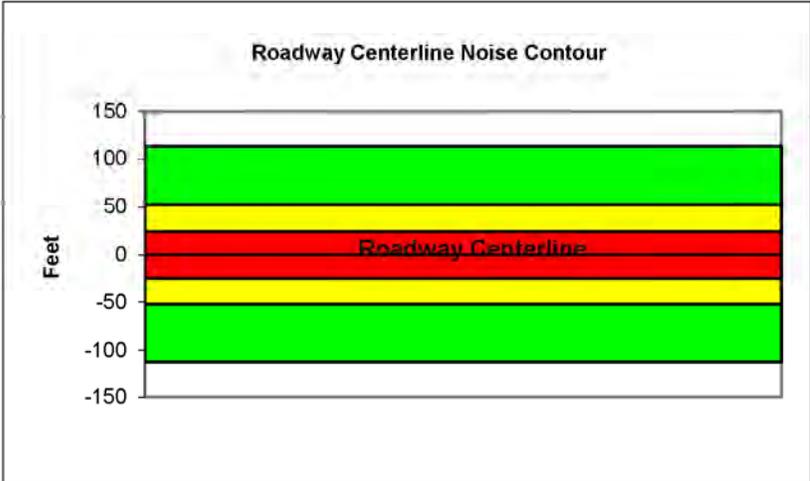
Project Name:	Nevada County Housing Element Rezone	Scenario:	Existing
Analyst:	Achilles Malisos	Job #:	60100827
Roadway:	Combie Road		
Road Segment:	East of SR-49		

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	12861			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1286.1			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90	Lft View: -90	Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	47.9	56.7	54.9	48.8	57.5	58.1
Medium Trucks:	57.6	49.6	43.2	41.6	50.1	50.3
Heavy Trucks:	62.8	50.9	41.8	43.1	53.0	53.1
Vehicle Noise:	65.3	58.6	55.5	50.8	59.3	59.8

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	112
65 dBA	52
70 dBA	24
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

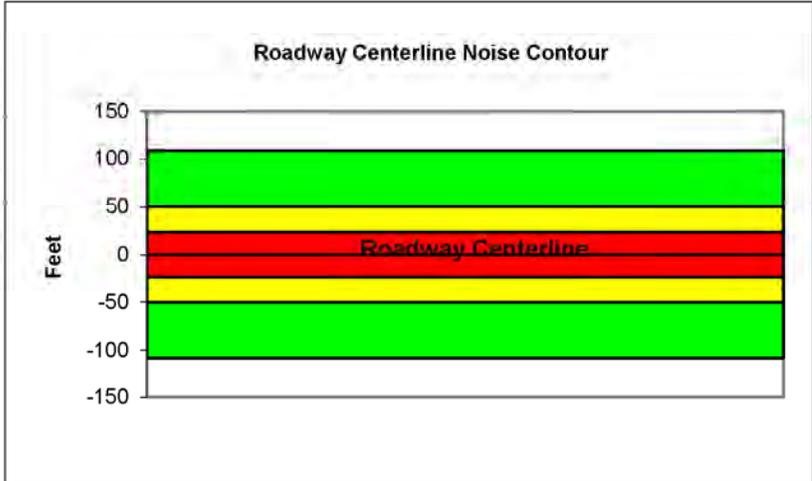
Project Name:	Nevada County Housing Element Rezone	Scenario:	Existing
Analyst:	Achilles Malisos	Job #:	60100827
Roadway:	Combie Road		
Road Segment:	West of Rosewood Drive		

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	12150			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1215			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90	Lft View: -90	Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	47.7	56.4	54.6	48.6	57.2	57.8
Medium Trucks:	57.4	49.3	42.9	41.3	49.8	50.1
Heavy Trucks:	62.6	50.7	41.6	42.8	52.7	52.8
Vehicle Noise:	65.0	58.4	55.2	50.5	59.1	59.5

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	108
65 dBA	50
70 dBA	23
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

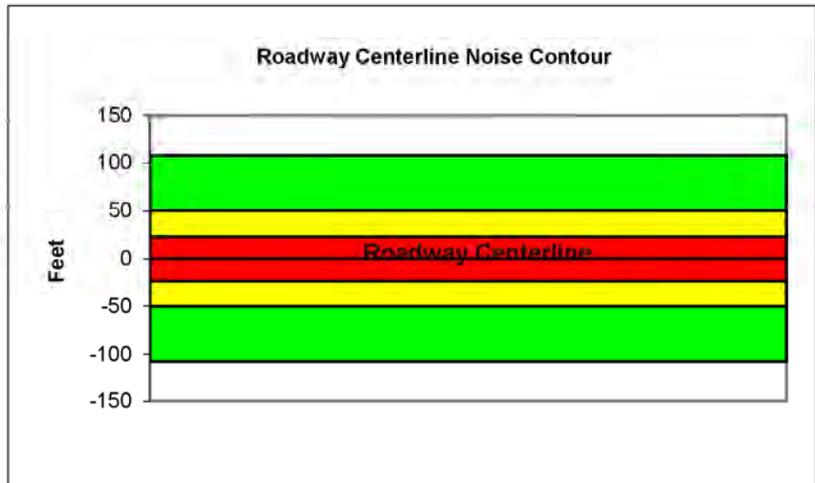
Project Name: Nevada County Housing Element Rezone Scenario: Existing
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Combie Road
 Road Segment: Rosewood Drive to Hacienda Drive

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	12051			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1205.1			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	47.6	56.4	54.6	48.5	57.2	57.8
Medium Trucks:	57.3	49.3	42.9	41.3	49.8	50.0
Heavy Trucks:	62.6	50.6	41.6	42.8	52.7	52.8
Vehicle Noise:	65.0	58.4	55.2	50.5	59.0	59.5

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	108
65 dBA	50
70 dBA	23
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

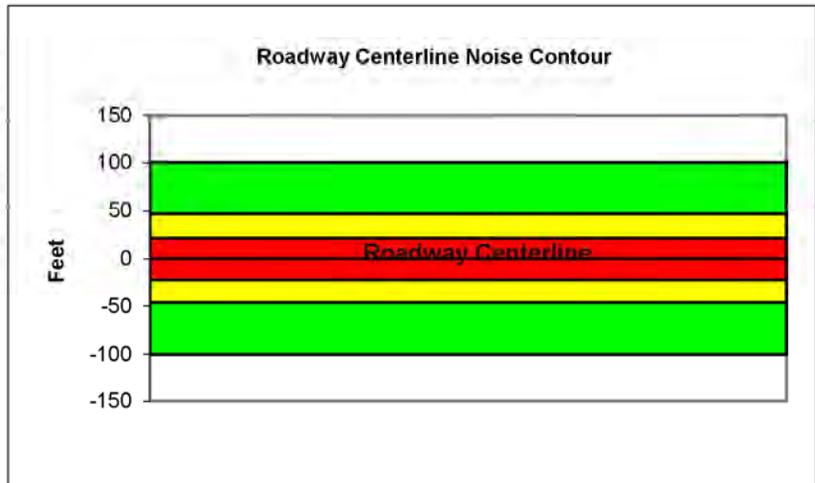
Project Name: Nevada County Housing Element Rezone Scenario: Existing
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Combie Road
 Road Segment: East of Hacienda Drive

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	10836			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1083.6			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lt View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	47.2	55.9	54.1	48.1	56.7	57.3
Medium Trucks:	56.9	48.8	42.4	40.9	49.3	49.6
Heavy Trucks:	62.1	50.2	41.1	42.3	52.2	52.4
Vehicle Noise:	64.5	57.9	54.7	50.0	58.6	59.0

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	100
65 dBA	47
70 dBA	22
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

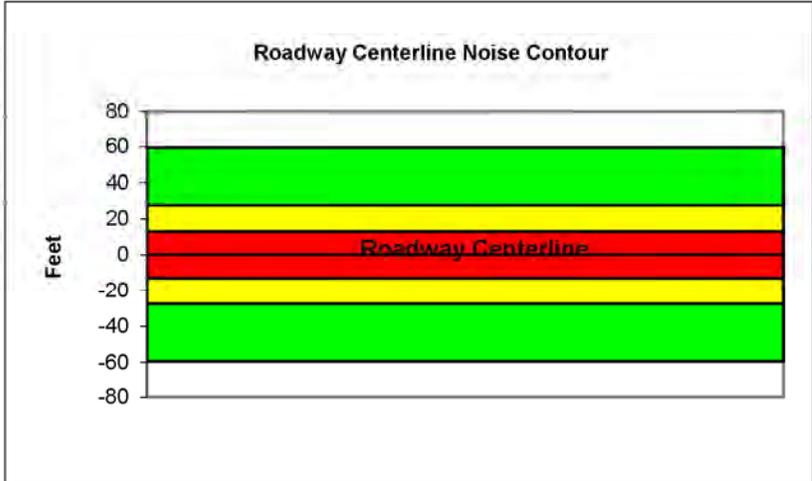
Project Name:	Nevada County Housing Element Rezone	Scenario:	Existing
Analyst:	Achilles Malisos	Job #:	60100827
Roadway:	Combie Road		
Road Segment:	South of Magnolia		

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	4959			
Receiver Barrier Dist:	0	Peak Hour Traffic:	495.9			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90	Lft View: -90	Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	43.8	52.5	50.8	44.7	53.3	53.9
Medium Trucks:	53.5	45.4	39.0	37.5	45.9	46.2
Heavy Trucks:	58.7	46.8	37.7	38.9	48.8	49.0
Vehicle Noise:	61.1	54.5	51.3	46.6	55.2	55.6

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	60
65 dBA	28
70 dBA	13
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

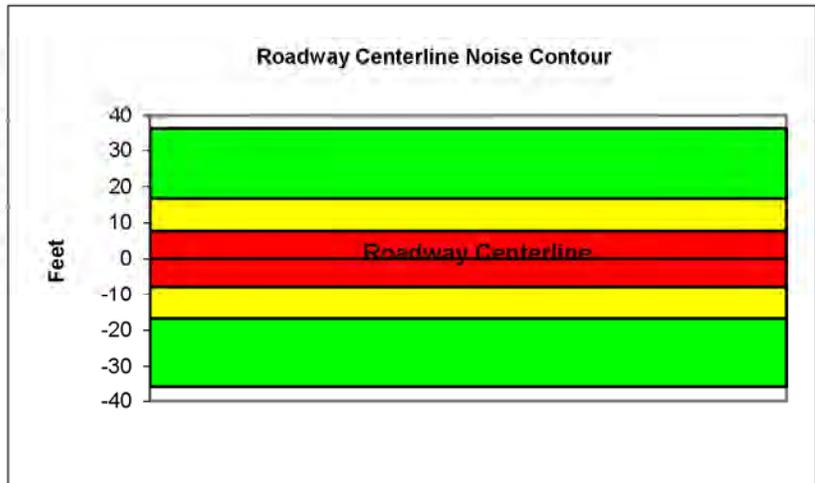
Project Name: Nevada County Housing Element Rezone Scenario: Existing
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Hacienda Drive
 Road Segment: North of Combie Road

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	2340			
Receiver Barrier Dist:	0	Peak Hour Traffic:	234			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	30			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	40.6	49.4	47.6	41.5	50.2	50.8
Medium Trucks:	50.3	42.3	35.9	34.3	42.8	43.0
Heavy Trucks:	55.6	43.6	34.6	35.8	45.7	45.8
Vehicle Noise:	58.0	51.4	48.2	43.5	52.1	52.5

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	36
65 dBA	17
70 dBA	8
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

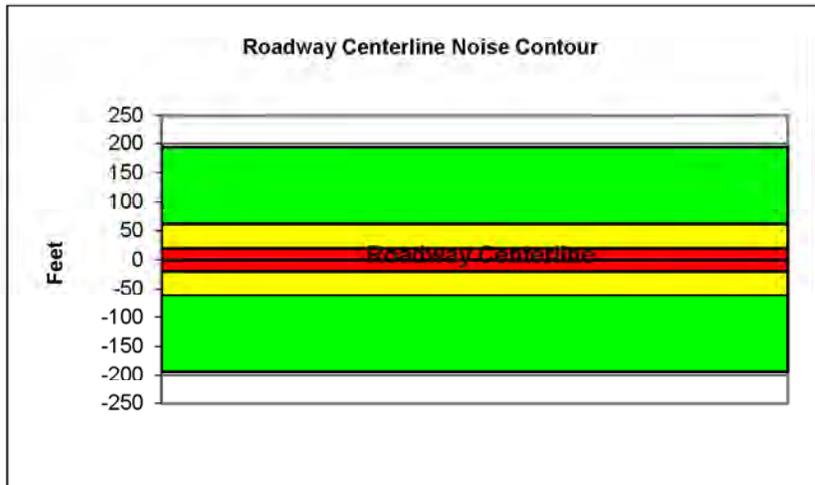
Project Name: Nevada County Housing Element Rezone Scenario: Future
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Nevada City Highway
 Road Segment: Dorsey to Brunswick

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	11241			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1124.1			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	40			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions HARD SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	0	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	50.3	59.0	57.3	51.2	59.8	60.4
Medium Trucks:	60.0	51.9	45.5	44.0	52.4	52.7
Heavy Trucks:	65.2	53.3	44.2	45.4	55.3	55.5
Vehicle Noise:	67.6	61.0	57.8	53.1	61.7	62.1

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	194
65 dBA	61
70 dBA	19
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

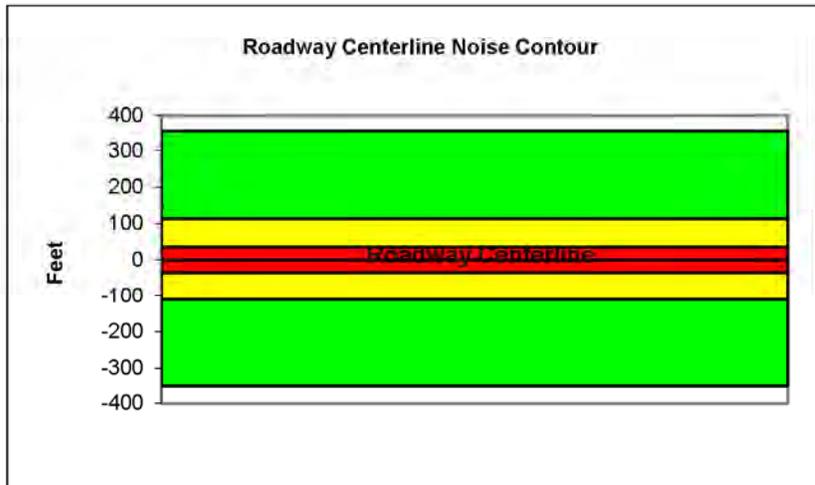
Project Name: Nevada County Housing Element Rezone Scenario: Future
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Nevada City Highway
 Road Segment: North of Brunswick

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	20475			
Receiver Barrier Dist:	0	Peak Hour Traffic:	2047.5			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	40			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions HARD SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	0	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	52.9	61.6	59.9	53.8	62.4	63.0
Medium Trucks:	62.6	54.5	48.1	46.6	55.0	55.3
Heavy Trucks:	67.8	55.9	46.8	48.0	57.9	58.1
Vehicle Noise:	70.2	63.6	60.4	55.7	64.3	64.8

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	353
65 dBA	112
70 dBA	35
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

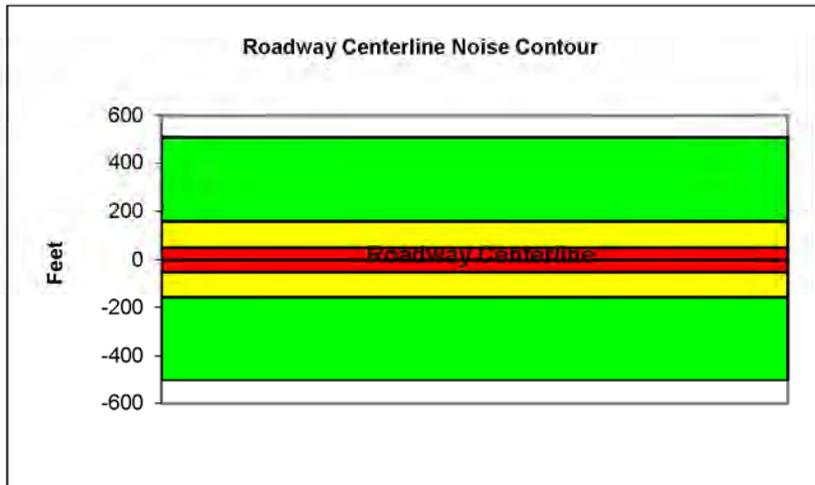
Project Name: Nevada County Housing Element Rezone Scenario: Future
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: SR-20
 Road Segment: SB On-Ramp

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	29232			
Receiver Barrier Dist:	0	Peak Hour Traffic:	2923.2			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	40			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions HARD SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	0	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.4	63.2	61.4	55.3	64.0	64.6
Medium Trucks:	64.1	56.1	49.7	48.1	56.6	56.8
Heavy Trucks:	69.3	57.4	48.4	49.6	59.5	59.6
Vehicle Noise:	71.8	65.1	62.0	57.3	65.8	66.3

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	504
65 dBA	159
70 dBA	50
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

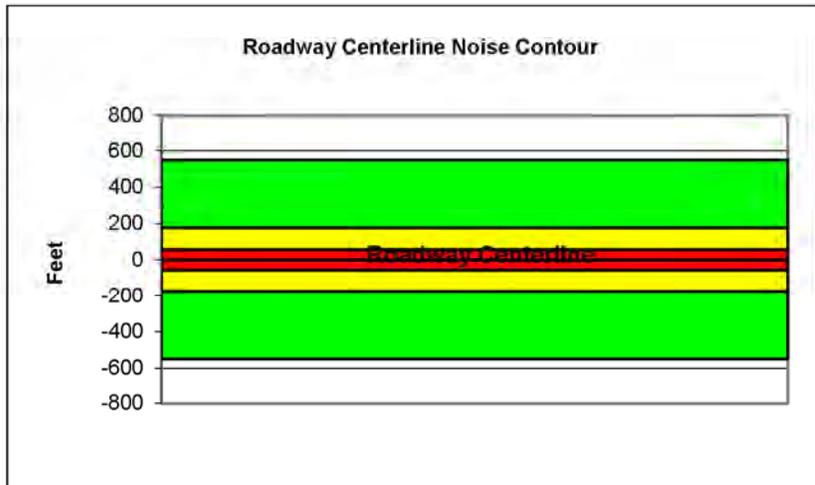
Project Name: Nevada County Housing Element Rezone Scenario: Future
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Brunswick
 Road Segment: SR-20 to Sutton Way

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	31,914			
Receiver Barrier Dist:	0	Peak Hour Traffic:	3191.4			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	50			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions HARD SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	0	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.6	63.4	61.6	55.6	64.2	64.8
Medium Trucks:	64.4	56.3	49.9	48.3	56.8	57.1
Heavy Trucks:	69.6	57.6	48.6	49.8	59.7	59.8
Vehicle Noise:	72.0	65.4	62.2	57.5	66.1	66.5

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	551
65 dBA	174
70 dBA	55
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

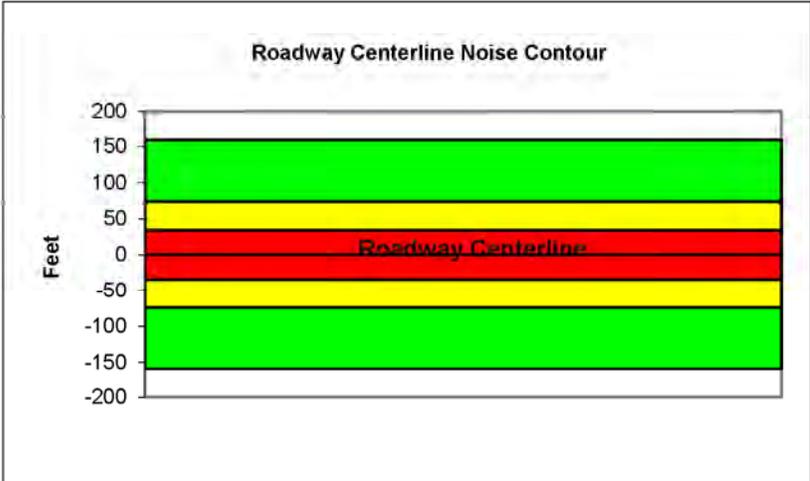
Project Name: Nevada County Housing Element Rezone Scenario: Future
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Brunswick
 Road Segment: Sutton to Old Tunnel

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	21636			
Receiver Barrier Dist:	0	Peak Hour Traffic:	2163.6			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	50			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	49.8	58.6	56.8	50.7	59.4	60.0
Medium Trucks:	59.5	51.5	45.1	43.5	52.0	52.2
Heavy Trucks:	64.8	52.8	43.8	45.0	54.9	55.0
Vehicle Noise:	67.2	60.6	57.4	52.7	61.2	61.7

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	159
65 dBA	74
70 dBA	34
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

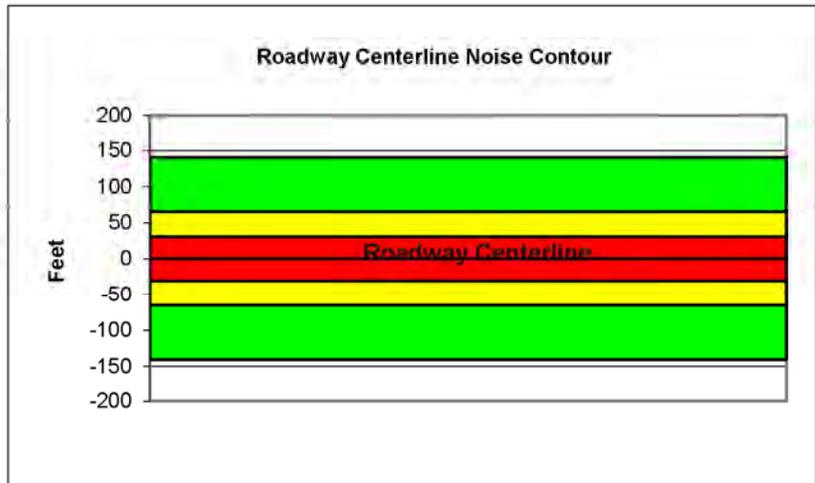
Project Name: Nevada County Housing Element Rezone Scenario: Future
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Brunswick
 Road Segment: Old Tunnel to Idaho-Maryland Rd

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	17973			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1797.3			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	50			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	49.0	57.8	56.0	49.9	58.6	59.2
Medium Trucks:	58.7	50.7	44.3	42.7	51.2	51.4
Heavy Trucks:	63.9	52.0	43.0	44.2	54.1	54.2
Vehicle Noise:	66.4	59.7	56.6	51.9	60.4	60.9

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	140
65 dBA	65
70 dBA	30
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

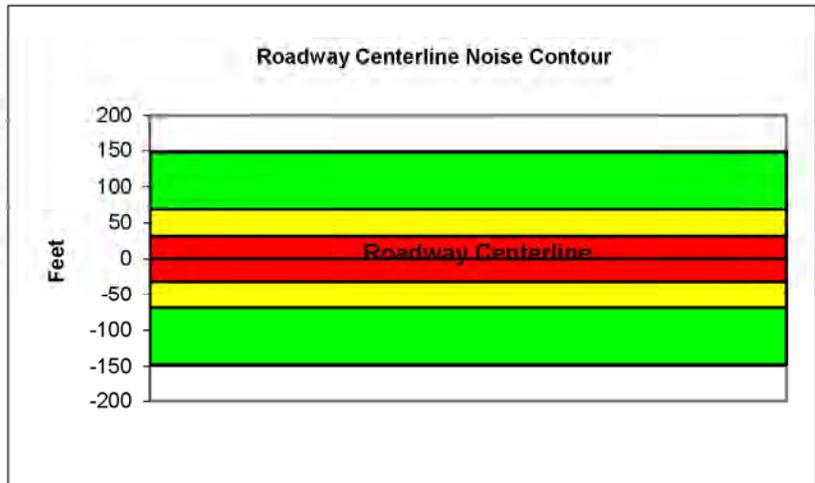
Project Name: Nevada County Housing Element Rezone Scenario: Future
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Brunswick
 Road Segment: South of Idaho-Maryland Rd

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	19296			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1929.6			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	50			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	49.3	58.1	56.3	50.2	58.9	59.5
Medium Trucks:	59.0	51.0	44.6	43.0	51.5	51.7
Heavy Trucks:	64.3	52.3	43.3	44.5	54.4	54.5
Vehicle Noise:	66.7	60.1	56.9	52.2	60.7	61.2

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	147
65 dBA	68
70 dBA	32
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

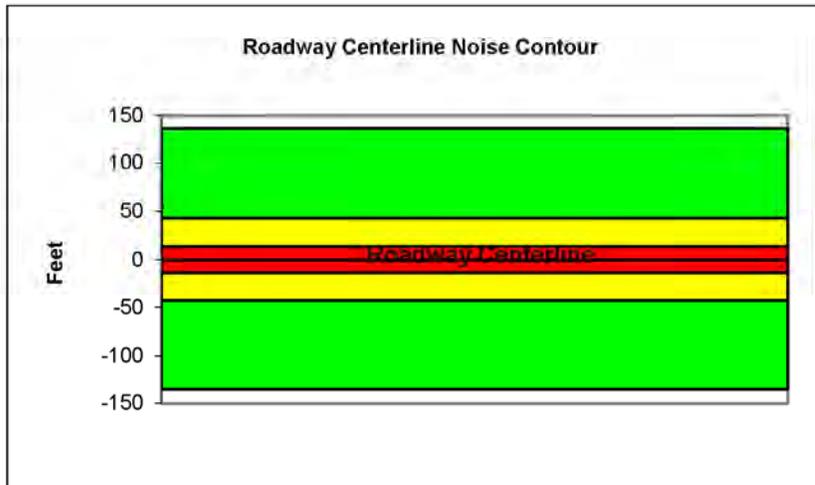
Project Name: Nevada County Housing Element Rezone Scenario: Future
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Sutton Way
 Road Segment: North of Brunswick Road

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	7,857			
Receiver Barrier Dist:	0	Peak Hour Traffic:	785.7			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	50			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions HARD SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	0	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	48.6	57.3	55.5	49.5	58.1	58.7
Medium Trucks:	58.3	50.2	43.8	42.3	50.7	51.0
Heavy Trucks:	63.5	51.6	42.5	43.7	53.6	53.8
Vehicle Noise:	65.9	59.3	56.1	51.4	60.0	60.4

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	136
65 dBA	43
70 dBA	14
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

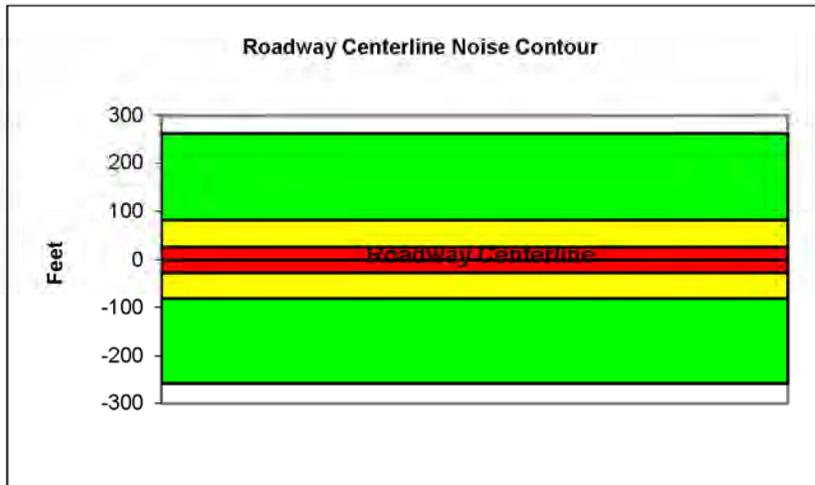
Project Name: Nevada County Housing Element Rezone Scenario: Future
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Sutton Way
 Road Segment: South of Brunswick Road

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	15,084			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1508.4			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	50			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions HARD SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	0	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	51.4	60.2	58.4	52.3	60.9	61.6
Medium Trucks:	61.1	53.0	46.7	45.1	53.6	53.8
Heavy Trucks:	66.3	54.4	45.3	46.6	56.5	56.6
Vehicle Noise:	68.8	62.1	58.9	54.3	62.8	63.3

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	260
65 dBA	82
70 dBA	26
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

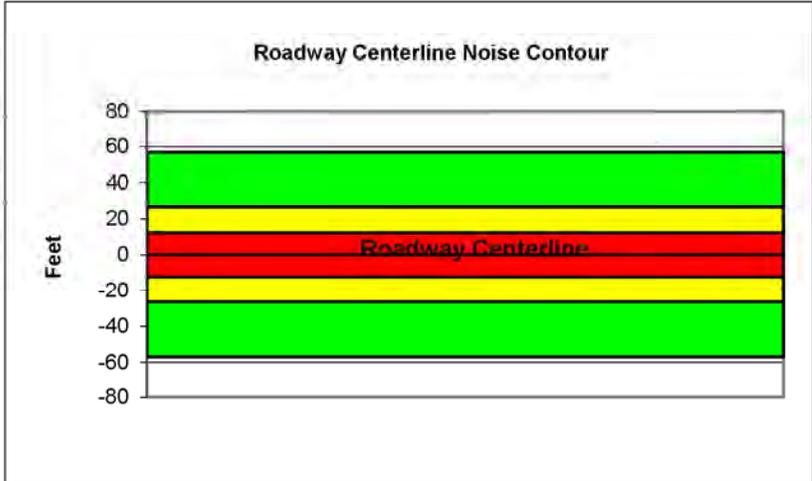
Project Name:	Nevada County Housing Element Rezone	Scenario:	Future
Analyst:	Achilles Malisos	Job #:	60100827
Roadway:	Idaho-Maryland Road		
Road Segment:	West of Brunswick Road		

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	4653			
Receiver Barrier Dist:	0	Peak Hour Traffic:	465.3			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	36			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90	Lft View: -90	Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	43.5	52.2	50.5	44.4	53.0	53.6
Medium Trucks:	53.2	45.1	38.7	37.2	45.6	45.9
Heavy Trucks:	58.4	46.5	37.4	38.6	48.5	48.7
Vehicle Noise:	60.8	54.2	51.0	46.3	54.9	55.3

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	57
65 dBA	26
70 dBA	12
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

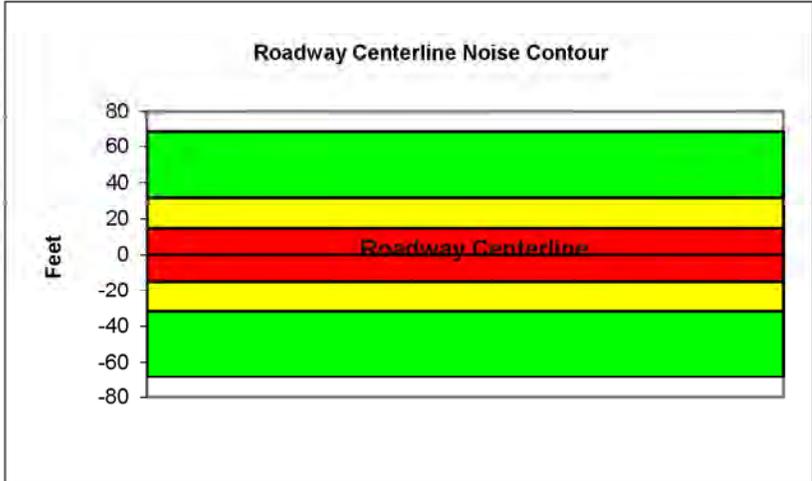
Project Name: Nevada County Housing Element Rezone Scenario: Future
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Idaho-Maryland Road
 Road Segment: East of Brunswick Road

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	6102			
Receiver Barrier Dist:	0	Peak Hour Traffic:	610.2			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	36			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	44.6	53.4	51.6	45.5	54.2	54.8
Medium Trucks:	54.4	46.3	39.9	38.3	46.8	47.1
Heavy Trucks:	59.6	47.6	38.6	39.8	49.7	49.8
Vehicle Noise:	62.0	55.4	52.2	47.5	56.1	56.5

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	68
65 dBA	32
70 dBA	15
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

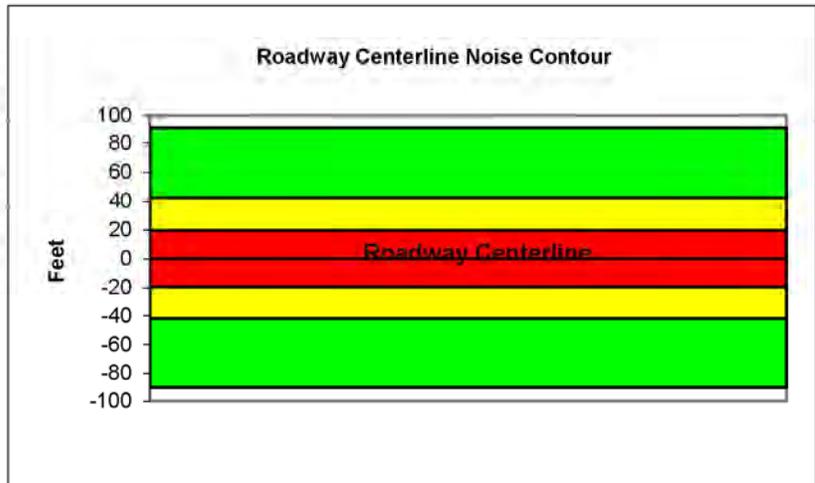
Project Name: Nevada County Housing Element Rezone Scenario: Future
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: McCourtney Road
 Road Segment: South of Personeni Road

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	9333			
Receiver Barrier Dist:	0	Peak Hour Traffic:	933.3			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	36			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	46.5	55.3	53.5	47.4	56.0	56.6
Medium Trucks:	56.2	48.1	41.8	40.2	48.7	48.9
Heavy Trucks:	61.4	49.5	40.4	41.6	51.6	51.7
Vehicle Noise:	63.9	57.2	54.0	49.3	57.9	58.4

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	91
65 dBA	42
70 dBA	20
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

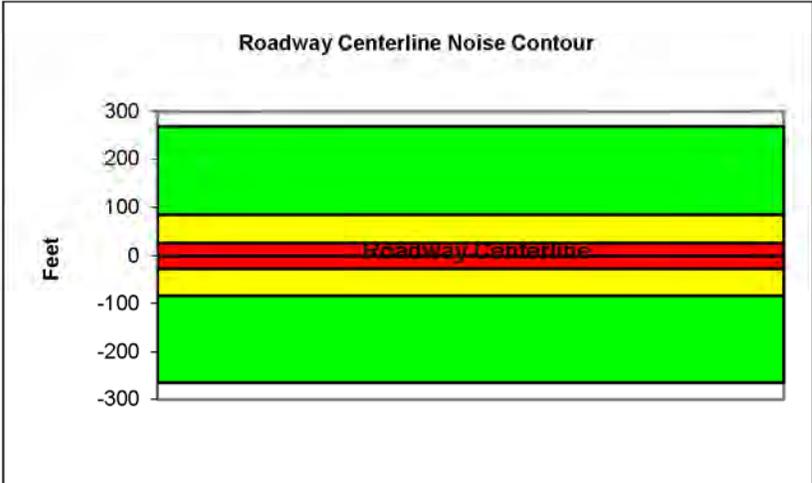
Project Name:	Nevada County Housing Element Rezone	Scenario:	Future
Analyst:	Achilles Malisos	Job #:	60100827
Roadway:	McKnight Way		
Road Segment:	East of SR-49		

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	15,471			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1547.1			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	50			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions HARD SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	0	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90	Lft View: -90	Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	51.5	60.3	58.5	52.4	61.1	61.7
Medium Trucks:	61.2	53.1	46.8	45.2	53.7	53.9
Heavy Trucks:	66.4	54.5	45.4	46.7	56.6	56.7
Vehicle Noise:	68.9	62.2	59.1	54.4	62.9	63.4

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	267
65 dBA	84
70 dBA	27
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

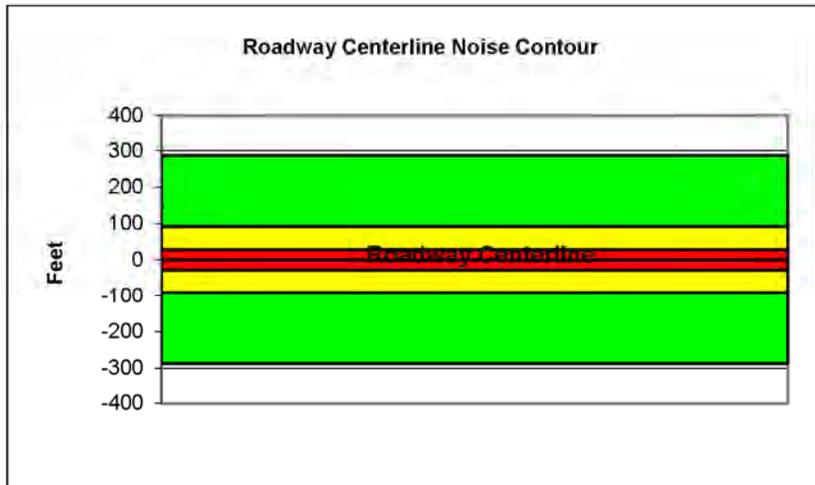
Project Name: Nevada County Housing Element Rezone Scenario: Future
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: McKnight Way
 Road Segment: SR-49 NB ramps to SB ramps

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	16,668			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1666.8			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	50			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions HARD SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	0	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	51.8	60.6	58.8	52.7	61.4	62.0
Medium Trucks:	61.5	53.5	47.1	45.5	54.0	54.2
Heavy Trucks:	66.8	54.8	45.8	47.0	56.9	57.0
Vehicle Noise:	69.2	62.6	59.4	54.7	63.3	63.7

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	287
65 dBA	91
70 dBA	29
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

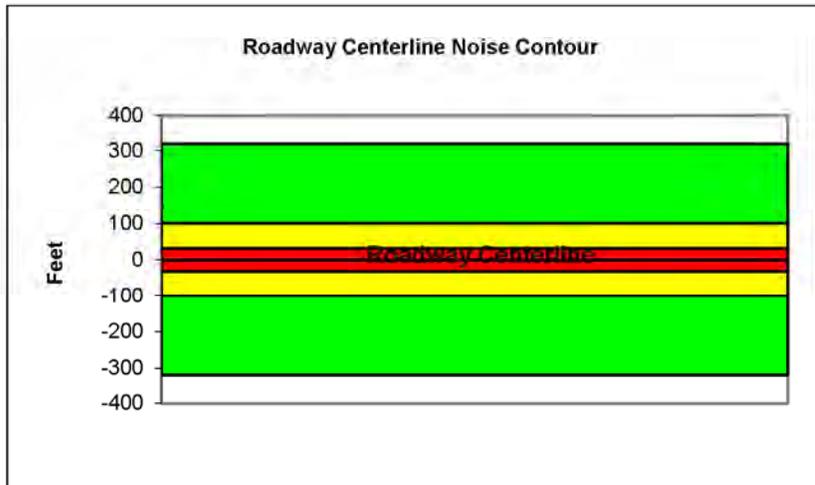
Project Name: Nevada County Housing Element Rezone Scenario: Future
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: McKnight Way
 Road Segment: SR-49 ramps to Auburn Street

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	18,504			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1850.4			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	50			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions HARD SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	0	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	52.3	61.1	59.3	53.2	61.8	62.4
Medium Trucks:	62.0	53.9	47.5	46.0	54.5	54.7
Heavy Trucks:	67.2	55.3	46.2	47.4	57.3	57.5
Vehicle Noise:	69.7	63.0	59.8	55.1	63.7	64.2

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	319
65 dBA	101
70 dBA	32
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

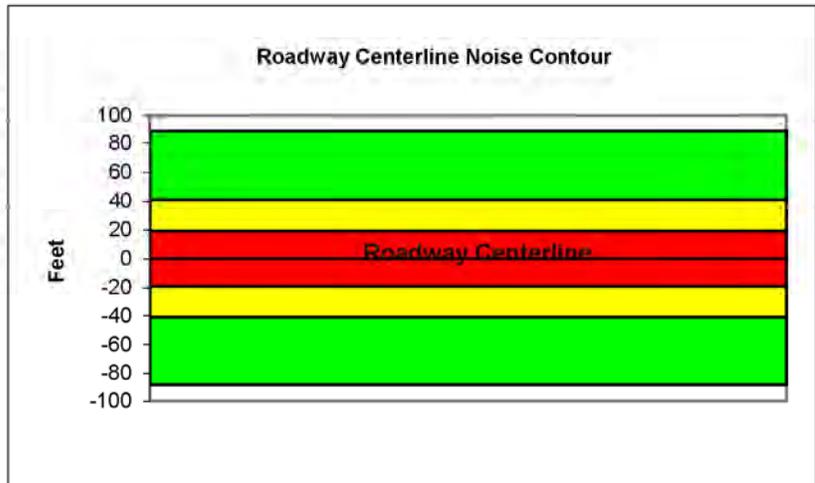
Project Name: Nevada County Housing Element Rezone Scenario: Future
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Auburn Street
 Road Segment: North of McKnight

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	9000			
Receiver Barrier Dist:	0	Peak Hour Traffic:	900			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	40			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lt View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	46.2	55.0	53.2	47.1	55.8	56.4
Medium Trucks:	55.9	47.9	41.5	39.9	48.4	48.6
Heavy Trucks:	61.2	49.2	40.2	41.4	51.3	51.4
Vehicle Noise:	63.6	57.0	53.8	49.1	57.7	58.1

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	89
65 dBA	41
70 dBA	19
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

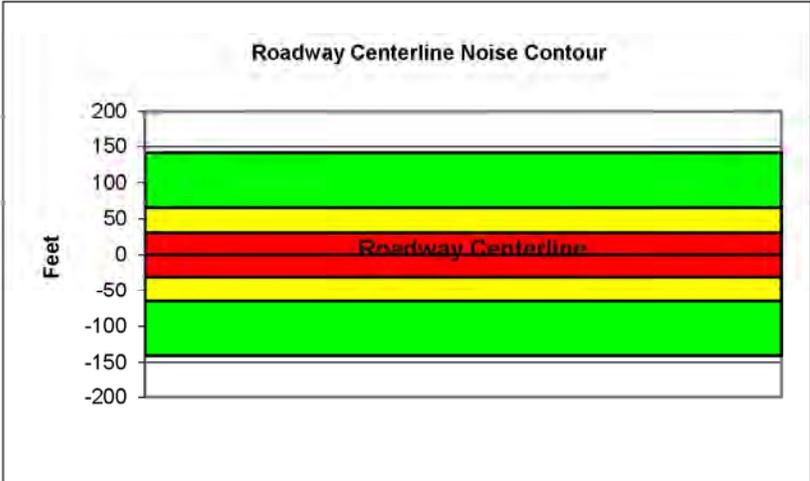
Project Name:	Nevada County Housing Element Rezone	Scenario:	Future
Analyst:	Achilles Malisos	Job #:	60100827
Roadway:	La Barr Meadows Road		
Road Segment:	South of McKnight		

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	18090			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1809			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	40			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	49.3	58.0	56.3	50.2	58.8	59.4
Medium Trucks:	59.0	50.9	44.5	43.0	51.4	51.7
Heavy Trucks:	64.2	52.3	43.2	44.4	54.3	54.5
Vehicle Noise:	66.6	60.0	56.8	52.1	60.7	61.1

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	141
65 dBA	65
70 dBA	30
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

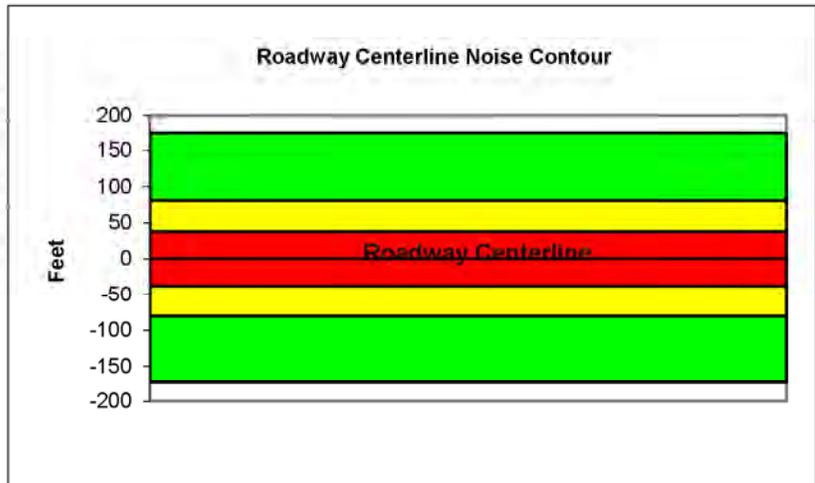
Project Name: Nevada County Housing Element Rezone Scenario: Future
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: SR-20
 Road Segment: West of Pleasant Valley Road

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	8289			
Receiver Barrier Dist:	0	Peak Hour Traffic:	828.9			
Centerline Dist. To Observer:	100	Vehicle Speed:	55			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	51.6	60.4	58.6	52.6	61.2	61.8
Medium Trucks:	58.8	50.7	44.3	42.7	51.2	51.5
Heavy Trucks:	62.7	50.8	41.7	43.0	52.2	52.3
Vehicle Noise:	65.0	61.4	58.9	53.5	62.1	62.6

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	174
65 dBA	81
70 dBA	37
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

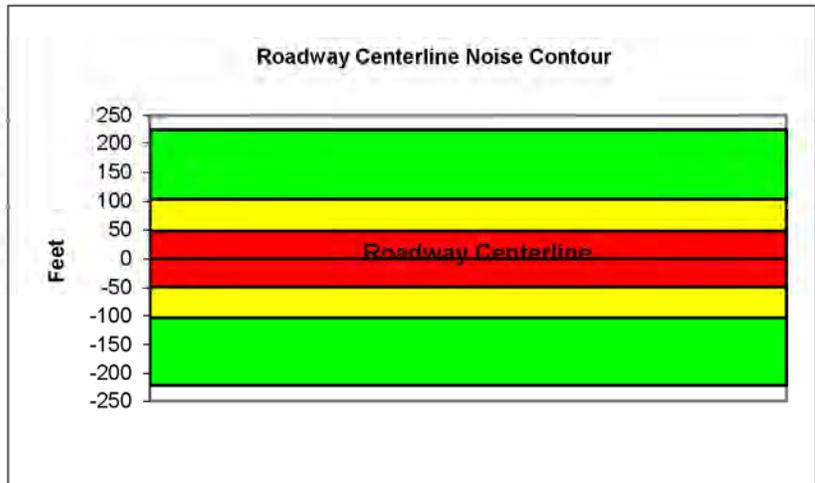
Project Name: Nevada County Housing Element Rezone Scenario: Future
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: SR-20
 Road Segment: Pleasant Valley Road to Rough and Ready Hwy

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	12078			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1207.8			
Centerline Dist. To Observer:	100	Vehicle Speed:	55			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	53.3	62.1	60.3	54.2	62.8	63.4
Medium Trucks:	60.4	52.3	46.0	44.4	52.9	53.1
Heavy Trucks:	64.4	52.4	43.4	44.6	53.9	54.0
Vehicle Noise:	66.7	63.0	60.5	55.1	63.7	64.3

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	223
65 dBA	104
70 dBA	48
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

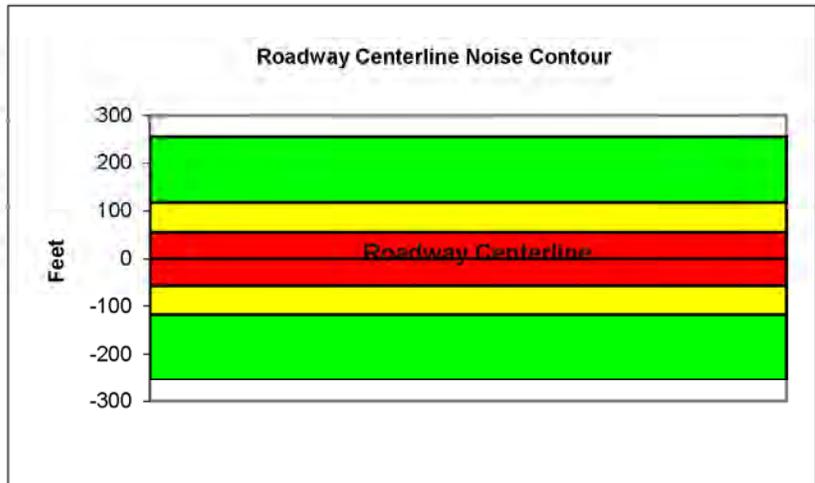
Project Name: Nevada County Housing Element Rezone Scenario: Future
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: SR-20
 Road Segment: East of Rough and Ready Hwy

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	14634			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1463.4			
Centerline Dist. To Observer:	100	Vehicle Speed:	55			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.1	62.9	61.1	55.0	63.7	64.3
Medium Trucks:	61.2	53.2	46.8	45.2	53.7	53.9
Heavy Trucks:	65.2	53.3	44.2	45.4	54.7	54.8
Vehicle Noise:	67.5	63.8	61.4	56.0	64.6	65.1

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	254
65 dBA	118
70 dBA	55
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

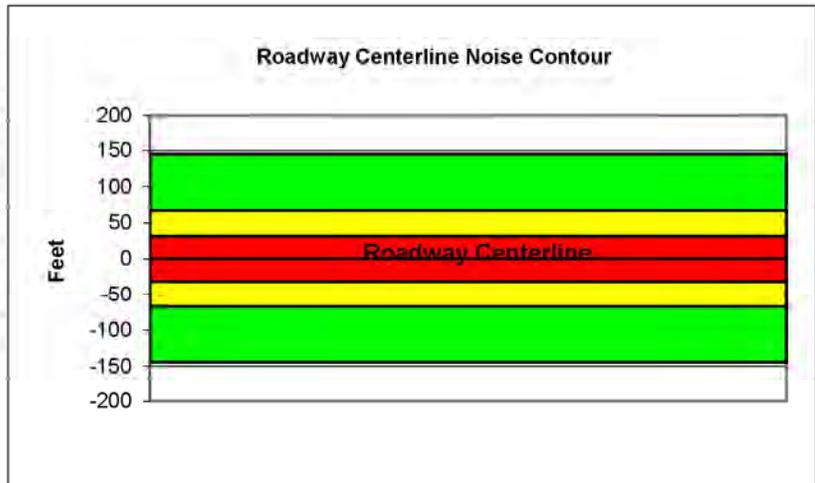
Project Name: Nevada County Housing Element Rezone Scenario: Future
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Pleasant Valley Road
 Road Segment: North of SR-20

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	10404			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1040.4			
Centerline Dist. To Observer:	100	Vehicle Speed:	45			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	50.1	58.9	57.1	51.0	59.7	60.3
Medium Trucks:	58.4	50.3	44.0	42.4	50.9	51.1
Heavy Trucks:	62.9	51.0	41.9	43.1	52.7	52.8
Vehicle Noise:	65.3	60.2	57.5	52.3	60.9	61.4

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	144
65 dBA	67
70 dBA	31
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

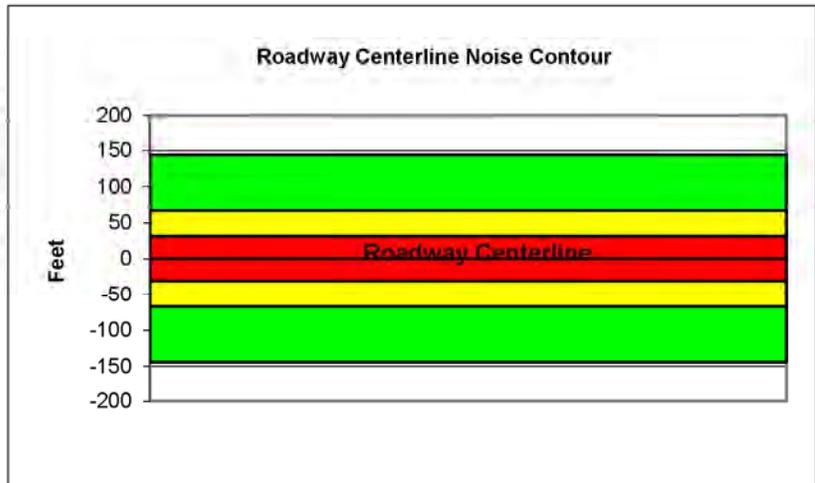
Project Name: Nevada County Housing Element Rezone Scenario: Future
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Penn Valley Drive
 Road Segment: Pleasant Valley Road to Horton Street

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	10350			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1035			
Centerline Dist. To Observer:	100	Vehicle Speed:	45			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	50.1	58.9	57.1	51.0	59.7	60.3
Medium Trucks:	58.4	50.3	43.9	42.4	50.8	51.1
Heavy Trucks:	62.9	51.0	41.9	43.1	52.7	52.8
Vehicle Noise:	65.2	60.2	57.5	52.3	60.9	61.4

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	144
65 dBA	67
70 dBA	31
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

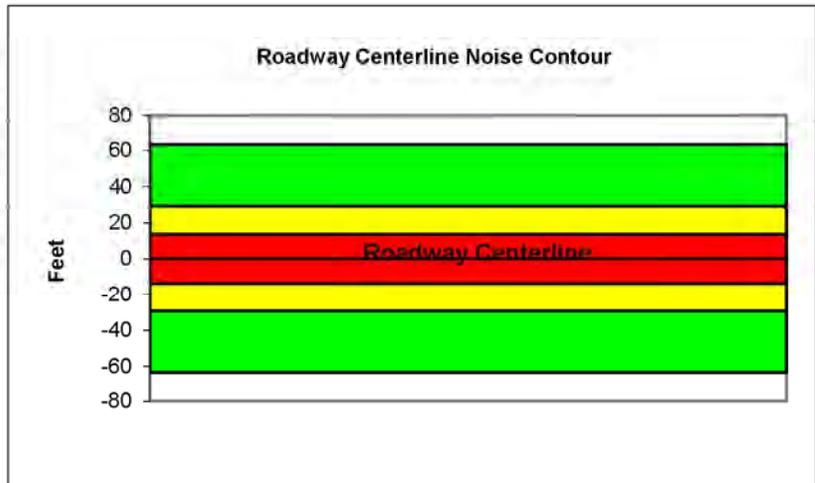
Project Name: Nevada County Housing Element Rezone Scenario: Future
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Penn Valley Drive
 Road Segment: Horton Street to Broken Oak Court

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	3024			
Receiver Barrier Dist:	0	Peak Hour Traffic:	302.4			
Centerline Dist. To Observer:	100	Vehicle Speed:	45			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	44.8	53.5	51.7	45.7	54.3	54.9
Medium Trucks:	53.0	45.0	38.6	37.0	45.5	45.7
Heavy Trucks:	57.6	45.6	36.6	37.8	47.3	47.5
Vehicle Noise:	59.9	54.8	52.1	47.0	55.6	56.1

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	63
65 dBA	29
70 dBA	14
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

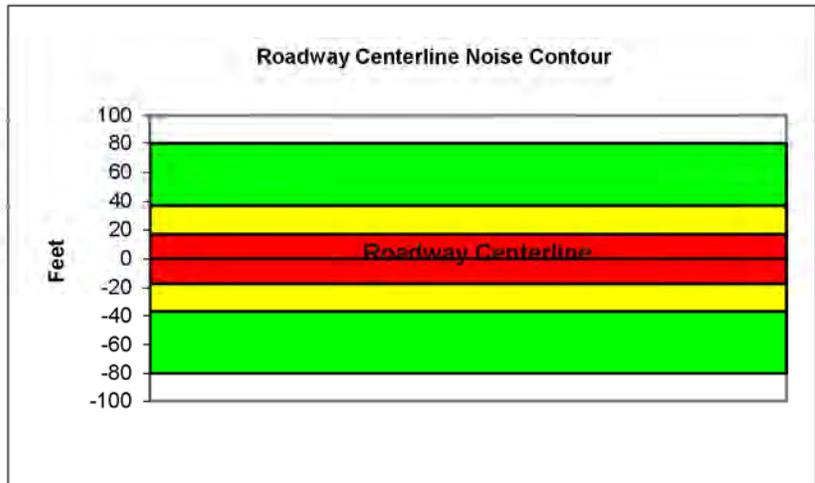
Project Name: Nevada County Housing Element Rezone Scenario: Future
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Penn Valley Drive
 Road Segment: Broken Oak Court to Spenceville

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	4275			
Receiver Barrier Dist:	0	Peak Hour Traffic:	427.5			
Centerline Dist. To Observer:	100	Vehicle Speed:	45			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	46.3	55.0	53.3	47.2	55.8	56.4
Medium Trucks:	54.5	46.5	40.1	38.5	47.0	47.2
Heavy Trucks:	59.1	47.1	38.1	39.3	48.8	49.0
Vehicle Noise:	61.4	56.3	53.6	48.5	57.1	57.6

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	80
65 dBA	37
70 dBA	17
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

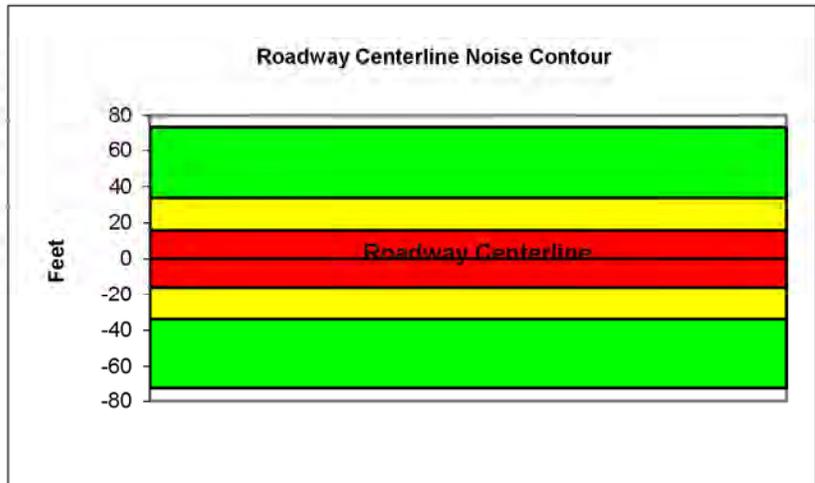
Project Name: Nevada County Housing Element Rezone Scenario: Future
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Rough and Ready Hwy
 Road Segment: North of SR-20

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	3717			
Receiver Barrier Dist:	0	Peak Hour Traffic:	371.7			
Centerline Dist. To Observer:	100	Vehicle Speed:	45			
Barrier Near Lane CL Dist:	0	Centerline Separation:	30			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	45.8	54.6	52.8	46.7	55.3	55.9
Medium Trucks:	54.1	46.0	39.6	38.0	46.5	46.8
Heavy Trucks:	58.6	46.6	37.6	38.8	48.3	48.5
Vehicle Noise:	60.9	55.9	53.1	48.0	56.6	57.1

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	73
65 dBA	34
70 dBA	16
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

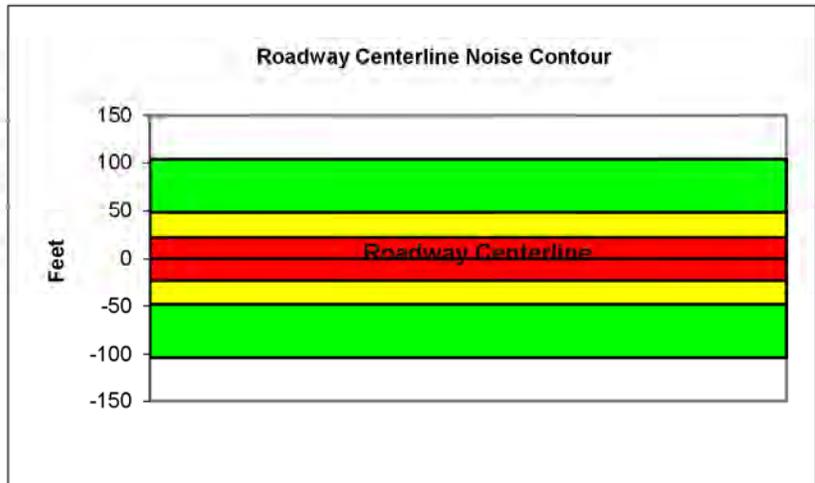
Project Name: Nevada County Housing Element Rezone Scenario: Future
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Rough and Ready Hwy
 Road Segment: South of SR-20

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	6300			
Receiver Barrier Dist:	0	Peak Hour Traffic:	630			
Centerline Dist. To Observer:	100	Vehicle Speed:	45			
Barrier Near Lane CL Dist:	0	Centerline Separation:	30			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	48.1	56.8	55.1	49.0	57.6	58.2
Medium Trucks:	56.3	48.3	41.9	40.3	48.8	49.0
Heavy Trucks:	60.9	48.9	39.9	41.1	50.6	50.8
Vehicle Noise:	63.2	58.1	55.4	50.3	58.9	59.4

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	104
65 dBA	48
70 dBA	22
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

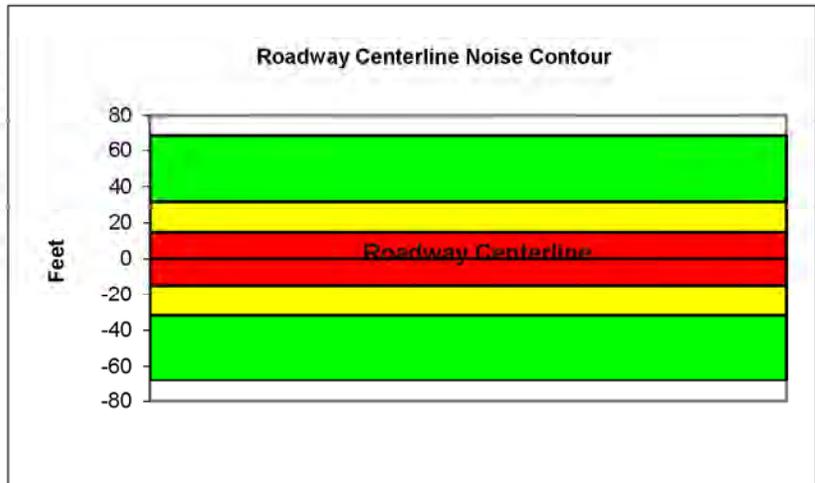
Project Name: Nevada County Housing Element Rezone Scenario: Future
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Spenceville Road
 Road Segment: South of Penn Valley Drive

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	4473			
Receiver Barrier Dist:	0	Peak Hour Traffic:	447.3			
Centerline Dist. To Observer:	100	Vehicle Speed:	40			
Barrier Near Lane CL Dist:	0	Centerline Separation:	24			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	45.3	54.0	52.3	46.2	54.8	55.4
Medium Trucks:	54.2	46.1	39.8	38.2	46.7	46.9
Heavy Trucks:	59.1	47.1	38.1	39.3	49.0	49.1
Vehicle Noise:	61.4	55.6	52.7	47.7	56.3	56.8

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	68
65 dBA	32
70 dBA	15
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

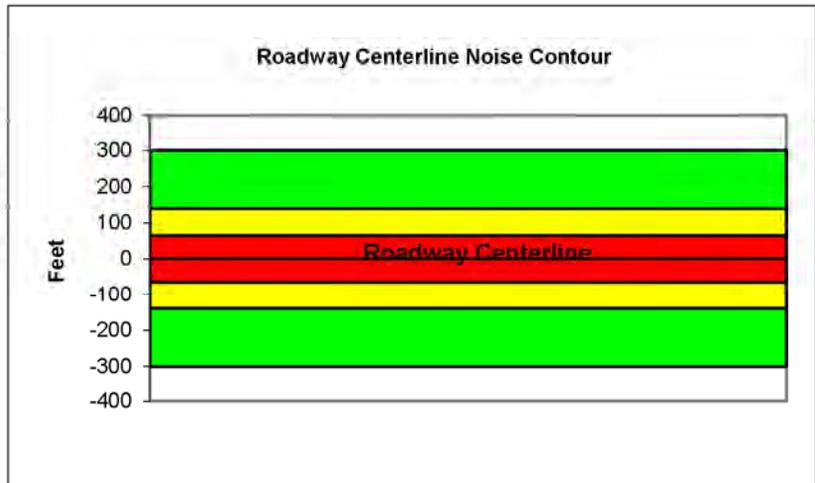
Project Name: Nevada County Housing Element Rezone Scenario: Future
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: SR-49
 Road Segment: North of Cameo Drive

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	18819			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1881.9			
Centerline Dist. To Observer:	100	Vehicle Speed:	55			
Barrier Near Lane CL Dist:	0	Centerline Separation:	40			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	55.1	63.9	62.1	56.0	64.6	65.3
Medium Trucks:	62.2	54.1	47.8	46.2	54.7	54.9
Heavy Trucks:	66.2	54.2	45.2	46.4	55.7	55.8
Vehicle Noise:	68.5	64.8	62.3	56.9	65.5	66.1

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	300
65 dBA	139
70 dBA	65
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

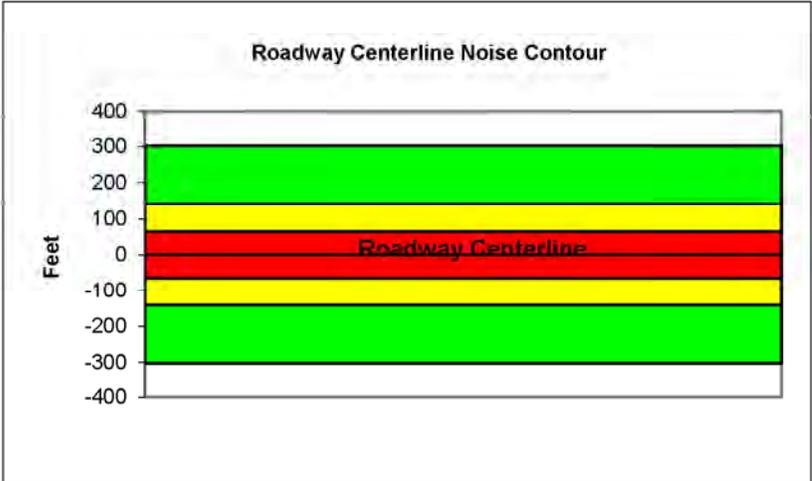
Project Name: Nevada County Housing Element Rezone Scenario: Future
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: SR-49
 Road Segment: Cameo Drive to Combie Road

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	19071			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1907.1			
Centerline Dist. To Observer:	100	Vehicle Speed:	55			
Barrier Near Lane CL Dist:	0	Centerline Separation:	40			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	55.1	63.9	62.1	56.1	64.7	65.3
Medium Trucks:	62.3	54.2	47.8	46.2	54.7	55.0
Heavy Trucks:	66.2	54.3	45.2	46.5	55.7	55.8
Vehicle Noise:	68.5	64.9	62.4	57.0	65.6	66.1

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	303
65 dBA	141
70 dBA	65
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

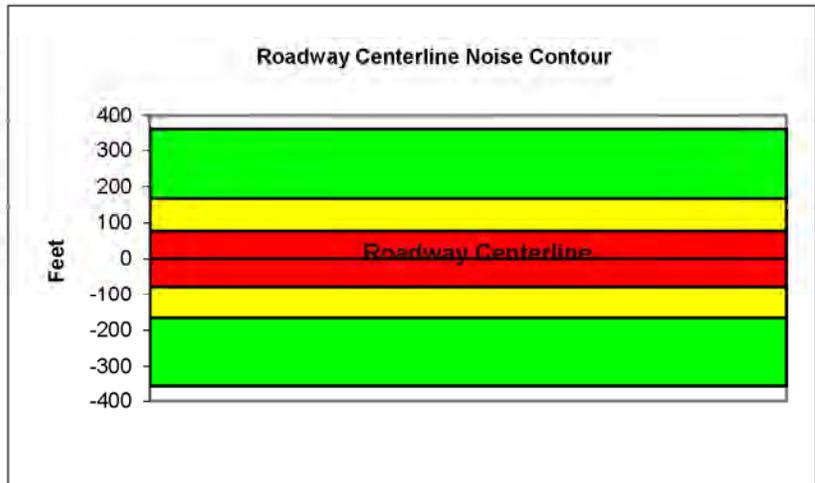
Project Name: Nevada County Housing Element Rezone Scenario: Future
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: SR-49
 Road Segment: Combie Road to Woodridge Drive

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	24624			
Receiver Barrier Dist:	0	Peak Hour Traffic:	2462.4			
Centerline Dist. To Observer:	100	Vehicle Speed:	55			
Barrier Near Lane CL Dist:	0	Centerline Separation:	40			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.3	65.0	63.2	57.2	65.8	66.4
Medium Trucks:	63.4	55.3	48.9	47.4	55.8	56.1
Heavy Trucks:	67.3	55.4	46.4	47.6	56.8	57.0
Vehicle Noise:	69.7	66.0	63.5	58.1	66.7	67.2

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	359
65 dBA	167
70 dBA	77
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

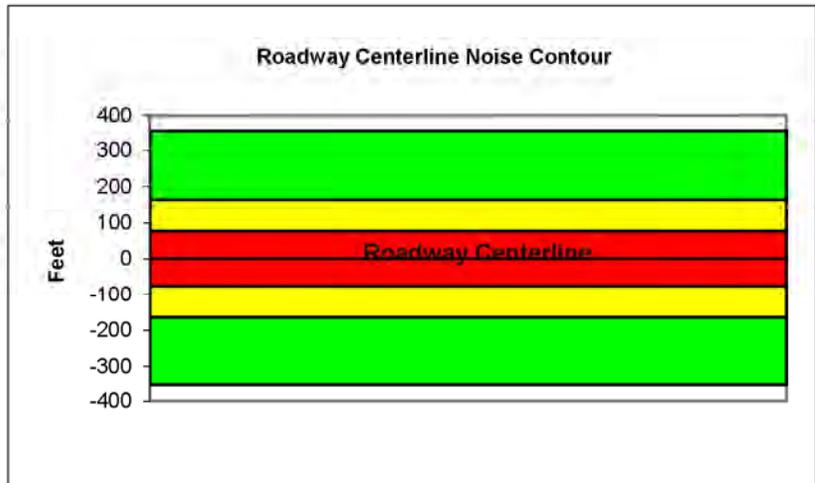
Project Name: Nevada County Housing Element Rezone Scenario: Future
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: SR-49
 Road Segment: South of Woodridge Drive

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	24111			
Receiver Barrier Dist:	0	Peak Hour Traffic:	2411.1			
Centerline Dist. To Observer:	100	Vehicle Speed:	55			
Barrier Near Lane CL Dist:	0	Centerline Separation:	40			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.2	64.9	63.2	57.1	65.7	66.3
Medium Trucks:	63.3	55.2	48.8	47.3	55.8	56.0
Heavy Trucks:	67.3	55.3	46.3	47.5	56.7	56.9
Vehicle Noise:	69.6	65.9	63.4	58.0	66.6	67.1

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	354
65 dBA	164
70 dBA	76
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

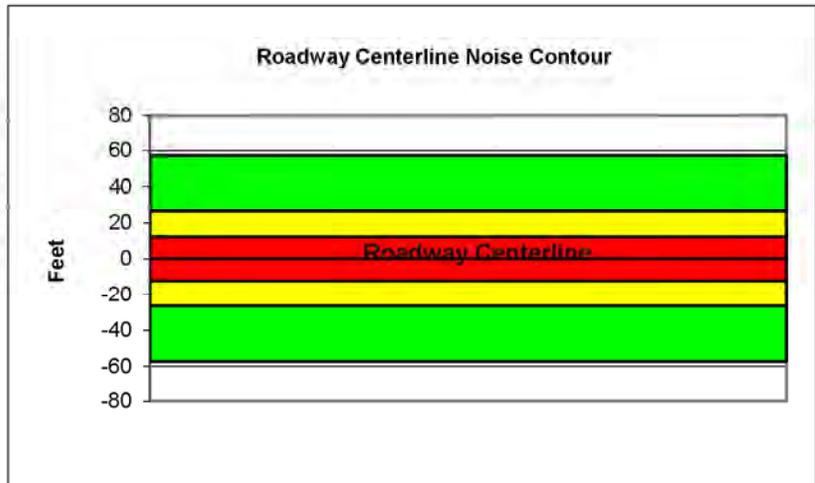
Project Name: Nevada County Housing Element Rezone Scenario: Future
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Combie Road
 Road Segment: West of SR-49

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	4671			
Receiver Barrier Dist:	0	Peak Hour Traffic:	467.1			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	43.5	52.3	50.5	44.4	53.1	53.7
Medium Trucks:	53.2	45.2	38.8	37.2	45.7	45.9
Heavy Trucks:	58.4	46.5	37.4	38.7	48.6	48.7
Vehicle Noise:	60.9	54.2	51.1	46.4	54.9	55.4

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	57
65 dBA	27
70 dBA	12
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

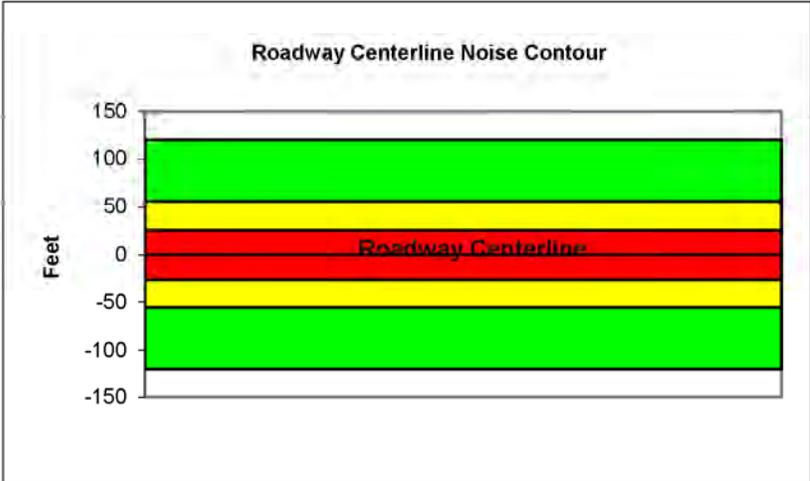
Project Name:	Nevada County Housing Element Rezone	Scenario:	Future
Analyst:	Achilles Malisos	Job #:	60100827
Roadway:	Combie Road		
Road Segment:	East of SR-49		

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	14130			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1413			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90	Lft View: -90	Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	48.3	57.1	55.3	49.2	57.9	58.5
Medium Trucks:	58.0	50.0	43.6	42.0	50.5	50.7
Heavy Trucks:	63.2	51.3	42.3	43.5	53.4	53.5
Vehicle Noise:	65.7	59.0	55.9	51.2	59.7	60.2

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	120
65 dBA	56
70 dBA	26
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

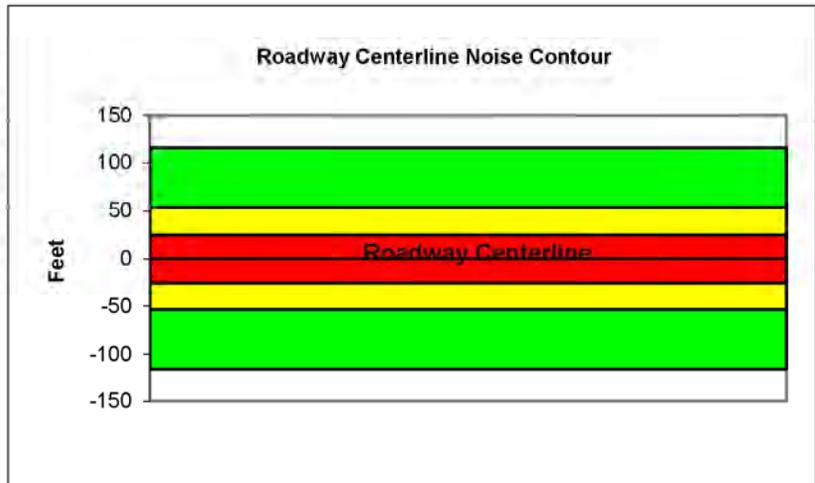
Project Name: Nevada County Housing Element Rezone Scenario: Future
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Combie Road
 Road Segment: West of Rosewood Drive

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	13374			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1337.4			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	48.1	56.8	55.1	49.0	57.6	58.2
Medium Trucks:	57.8	49.7	43.3	41.8	50.3	50.5
Heavy Trucks:	63.0	51.1	42.0	43.2	53.1	53.3
Vehicle Noise:	65.4	58.8	55.6	50.9	59.5	60.0

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	115
65 dBA	54
70 dBA	25
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

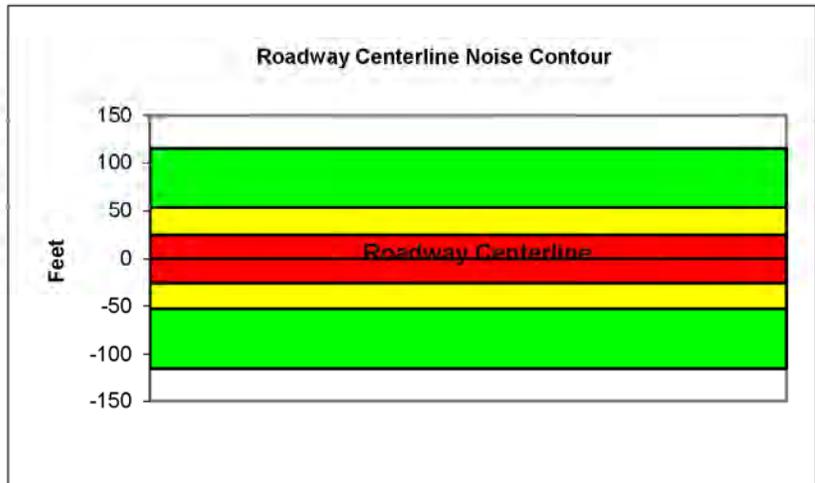
Project Name: Nevada County Housing Element Rezone Scenario: Future
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Combie Road
 Road Segment: Rosewood Drive to Hacienda Drive

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	13257			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1325.7			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	48.0	56.8	55.0	48.9	57.6	58.2
Medium Trucks:	57.8	49.7	43.3	41.7	50.2	50.4
Heavy Trucks:	63.0	51.0	42.0	43.2	53.1	53.2
Vehicle Noise:	65.4	58.8	55.6	50.9	59.5	59.9

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	115
65 dBA	53
70 dBA	25
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

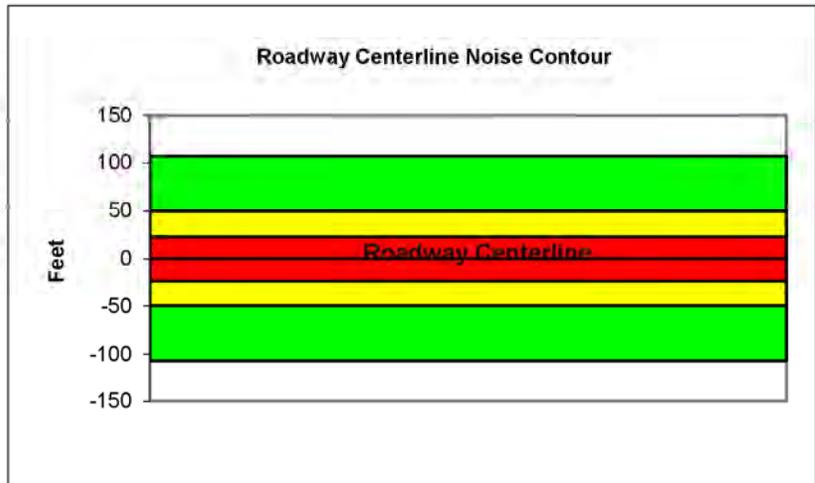
Project Name: Nevada County Housing Element Rezone Scenario: Future
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Combie Road
 Road Segment: East of Hacienda Drive

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	11889			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1188.9			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	47.6	56.3	54.6	48.5	57.1	57.7
Medium Trucks:	57.3	49.2	42.8	41.3	49.7	50.0
Heavy Trucks:	62.5	50.6	41.5	42.7	52.6	52.8
Vehicle Noise:	64.9	58.3	55.1	50.4	59.0	59.4

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	107
65 dBA	49
70 dBA	23
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

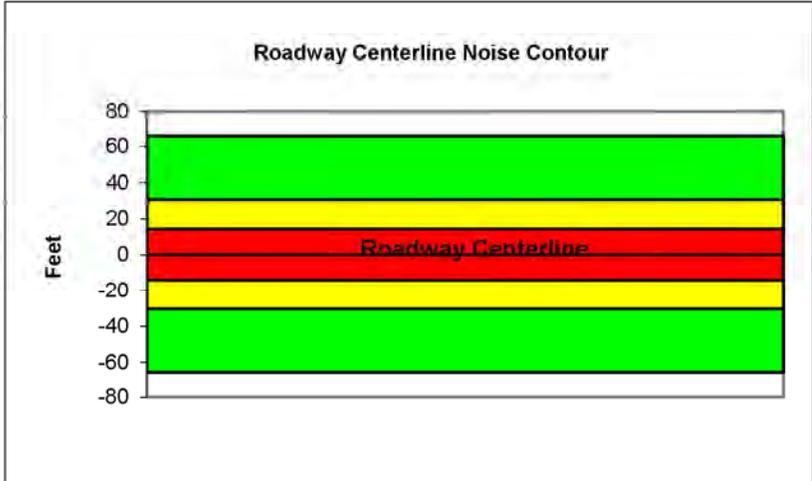
Project Name:	Nevada County Housing Element Rezone	Scenario:	Future
Analyst:	Achilles Malisos	Job #:	60100827
Roadway:	Combie Road		
Road Segment:	South of Magnolia		

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	5760			
Receiver Barrier Dist:	0	Peak Hour Traffic:	576			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90	Lft View: -90	Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	44.4	53.2	51.4	45.3	54.0	54.6
Medium Trucks:	54.1	46.1	39.7	38.1	46.6	46.8
Heavy Trucks:	59.3	47.4	38.4	39.6	49.5	49.6
Vehicle Noise:	61.8	55.1	52.0	47.3	55.8	56.3

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	66
65 dBA	31
70 dBA	14
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

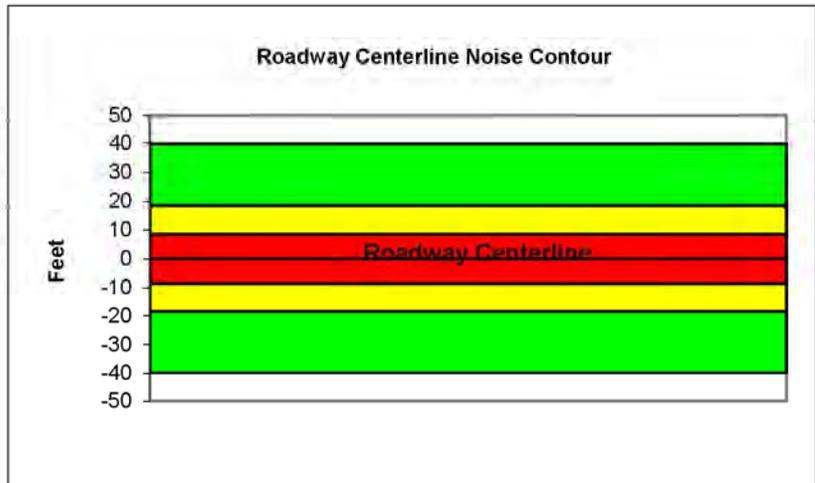
Project Name: Nevada County Housing Element Rezone Scenario: Future
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Hacienda Drive
 Road Segment: North of Combie Road

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	2700			
Receiver Barrier Dist:	0	Peak Hour Traffic:	270			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	30			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	41.2	50.0	48.2	42.2	50.8	51.4
Medium Trucks:	51.0	42.9	36.5	34.9	43.4	43.7
Heavy Trucks:	56.2	44.2	35.2	36.4	46.3	46.4
Vehicle Noise:	58.6	52.0	48.8	44.1	52.7	53.1

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	40
65 dBA	18
70 dBA	9
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

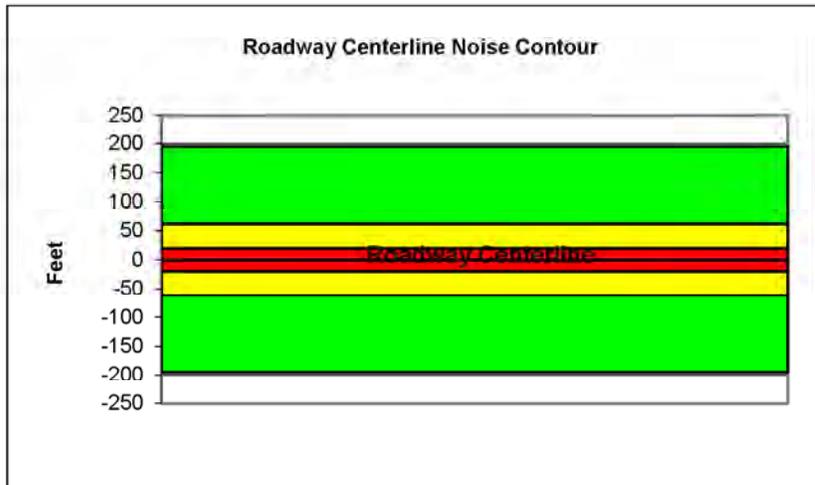
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Nevada City Highway
 Road Segment: Dorsey to Brunswick

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	11304			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1130.4			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	40			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions HARD SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	0	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	50.3	59.1	57.3	51.2	59.8	60.5
Medium Trucks:	60.0	51.9	45.6	44.0	52.5	52.7
Heavy Trucks:	65.2	53.3	44.2	45.4	55.4	55.5
Vehicle Noise:	67.7	61.0	57.8	53.1	61.7	62.2

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	195
65 dBA	62
70 dBA	19
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

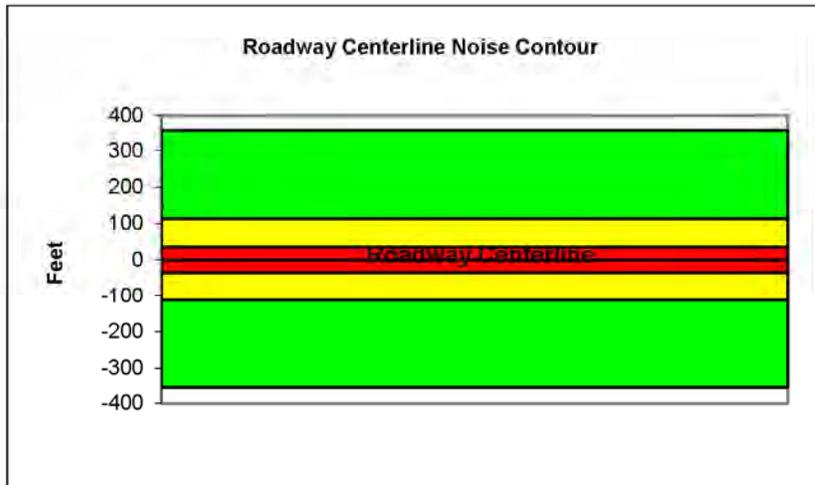
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Nevada City Highway
 Road Segment: North of Brunswick

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	20682			
Receiver Barrier Dist:	0	Peak Hour Traffic:	2068.2			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	40			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions HARD SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	0	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	52.9	61.7	59.9	53.8	62.5	63.1
Medium Trucks:	62.6	54.6	48.2	46.6	55.1	55.3
Heavy Trucks:	67.8	55.9	46.9	48.1	58.0	58.1
Vehicle Noise:	70.3	63.6	60.5	55.8	64.3	64.8

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	357
65 dBA	113
70 dBA	36
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

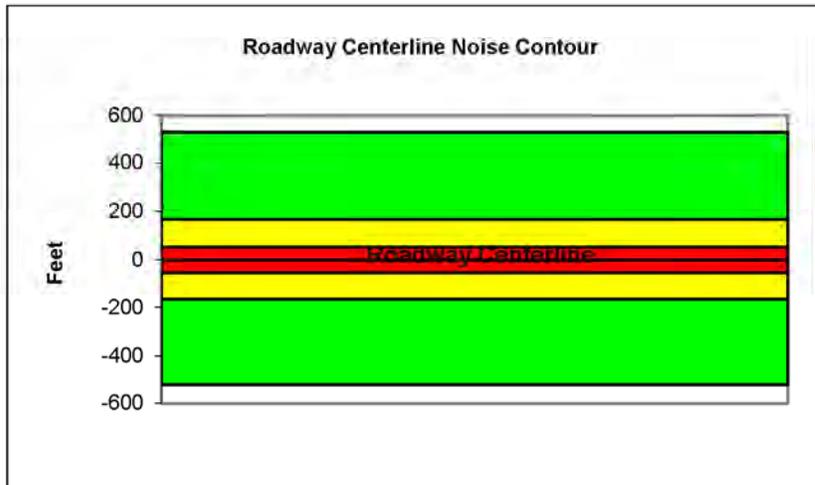
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: SR-20
 Road Segment: SB On-Ramp

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	30438			
Receiver Barrier Dist:	0	Peak Hour Traffic:	3043.8			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	40			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions HARD SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	0	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.6	63.4	61.6	55.5	64.1	64.8
Medium Trucks:	64.3	56.2	49.9	48.3	56.8	57.0
Heavy Trucks:	69.5	57.6	48.5	49.8	59.7	59.8
Vehicle Noise:	72.0	65.3	62.1	57.5	66.0	66.5

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	525
65 dBA	166
70 dBA	52
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

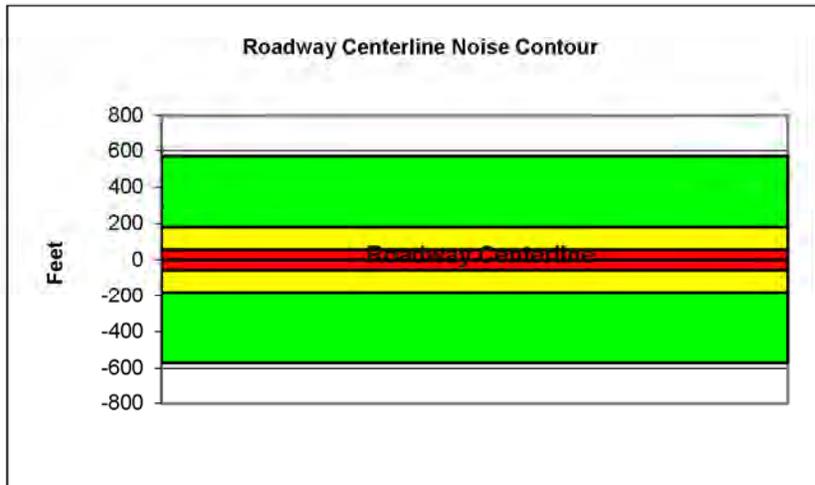
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Brunswick
 Road Segment: SR-20 to Sutton Way

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	33,183			
Receiver Barrier Dist:	0	Peak Hour Traffic:	3318.3			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	50			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions HARD SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	0	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.8	63.6	61.8	55.7	64.4	65.0
Medium Trucks:	64.5	56.5	50.1	48.5	57.0	57.2
Heavy Trucks:	69.7	57.8	48.8	50.0	59.9	60.0
Vehicle Noise:	72.2	65.5	62.4	57.7	66.2	66.7

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	572
65 dBA	181
70 dBA	57
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

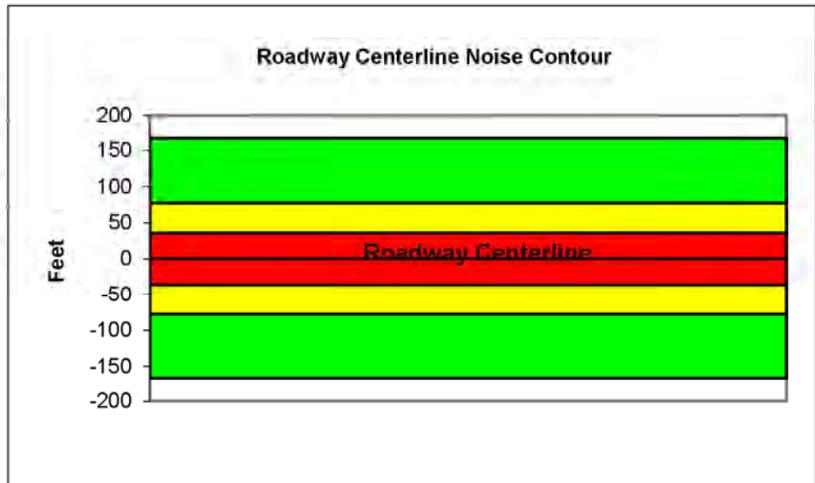
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Brunswick
 Road Segment: Sutton to Old Tunnel

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	23256			
Receiver Barrier Dist:	0	Peak Hour Traffic:	2325.6			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	50			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	50.1	58.9	57.1	51.0	59.7	60.3
Medium Trucks:	59.8	51.8	45.4	43.8	52.3	52.5
Heavy Trucks:	65.1	53.1	44.1	45.3	55.2	55.3
Vehicle Noise:	67.5	60.9	57.7	53.0	61.6	62.0

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	167
65 dBA	77
70 dBA	36
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

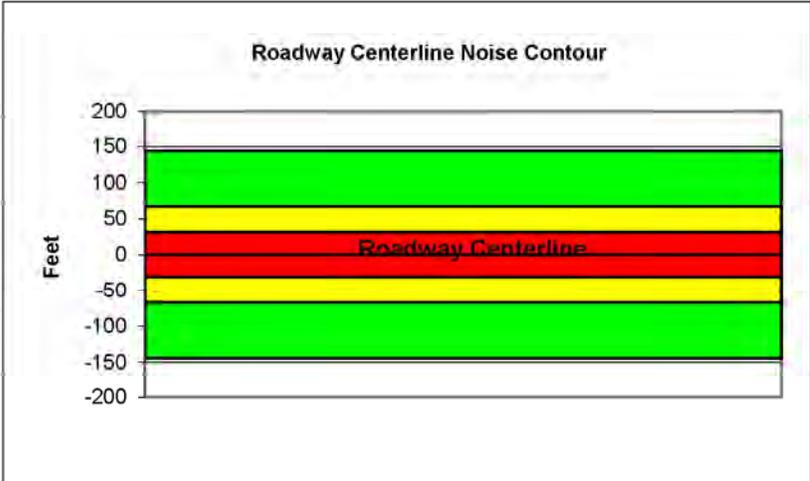
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Brunswick
 Road Segment: Old Tunnel to Idaho-Maryland Rd

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	18729			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1872.9			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	50			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	49.2	58.0	56.2	50.1	58.7	59.4
Medium Trucks:	58.9	50.8	44.5	42.9	51.4	51.6
Heavy Trucks:	64.1	52.2	43.1	44.4	54.3	54.4
Vehicle Noise:	66.6	59.9	56.7	52.1	60.6	61.1

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	144
65 dBA	67
70 dBA	31
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

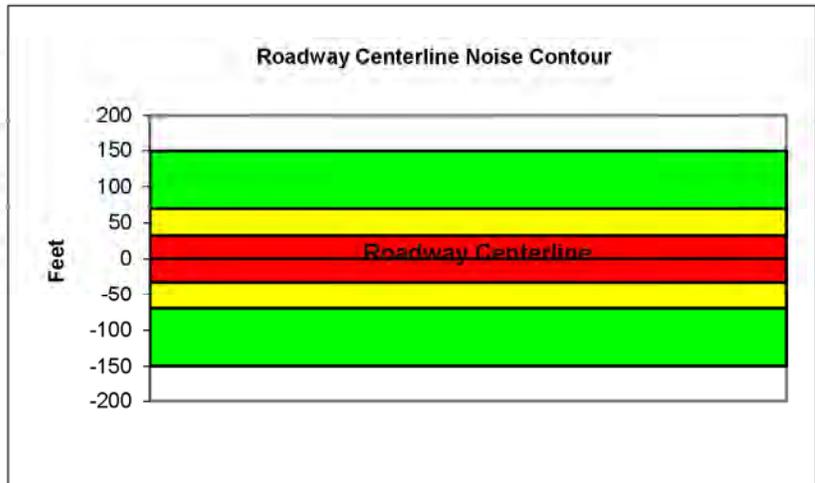
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Brunswick
 Road Segment: South of Idaho-Maryland Rd

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	19746			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1974.6			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	50			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	49.4	58.2	56.4	50.3	59.0	59.6
Medium Trucks:	59.1	51.1	44.7	43.1	51.6	51.8
Heavy Trucks:	64.4	52.4	43.4	44.6	54.5	54.6
Vehicle Noise:	66.8	60.2	57.0	52.3	60.8	61.3

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	150
65 dBA	69
70 dBA	32
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

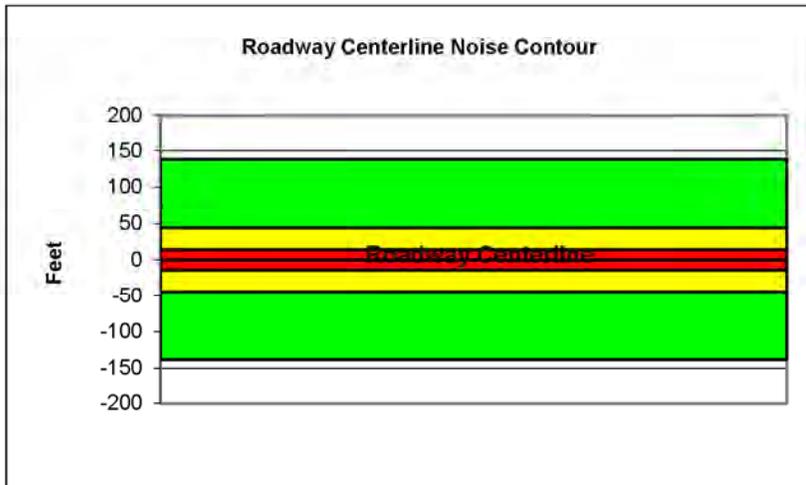
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Sutton Way
 Road Segment: North of Brunswick Road

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	8,001			
Receiver Barrier Dist:	0	Peak Hour Traffic:	800.1			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	50			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions HARD SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	0	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	48.6	57.4	55.6	49.5	58.2	58.8
Medium Trucks:	58.4	50.3	43.9	42.3	50.8	51.1
Heavy Trucks:	63.6	51.6	42.6	43.8	53.7	53.8
Vehicle Noise:	66.0	59.4	56.2	51.5	60.1	60.5

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	138
65 dBA	44
70 dBA	14
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

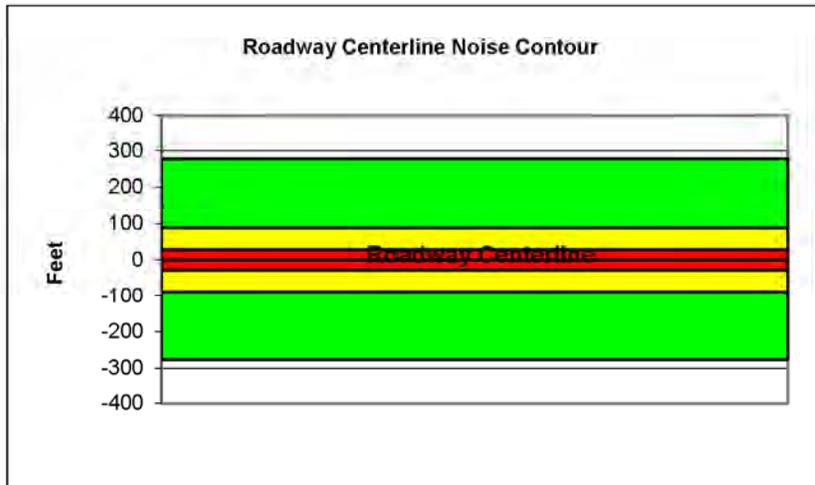
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Sutton Way
 Road Segment: South of Brunswick Road

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	16,092			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1609.2			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	50			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions HARD SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	0	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	51.7	60.4	58.7	52.6	61.2	61.8
Medium Trucks:	61.4	53.3	46.9	45.4	53.9	54.1
Heavy Trucks:	66.6	54.7	45.6	46.8	56.7	56.9
Vehicle Noise:	69.0	62.4	59.2	54.5	63.1	63.6

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	277
65 dBA	88
70 dBA	28
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

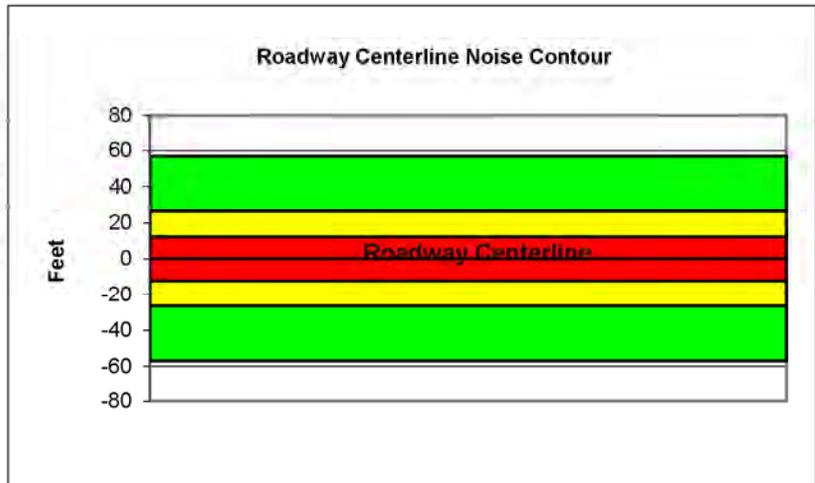
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Idaho-Maryland Road
 Road Segment: West of Brunswick Road

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	4653			
Receiver Barrier Dist:	0	Peak Hour Traffic:	465.3			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	36			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	43.5	52.2	50.5	44.4	53.0	53.6
Medium Trucks:	53.2	45.1	38.7	37.2	45.6	45.9
Heavy Trucks:	58.4	46.5	37.4	38.6	48.5	48.7
Vehicle Noise:	60.8	54.2	51.0	46.3	54.9	55.3

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	57
65 dBA	26
70 dBA	12
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

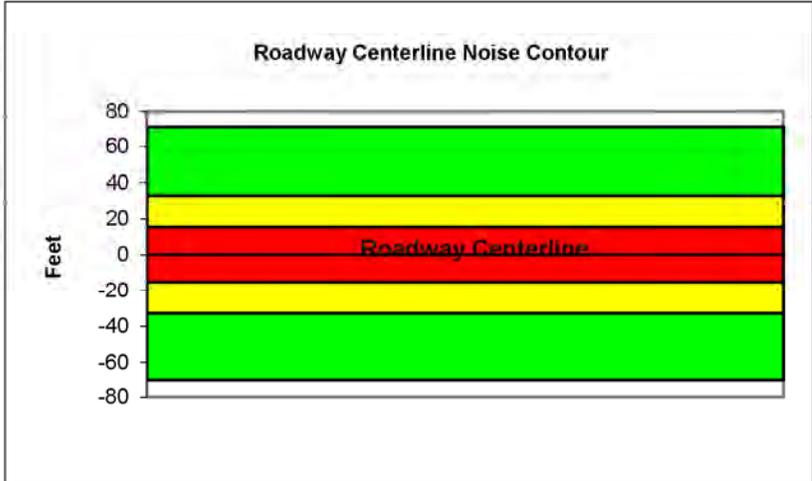
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Idaho-Maryland Road
 Road Segment: East of Brunswick Road

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	6408			
Receiver Barrier Dist:	0	Peak Hour Traffic:	640.8			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	36			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	44.9	53.6	51.8	45.8	54.4	55.0
Medium Trucks:	54.6	46.5	40.1	38.5	47.0	47.3
Heavy Trucks:	59.8	47.8	38.8	40.0	49.9	50.0
Vehicle Noise:	62.2	55.6	52.4	47.7	56.3	56.7

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	71
65 dBA	33
70 dBA	15
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

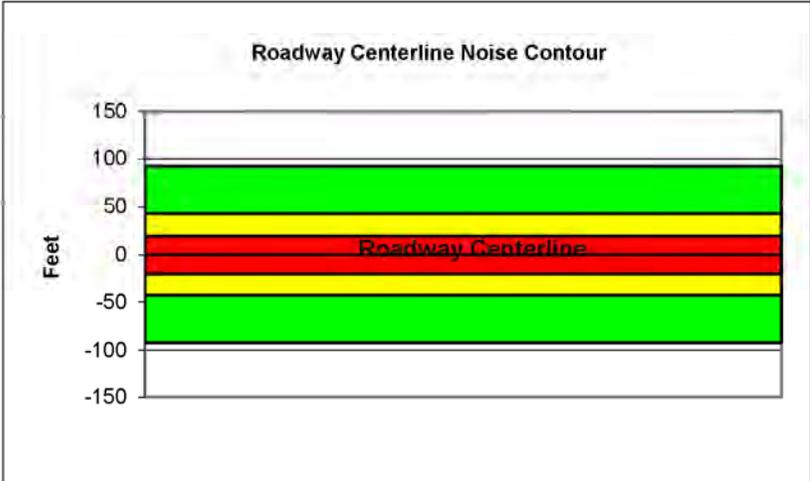
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: McCourtney Road
 Road Segment: South of Personeni Road

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	9522			
Receiver Barrier Dist:	0	Peak Hour Traffic:	952.2			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	36			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	46.6	55.4	53.6	47.5	56.1	56.7
Medium Trucks:	56.3	48.2	41.8	40.3	48.8	49.0
Heavy Trucks:	61.5	49.6	40.5	41.7	51.6	51.8
Vehicle Noise:	63.9	57.3	54.1	49.4	58.0	58.5

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	92
65 dBA	43
70 dBA	20
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

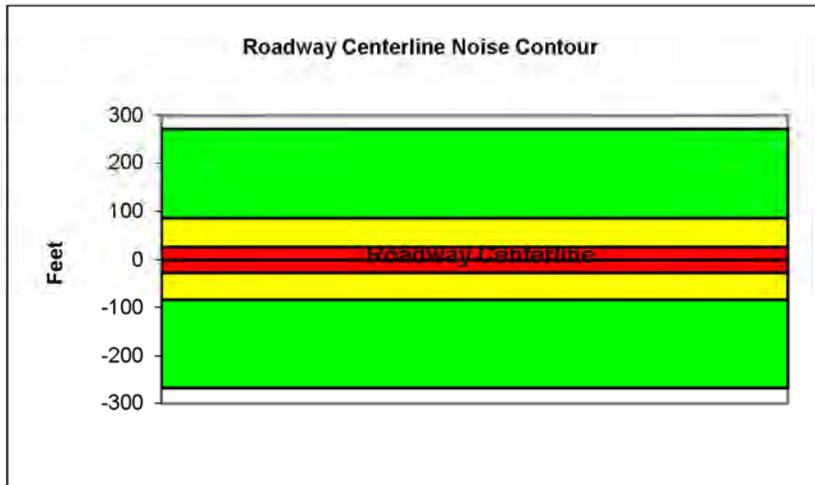
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: McKnight Way
 Road Segment: East of SR-49

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	15,597			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1559.7			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	50			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions HARD SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	0	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	51.5	60.3	58.5	52.4	61.1	61.7
Medium Trucks:	61.3	53.2	46.8	45.2	53.7	54.0
Heavy Trucks:	66.5	54.5	45.5	46.7	56.6	56.7
Vehicle Noise:	68.9	62.3	59.1	54.4	63.0	63.4

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	269
65 dBA	85
70 dBA	27
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

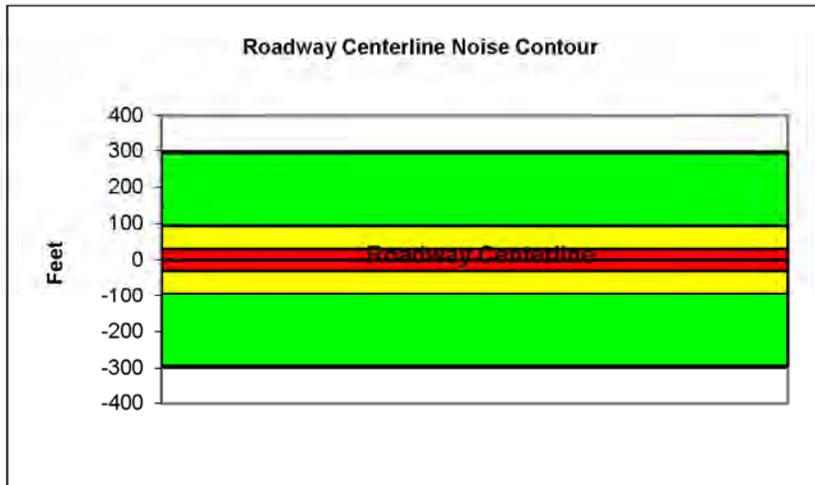
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: McKnight Way
 Road Segment: SR-49 NB ramps to SB ramps

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	17,073			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1707.3			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	50			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions HARD SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	0	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	51.9	60.7	58.9	52.8	61.5	62.1
Medium Trucks:	61.6	53.6	47.2	45.6	54.1	54.3
Heavy Trucks:	66.9	54.9	45.9	47.1	57.0	57.1
Vehicle Noise:	69.3	62.7	59.5	54.8	63.4	63.8

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	295
65 dBA	93
70 dBA	29
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

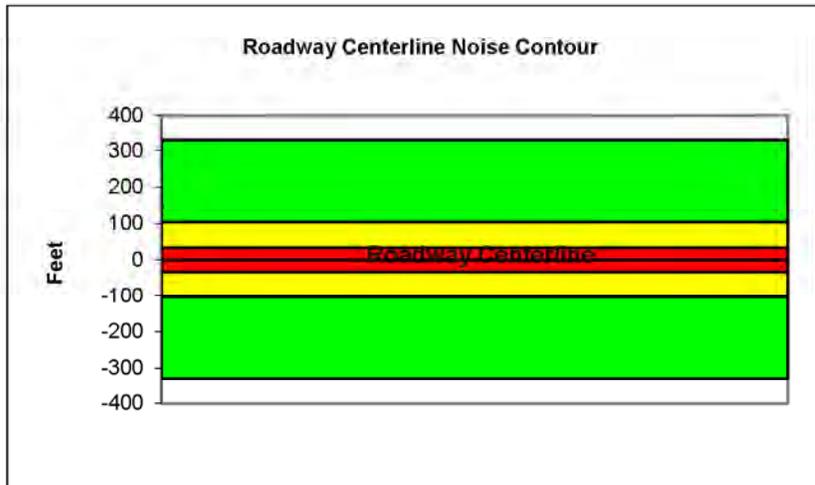
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: McKnight Way
 Road Segment: SR-49 ramps to Auburn Street

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	19,125			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1912.5			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	50			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions HARD SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	0	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	52.4	61.2	59.4	53.3	62.0	62.6
Medium Trucks:	62.1	54.1	47.7	46.1	54.6	54.8
Heavy Trucks:	67.4	55.4	46.4	47.6	57.5	57.6
Vehicle Noise:	69.8	63.2	60.0	55.3	63.8	64.3

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	330
65 dBA	104
70 dBA	33
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

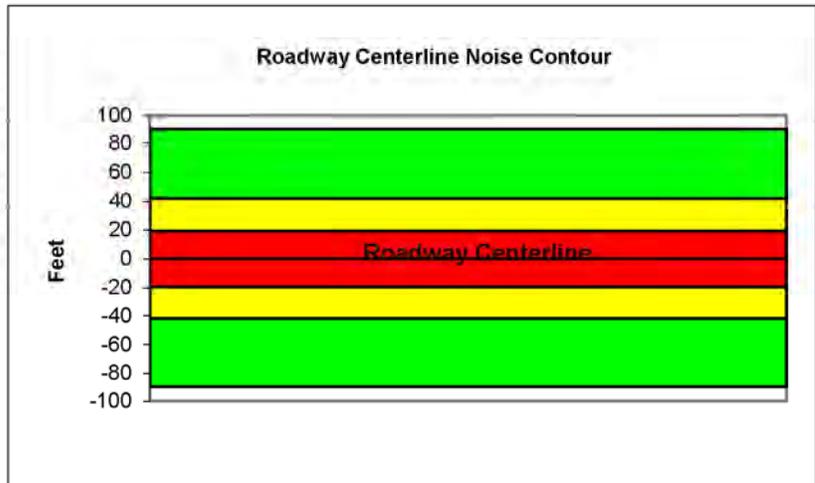
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Auburn Street
 Road Segment: North of McKnight

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	9198			
Receiver Barrier Dist:	0	Peak Hour Traffic:	919.8			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	40			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lt View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	46.3	55.1	53.3	47.2	55.9	56.5
Medium Trucks:	56.0	48.0	41.6	40.0	48.5	48.7
Heavy Trucks:	61.3	49.3	40.3	41.5	51.4	51.5
Vehicle Noise:	63.7	57.1	53.9	49.2	57.8	58.2

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	90
65 dBA	42
70 dBA	19
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

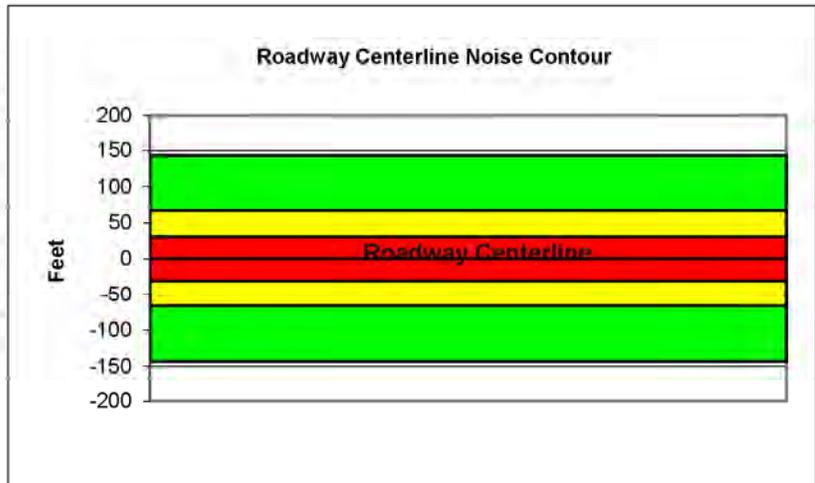
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: La Barr Meadows Road
 Road Segment: South of McKnight

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	18474			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1847.4			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	40			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	49.4	58.1	56.3	50.3	58.9	59.5
Medium Trucks:	59.1	51.0	44.6	43.0	51.5	51.8
Heavy Trucks:	64.3	52.4	43.3	44.5	54.4	54.5
Vehicle Noise:	66.7	60.1	56.9	52.2	60.8	61.2

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	143
65 dBA	66
70 dBA	31
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

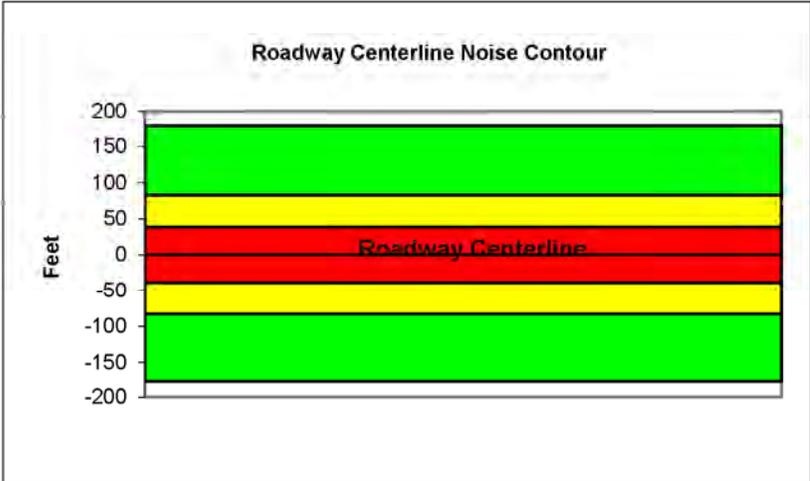
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: SR-20
 Road Segment: West of Pleasant Valley Road

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	8649			
Receiver Barrier Dist:	0	Peak Hour Traffic:	864.9			
Centerline Dist. To Observer:	100	Vehicle Speed:	55			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	51.8	60.6	58.8	52.7	61.4	62.0
Medium Trucks:	59.0	50.9	44.5	42.9	51.4	51.7
Heavy Trucks:	62.9	51.0	41.9	43.1	52.4	52.5
Vehicle Noise:	65.2	61.5	59.1	53.7	62.3	62.8

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	179
65 dBA	83
70 dBA	38
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

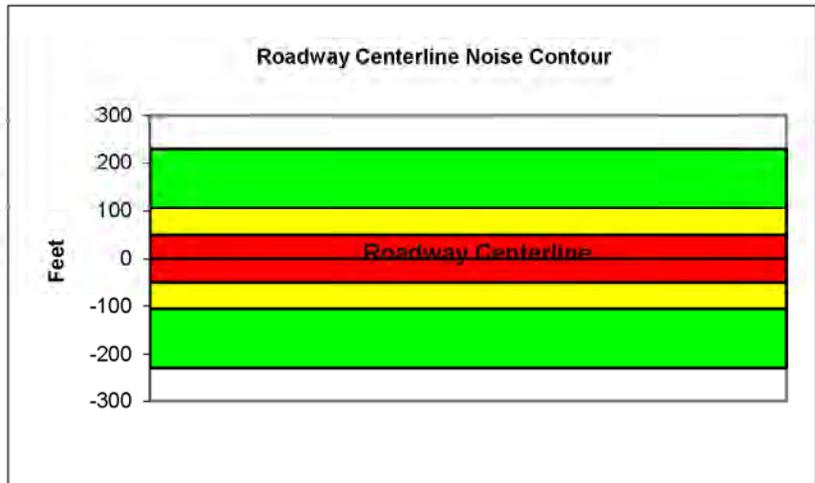
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: SR-20
 Road Segment: Pleasant Valley Road to Rough and Ready Hwy

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	12,474			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1247.4			
Centerline Dist. To Observer:	100	Vehicle Speed:	55			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	53.4	62.2	60.4	54.3	63.0	63.6
Medium Trucks:	60.5	52.5	46.1	44.5	53.0	53.2
Heavy Trucks:	64.5	52.6	43.5	44.7	54.0	54.1
Vehicle Noise:	66.8	63.1	60.7	55.3	63.9	64.4

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	228
65 dBA	106
70 dBA	49
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

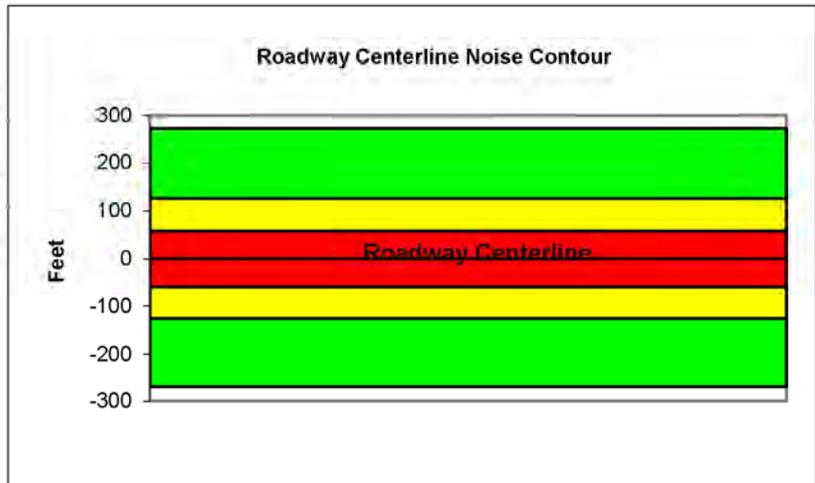
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: SR-20
 Road Segment: East of Rough and Ready Hwy

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	16110			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1611			
Centerline Dist. To Observer:	100	Vehicle Speed:	55			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.5	63.3	61.5	55.4	64.1	64.7
Medium Trucks:	61.7	53.6	47.2	45.6	54.1	54.4
Heavy Trucks:	65.6	53.7	44.6	45.8	55.1	55.2
Vehicle Noise:	67.9	64.2	61.8	56.4	65.0	65.5

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	270
65 dBA	125
70 dBA	58
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

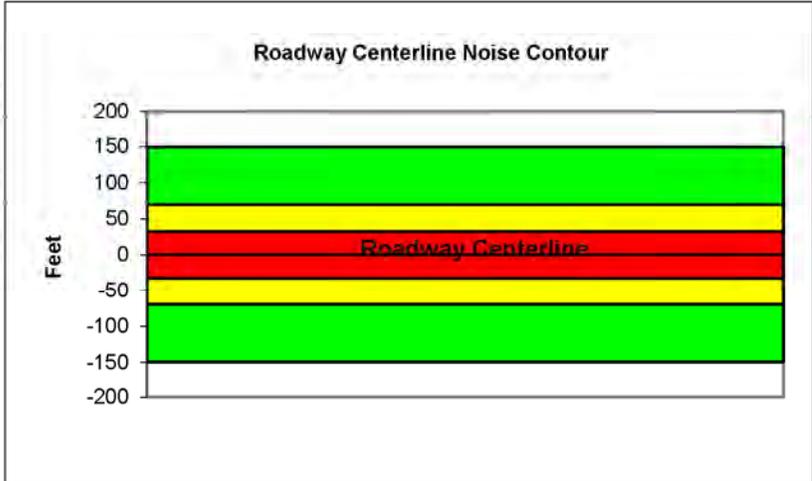
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Pleasant Valley Road
 Road Segment: North of SR-20

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	10926			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1092.6			
Centerline Dist. To Observer:	100	Vehicle Speed:	45			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	50.3	59.1	57.3	51.2	59.9	60.5
Medium Trucks:	58.6	50.5	44.2	42.6	51.1	51.3
Heavy Trucks:	63.1	51.2	42.1	43.4	52.9	53.0
Vehicle Noise:	65.5	60.4	57.7	52.5	61.1	61.6

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	149
65 dBA	69
70 dBA	32
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

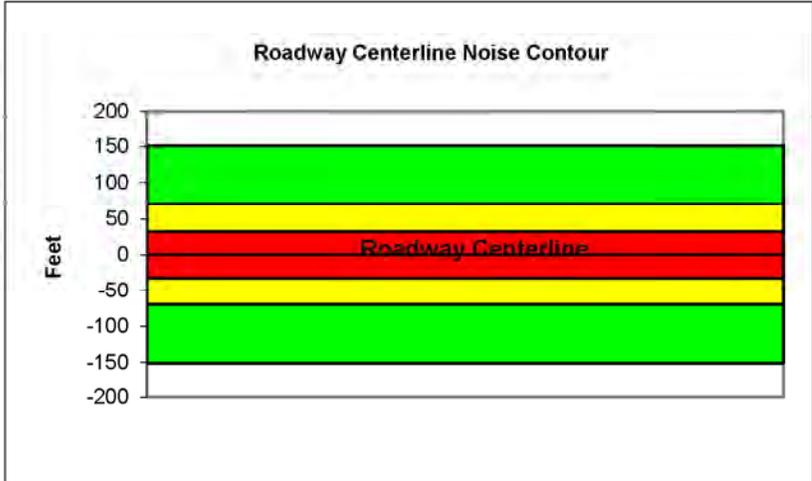
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Penn Valley Drive
 Road Segment: Pleasant Valley Road to Horton Street

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	11088			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1108.8			
Centerline Dist. To Observer:	100	Vehicle Speed:	45			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	50.4	59.2	57.4	51.3	60.0	60.6
Medium Trucks:	58.7	50.6	44.2	42.7	51.1	51.4
Heavy Trucks:	63.2	51.3	42.2	43.4	53.0	53.1
Vehicle Noise:	65.5	60.5	57.8	52.6	61.2	61.7

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	151
65 dBA	70
70 dBA	32
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

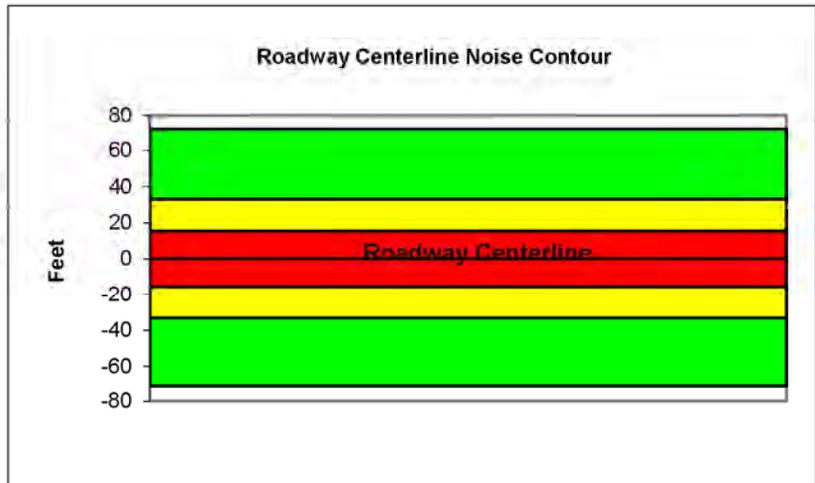
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Penn Valley Drive
 Road Segment: Horton Street to Broken Oak Court

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	3636			
Receiver Barrier Dist:	0	Peak Hour Traffic:	363.6			
Centerline Dist. To Observer:	100	Vehicle Speed:	45			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	45.6	54.3	52.5	46.5	55.1	55.7
Medium Trucks:	53.8	45.8	39.4	37.8	46.3	46.5
Heavy Trucks:	58.4	46.4	37.4	38.6	48.1	48.3
Vehicle Noise:	60.7	55.6	52.9	47.8	56.4	56.9

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	72
65 dBA	33
70 dBA	15
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

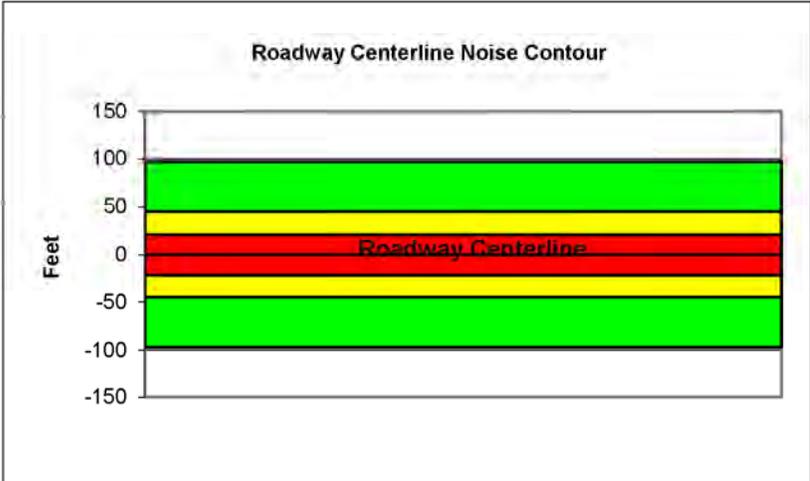
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Penn Valley Drive
 Road Segment: Broken Oak Court to Spenceville

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	5688			
Receiver Barrier Dist:	0	Peak Hour Traffic:	568.8			
Centerline Dist. To Observer:	100	Vehicle Speed:	45			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	47.5	56.3	54.5	48.4	57.1	57.7
Medium Trucks:	55.8	47.7	41.3	39.8	48.2	48.5
Heavy Trucks:	60.3	48.4	39.3	40.5	50.1	50.2
Vehicle Noise:	62.6	57.6	54.9	49.7	58.3	58.8

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	97
65 dBA	45
70 dBA	21
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

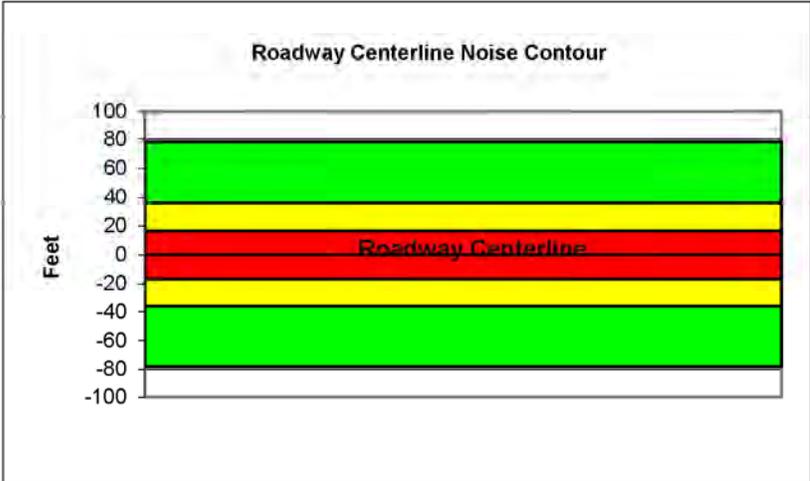
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Rough and Ready Hwy
 Road Segment: North of SR-20

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	4131			
Receiver Barrier Dist:	0	Peak Hour Traffic:	413.1			
Centerline Dist. To Observer:	100	Vehicle Speed:	45			
Barrier Near Lane CL Dist:	0	Centerline Separation:	30			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	46.2	55.0	53.2	47.1	55.8	56.4
Medium Trucks:	54.5	46.4	40.1	38.5	47.0	47.2
Heavy Trucks:	59.0	47.1	38.0	39.3	48.8	48.9
Vehicle Noise:	61.4	56.3	53.6	48.4	57.0	57.5

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	78
65 dBA	36
70 dBA	17
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

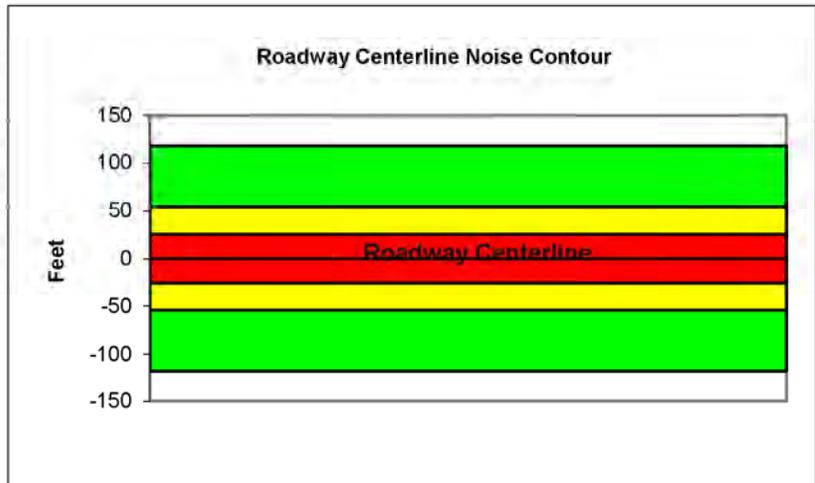
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Rough and Ready Hwy
 Road Segment: South of SR-20

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	7596			
Receiver Barrier Dist:	0	Peak Hour Traffic:	759.6			
Centerline Dist. To Observer:	100	Vehicle Speed:	45			
Barrier Near Lane CL Dist:	0	Centerline Separation:	30			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	48.9	57.7	55.9	49.8	58.4	59.0
Medium Trucks:	57.2	49.1	42.7	41.1	49.6	49.9
Heavy Trucks:	61.7	49.7	40.7	41.9	51.4	51.6
Vehicle Noise:	64.0	59.0	56.2	51.1	59.7	60.2

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	117
65 dBA	54
70 dBA	25
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

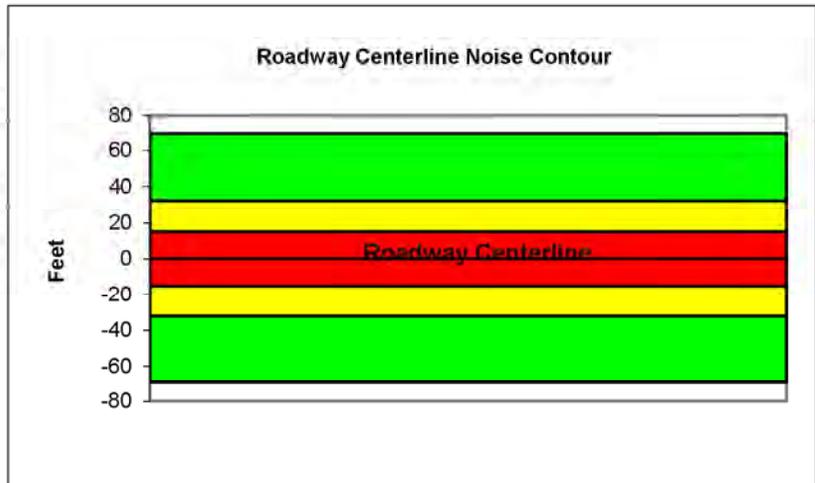
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Spenceville Road
 Road Segment: South of Penn Valley Drive

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	4590			
Receiver Barrier Dist:	0	Peak Hour Traffic:	459			
Centerline Dist. To Observer:	100	Vehicle Speed:	40			
Barrier Near Lane CL Dist:	0	Centerline Separation:	24			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	45.4	54.2	52.4	46.3	54.9	55.5
Medium Trucks:	54.3	46.3	39.9	38.3	46.8	47.0
Heavy Trucks:	59.2	47.2	38.2	39.4	49.1	49.2
Vehicle Noise:	61.5	55.7	52.8	47.9	56.4	56.9

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	69
65 dBA	32
70 dBA	15
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

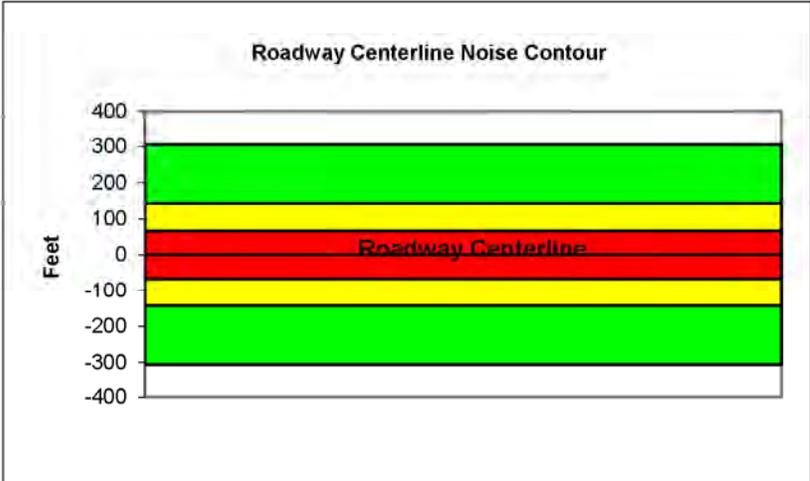
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: SR-49
 Road Segment: North of Cameo Drive

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	19413			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1941.3			
Centerline Dist. To Observer:	100	Vehicle Speed:	55			
Barrier Near Lane CL Dist:	0	Centerline Separation:	40			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	55.2	64.0	62.2	56.1	64.8	65.4
Medium Trucks:	62.4	54.3	47.9	46.3	54.8	55.0
Heavy Trucks:	66.3	54.4	45.3	46.5	55.8	55.9
Vehicle Noise:	68.6	64.9	62.5	57.1	65.7	66.2

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	307
65 dBA	142
70 dBA	66
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

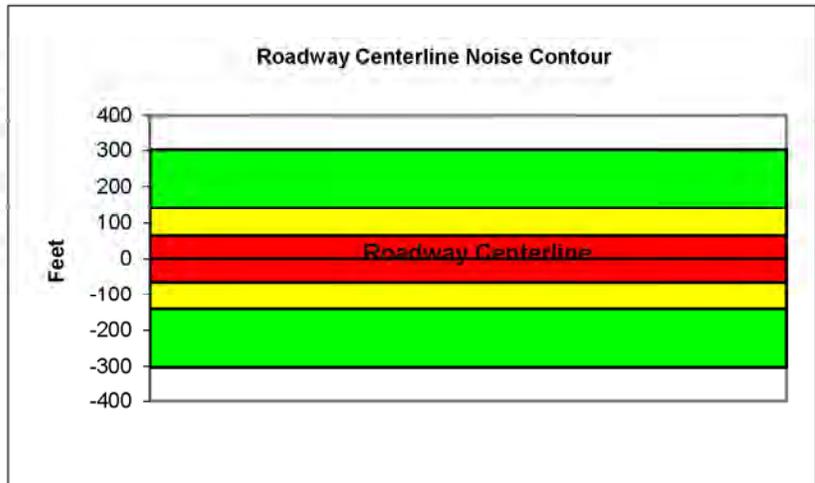
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: SR-49
 Road Segment: Cameo Drive to Combie Road

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	19071			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1907.1			
Centerline Dist. To Observer:	100	Vehicle Speed:	55			
Barrier Near Lane CL Dist:	0	Centerline Separation:	40			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	55.1	63.9	62.1	56.1	64.7	65.3
Medium Trucks:	62.3	54.2	47.8	46.2	54.7	55.0
Heavy Trucks:	66.2	54.3	45.2	46.5	55.7	55.8
Vehicle Noise:	68.5	64.9	62.4	57.0	65.6	66.1

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	303
65 dBA	141
70 dBA	65
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

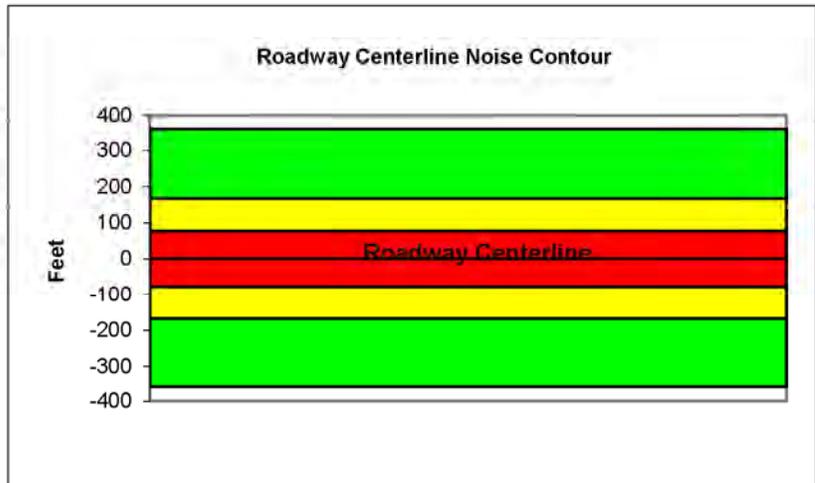
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: SR-49
 Road Segment: Combie Road to Woodridge Drive

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	24678			
Receiver Barrier Dist:	0	Peak Hour Traffic:	2467.8			
Centerline Dist. To Observer:	100	Vehicle Speed:	55			
Barrier Near Lane CL Dist:	0	Centerline Separation:	40			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.3	65.0	63.3	57.2	65.8	66.4
Medium Trucks:	63.4	55.3	48.9	47.4	55.9	56.1
Heavy Trucks:	67.4	55.4	46.4	47.6	56.8	57.0
Vehicle Noise:	69.7	66.0	63.5	58.1	66.7	67.2

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	360
65 dBA	167
70 dBA	77
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

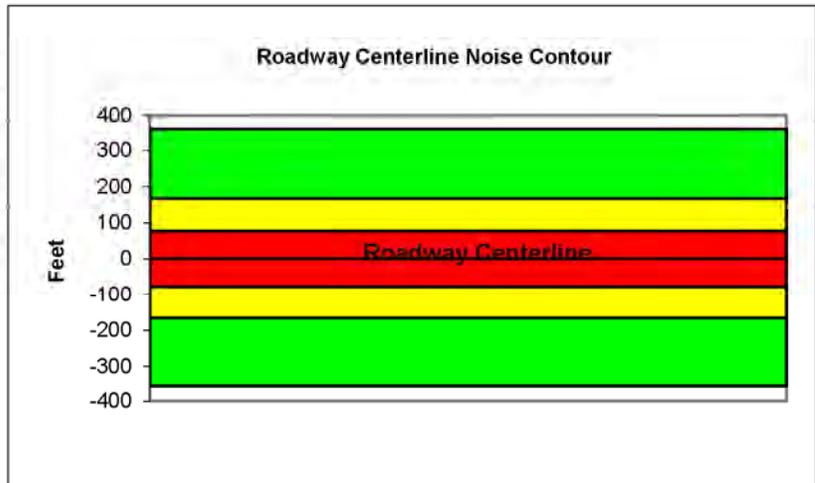
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: SR-49
 Road Segment: South of Woodridge Drive

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	24642			
Receiver Barrier Dist:	0	Peak Hour Traffic:	2464.2			
Centerline Dist. To Observer:	100	Vehicle Speed:	55			
Barrier Near Lane CL Dist:	0	Centerline Separation:	40			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.3	65.0	63.3	57.2	65.8	66.4
Medium Trucks:	63.4	55.3	48.9	47.4	55.9	56.1
Heavy Trucks:	67.3	55.4	46.4	47.6	56.8	57.0
Vehicle Noise:	69.7	66.0	63.5	58.1	66.7	67.2

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	359
65 dBA	167
70 dBA	77
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

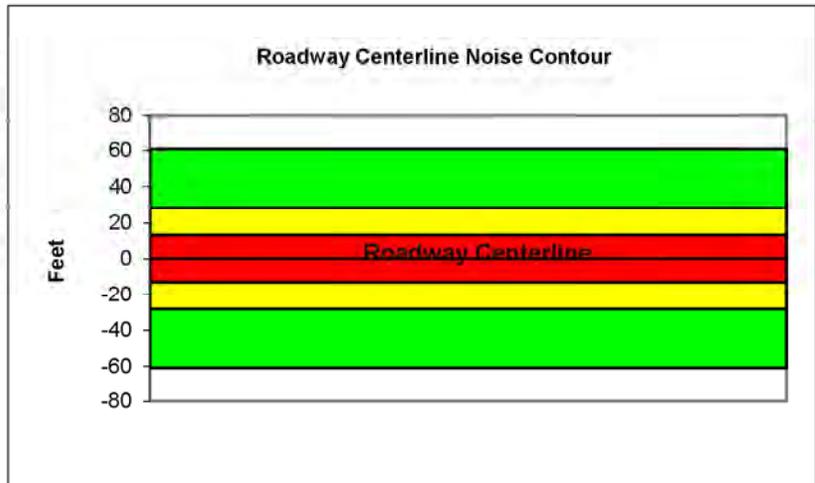
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Combie Road
 Road Segment: West of SR-49

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	5130			
Receiver Barrier Dist:	0	Peak Hour Traffic:	513			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	43.9	52.7	50.9	44.8	53.5	54.1
Medium Trucks:	53.6	45.6	39.2	37.6	46.1	46.3
Heavy Trucks:	58.8	46.9	37.9	39.1	49.0	49.1
Vehicle Noise:	61.3	54.6	51.5	46.8	55.3	55.8

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	61
65 dBA	28
70 dBA	13
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

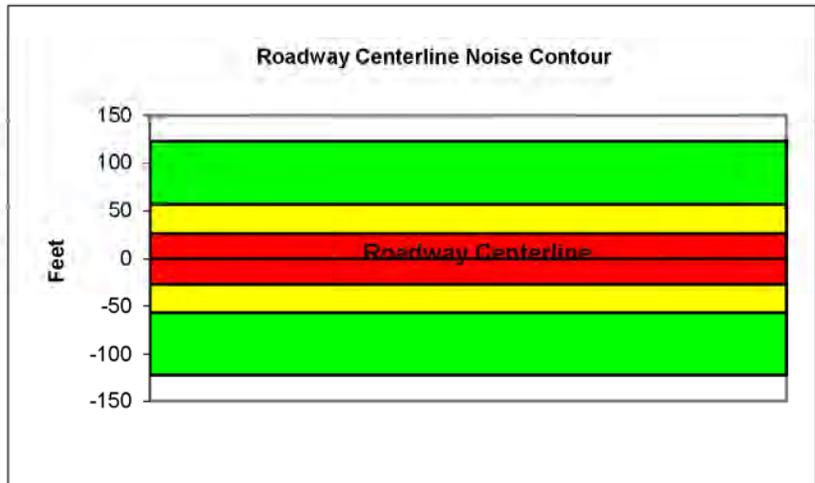
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Combie Road
 Road Segment: East of SR-49

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	14553			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1455.3			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	48.4	57.2	55.4	49.3	58.0	58.6
Medium Trucks:	58.2	50.1	43.7	42.1	50.6	50.9
Heavy Trucks:	63.4	51.4	42.4	43.6	53.5	53.6
Vehicle Noise:	65.8	59.2	56.0	51.3	59.9	60.3

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	122
65 dBA	57
70 dBA	26
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

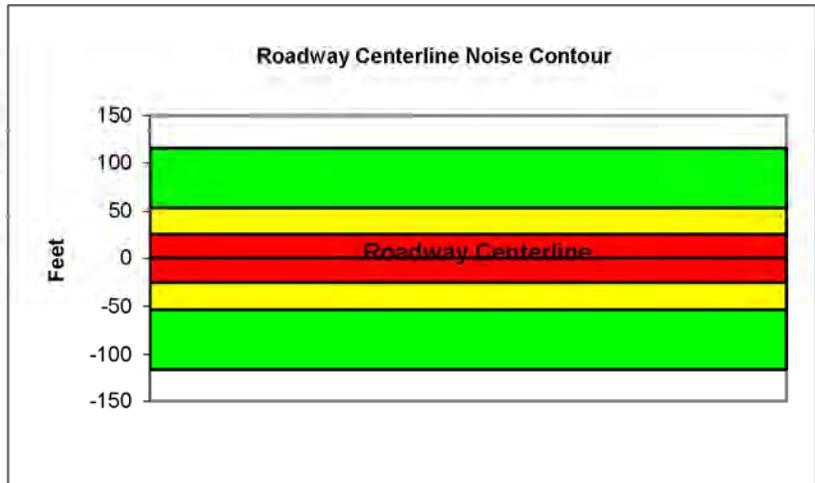
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Combie Road
 Road Segment: West of Rosewood Drive

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	13374			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1337.4			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	48.1	56.8	55.1	49.0	57.6	58.2
Medium Trucks:	57.8	49.7	43.3	41.8	50.3	50.5
Heavy Trucks:	63.0	51.1	42.0	43.2	53.1	53.3
Vehicle Noise:	65.4	58.8	55.6	50.9	59.5	60.0

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	115
65 dBA	54
70 dBA	25
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

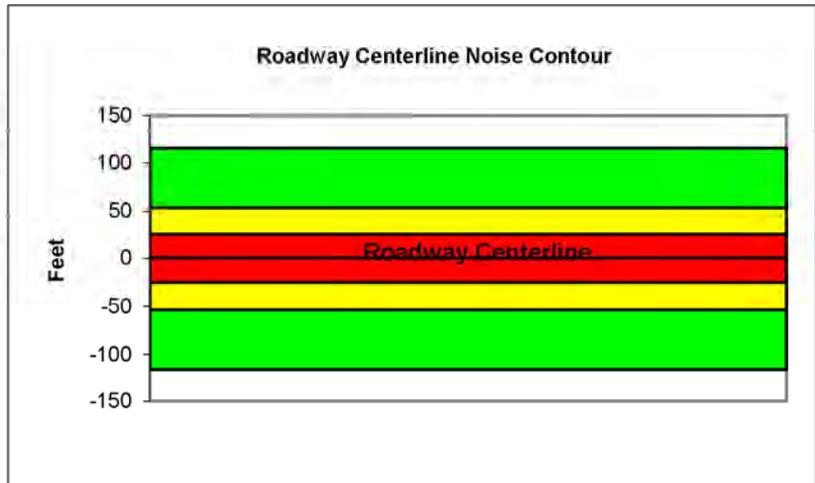
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Combie Road
 Road Segment: Rosewood Drive to Hacienda Drive

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	13401			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1340.1			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	48.1	56.9	55.1	49.0	57.6	58.2
Medium Trucks:	57.8	49.7	43.3	41.8	50.3	50.5
Heavy Trucks:	63.0	51.1	42.0	43.2	53.1	53.3
Vehicle Noise:	65.5	58.8	55.6	50.9	59.5	60.0

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	115
65 dBA	54
70 dBA	25
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

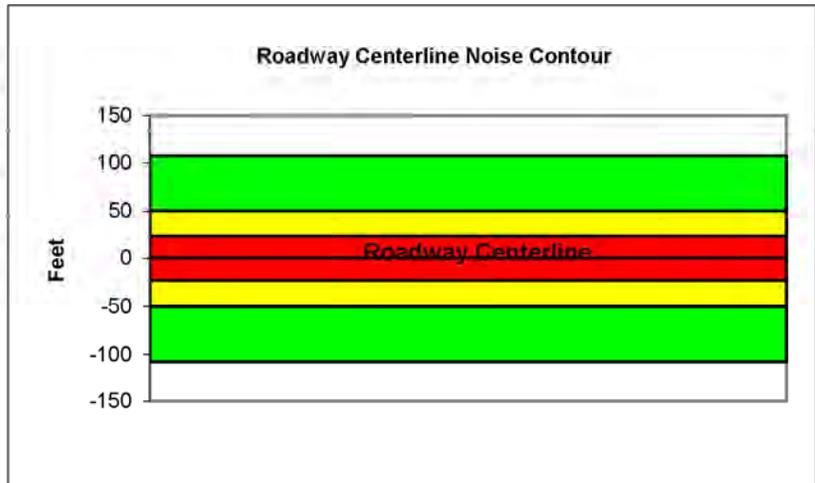
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Combie Road
 Road Segment: East of Hacienda Drive

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	12051			
Receiver Barrier Dist:	0	Peak Hour Traffic:	1205.1			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	47.6	56.4	54.6	48.5	57.2	57.8
Medium Trucks:	57.3	49.3	42.9	41.3	49.8	50.0
Heavy Trucks:	62.6	50.6	41.6	42.8	52.7	52.8
Vehicle Noise:	65.0	58.4	55.2	50.5	59.0	59.5

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	108
65 dBA	50
70 dBA	23
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

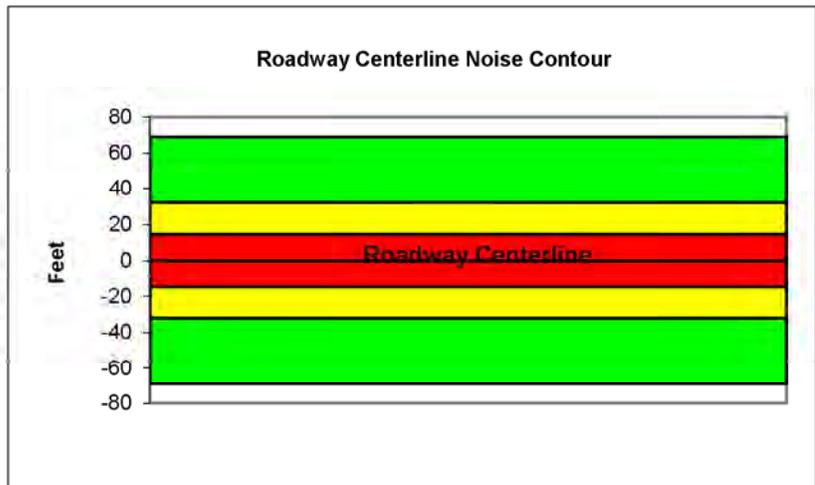
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Combie Road
 Road Segment: South of Magnolia

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	6192			
Receiver Barrier Dist:	0	Peak Hour Traffic:	619.2			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	35			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lt View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	44.7	53.5	51.7	45.6	54.3	54.9
Medium Trucks:	54.4	46.4	40.0	38.4	46.9	47.1
Heavy Trucks:	59.7	47.7	38.7	39.9	49.8	49.9
Vehicle Noise:	62.1	55.5	52.3	47.6	56.2	56.6

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	69
65 dBA	32
70 dBA	15
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**Federal Highway Administration RD-77-108
Traffic Noise Prediction Model (CALVENO)**

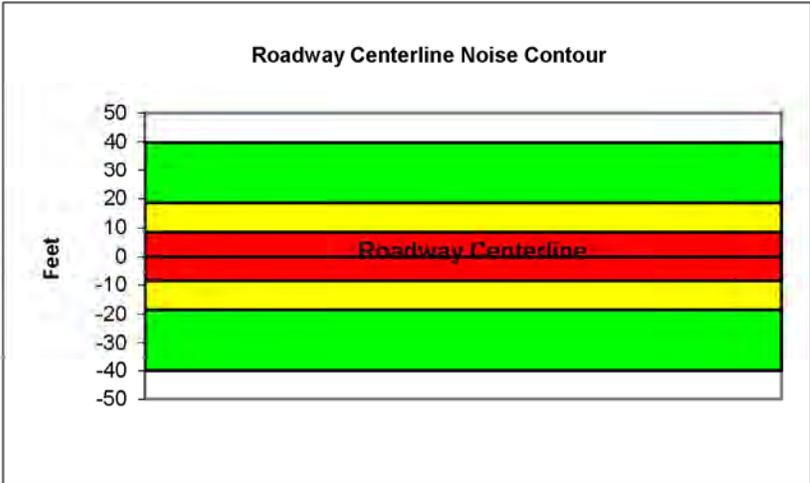
Project Name: Nevada County Housing Element Rezone Scenario: Future Plus Project
 Analyst: Achilles Malisos Job #: 60100827
 Roadway: Hacienda Drive
 Road Segment: North of Combie Road

PROJECT DATA		SITE DATA				
Centerline Dist to Barrier:	0	Road Grade:	0			
Barrier (0=wall, 1= berm):	0	Average Daily Traffic:	2718			
Receiver Barrier Dist:	0	Peak Hour Traffic:	271.8			
Centerline Dist. To Observer:	100	Vehicle Speed:	35			
Barrier Near Lane CL Dist:	0	Centerline Separation:	30			
Barrier Far lane CL Dist:	0	NOISE INPUTS				
Pad Elevation:	0.5	Site conditions: SOFT SITE				
Road Elevation:	0	FLEET MIX				
Observer Height (above grade):	5.5	Type	Day	Evening	Night	Daily
Barrier Height:	0	Auto	0.775	0.129	0.096	0.9742
Rt View: 90 Lft View: -90		Med. Truck	0.848	0.049	0.103	0.0184
NOISE SOURCE ELEVATIONS (Feet)		Heavy Truck	0.865	0.027	0.108	0.0074
Autos:	0					
Medium Trucks:	2.3					
Heavy Trucks:	8					

UNMITIGATED NOISE LEVELS (No topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	41.3	50.1	48.3	42.2	50.8	51.4
Medium Trucks:	51.0	42.9	36.5	35.0	43.5	43.7
Heavy Trucks:	56.2	44.3	35.2	36.4	46.3	46.5
Vehicle Noise:	58.6	52.0	48.8	44.1	52.7	53.2

MITIGATED NOISE LEVELS (With topographic or barrier attenuation)						
Vehicle Type	Peak Leq	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:						
Medium Trucks:						
Heavy Trucks:						
Vehicle Noise:						

CENTERLINE NOISE CONTOUR	
Unmitigated	
60 dBA	40
65 dBA	19
70 dBA	9
Mitigated	
60 dBA	
65 dBA	
70 dBA	



**County of Nevada
Housing Element Rezone Implementation Program EIR
September 2013**

Technical Appendices

Appendix J

Water Supply Assessment



Senate Bill 610 WATER SUPPLY ASSESSMENT
for the
Nevada County Housing Element Rezone Program
and
NEVADA IRRIGATION DISTRICT

I. Purpose of Report

The Nevada Irrigation District (NID, or District) has prepared this Water Supply Assessment Report (WSA) for the Housing Element Rezone Program (Project) pursuant to the requirements of the California Water Code §§ 10910 – 10915.

As set forth in Senate Bill 610 (SB610), this WSA examines existing water supply entitlements, water rights, and water service contracts relevant to the water supply for the proposed Project and water received in prior years pursuant to those entitlements.

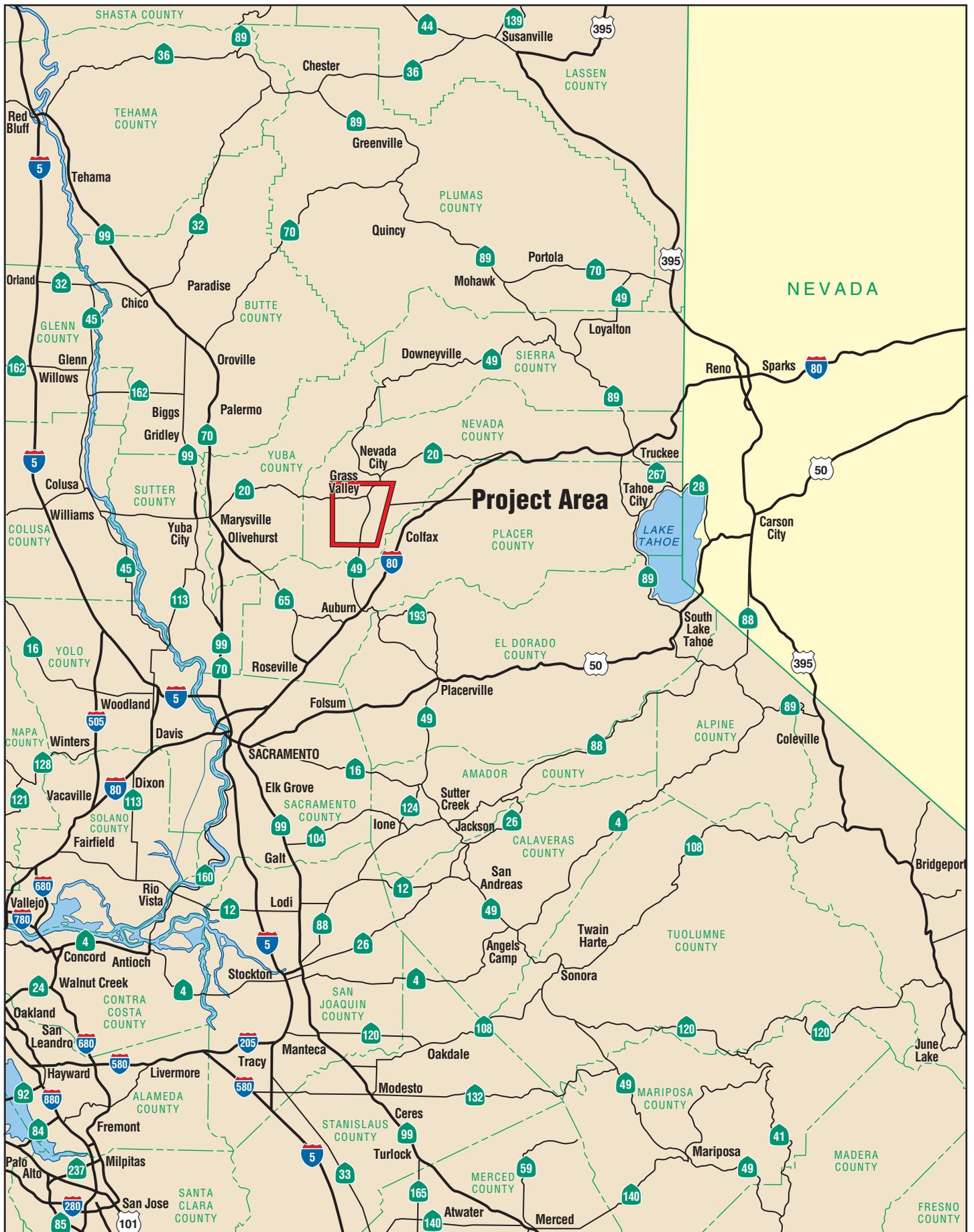
The Project has been identified by the limits set forth in Sections 10910 and 10912 of the California Water Code and is subject to the California Environmental Quality Act (CEQA) (Division 13 of the Public Resources Code) under Section 21080 of the Public Resources Code, establishing the need for this WSA.

II. Project Description¹

The current Housing Element determined an unmet need of sites suitable to accommodate a total of 1,270 low and very low-income residential units. A re-zone analysis identified sites based on the relative lack of constraints and proximity to services. Additionally, County staff performed an extensive outreach process to ensure that the property owners of the candidate site would be willing participants in rezoning their land to higher density residential.

The sites determined suitable for development and implementation of the County's goal resulted in the re-zoning of those properties to R3 (high density residential). The analysis concluded that approximately 149 net acres of development area would be available within the 18 sites. The sites include a minimum of 20 units per acre for sites 1 through 9, and 16 units per acre for sites 10 through 18. The total number of units based on these densities will be sufficient to meet the County's housing element goals. Figure 1 shows the regional vicinity of the overall project.

¹ County of Nevada Community Development Agency Notice of Preparation, September 21, 2012.



COUNTY OF NEVADA
 2019-2014 HOUSING ELEMENT REZONE PROGRAM IMPLEMENTATION WSA

Regional Vicinity

FIGURE 1



12/17/12 JN 131242-18946



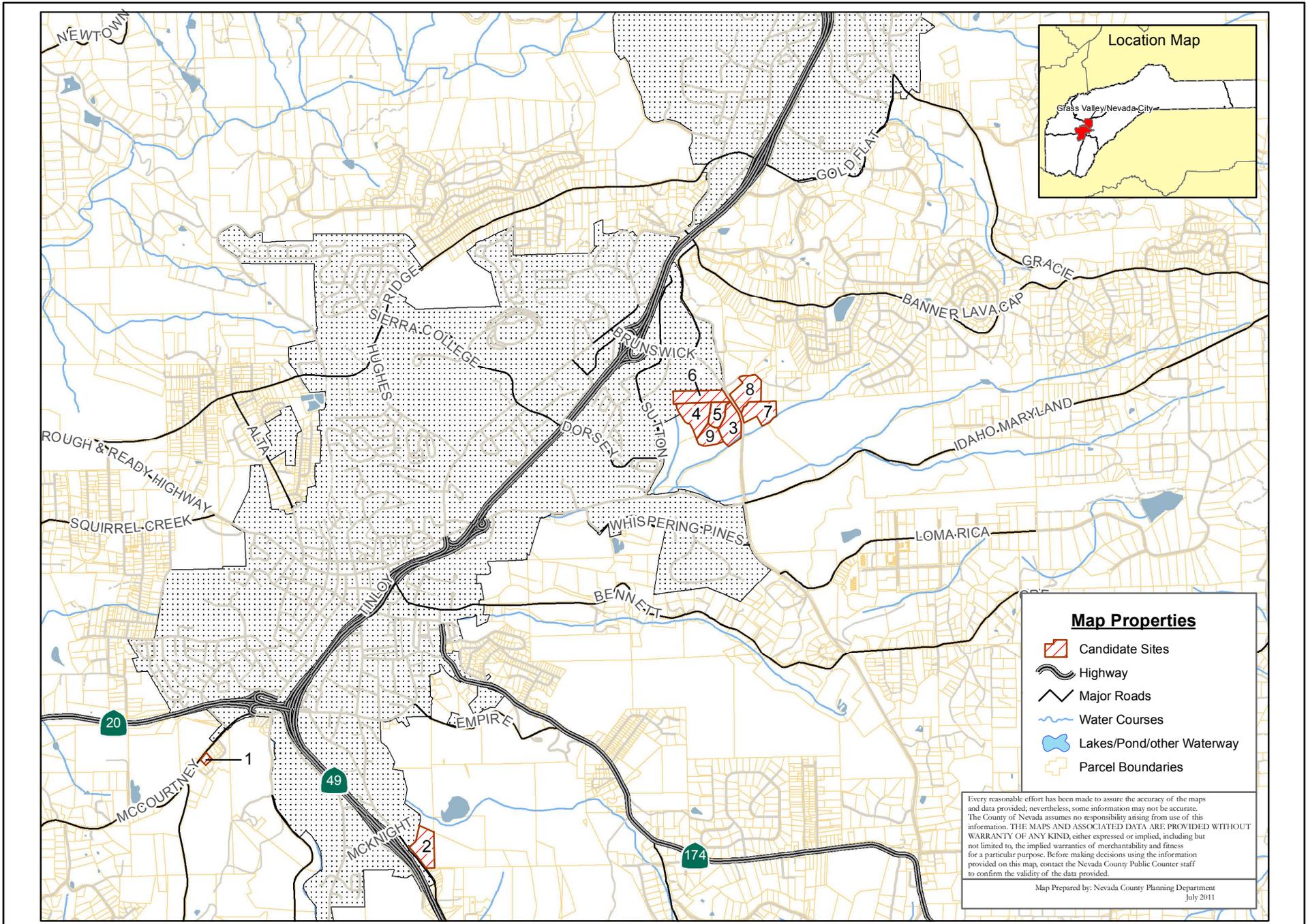
III. Project Location²

The candidate sites are located within three project areas of unincorporated Nevada County. These Project Areas are generally defined as the Grass Valley SOI, Penn Valley, and the Lake of the Pines. Figures 2, 3 and 4 show the relative locations of the three areas within Nevada County. The APNs for the selected sites are as follows:

Grass Valley	SOI Penn Valley	Lake of the Pines
Site 1: 07-380-17	Site 10: 51-120-06	Site 14: 57-141-29
Site 2: 29-350-12	Site 11: 51-150-29	Site 15: 57-270-02
Site 3: 35-412-15	Site 12: 51-151-62	Site 16: 57-270-03
Site 4: 35-412-17	Site 13: 51-370-02	Site 17: 57-270-06
Site 5: 35-412-18		Site 18: 11-181-03
Site 6: 35-412-19		
Site 7: 35-412-21		
Site 8: 35-550-15		
Site 9: 35-412-22		

The Nevada Irrigation District operates a potable water system, which consists of seven distinct water distribution systems. The Grass Valley sites will be served by the E. George System, the Penn Valley sites will be served by the Lake Wildwood System, and the Lake of the Pines sites will be served by the Lake of the Pines System. These are described in more detail in *Identification of Public Water System*.

² County of Nevada Community Development Agency Planning Department Notice of Preparation, September 21, 2012.



Source: Nevada County GIS 2012; ESRI 2012.

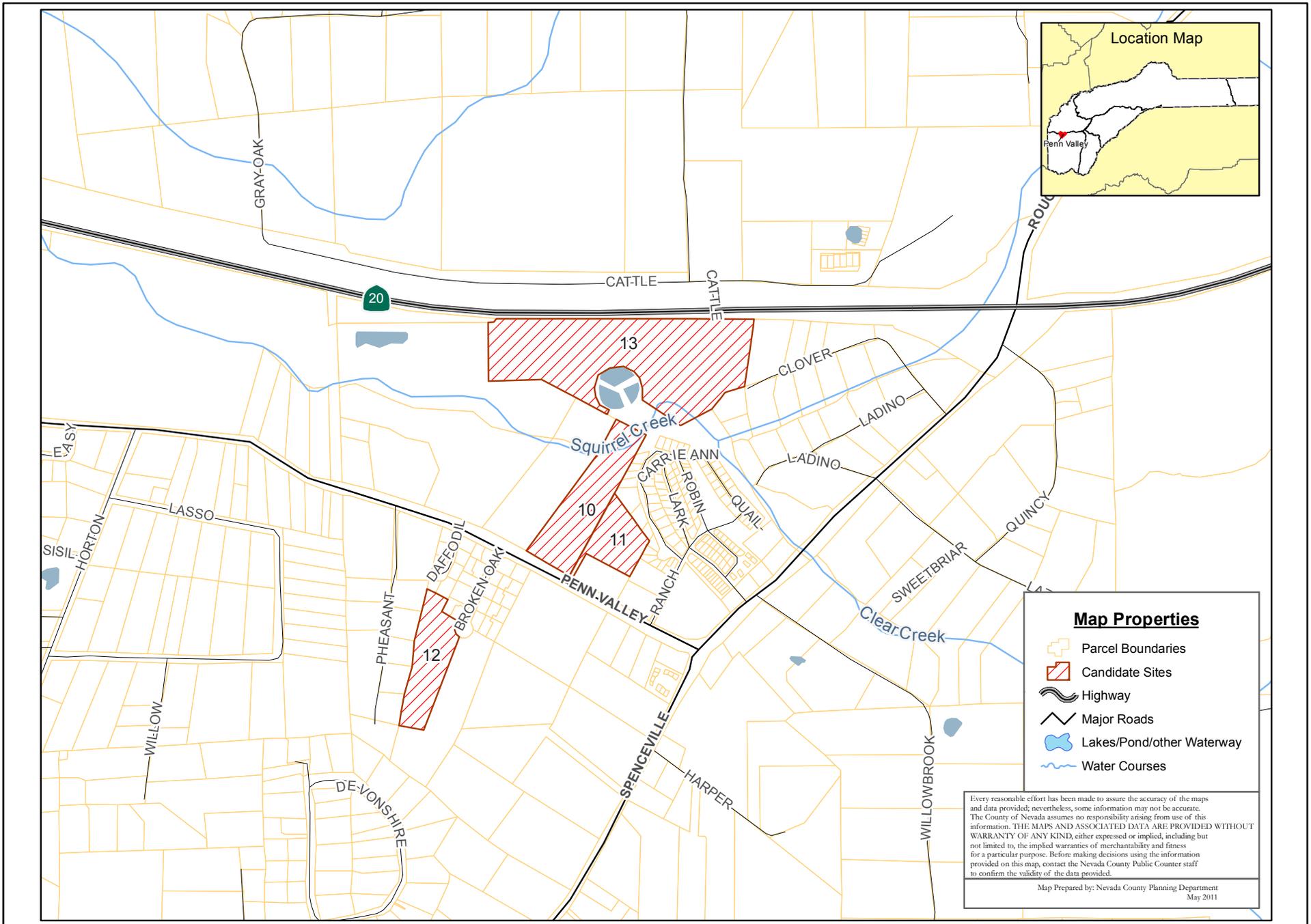


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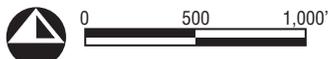
COUNTY OF NEVADA
2019-2014 HOUSING ELEMENT REZONE PROGRAM IMPLEMENTATION WSA

Grass Valley Area Sites

FIGURE 2



Source: Nevada County GIS 2012; ESRI 2012.

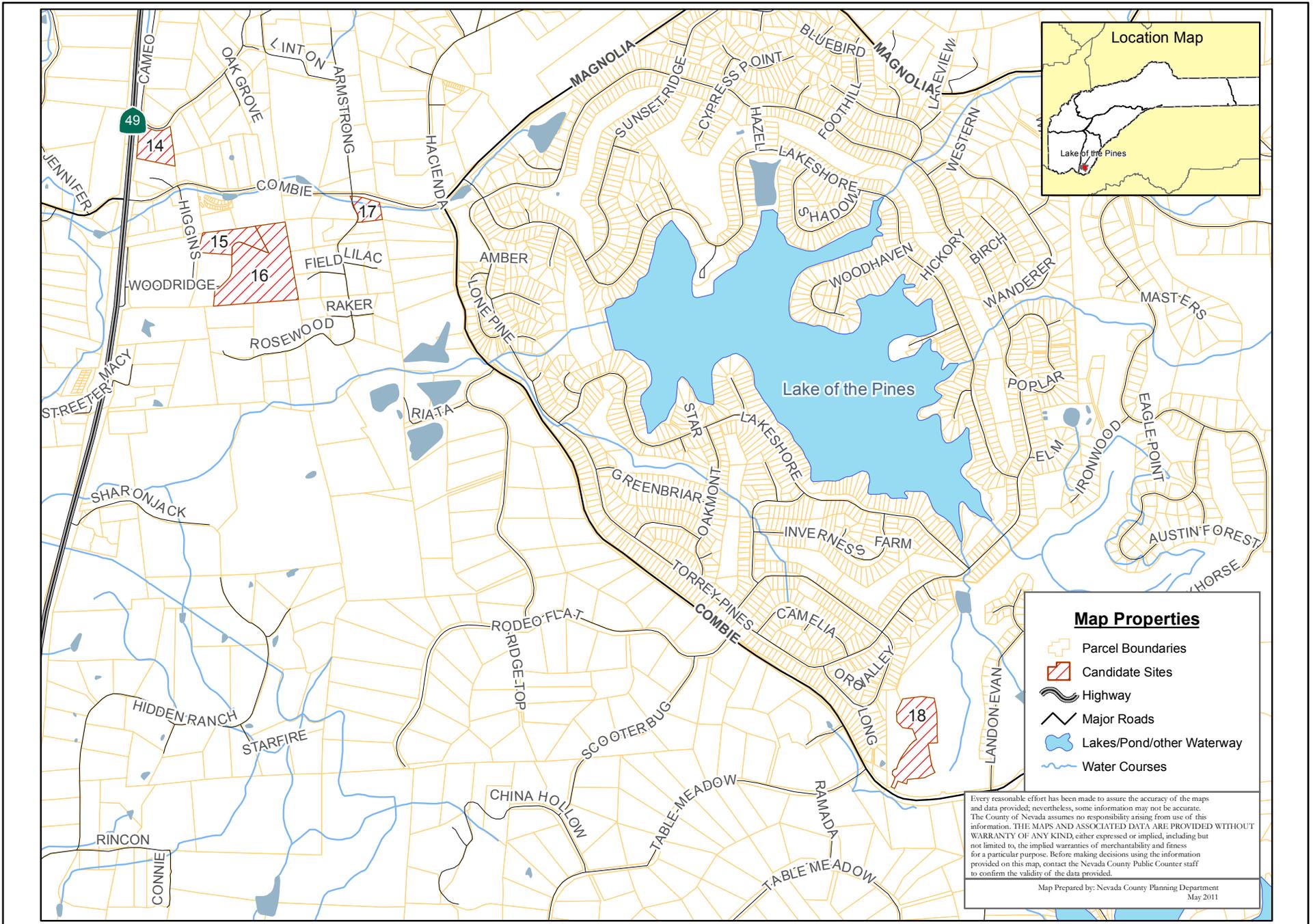


12/17/12 JN 131242-18946

COUNTY OF NEVADA
2019-2014 HOUSING ELEMENT REZONE PROGRAM IMPLEMENTATION WSA

Penn Valley Area Sites

FIGURE 3



Source: Nevada County GIS 2012; ESRI 2012.



12/17/12 JN 131242-18946

COUNTY OF NEVADA
2019-2014 HOUSING ELEMENT REZONE PROGRAM IMPLEMENTATION WSA

Lake of the Pines Area Sites

FIGURE 4



IV. Existing Land Uses

All three general areas are located outside of incorporated cities and within the County of Nevada. All areas are currently undeveloped but are considered viable sites for the Housing Element Rezone due to proximity to existing development and utilities.

V. Proposed Annexation and General Plan and Zoning Amendments³

The project proposes to implement rezoning through the Zoning Map Amendment process to rezone sufficient acreage to higher density residential to meet the minimum low and very low income requirements. The specific rezoning process is proposed through the implementation of the Housing Element Program HD-8.1.4, including adding the “RH” Zoning Combining District to those sites included in Program HD-8.1.5.

Program HD-8.1.4: To accommodate the unmet housing need of 699 low and very-low income units identified in the 2009-2014 Nevada County Housing Element, the County would rezone at least 35-acres suitable and available for development.

The rezoning of property under HD-8.1.4 will occur through one of the following scenarios:

1. Rezones within the cities’ sphere of influence to a maximum density of 20 units per acre (R3-20) and a minimum density of 16 units per acre; or
2. Rezone a sufficient amount of land outside the cities’ sphere of influence to a minimum density of 16 units per acre; or
3. A combination of rezoned land within and outside of the cities’ sphere of influences at the identified densities may also be used to satisfy the respective unmet needs.

A minimum of 50 percent of the 1,270 units shall be accommodated on sites zoned exclusively for residential uses. Owner occupied and rental multi-family residential uses on these sites shall be allowed by right (without a conditional use permit, planned unit development plan, or other discretionary action) as required by Government Code Sections 65583.2(h) and (i). The rezoned sites shall provide for a minimum of 16-units per site and required a minimum density of 16-units per acre.

Program HD-8.1.5: Requires the County to amend the Zoning Regulations to create a definition and development standards for a Regional Housing Need (RH) Overlay district that is to be attached to the rezoned sites to accommodate the new construction objectives under Programs HD-8.1.3 and HD-8.1.4. The overlay district was developed by County staff and adopted by the County Board of Supervisors in September 27, 2011.

³ County of Nevada Community Development Agency Planning Department Notice of Preparation, September 21, 2012.



VI. Proposed Land Uses

All three Project Areas exclusively propose high density residential (R3) uses with a minimum of 16 or 20 dwelling units per acre depending on the development scenario followed, as described above. Table 1 summarizes the separate areas of the Program and the proposed minimum densities each are to be developed to.

Table 1 – Proposed Program Land Uses

Program Area*	General Plan Designation	Minimum Density	Acres	Potential Dwelling Units
1 (Grass Valley)	OP	20 du/acre	1.08	22
2 (Grass Valley)	BP	20 du/acre	11.36	227
3 (Grass Valley)	UMD	20 du/acre	9.15	183
4 (Grass Valley)	UMD	20 du/acre	11.35	227
5 (Grass Valley)	UMD	20 du/acre	4.50	90
6 (Grass Valley)	UMD	20 du/acre	9.70	194
7 (Grass Valley)	UMD	20 du/acre	9.90	198
8 (Grass Valley)	UMD	20 du/acre	10.43	209
9 (Grass Valley)	UMD	20 du/acre	6.49	1.30
10 (Penn Valley)	CC	16 du/acre	5.95	95
11 (Penn Valley)	CC	16 du/acre	3.10	50
12 (Penn Valley)	UMD	16 du/acre	4.37	70
13 (Penn Valley)	PD	16 du/acre	20.10	322
14 (Lake of the Pines)	OP	16 du/acre	5.00	80
15 (Lake of the Pines)	PD	16 du/acre	5.00	80
16 (Lake of the Pines)	PD	16 du/acre	18.12	290
17 (Lake of the Pines)	UMD	16 du/acre	2.36	38
18 (Lake of the Pines)	USF	16 du/acre	11.03	176
Total			149 Ac	2680 du

The total potential unit count is a theoretical maximum yield of total units for all of the Project sites, and does not consider physical and regulatory constraints (such as streets, slopes, biologically sensitive areas, etc.) on the properties. As such, this number represents a conservative analysis of future water demand in order to ensure the minimum unit requirement is met.

VII. Identification of Public Water System

The Nevada Irrigation District (NID) has been identified as the proposed water purveyor for the Project. An application for water service from NID will be processed for the Housing Element Rezone Program.

NID was organized in 1921 under the California Irrigation District Act of 1897 as a nonprofit water agency, and operated under Division 11 of the State Water Code. Located on the western slope of the Sierra Nevada Mountain Range, NID encompasses 287,000 acres in portions of three counties: Nevada, Placer, and Yuba. NID's mountain watersheds cover 70,000 acres and include the upper portions of the Middle Yuba River



above Milton Diversion, Canyon Creek above Bowman Reservoir, and Deer Creek.⁴ The NID service area and distribution system is shown in Figure 5.

NID currently operates and maintains a system of 10 reservoirs with approximately 280,000 acre-feet of storage capacity, 39 storage tanks, many miles of open canals, 325 miles of pipeline, and seven water treatment plants to capture and deliver both treated and untreated (raw) water.⁵

The County of Nevada has determined that the proposed Project is subject to CEQA, and is currently preparing an Environmental Impact Report. As the water purveyor, NID has prepared this WSA according to the 90-day schedule provided in Section §§ 10910 of the California Water Code.

VIII. Project Water Demand

Table 2 summarizes the estimated water demands of the Program.

Table 2 – Estimated Program Water Demand

Program Area	Potential Dwelling Units	Usage Factor ^[2]	gpm	Estimated Average Water Demand
1 (Grass Valley)	22	0.30 gpm/du	6.6	11 ac-ft/yr
2 (Grass Valley)	227	0.30 gpm/du	68.1	110 ac-ft/yr
3 (Grass Valley)	183	0.30 gpm/du	54.9	89 ac-ft/yr
4 (Grass Valley)	227	0.30 gpm/du	68.1	110 ac-ft/yr
5 (Grass Valley)	90	0.30 gpm/du	27.0	44 ac-ft/yr
6 (Grass Valley)	194	0.30 gpm/du	58.2	94 ac-ft/yr
7 (Grass Valley)	198	0.30 gpm/du	59.4	96 ac-ft/yr
8 (Grass Valley)	209	0.30 gpm/du	62.7	101 ac-ft/yr
9 (Grass Valley)	1.30	0.30 gpm/du	0.4	1 ac-ft/yr
10 (Penn Valley)	95	0.30 gpm/du	28.5	46 ac-ft/yr
11 (Penn Valley)	50	0.30 gpm/du	15.0	24 ac-ft/yr
12 (Penn Valley)	70	0.30 gpm/du	21.0	34 ac-ft/yr
13 (Penn Valley)	322	0.30 gpm/du	96.6	156 ac-ft/yr
14 (Lake of the Pines)	80	0.30 gpm/du	24.0	39 ac-ft/yr
15 (Lake of the Pines)	80	0.30 gpm/du	24.0	39 ac-ft/yr
16 (Lake of the Pines)	290	0.30 gpm/du	87.0	140 ac-ft/yr
17 (Lake of the Pines)	38	0.30 gpm/du	11.4	18 ac-ft/yr
18 (Lake of the Pines)	176	0.30 gpm/du	52.8	85 ac-ft/yr
Total				1,235 ac-ft/yr

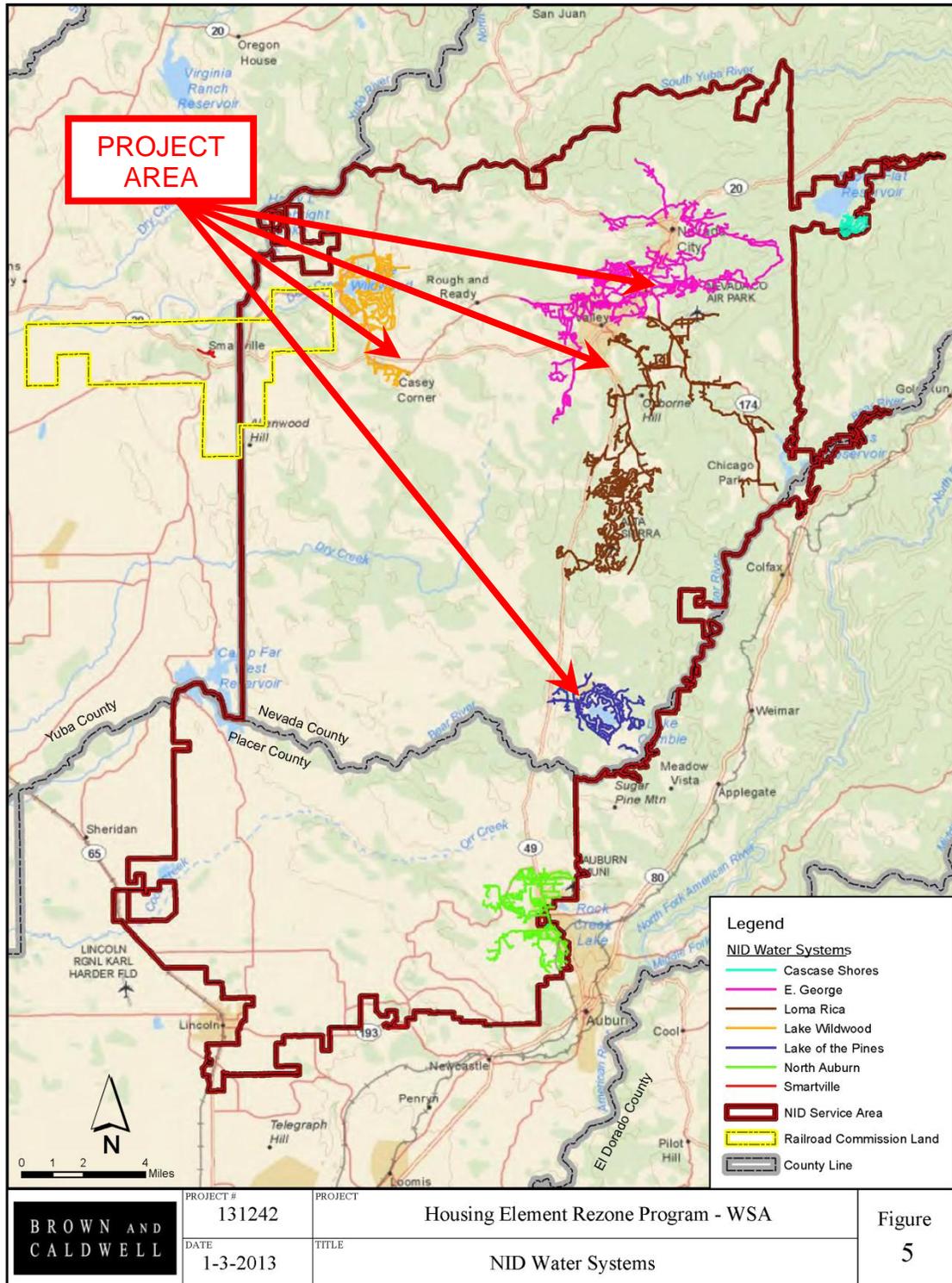
[1] Based on NID Treated Water Master Plan Update (March 1997), 0.30 = 0.75/2.5 to calculate average water use.

⁴ Brown and Caldwell. 2010 Nevada Irrigation District Urban Water Management Plan. June 2011.

⁵ Nevada Irrigation District. Raw Water Master Plan Update, Phase 1: Technical Analysis, Volume 1 Final Report. Kleinshmidt, West Yost & Associates, Robertson – Bryan, Inc. September 2005.



Figure 5 - Nevada Irrigation District Service Boundary
(Source: NID 2010 UWMP, Figure 2-2)





Low-income housing is addressed in the UWMP and calls for 40 percent of unit construction to comply with NID’s low-income housing goals. Table 3-13 of the 2010 UWMP identifies the low-income housing goals, and demonstrates the UWMP encompasses the Program’s objectives. Table 3 is a copy of the table.

**Table 3 (2010 UWMP Table 3-13)
Low Income Projected Water Demands, ac-ft/yr**

Residential	2015	2020	2025	2030	2035
Single-family residential	2,665	2,609	2,939	3,308	3,725
Multi-family residential	434	429	483	545	621
TOTAL	3,099	3,038	3,422	3,853	4,346

Therefore, approximately 3,099 acre-feet of annual water demand is identified as future low-income housing water demand to be supplied by the District by Year 2015, and 4,346 acre-feet by 2035, within the Rezone Program.

Landscaping

Centralized landscaped area may be incorporated with design of the regions. At such time supply for irrigation water demands of these areas may utilize recycled water in keeping with the intent of the Compliance Plan and corresponding demand management measures.

IX. Urban Water Management Plan Review

The Nevada Irrigation District was originally organized for the purpose of storing and delivering irrigation water to farmers and ranchers. NID adopted its 2010 Urban Water Management Plan (UWMP) on June, 2011 (Brown and Caldwell, 2011). The 2010 UWMP updated all sections of the 2005 UWMP, and new sections were added pursuant to the applicable legislation enacted since 2005, i.e. the State’s landscaping ordinance of 2010 and the Water Conservation Act of 2009 (SBx7-7).

Water Supply⁶

NID’s water supplies are derived principally from the Yuba River, Bear River, and Deer Creek watersheds. In the early 1920’s NID acquired storage and regulating facilities in the upper reaches of the Middle and South Yuba Rivers. In 1926, NID acquired most of its Canyon Creek holdings including the Bowman, Sawmill, French, and Faucherie Reservoirs. Associated water rights were also obtained. Deer Creek rights were obtained in the 1920’s for the development of Scott’s Flat Reservoir. In 1963, NID partnered with Pacific, Gas, and Electric (PG&E) to develop additional storage and conveyance capacity and generate power from water derived from the Yuba and Bear River watersheds through the Yuba-Bear Project.

⁶ Brown and Caldwell. 2010 Nevada Irrigation District Urban Water Management Plan. June 2011.



NID depends on surface water for its supply for both irrigation and urban water demands. The supply falls into four main categories:

- Runoff from the watershed
- Carryover storage in surface reservoirs
- Contract purchases
- Recycled water

Watershed Runoff includes all runoff produced by NID's watershed during the water year. The amount of runoff and the manner in which it is used, depends upon the amount of water contained in the snow pack and the rate at which the snow pack melts. NID water rights include pre-1914 rights acquired from mining interests, along with post-1914 rights filed with the State of California to provide for domestic, municipal, industrial, recreational, power, and irrigation uses. Typically, melting snow provides runoff lasting into June or July.

The system of storage reservoirs and conduits used to transport water to NID's service area boundary are referred to as the Upper Division. The Upper Division is operated in conjunction with PG&E under the terms of a joint agreement. In periods of normal precipitation, ample runoff is available for power production. Conversely, power production is sacrificed to avoid supply deficiencies during dry years. The 82-year average is 229,100 acre-feet per year.

Carryover storage is the amount of water left in the reservoirs at the end of the normal irrigation season, usually at the end of September. NID has ten main storage reservoirs totaling 280,390 AF. NID operates its reservoirs to maintain minimum carryover storage of at least 70,000 AF, which includes 39,675 AF of minimum pool requirements reserved for environmental needs and dead storage volume that cannot be relied upon as a water supply source.

Contract Purchases include NID's right to purchase water from PG&E through a 1924 agreement with PG&E. This agreement is modified from time to time to meet the changing conditions and requirements of both organizations. In 1963, NID and PG&E agreed to develop additional storage capacity on both Middle Yuba and the Bear River. Also, additional water was made available by improved and new facilities in the upper Yuba Basin. Contract water purchases were available each year through the 1963 agreement with PG&E. In years of at least normal precipitation, the maximum amount available is 59,361 ac-ft. This maximum amount is reduced in dry years to 23,591 ac-ft. The contract is expected to be extended through renegotiation in 2013.

Several areas within NID use recycled water. Recycled water supply is made up of captured effluent from four municipal wastewater treatment plants blended with surface waters. The primary use of recycled water is for agricultural irrigation. Recycled water is also used to replenish stream flows. Although not anticipated to be a major source of supply, NID anticipates supplying its recycled water customers within the planning horizon of the 2010 UWMP.

NID's current and projected surface water supplies are shown in Table 4.



**Table 4 (2010 UWMP, Table 4-4)
Current and Projected Normal Year Water Supplies, ac-ft/yr**

Water Supply Sources	Wholesaler Supplied Volume (Yes/No)	2010	2015	2020	2025	2030	2035
Wholesaler - Contract Purchase (PG&E)	yes	59,361	59,361	59,361	59,361	59,361	59,361
Supplier-produced groundwater	no	0	0	0	0	0	0
Supplier-produced surface water							
Watershed Runoff	no	209,377	229,124	229,124	229,124	229,124	229,124
Carryover Storage	no	139,395	119,843	119,843	119,843	119,843	119,843
Transfers in		0	0	0	0	0	0
Exchanges in		0	0	0	0	0	0
Recycled water	no	2,500	2,500	2,500	2,500	2,500	2,500
Desalination water	no	0	0	0	0	0	0
TOTAL		410,633	410,828	410,828	410,828	410,828	410,828

Source: 2010 Nevada Irrigation District Urban Water Management Plan, June 2011.

Integrated Regional Water Management Planning

Water management tools have been used by NID to maximize water resources. NID utilizes only resources within its watershed and does not need to import water from other regions. NID is a member of the Cosumnes American Bear Yuba (CABY) integrated regional water management group. CABY is a collaborative planning effort that adopted an Integrated Regional Water Management Plan (IRWMP) in December 2006, in response to the passage of Proposition 50. Diverse stakeholder involvement was a priority from the beginning, and CABY comprises more than 30 organizations, representing water supply, conservation, recreation, agriculture, and community interests, as well as federal and local government. The benefits of the CABY program described above and the documents developed as a result of this program are water management tools that NID uses to maximize their water resources.

X. Supply and Demand Projections

The 2010 NID UWMP provides estimates of the water supply and water demand during normal, single-dry, and multiple-dry years. The following tables are based on the supply and demand comparison tables of the 2010 UWMP. Although the tables calculate a projected deficit in supplies during water shortage years, the quantified supplies do not include NID's supply entitlements to the Bear River and the South Yuba River. Also, the



NID’s water shortage contingency plan calls for mandatory reduction in water usage by its customers, which is not quantified in the UWMP supply and demand comparison tables.

Table 5 (UWMP Table 7-1)
Normal Year Water Supply and Demand Comparison, ac-ft/yr

	2010	2015	2020	2025	2030	2035
Supply totals	410,633	410,828	410,828	410,828	410,828	410,828
Demand totals	129,894	180,046	187,360	195,729	200,646	203,542
Supply Surplus	280,739	230,782	223,468	215,099	210,182	207,286

Table 6 (UWMP Table 7-2)
Single Dry Year Water Supply and Demand Comparison, ac-ft/yr

	2010	2015	2020	2025	2030	2035
Supply totals	183,113	183,113	183,113	183,113	183,113	183,113
Demand totals	129,894	180,046	187,360	195,729	200,646	203,542
Supply Surplus/Deficit	53,219	3,067	-4,247	-12,616	-17,533	-20,429

Table 7 (UWMP Table 7-3)
First Year of Multiple-Dry Year Events Water Supply and Demand Comparison, ac-ft/yr

	2010	2015	2020	2025	2030	2035
Supply totals	255,439	255,439	255,439	255,439	255,439	255,439
Demand totals	129,894	180,046	187,360	195,729	200,646	203,542
Supply Surplus/Deficit	125,545	75,393	68,079	59,710	54,793	51,897

Table 8 (UWMP Table 7-4)
Second Year of Multiple-Dry Year Events Water Supply and Demand Comparison, ac-ft/yr

	2010	2015	2020	2025	2030	2035
Supply totals	192,422	192,422	192,422	192,422	192,422	192,422
Demand totals	129,894	180,046	187,360	195,729	200,646	203,542
Supply Surplus/Deficit	62,528	12,376	5,062	-3,307	-8,224	-11,120

Table 9 (UWMP Table 7-5)
Third Year of Multiple-Dry Year Events Water Supply and Demand Comparison, ac-ft/yr

	2010	2015	2020	2025	2030	2035
Supply totals	333,944	333,944	333,944	333,944	333,944	333,944
Demand totals	129,894	180,046	187,360	195,729	200,646	203,542
Supply Surplus/Deficit	204,050	153,898	146,584	138,215	133,298	130,402



As stated previously, water shortages are projected to occur during single dry years and multiple dry years in the future because NID’s quantified supply during single dry years and multiple dry years is projected to be less than demands during those years. The quantified supply in the 2010 UWMP does not include supply from the Bear River and the South Yuba River, NID is likely to receive in dry years. There is a high probability that with these additional supplies, NID would likely not have a supply deficit in single and multiple dry years. In addition, the demands shown do not include any demand reductions as a result of NID implementing their water shortage contingency plan. NID has a drought contingency plan in place to reduce demand up to 50 percent. Therefore, the UWMP projects sufficient reductions in demands, and increases in supplies from Bear River and South Yuba River, to mitigate for the calculated 17 percent supply deficit.

XI. Projects and Programs

NID’s water supply projects identified in the UWMP are designed to meet the total projected water use and provide system reliability. Water treatment plant expansion projects are currently in progress or planned for the near future. Table 10 (as developed for the 2010 UWMP) provides a schedule of the future water supply projects and a quantification of each project’s normal-year yield, single dry-year yield, and multiple dry-year yield.

**Table 10 (UWMP Table 4-11)
Future Water Supply Projects**

Project Name	Projected Start Date	Projected Completion Date	Potential Project Constraints	Normal Year Supply, ac-ft/yr	Multiple Dry Year Supply ac-ft/yr		
					First Year	Second Year	Third Year
Loma Rica WTP (4 mgd expansion)	2020			1792	1792	1792	1792
E. George WT (8 mgd expansion)	2011			3584	3584	3584	3584
Lake Wildwood WTP (4 mgd expansion)	2016			1792	1792	1792	1792
North Auburn WTP (4 mgd expansion)	2020			1792	1792	1792	1792
Lincoln WTP (10 mgd new WTP)	2018			4480	4480	4480	4480
Total				13,441	13,441	13,441	13,441

These projects are proposed to increase the amount of treated water available for NID treated water customers. The annual increase in treated water available as a result of the water treatment plant capacity expansions is assumed at 50 percent of total expansion capacity.

NID’s Drought Contingency Plan was adopted in June 2007. The primary objective of the plan is to conserve water through efficient water management. The Drought



Contingency Plan supplements NID's Urban and Agricultural water management plans, and identifies drought-caused water supply shortages and water demand reduction goals within NID during a drought. It is implemented in conjunction with NID's Emergency Response Plan to mitigate against the impact of catastrophic emergencies and inconvenience to its customers. Prior to the beginning of the irrigation season, but no later than April 1, NID evaluates its current reservoir storage, forecasted runoff, and purchase options from PG&E to determine the applicable water supply stage for the coming year. NID's minimum carryover amount is evaluated every five years and updated as necessary.

NID implements demand management measures (DMMs) aimed at increasing water conservation that include water surveys, water audits, leak detection and repair, residential plumbing retrofits, public water conservation awareness programs, and conservation pricing. NID has refined these measures as required for SBx7-7 for the 2010 UWMP, which are designed to meet its mandatory targets for 2015 and 2020.

NID maintains an updated Raw Water Master Plan that identifies proposed capital improvements necessary to maintain NID's current infrastructure and to support future growth and increased water demands. NID continues to consider options for providing a reliable treated water supply to customers, and is planning various plant expansions (Table 10) to start construction between now and Year 2020. The proposed WTP expansions are proposed to increase NID's treated water capacity by 30 million gallons per day (MGD) and annual volume by approximately 13,400 acre-feet per year.

XII. Conclusion

The proposed Nevada County Housing Element Rezone Program has an estimated water demand of 1,235 acre-feet per year. The NID 2010 Urban Water Management Plan identifies future low-income housing projects with an estimated 3,099 acre-feet per year demand by 2015, and 4,346 acre-feet per year demand by 2035.

The Urban Water Management Plan identifies water supply availability during normal, single-dry, and multiple-dry year conditions throughout the water supply and demand planning period to 2035. NID's UWMP calculates a deficit in water supply sources excluding consideration of drought contingency measures and Bear River and South Yuba River entitlements, which are expected to make up for the deficit.

NID determines that the Rezone Program is identified in the 2010 UWMP and, therefore, sufficient water supplies are available to meet the estimated Program demands. NID makes this determination based on the information provided in the WSA and on the following specific facts:

- NID has developed hypothetical single-year and multiple-year worst-case scenarios throughout the water supply and demand planning period to 2035 to prepare for water supply shortages.



- NID uses the March Snow Survey information for each year to make a determination of available water supplies and has a five-stage Drought Contingency Plan that identifies drought caused by water supply shortages.
- NID has rigorous water supply and demand management measures capable of reducing demand and/or increasing supplies in the event of water shortages.
- Although watershed runoff is variable and subject to annual rainfall and snowpack conditions, carryover storage provides a buffer against this variability.
- NID maintains an updated Raw Water Master Plan that identifies proposed capital improvements necessary to maintain NID's current infrastructure and to support future growth and increased water demands.
- NID is planning various plant expansions through 2020. The proposed WTP expansions will increase NID's treated water capacity by 30 million gallons per day (MGD) and up to 13,400 acre-feet per year.

XIII. References

- Nevada County Community Development Agency Notice of (EIR) Preparation.
Prepared for: County of Nevada. September 2012.
- Brown and Caldwell. 2010 Nevada Irrigation District Urban Water Management Plan.
June 2011.
- Nevada Irrigation District. Raw Water Master Plan Update, Phase 1: Technical Analysis, Volume 1 Final Report. Kleinshmidt, West Yost & Associates, Robertson – Bryan, Inc. September 2005.
- Nevada Irrigation District. Staff Report, Subject: SB 610 Water Supply Assessment – Timberline @ Auburn. February 26, 2009.
- Nevada Irrigation District. E. George Treated Water Master Plan 2005 Update, May 2006.
- Nevada Irrigation District. Treated Water Master Plan Lake Wildwood, October 1988.
- Nevada Irrigation District. Lake of the Pines Water System Master Plan Update, April 1989.

**County of Nevada
Housing Element Rezone Implementation Program EIR
September 2013**

Technical Appendices

Appendix K

Service Availability Letters



Nevada County Consolidated Fire District

"Excellence in Emergency Service"

11329 McCourtney Road, Grass Valley, CA 95949

(530) 273-3158 FAX (530) 271-0812

nccfire@nccfire.com

www.nccfire.com

February 11, 2013

Monica King, LEED AP
Environmental Analyst
RBF Consulting
9755 Clairemont Mesa Blvd, Suite 100
San Diego, CA 92124

Re: Fire Service Questionnaire.

Monica,

I have attached the completed questionnaire that you sent to me.

Feel free to call if I can be of further assistance.

Terry McMahan
Deputy Fire Marshal

cc: Chiefs Ray and Turner

**FIRE SERVICE QUESTIONNAIRE
NEVADA COUNTY HOUSING ELEMENT REZONE IMPLEMENTATION
ENVIRONMENTAL IMPACT REPORT**

1. Please indicate the name and location of the fire stations that serve the project area. Also, indicate, the equipment, personnel and emergency medical services available at each station.

- The Nevada County Consolidated Fire District works within a Joint Operations Area (JOA) in conjunction with the City of Grass Valley and the City of Nevada City. We jointly staff Station 1 located on Brighton Street within the City of Grass Valley and Station 54 located on Providence Mine Road in the City of Nevada City. Both stations are staffed with on of our employees and one City employee however we are three separate agencies. The Nevada County Consolidated Fire District also staffs the following stations:

Station 84 10135 Coyote Street, Nevada City CA 95959. One Type I Fire Engine (structure engine), one Type III Fire Engine (wildland engine), one rescue truck mainly used for swift water rescue and low angle rescues and one Water Tender.

Station 86 12337 Banner Lava Cap Road, Grass Valley CA 95945. One Type I Fire Engine and a Type IV Quick Attack also equipped with a snow plow.

Station 88 14518 State Highway 49, Grass Valley CA 95949. One Type I Fire Engine and a Water Tender. This Station also houses our vehicle repair shop.

Station 89 11833 Tammy Way, Grass Valley CA 95949. One Type I Fire Engine, one Type III Fire Engine and a Water Tender owned by the State of California.

Additionally the Nevada County Consolidated Fire District has the following unstaffed stations:

Station 80 13376 Quaker Hill Road, Nevada City CA 95959

Station 81 16528 Pasquale Road, Nevada City CA 95959

Station 82 18969 Scotts Flat Road, Nevada City CA 95959

Station 83 14700 North Bloomfield Road, Nevada City CA 95959

Station 90 10095 East Lime Kiln Road, Grass Valley CA 95949

Station 91 (Administration Office) 11329 McCourtney Road, Grass Valley CA 95949

Station 92 14811 McCourtney Road, Grass Valley CA 95949

All staffed stations are staffed 24/7 with a minimum 2 paid personnel supplemented with Intern Firefighters.

All firefighters must be trained to the Emergency Medical Technician I Basic Life Support Level. Most have specialty training including but not limited to swift water rescue, large animal rescue and low angle rescue.

All equipment carries basic medical supplies along with an Automatic Heart Defibrillator.

Most Engines carry auto extrication equipment.

The Joint Staffed Stations located within the two cities are similarly staffed and have a minimum of one Type I Fire Engine.

The Administration Office Station 91 houses the Chief Officers and other Support Staff. The Grass Valley Fire Battalion Chief also has an office at this location.

The Deputy Fire Marshals Office is currently located in Grass Valley City Hall located at 125 East Main Street, Grass Valley CA 95945.

2. What is the average response time to areas within the project area?
 - The average response time into these areas is approximately 5 to 7 minutes.
3. Please indicate any assessment fees required for the project.
 - Since we are a consolidation of five separate fire districts our assessment fees vary by location and type of use.

The area covering sites 4 thru 9 will range for light commercial which includes residential. Development fees range from \$.22 to \$.44 per square foot. Site 1, \$.28 to \$.72 and Site 2, \$.23 to \$.45. The lower figures in the listed areas would apply because Fire Sprinkler Systems would need to be installed in the buildings.

Additional fees for plan review of site, fire sprinklers, alarm systems and meetings will be billed at an hourly rate. Our current rate is \$ 50.00 per hour and is scheduled to be reviewed in the near future and most likely will increase.

4. Is the current level of fire protection service provided adequate for the project area? If the fire protection levels are not adequate, what would be required to provide an adequate level of service for the community (number and types of personnel or personnel hours, and resources required)?
 - The exact impact is unknown.
5. Have the needs for fire protection services increased, decreased or remained the same during recent years? If there have been changes, please provide information about those changes, including: change in type of service request, amount of change in service needs, known causes of changes, and timeframe in which these changes occurred.
 - Increased due to an increasing homeless population, and an aging community. Our community has a large number of retirees living in the area and as they age we may see an increase in medical type responses. We have seen an increase in structure fire responses over the last several years.
6. Do you anticipate the proposed project would result in the need for physical additions to your agency (i.e., construction of new fire stations)?
 - These areas will most likely be annexed into the City of Grass Valley and would have to be determined at a later date.
7. Do you anticipate that required fees and taxes provided by the project will adequately mitigate the expected increase in fire and emergency medical service demand?
 - Unknown.
8. Do you require or recommend any additional mitigation measures?
 - Unknown without further information. Standard conditions relating to construction and access would apply. This would include but not limited to available fire flow, traffic circulation and access and fuel modifications.
9. Please indicate the present ISO rating of the site and any fire hazard impacts of the project (will the ISO rating remain the same)?

- 4 within areas with a fire hydrant system and 8b in areas without fire hydrants.

10. Is there any other relevant information regarding potential significant project impacts?

- No at this time. As stated before, these areas will most likely be annexed into the City of Grass Valley.

**FIRE SERVICE QUESTIONNAIRE
NEVADA COUNTY HOUSING ELEMENT REZONE IMPLEMENTATION
ENVIRONMENTAL IMPACT REPORT**

Please respond to the following questions on your agency letterhead and provide maps to illustrate facility locations, if applicable.

1. Please indicate the name and location of the fire stations that serve the project area. Also, indicate, the equipment, personnel and emergency medical services available at each station.
Penn Valley Fire Protection District (PVFD) has three fire stations, two of which are staffed. The closest to these projects is located at 10513 Spenceville Road, near the intersection of Penn Valley Drive and Spenceville Road.
The closest station has a fire engine, water tender and a medic unit and is staffed with a minimum of two qualified personnel. The next closest station is located at Pleasant Valley Road and Lake Wildwood Drive and has a fire engine and a medic unit (along with a reserve engine) and is also staffed with a minimum of two personnel. PVFPD, in addition to the normal fire suppression services, provides advanced life support (paramedics) and transport units.

2. What is the average response time to areas within the project area?
The average travel time would be in the range of 1 minute to 4 minutes, depending on which site (as shown on the map). We usually allow 2-3 minutes for dispatch and reaction time.

3. Please indicate any assessment fees required for the project.
PVFPD has a fire impact fee on new development. In addition to the property taxes, we have a Special Fire Suppression Benefit Assessment District and a Special Tax – Rescue. The impact fee is a one-time fee.

4. Is the current level of fire protection service provided adequate for the project area? If the fire protection levels are not adequate, what would be required to provide an adequate level of service for the community (number and types of personnel or personnel hours, and resources required)?
It is difficult to define adequate but with our resources and our automatic aid and mutual aid agreements with our neighboring

emergency agencies we provide an average level of service when comparing to like areas and agencies.

5. Have the needs for fire protection services increased, decreased or remained the same during recent years? If there have been changes, please provide information about those changes, including: change in type of service request, amount of change in service needs, known causes of changes, and timeframe in which these changes occurred.
Our call volume increase each year by about 5% to 7%; revenue from property taxes have decreased each of the last three years and we think will be close to no change next year.
As a rule, fire calls continue to decrease with new building code and fire code standards. Our biggest change is the increases in requests for emergency medical services.

6. Do you anticipate the proposed project would result in the need for physical additions to your agency (i.e., construction of new fire stations)?
Each new development brings us closer to additional fire stations, apparatus and equipment. The impact fee is intended to cover that need. Property taxes, Special Assessment Fee and the Special Tax are intended to allow us to maintain the current level of service.

7. Do you anticipate that required fees and taxes provided by the project will adequately mitigate the expected increase in fire and emergency medical service demand?
Both our Special Benefit Assessment Fee and our Special Tax – Rescue include the opportunity for our District Board of Directors to adjust the fee based on changes to the Consumer Price Index (not to exceed 3% each year). If and when our cost increase by more than the 3% allowed, revenues will not keep up with expenses.

8. Do you require or recommend any additional mitigation measures?
We would have to look at the plans to be able to answer this question. We do have a Knox Box system. Some of the areas on the map (13 for example) do not currently have a fixed water supply and depending on what you would like to build, that may be a requirement.

9. Please indicate the present ISO rating of the site and any fire hazard impacts of the project (will the ISO rating remain the same)?

ISO just re-rated us a few months ago to a 4/8B; so in the area with a fixed water supply meeting the minimums, you would use the rating of 4.

10. Is there any other relevant information regarding potential significant project impacts?

Again, depending on what is built, there may be impacts specific to the project. For example, if any building is over two stories, we do not have a ladder truck. If the project includes special needs citizens, we would have to look at that.

Please let me know if you need additional information.

**Gene Vander Plaats
Fire Chief, PVFPD**

chief@pennvalleyfire.com

530-432-2630

NEVADA COUNTY SHERIFF'S OFFICE



**KEITH ROYAL
SHERIFF/CORONER
PUBLIC ADMINISTRATOR
MEMORANDUM**

February 7, 2013

Monica Kling, RBF Consulting
9755 Clairemont Mesa Blvd., Suite 100
San Diego, CA 92124

Re: Sheriff Service Questionnaire

Dear Ms. Kling:

Below are the responses to the question provided by your firm.

Questions #1:

The Sheriff's Office serving these project areas is located at 950 Maidu Avenue in Nevada City (see attached map).

Question #2:

The exact square miles covered by the Nevada City Sheriff's Office is unknown. A rough estimate, however, would be half of the County, West of the State Highway 20/Interstate 80 junction. The entire County size is 957.77 square miles. Half would be about 479 square miles served. Population of the County only residents would be the entire County population (98,612) minus the incorporated populations (about 32,000) which is approximately 66,600 people.

Question #3:

The types of personnel able to provide law enforcement services in the unincorporated areas of the County are Deputy Sheriffs and they number 68 personnel.

Question #4:

Average response times to individual address/areas within the County are to separately tracked. Response times are tracked by the incident. However, on a 3 year average, the response times are as follows: creation of call to dispatching resource = 12:09 (min:sec), dispatch to on-scene = 12:09, on scene to clear = 32:52

ADMINISTRATION: 950 MAIDU AVENUE, NEVADA CITY, CA 95959 - (530) 265-1471
ANIMAL CONTROL, 14647 MCCOURTNEY ROAD, GRASS VALLEY, CA 95949 (530) 273-2179
CORRECTIONS: P.O. BOX 928, NEVADA CITY, CA 95959-0928 - (530) 265-1291
TRUCKEE: P.O. BOX 699, TRUCKEE, CA 96160 - (530) 582-7838

SHERIFF@CO.NEVADA.CA.US

Question #5:

See attached "Response Times By Priority" report. "Priority 1" calls are those in-progress felonies, misdemeanors including deaths. "Priority 2" calls are those felonies and misdemeanors that are not in-progress. "Priority 3" calls are all others not falling into the prior two categories.

Question #6:

It is difficult to answer without knowing the intended use of the project area. The type of "housing" contemplated has an impact on the resources needed and in particular, what will the population density of the "housing" project be.

Question #7:

The overall calls for service within the unincorporated areas of the County have essentially remained consistent with state/national trends. The most significant change in drug related investigations has been the passage of California's Compassionate Use Act which provided a defense for the use of marijuana for a qualifying medical condition, essentially legalizing the drug in minds of many. Other factors are typically the overall state of the economy, individual economic status and overall population increase in relatively small geographical areas such as low income housing/apartments.

Question #8:

See answer to question #6.

Question #9:

See answer to question #6.

Question #10:

No.

Should you have any further questions, please contact me.

Keith Royal
Sheriff-Coroner-Public Administrator



Joe Salivar
Undersheriff

**SHERIFF SERVICE QUESTIONNAIRE
NEVADA COUNTY HOUSING ELEMENT REZONE IMPLEMENTATION
ENVIRONMENTAL IMPACT REPORT**

Please respond to the following questions on your agency letterhead and provide maps to illustrate facility locations.

1. Please indicate the location of the police or sheriff stations that serve the project area.

2. What is the geographical area and total population which is served by the station?

3. What are the number and types of personnel in this Department that are available to provide police protection services to the project area?

4. What is the average response time to areas within the project area?

5. What are the mean response times for different priority levels over the last three years? Also, please provide a description of the different priority service levels.

6. Is the current level of police protection service provided adequate for the project area? If the protection levels are not adequate, what would be required to provide an adequate level of service for the community (number and types of personnel or personnel hours, and resources required)?

7. Have the needs for police protection services increased, decreased or remained the same during recent years? If there have been changes, please provide information about those changes, including: changes in type of service request, amount of change in service needs, known causes of changes, and timeframe in which these changes occurred. (For example, have there been significant increases/decreases in drug-related investigation, violent crime, burglary or other types of crimes.)

8. Do you have any required or recommended mitigation measures for significant impacts of the project?

9. Is there any other relevant information regarding significant projects impacts?

10. Do you anticipate the proposed project would result in the need for physical additions to your agency (i.e., construction of new police stations)?

RESPONSE TIMES BY PRIORITY
02/10/2010 00:00:00 TO 02/11/2013 23:59:59
AGENCY: NCSO



PRIORITY	CALL TYPE	#	CREATE to DISPATCH			DISPATCH to ON SCENE			ON SCENE to CLEAR			CREATE to ON SCENE		
			Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
911		4	00:04:35	00:54:59	00:20:10	00:04:29	01:01:39	00:26:04	00:04:08	00:23:36	00:11:28	00:18:43	01:10:02	00:46:15
AGEG		2	00:00:25	00:00:54	00:00:39	00:02:16	00:05:44	00:04:00	00:06:35	00:34:54	00:20:44	00:02:41	00:06:39	00:04:40
ALA		7	00:00:03	00:08:21	00:03:50	00:03:15	00:20:58	00:12:12	00:05:16	00:25:13	00:10:37	00:04:10	00:26:00	00:16:03
ANI		5	00:00:02	00:23:11	00:06:21	00:15:27	01:21:13	00:35:49	00:04:33	01:23:59	00:31:07	00:17:05	01:28:02	00:42:11
ASS		1	00:02:44	00:02:44	00:02:43	01:39:24	01:39:24	01:39:23	00:45:09	00:45:09	00:45:08	01:42:08	01:42:08	01:42:07
COR		1	00:08:16	00:08:16	00:08:16	00:19:14	00:19:14	00:19:14	01:10:53	01:10:53	01:10:52	00:27:30	00:27:30	00:27:30
DIS		5	00:02:59	00:08:07	00:06:17	00:00:27	00:23:05	00:07:23	00:04:44	01:17:07	00:34:45	00:07:20	00:29:11	00:13:40
SUS		4	00:00:28	00:02:34	00:01:31	00:07:21	00:12:59	00:10:48	00:01:47	00:21:02	00:09:50	00:08:45	00:15:05	00:12:20
TRF		1	01:00:05	01:00:05	01:00:04	00:16:23	00:16:23	00:16:23	00:04:05	00:04:05	00:04:04	01:16:28	01:16:28	01:16:28
VAN		2	00:10:56	01:39:54	00:55:25	00:04:00	00:17:57	00:10:59	00:38:45	00:56:57	00:47:51	00:14:57	01:57:51	01:06:24
VEH		1	00:00:31	00:00:31	00:00:30	00:08:17	00:08:17	00:08:16	00:21:36	00:21:36	00:21:36	00:08:48	00:08:48	00:08:47
Total Priority		33	00:00:02	01:39:54	00:12:23	00:00:27	01:39:24	00:18:46	00:01:47	01:23:59	00:22:52	00:02:41	01:57:51	00:31:10

PRIORITY 1	CALL TYPE	#	CREATE to DISPATCH			DISPATCH to ON SCENE			ON SCENE to CLEAR			CREATE to ON SCENE		
			Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
911		177	00:00:01	02:37:22	00:17:38	00:00:00	00:56:45	00:15:04	00:00:09	02:05:47	00:09:09	00:00:07	02:55:57	00:32:42
AC		11	00:00:04	01:03:22	00:09:16	00:00:01	00:45:25	00:19:06	00:02:42	01:05:47	00:21:43	00:03:44	01:48:48	00:28:22
AGEF		2	00:00:05	00:06:18	00:03:11	00:02:10	00:18:26	00:10:18	00:40:09	01:15:35	00:57:52	00:08:28	00:18:31	00:13:29
AGEN		1	00:00:53	00:00:53	00:00:52	00:00:05	00:00:05	00:00:05	00:51:45	00:51:45	00:51:45	00:00:58	00:00:58	00:00:58
AGEO		1	00:01:01	00:01:01	00:01:00	00:05:22	00:05:22	00:05:22	00:27:30	00:27:30	00:27:30	00:06:23	00:06:23	00:06:23
AIR		2	00:00:14	00:04:55	00:02:34	00:07:44	00:11:40	00:09:42	00:54:41	00:56:04	00:55:23	00:07:58	00:16:35	00:12:16
ALA		3	00:00:43	00:38:52	00:13:45	00:04:26	00:22:31	00:12:47	00:02:33	00:07:54	00:05:37	00:12:08	00:43:18	00:26:32
ALL		1	00:00:49	00:00:49	00:00:49	00:02:52	00:02:52	00:02:52	01:04:24	01:04:24	01:04:24	00:03:42	00:03:42	00:03:42
ASS		460	00:00:02	06:35:26	00:13:28	00:00:00	03:08:55	00:20:27	00:00:07	07:26:26	00:54:14	00:00:05	06:43:38	00:33:55
BOAT		2	00:05:28	00:29:04	00:17:16	00:22:29	00:42:53	00:32:41	00:08:14	00:23:48	00:16:01	00:48:21	00:51:34	00:49:57
BOM		5	00:00:04	00:10:08	00:04:30	00:00:37	00:37:19	00:15:57	00:39:10	02:58:43	01:42:28	00:00:48	00:41:15	00:20:28
BUR		33	00:00:07	01:28:55	00:20:14	00:03:42	02:49:19	00:27:30	00:08:15	02:53:40	00:50:43	00:04:43	03:07:26	00:47:45
COR		8	00:00:09	00:02:13	00:01:23	00:02:01	00:22:39	00:12:09	01:12:14	03:12:43	02:19:51	00:03:16	00:24:52	00:13:32

RESPONSE TIMES BY PRIORITY
 02/10/2010 00:00:00 TO 02/11/2013 23:59:59
 AGENCY: NCSO



CALL TYPE	#	CREATE to DISPATCH			DISPATCH to ON SCENE			ON SCENE to CLEAR			CREATE to ON SCENE		
		Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
DIS	10	00:00:52	01:31:10	00:22:36	00:08:50	00:29:16	00:19:12	00:01:09	01:36:29	00:37:16	00:17:50	01:40:00	00:41:48
DVC	52	00:00:03	02:34:34	00:12:43	00:00:05	00:47:07	00:14:37	00:02:44	02:30:25	00:40:26	00:03:23	02:51:34	00:27:21
EXT	4	00:00:51	01:20:03	00:37:12	00:01:14	00:21:46	00:10:54	00:03:43	00:09:13	00:06:38	00:02:05	01:41:49	00:48:07
FIR	1	00:00:12	00:00:12	00:00:12	00:06:08	00:06:08	00:06:08	00:27:55	00:27:55	00:27:55	00:06:21	00:06:21	00:06:20
FTY	1	00:00:25	00:00:25	00:00:25	00:23:00	00:23:00	00:23:59	02:44:13	02:44:13	02:44:13	00:23:25	00:23:25	00:23:25
FU	4	00:00:01	01:49:26	00:44:12	00:00:05	00:15:44	00:07:57	00:33:12	01:15:11	00:47:16	00:08:18	01:57:08	00:52:09
HAZ	1	00:04:00	00:04:00	00:04:00	00:26:40	00:26:40	00:26:39	04:59:31	04:59:31	04:59:31	00:30:40	00:30:40	00:30:39
HOW	2	00:00:12	00:00:46	00:00:28	00:04:48	00:12:27	00:08:37	16:05:30	17:55:17	17:00:23	00:05:34	00:12:39	00:09:06
KID	1	00:00:07	00:00:07	00:00:07	00:11:18	00:11:18	00:11:18	00:29:56	00:29:56	00:29:56	00:11:25	00:11:25	00:11:25
LE	5	00:00:08	00:38:15	00:10:40	00:05:15	00:43:26	00:16:49	00:04:56	01:10:54	00:36:45	00:06:00	01:21:42	00:27:29
MED	7	00:01:06	00:04:09	00:01:59	00:06:51	00:27:58	00:13:11	00:04:34	00:26:43	00:15:40	00:08:41	00:30:28	00:15:10
MUPS	25	00:00:04	02:01:23	00:21:54	00:00:01	01:25:33	00:20:55	00:03:34	02:31:42	00:53:17	00:02:59	02:14:38	00:42:49
PR	5	00:00:04	00:39:26	00:16:29	00:01:26	00:33:08	00:14:51	00:02:43	00:22:37	00:13:08	00:08:10	00:59:13	00:31:21
ROB	13	00:00:18	00:03:33	00:01:41	00:00:00	00:23:23	00:08:30	00:09:36	09:25:26	02:22:54	00:02:08	00:24:22	00:10:11
SAR	16	00:00:01	00:16:48	00:05:34	00:00:02	04:30:00	00:57:40	00:08:51	21:35:38	04:38:20	00:00:05	04:47:48	01:03:14
SER	7	00:00:02	00:08:13	00:02:06	00:00:00	00:17:48	00:06:54	00:01:59	01:13:51	00:34:25	00:00:04	00:23:38	00:09:00
SUI	368	00:00:01	01:31:49	00:04:49	00:00:00	01:41:03	00:16:30	00:01:48	06:13:51	00:49:55	00:00:03	02:10:54	00:21:20
SUS	2	00:01:21	01:07:36	00:34:28	00:04:25	00:15:09	00:09:47	00:17:02	00:25:22	00:21:12	00:05:46	01:22:45	00:44:15
TA	6	00:00:03	00:04:53	00:01:32	00:00:01	00:04:43	00:01:20	00:11:15	01:36:14	00:38:31	00:00:05	00:05:58	00:02:52
THE	1	00:05:11	00:05:11	00:05:11	00:17:51	00:17:51	00:17:51	00:51:48	00:51:48	00:51:47	00:23:02	00:23:02	00:23:02
THR	22	00:00:58	01:58:12	00:24:00	00:01:17	00:45:58	00:16:31	00:05:23	01:13:25	00:31:40	00:02:40	02:08:12	00:40:32
TRF	1	00:27:38	00:27:38	00:27:38	00:15:05	00:15:05	00:15:04	00:14:33	00:14:33	00:14:33	00:42:43	00:42:43	00:42:43
VEH	6	00:00:08	00:22:39	00:07:36	00:00:00	00:25:04	00:11:54	00:03:08	00:53:43	00:21:02	00:00:08	00:32:48	00:19:31
Total Priority 1	1266	00:00:01	06:35:26	00:11:38	00:00:00	04:30:00	00:18:13	00:00:07	21:35:38	00:50:00	00:00:03	06:43:38	00:29:51

RESPONSE TIMES BY PRIORITY
02/10/2010 00:00:00 TO 02/11/2013 23:59:59
AGENCY: NCSO



CALL TYPE	#	CREATE to DISPATCH			DISPATCH to ON SCENE			ON SCENE to CLEAR			CREATE to ON SCENE		
		Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
PRIORITY 2													
911	1619	00:00:01	03:57:09	00:17:11	00:00:00	02:09:28	00:16:25	00:00:02	11:18:30	00:11:36	00:00:05	04:10:46	00:33:36
AC	2	00:01:27	00:18:27	00:09:57	00:26:51	02:24:29	01:25:39	00:08:31	00:28:24	00:18:27	00:45:18	02:25:56	01:35:37
AGEC	22	00:00:01	00:11:58	00:02:01	00:00:06	00:41:21	00:13:28	00:00:18	01:15:39	00:24:37	00:02:59	00:45:40	00:15:30
AGEF	26	00:00:11	00:07:38	00:02:25	00:03:23	01:00:52	00:14:07	00:05:22	02:23:02	00:32:04	00:03:35	01:05:09	00:16:32
AGEG	20	00:00:02	00:06:35	00:00:55	00:00:00	00:27:36	00:07:05	00:02:15	09:06:29	00:55:28	00:00:09	00:32:24	00:08:00
AGEN	12	00:00:04	00:01:15	00:00:13	00:00:01	00:32:46	00:05:34	00:01:27	00:25:16	00:11:32	00:00:05	00:34:01	00:05:48
AGEO	20	00:00:03	01:29:04	00:12:54	00:00:00	00:34:48	00:16:22	00:00:18	01:22:43	00:30:03	00:07:40	01:45:50	00:29:17
AGES	2	00:00:08	00:07:19	00:03:43	00:00:05	00:03:24	00:01:44	00:12:03	00:29:04	00:20:33	00:00:13	00:10:43	00:05:28
ALA	1366	00:00:01	04:06:17	00:11:53	00:00:00	01:33:43	00:14:05	00:00:04	03:26:29	00:10:25	00:00:03	04:42:48	00:25:58
ALC	110	00:00:01	00:49:30	00:05:25	00:00:00	03:17:21	00:13:25	00:00:24	02:44:34	00:30:16	00:00:11	03:19:56	00:18:51
ALL	39	00:00:02	01:37:28	00:12:17	00:00:02	02:17:37	00:18:41	00:03:37	04:16:49	00:36:47	00:00:06	02:22:13	00:30:59
ANI	1204	00:00:00	04:29:15	00:11:42	00:00:00	04:17:36	00:25:48	00:00:02	06:24:44	00:22:10	00:00:00	05:01:32	00:37:30
ANI BEAR	10	00:00:28	00:51:28	00:08:37	00:07:19	00:30:51	00:17:24	00:06:50	00:37:30	00:17:16	00:11:25	00:58:47	00:26:02
ANN	1	00:08:03	00:08:03	00:08:02	00:26:27	00:26:27	00:26:27	00:17:13	00:17:13	00:17:12	00:34:30	00:34:30	00:34:30
ASS	70	00:00:02	03:16:13	00:11:31	00:00:00	01:36:32	00:21:00	00:03:00	09:04:30	02:09:26	00:00:28	03:38:50	00:32:31
ATC	2	00:00:05	00:04:11	00:02:08	00:02:46	00:20:16	00:11:31	00:02:29	00:56:52	00:29:40	00:02:51	00:24:27	00:13:39
BUR	833	00:00:00	05:57:12	00:18:32	00:00:00	03:56:07	00:22:39	00:00:09	11:48:39	00:51:55	00:00:00	06:13:06	00:41:11
CIT	4	00:00:44	00:18:54	00:06:18	00:00:02	00:40:46	00:17:43	00:04:46	00:20:19	00:08:54	00:04:10	00:59:40	00:24:02
COD	5	00:00:55	00:48:21	00:14:33	00:09:27	00:31:54	00:19:13	00:06:05	00:14:25	00:09:31	00:14:13	01:16:42	00:33:47
COR	33	00:00:03	00:50:21	00:10:48	00:00:02	00:32:23	00:13:47	01:19:06	25:13:34	03:09:04	00:00:06	01:00:44	00:24:35
DIS	3869	00:00:00	03:18:02	00:05:36	00:00:00	02:58:20	00:14:33	00:00:04	32:12:41	00:34:14	00:00:00	04:07:51	00:20:09
DRU	185	00:00:02	03:30:18	00:14:12	00:00:00	02:09:20	00:20:05	00:00:09	04:45:18	00:32:47	00:00:06	03:56:39	00:34:18
DVC	164	00:00:02	01:06:23	00:05:33	00:00:02	01:49:00	00:18:57	00:00:06	03:58:54	00:56:08	00:01:10	02:43:14	00:24:31
EXT	3	00:01:23	00:18:09	00:10:08	00:00:00	00:06:38	00:02:29	00:09:19	00:22:17	00:14:50	00:08:02	00:18:09	00:12:37
FIR	3	00:00:05	00:07:18	00:02:53	00:08:33	00:20:51	00:16:13	00:30:12	03:53:22	01:42:24	00:09:48	00:28:10	00:19:06
FRA	5	00:00:03	01:12:09	00:18:26	00:13:56	00:16:38	00:15:06	00:00:06	00:33:57	00:20:49	00:14:00	01:27:06	00:33:33
FU	2	00:00:04	00:01:20	00:00:42	00:12:02	00:19:29	00:15:45	00:39:48	03:46:56	02:13:22	00:13:22	00:19:33	00:16:27

RESPONSE TIMES BY PRIORITY
02/10/2010 00:00:00 TO 02/11/2013 23:59:59
AGENCY: NCSO



CALL TYPE	#	CREATE to DISPATCH			DISPATCH to ON SCENE			ON SCENE to CLEAR			CREATE to ON SCENE		
		Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
GTA	19	00:00:30	00:38:26	00:07:50	00:01:06	00:37:08	00:15:46	00:00:07	02:01:18	01:02:16	00:01:36	00:51:47	00:23:36
HAZ	1	00:00:02	00:00:02	00:00:02	00:00:02	00:00:02	00:00:02	03:21:01	03:21:01	03:21:00	00:00:05	00:00:05	00:00:05
HOM	1	00:00:43	00:00:43	00:00:43	00:11:07	00:11:07	00:11:07	17:43:23	17:43:23	17:43:23	00:11:50	00:11:50	00:11:50
JUV	307	00:00:01	04:03:52	00:12:34	00:00:00	01:54:38	00:19:08	00:00:07	05:37:17	00:35:23	00:00:14	04:15:42	00:31:43
KID	2	00:00:05	00:00:55	00:00:30	00:09:26	00:14:43	00:12:04	03:12:10	04:31:15	03:51:42	00:09:31	00:15:39	00:12:34
LE	5	00:01:16	00:22:08	00:09:07	00:01:28	00:27:09	00:15:50	00:15:35	01:10:43	00:33:49	00:02:44	00:43:48	00:24:57
MED	9	00:00:11	00:24:14	00:04:17	00:00:00	00:29:41	00:08:01	00:03:37	00:54:43	00:24:17	00:00:11	00:53:55	00:12:18
MUPS	11	00:00:28	00:28:21	00:09:03	00:02:17	00:26:10	00:13:29	00:08:18	03:06:39	01:11:59	00:05:54	00:54:32	00:22:33
NARCS	2	00:00:48	00:01:03	00:00:55	00:26:53	01:44:27	01:05:40	01:42:54	02:48:53	02:15:53	00:27:42	01:45:30	01:06:36
OHV	12	00:00:22	01:09:41	00:11:14	00:05:41	03:17:51	00:47:15	00:08:26	01:56:25	00:46:13	00:11:12	03:19:57	00:58:29
PR	2	00:12:53	00:22:18	00:17:35	00:03:38	00:09:08	00:06:22	00:08:10	00:26:53	00:17:31	00:16:31	00:31:26	00:23:58
REPO	1	00:00:39	00:00:39	00:00:38	00:17:40	00:17:40	00:17:40	00:24:24	00:24:24	00:24:24	00:18:19	00:18:19	00:18:18
RES	215	00:00:02	02:24:50	00:12:38	00:00:00	03:09:06	00:21:39	00:00:04	10:31:17	00:39:34	00:00:06	03:37:00	00:34:17
SAR	2	00:00:02	00:10:22	00:05:11	00:11:00	01:07:43	00:39:21	00:24:20	00:51:26	00:37:53	00:11:02	01:18:05	00:44:33
SEX	51	00:00:05	02:38:51	00:23:35	00:00:04	02:00:34	00:24:45	00:09:58	07:14:14	01:25:30	00:00:10	02:57:30	00:48:20
SUI	46	00:00:03	00:33:57	00:04:30	00:00:05	02:42:41	00:17:06	00:05:43	04:59:06	00:57:20	00:00:51	02:44:03	00:21:36
SUS	3058	00:00:00	04:15:00	00:09:06	00:00:00	03:55:38	00:14:37	00:00:03	09:12:00	00:24:05	00:00:02	05:19:37	00:23:44
TA	117	00:00:01	00:28:04	00:02:27	00:00:00	00:27:17	00:05:24	00:00:54	03:28:36	00:37:26	00:00:06	00:29:33	00:07:52
THE	63	00:00:20	01:31:09	00:16:50	00:00:04	01:12:21	00:19:22	00:00:00	02:24:02	00:37:38	00:04:36	01:58:03	00:36:13
THR	6	00:02:17	00:47:19	00:13:39	00:09:03	00:24:23	00:16:22	00:12:16	02:02:43	00:52:56	00:11:21	01:02:22	00:30:02
TRE	571	00:00:02	06:08:29	00:11:13	00:00:00	05:03:57	00:19:27	00:00:03	03:42:25	00:29:52	00:00:07	06:35:00	00:30:41
TRF	133	00:00:00	02:44:33	00:05:55	00:00:00	03:26:22	00:11:05	00:00:04	02:38:42	00:22:55	00:00:00	03:37:00	00:17:01
VAN	23	00:00:03	00:48:24	00:08:14	00:00:00	02:59:45	00:22:45	00:00:07	02:51:51	00:32:36	00:03:39	03:13:52	00:30:59
WEA	587	00:00:01	04:19:03	00:11:22	00:00:00	01:40:57	00:19:32	00:00:05	20:29:30	00:26:00	00:00:03	04:56:49	00:30:55
Total Priority 2	14875	00:00:00	06:29:31	00:11:03	00:00:00	05:03:57	00:17:03	00:00:02	89:04:30	00:28:12	00:00:00	06:50:17	00:28:07

RESPONSE TIMES BY PRIORITY
 02/10/2010 00:00:00 TO 02/11/2013 23:59:59
 AGENCY: NCSO



CALL TYPE	#	CREATE to DISPATCH			DISPATCH to ON SCENE			ON SCENE to CLEAR			CREATE to ON SCENE		
		Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
PRIORITY 3													
911	1	00:00:58	00:00:58	00:00:58	00:10:46	00:10:46	00:10:46	00:03:25	00:03:25	00:03:25	00:11:45	00:11:45	00:11:44
ABAN	2	00:00:28	00:03:58	00:02:13	00:06:57	00:19:10	00:13:03	00:03:29	00:28:22	00:15:55	00:10:55	00:19:38	00:15:16
AC	148	00:00:01	02:44:01	00:06:51	00:00:00	02:42:22	00:32:26	00:00:04	03:28:51	00:26:09	00:00:04	02:44:03	00:39:18
AGEC	88	00:00:01	01:42:22	00:02:27	00:00:00	01:13:08	00:13:18	00:00:08	05:28:43	00:31:55	00:00:08	02:29:46	00:15:46
AGEF	158	00:00:01	10:47:06	00:06:43	00:00:06	01:26:18	00:15:15	00:00:51	04:31:36	00:34:02	00:00:13	11:25:33	00:21:59
AGEG	131	00:00:01	02:23:21	00:07:38	00:00:01	01:21:56	00:11:02	00:00:19	24:06:41	00:36:44	00:00:07	02:51:40	00:18:41
AGEN	6	00:00:02	01:33:11	00:16:01	00:00:10	00:27:10	00:11:30	00:06:22	01:29:59	00:39:57	00:00:13	02:00:21	00:27:31
AGEO	199	00:00:00	02:44:23	00:10:56	00:00:00	03:04:05	00:25:22	00:00:10	42:12:37	01:00:07	00:00:08	03:53:34	00:36:19
AGES	8	00:00:02	00:12:32	00:03:11	00:00:01	00:31:28	00:12:43	00:09:40	01:01:29	00:25:46	00:00:04	00:42:23	00:15:55
ALA	5	00:00:23	02:18:59	00:36:03	00:01:23	00:36:45	00:13:23	00:02:16	00:28:16	00:13:41	00:01:46	02:55:44	00:49:26
ALC	1	00:00:33	00:00:33	00:00:33	00:03:44	00:03:44	00:03:44	00:49:52	00:49:52	00:49:51	00:04:18	00:04:18	00:04:18
ALL	490	00:00:00	02:41:30	00:13:32	00:00:00	05:21:28	00:19:07	00:00:02	06:00:26	00:35:41	00:00:00	05:45:09	00:32:39
ANI	3	00:00:23	01:51:22	00:40:37	00:10:10	00:15:40	00:13:20	00:07:42	00:56:53	00:26:08	00:16:03	02:01:32	00:53:58
ANN	40	00:00:39	03:44:02	00:20:37	00:00:00	01:12:44	00:15:51	00:00:07	04:51:18	00:31:37	00:02:16	03:44:02	00:36:28
ASS	7	00:01:06	01:14:56	00:18:52	00:10:46	00:33:09	00:21:25	00:12:14	11:35:21	02:13:51	00:18:17	01:46:50	00:40:18
ATC	6	00:00:05	01:06:01	00:23:32	00:13:04	00:41:53	00:26:17	00:04:15	01:17:00	00:18:02	00:22:28	01:19:05	00:49:49
BOAT	14	00:00:00	01:30:17	00:09:26	00:00:00	01:13:24	00:38:02	00:05:27	06:33:03	01:31:38	00:00:08	02:07:04	00:47:28
BUR	16	00:00:03	01:54:36	00:19:03	00:01:27	01:40:25	00:34:37	00:12:10	03:19:45	00:49:52	00:07:16	03:35:01	00:53:40
CHE	20	00:00:05	00:25:53	00:04:56	00:00:00	00:38:50	00:12:01	00:00:15	00:56:31	00:11:15	00:00:07	00:42:13	00:16:58
CIT	180	00:00:01	05:23:27	00:28:06	00:00:00	03:41:10	00:25:54	00:00:05	04:44:10	00:31:54	00:00:03	06:03:45	00:54:00
COD	72	00:00:01	01:10:10	00:09:14	00:00:00	01:16:38	00:18:53	00:00:06	00:39:15	00:10:48	00:04:22	02:07:55	00:28:08
COR	402	00:00:02	01:24:36	00:07:53	00:00:00	03:51:48	00:17:11	00:00:27	12:56:01	01:52:40	00:00:04	04:08:52	00:25:05
CUST	1	00:02:32	00:02:32	00:02:32	00:10:39	00:10:39	00:10:38	00:12:35	00:12:35	00:12:35	00:13:11	00:13:11	00:13:11
DIS	27	00:00:04	00:21:57	00:07:03	00:03:45	00:51:13	00:19:39	00:00:14	02:38:33	00:37:43	00:05:32	01:02:24	00:26:43
DRU	3	00:00:37	00:08:57	00:05:04	00:15:27	00:23:30	00:18:57	00:12:35	01:42:31	00:46:33	00:18:32	00:32:27	00:24:02
DVC	2	00:00:17	00:07:00	00:04:08	00:13:25	00:13:36	00:13:30	00:16:16	01:22:52	00:49:34	00:13:53	00:21:25	00:17:39
EXT	2	00:02:55	01:02:48	00:32:51	00:00:03	00:01:55	00:00:59	00:07:16	00:12:13	00:09:44	00:04:50	01:02:51	00:33:51

RESPONSE TIMES BY PRIORITY
 02/10/2010 00:00:00 TO 02/11/2013 23:59:59
 AGENCY: NCSO



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FRA	122	00:00:02	03:35:41	00:13:02	00:00:00	02:12:20	00:18:27	00:00:04	03:07:31	00:33:46	00:00:12	03:45:57	00:31:30
FU	1	02:46:17	02:46:17	02:46:16	00:25:48	00:25:48	00:25:48	01:09:16	01:09:16	01:09:16	03:12:05	03:12:05	03:12:05
GTA	3	00:03:42	00:59:06	00:35:02	00:05:23	00:20:39	00:14:44	00:12:00	01:13:30	00:34:27	00:09:05	01:17:18	00:49:47
ID	63	00:00:03	02:30:02	00:12:50	00:00:00	02:30:47	00:19:01	00:00:05	01:30:29	00:26:03	00:00:09	03:05:17	00:31:51
JUV	5	00:00:04	01:08:14	00:14:51	00:15:07	04:54:47	01:16:17	00:27:47	00:45:40	00:40:40	00:17:12	06:03:01	01:31:08
LE	52	00:00:01	02:05:27	00:06:11	00:00:00	00:51:08	00:11:15	00:01:33	08:14:09	00:38:44	00:00:03	02:10:19	00:17:27
MED	82	00:00:02	00:29:12	00:03:30	00:00:00	01:07:12	00:10:33	00:02:52	03:06:05	00:31:13	00:00:04	01:31:37	00:14:03
MUPS	394	00:00:00	02:46:48	00:11:31	00:00:00	03:41:14	00:25:29	00:00:04	08:58:06	00:44:22	00:00:00	03:45:44	00:37:01
NARCS	121	00:00:01	01:11:56	00:01:11	00:00:00	02:35:40	00:20:31	00:00:16	10:33:35	01:45:18	00:00:04	02:35:45	00:21:43
OHV	8	00:00:04	02:49:34	00:39:25	00:00:00	00:42:58	00:22:15	00:00:16	00:51:53	00:26:33	00:02:51	02:49:34	01:01:40
PRO	167	00:00:00	03:44:53	00:20:34	00:00:00	02:12:45	00:20:09	00:00:09	02:51:23	00:23:15	00:00:00	05:18:18	00:40:44
RES	4	00:02:06	00:23:39	00:09:47	00:10:08	00:37:38	00:24:21	00:18:14	01:38:24	00:54:12	00:17:53	00:43:29	00:34:09
SAR	8	00:00:08	00:30:47	00:12:59	00:11:06	03:25:57	01:08:50	01:38:25	21:14:23	09:18:22	00:11:22	03:26:05	01:21:50
SEER	203	00:00:00	06:44:16	00:05:14	00:00:00	02:15:22	00:12:55	00:00:06	05:29:44	00:37:52	00:00:00	06:51:56	00:18:10
SEX	9	00:01:38	01:10:24	00:17:28	00:04:03	01:12:29	00:26:02	00:11:26	01:52:24	00:47:09	00:13:34	01:50:17	00:43:30
SUBJ STOP	5	00:00:00	00:00:03	00:00:00	00:00:00	00:09:50	00:01:58	00:04:01	01:04:38	00:23:51	00:00:00	00:09:54	00:01:58
SUI	7	00:00:40	00:05:27	00:02:38	00:04:13	00:27:02	00:12:14	00:01:59	02:30:36	01:02:57	00:09:07	00:30:12	00:14:52
SUS	8	00:00:33	00:32:47	00:07:34	00:06:49	00:28:40	00:18:18	00:08:01	02:40:24	01:04:03	00:07:22	00:59:59	00:25:52
TA	1	00:03:20	00:03:20	00:03:20	00:08:01	00:08:01	00:08:01	00:17:04	00:17:04	00:17:04	00:11:21	00:11:21	00:11:21
THE	747	00:00:00	03:38:25	00:16:56	00:00:00	05:02:44	00:22:18	00:00:08	07:38:42	00:35:02	00:00:00	05:11:12	00:39:14
THR	255	00:00:02	02:07:27	00:11:30	00:00:00	02:49:33	00:20:52	00:00:09	13:04:15	00:37:53	00:00:05	03:23:31	00:32:23
TRE	5	00:00:02	02:01:06	00:32:03	00:12:40	00:29:47	00:19:21	00:11:28	00:48:23	00:23:03	00:12:43	02:30:53	00:51:24
TRF	2	00:00:47	00:00:49	00:00:48	00:05:22	00:24:23	00:14:53	00:39:12	01:44:21	01:11:46	00:06:10	00:25:13	00:15:41
VAN	496	00:00:00	04:29:39	00:18:46	00:00:00	04:23:32	00:23:09	00:00:00	03:41:34	00:32:39	00:00:00	05:36:26	00:41:56
VEH	73	00:00:01	01:32:58	00:07:53	00:00:00	00:47:32	00:11:24	00:00:23	05:20:49	00:27:00	00:00:02	01:54:59	00:19:17
WEA	2	00:00:48	01:38:00	00:49:24	00:43:40	00:44:51	00:44:15	00:11:04	01:46:29	00:58:46	00:45:39	02:21:41	01:33:40

RESPONSE TIMES BY PRIORITY
 02/10/2010 00:00:00 TO 02/11/2013 23:59:59
 AGENCY: NCSO



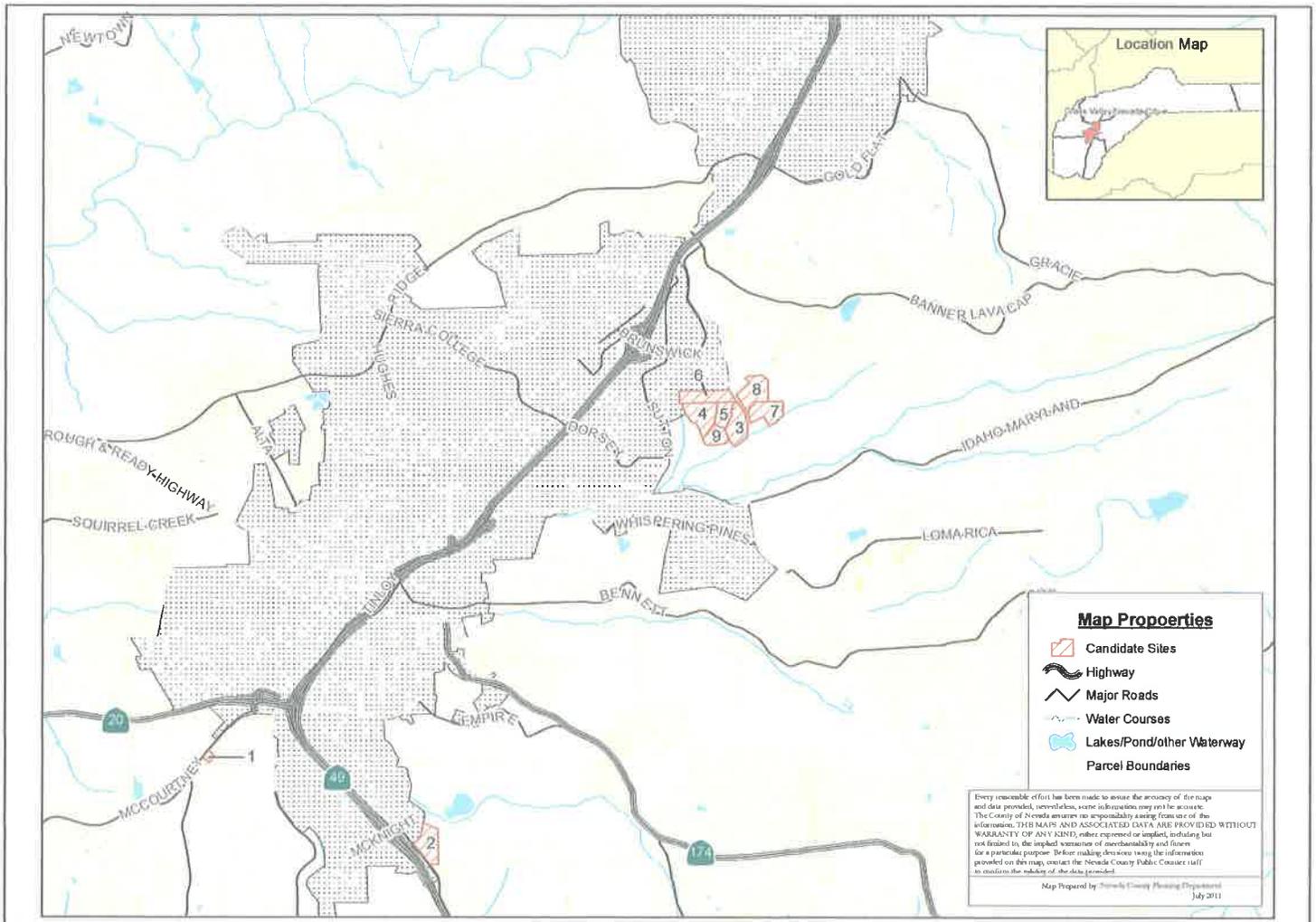
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AGEO	6	00:05:21	00:28:14	00:17:35	00:03:15	00:40:22	00:19:56	00:01:01	00:50:09	00:23:08	00:18:56	01:04:01	00:37:32			
ALL	1	00:15:58	00:15:58	00:15:58	00:11:54	00:11:54	00:11:53	01:20:31	01:20:31	01:20:31	00:27:52	00:27:52	00:27:52			
ATC	207	00:00:01	10:28:14	00:29:40	00:00:00	02:20:05	00:24:02	00:00:08	04:06:21	00:21:04	00:00:05	10:40:52	00:53:43			
BEAT	5	00:00:02	00:09:41	00:04:02	00:00:01	00:17:21	00:07:18	00:00:07	00:50:43	00:19:58	00:00:12	00:26:52	00:11:21			
BOLO	18	00:00:07	01:40:37	00:17:04	00:00:02	00:27:56	00:06:52	00:00:10	01:48:19	00:21:19	00:03:42	01:40:43	00:23:56			
CHE	1	00:01:02	00:01:02	00:01:02	00:12:25	00:12:25	00:12:25	00:08:56	00:08:56	00:08:56	00:13:28	00:13:28	00:13:27			
CIT	1	00:00:50	00:00:50	00:00:50	00:21:26	00:21:26	00:21:25	00:43:51	00:43:51	00:43:51	00:22:16	00:22:16	00:22:15			
DIS	8	00:00:25	02:18:23	00:30:05	00:10:39	01:43:33	00:39:04	00:07:45	00:57:59	00:28:46	00:13:15	04:01:56	01:09:10			
EQMT	1	27:46:39	19:03:56	19:03:56	00:00:00	00:00:00		00:01:53	00:01:53	00:01:52	27:46:39	19:03:56	19:03:56			
EXT	57	00:00:02	05:14:25	00:33:50	00:00:02	03:46:46	00:16:00	00:00:06	03:28:50	00:19:37	00:00:05	05:21:47	00:49:51			
FU	147	00:00:00	01:59:29	00:07:07	00:00:00	01:45:23	00:18:10	00:00:15	04:56:21	00:34:38	00:00:00	02:43:22	00:25:18			
INFO	5	00:00:02	03:18:27	00:40:53	00:00:02	00:32:19	00:16:01	00:00:34	00:19:07	00:05:22	00:00:06	03:18:31	00:56:54			
LE	4	00:03:26	00:28:27	00:12:05	00:13:50	00:33:25	00:22:03	00:15:22	01:05:00	00:35:35	00:19:39	00:54:06	00:34:08			
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NARCS	1	00:00:04	00:00:04	00:00:04	00:07:10	00:07:10	00:07:09	00:29:59	00:29:59	00:29:59	00:07:14	00:07:14	00:07:14			
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REPO	1	00:00:03	00:00:03	00:00:03	00:11:09	00:11:09	00:11:09	00:17:53	00:17:53	00:17:53	00:11:13	00:11:13	00:11:13			
SUS	1	00:00:54	00:00:54	00:00:54	00:00:02	00:00:02	00:00:02	00:36:43	00:36:43	00:36:43	00:00:56	00:00:56	00:00:56			
THE	1	00:02:31	00:02:31	00:02:31	01:56:06	01:56:06	01:56:06	00:14:33	00:14:33	00:14:32	01:58:37	01:58:37	01:58:37			
THR	1	00:23:20	00:23:20	00:23:20	00:09:33	00:09:33	00:09:32	00:33:06	00:33:06	00:33:06	00:32:53	00:32:53	00:32:53			
Total Priority 4	551	00:00:35	00:00:35	00:00:35	00:12:54	00:12:54	00:12:53	00:03:38	00:03:38	00:03:38	00:13:29	00:13:29	00:13:28			

RESPONSE TIMES BY PRIORITY
 02/10/2010 00:00:00 TO 02/11/2013 23:59:59
 AGENCY: NCSO



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SUS	1	00:32:46	00:32:46	00:32:45	00:04:05	00:04:05	00:04:05	00:09:44	00:09:44	00:09:44	00:36:51	00:36:51	00:36:51
THR	1	00:32:33	00:32:33	00:32:33	00:23:30	00:23:30	00:23:29	00:00:09	00:00:09	00:00:08	00:56:03	00:56:03	00:56:03
Total Priority R	3	00:01:01	00:32:46	00:22:06	00:04:05	00:23:30	00:13:09	00:00:09	00:29:20	00:13:04	00:12:54	00:56:03	00:35:16

TOTAL ALL CALLS	CREATE to DISPATCH			DISPATCH to ON SCENE			ON SCENE to CLEAR			CREATE to ON SCENE		
	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
	00:00:00	19:03:56	00:12:09	00:00:00	05:21:28	00:12:09	00:00:00	89:04:30	00:32:52	00:00:00	19:03:56	00:30:05



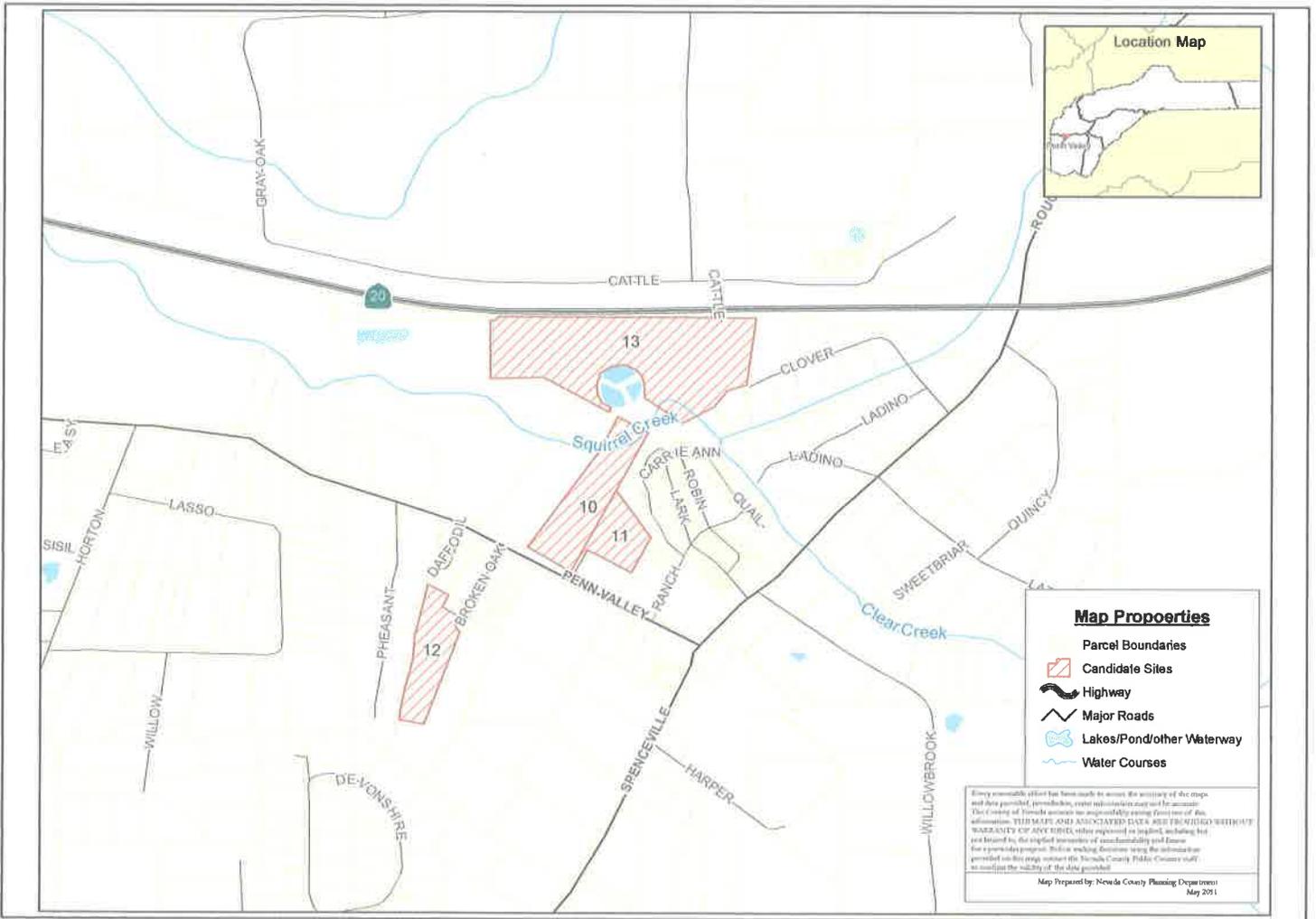
Source: Nevada County GIS 2012; ESRI 2012.



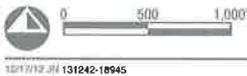
10/1/12 JN 131242-10945

COUNTY OF NEVADA
2019-2014 HOUSING ELEMENT REZONE PROGRAM IMPLEMENTATION EIR
Grass Valley Area Sites

FIGURE 2

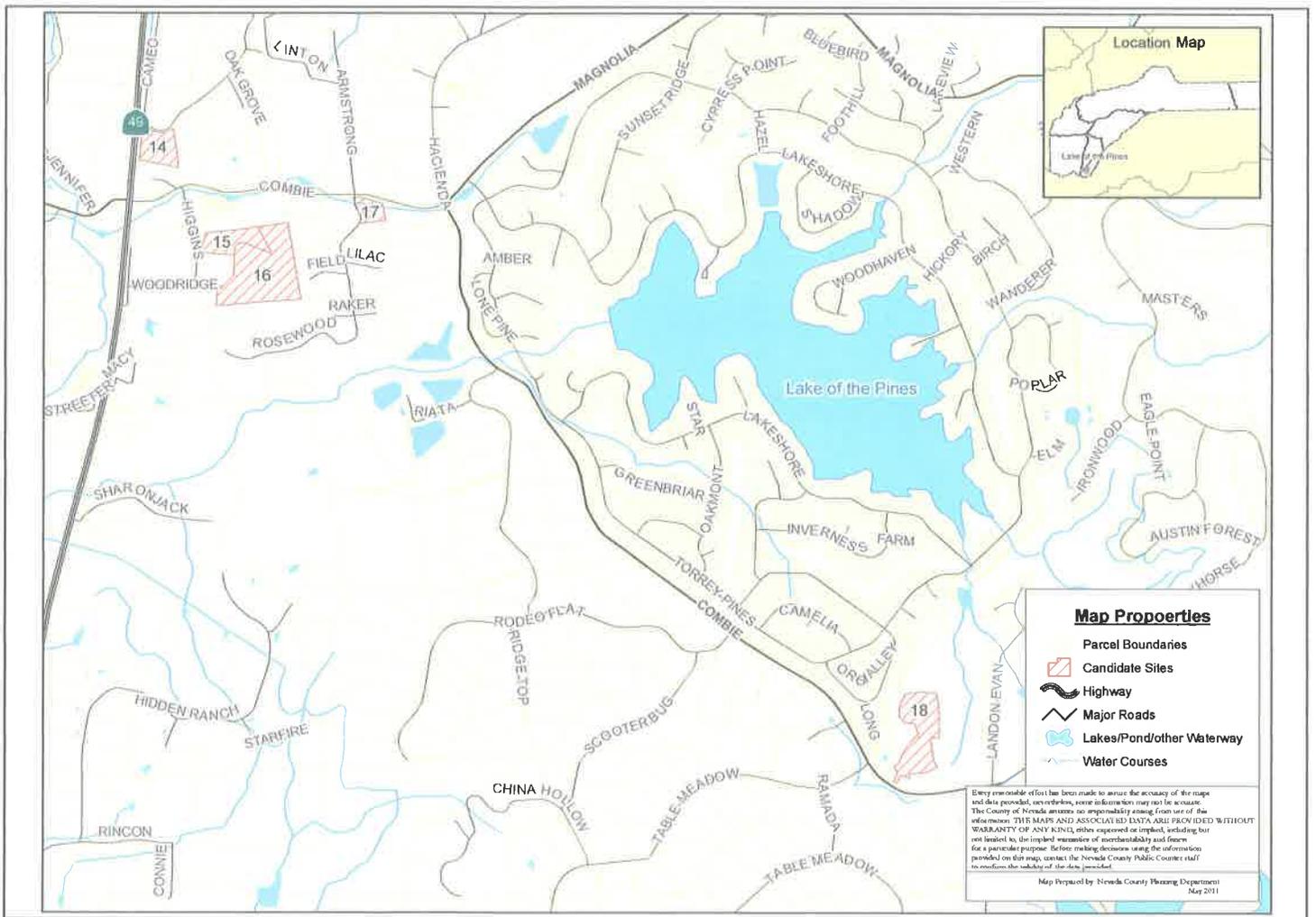


Source: Nevada County GIS 2012; EBRI 2012



COUNTY OF NEVADA
2019-2024 HOUSING ELEMENT REZONE PROGRAM IMPLEMENTATION EIR
Penn Valley Area Sites

FIGURE 3



Source: Nevada County GIS 2012, ESRI 2012



10/17/12 JN 131240-10345

COUNTY OF NEVADA
2019-2014 HOUSING ELEMENT REZONE PROGRAM IMPLEMENTATION EIR
Lake of the Pines Area Sites

FIGURE 4

**POLICE SERVICE QUESTIONNAIRE
NEVADA COUNTY HOUSING ELEMENT REZONE IMPLEMENTATION
ENVIRONMENTAL IMPACT REPORT**

Please respond to the following questions on your agency letterhead and provide maps to illustrate facility locations.

1. Please indicate the location of the police or sheriff stations that serve the project area.

129 South Auburn Street, Grass Valley

2. What is the geographical area and total population which is served by the station? 5.40 sq. miles, Pop estimate of 12,638 DOF 1/1/2012

3. What are the number and types of personnel in this Department that are available to provide police protection services to the project area?

20 sworn officers and 6 civilian staff

4. What is the average response time to areas within the project area?

Unknown

5. What are the mean response times for different priority levels over the last three years? Also, please provide a description of the different priority service levels.

Not available at this time

6. Is the current level of police protection service provided adequate for the project area? If the protection levels are not adequate, what would be required to provide an adequate level of service for the community (number and types of personnel or personnel hours, and resources required)?

High density residential, particularly that which serves lower income residents, tend to result in a much greater demand for police services over other land uses. This amount of high density residential could have a significant impact on the ability to provide adequate police service.

7. Have the needs for police protection services increased, decreased or remained the same during recent years? If there have been changes, please provide information about those changes, including: changes in type of service request, amount of change in service needs, known causes of changes, and timeframe in which these changes occurred. (For example,

have there been significant increases/decreases in drug-related investigation, violent crime, burglary or other types of crimes.)

See attached spread sheet

8. Do you have any required or recommended mitigation measures for significant impacts of the project?

Don't know what the project is? Additional officers will be needed to serve this amount of development.

9. Is there any other relevant information regarding significant projects impacts?

Any additional housing or commercial projects would result in a need for additional personnel.

10. Do you anticipate the proposed project would result in the need for physical additions to your agency (i.e., construction of new police stations)?

Yes.

**County of Nevada
Housing Element Rezone Implementation Program EIR
September 2013**

Technical Appendices

Appendix L

Traffic Modeling Data

TRANSPORTATION IMPACT ANALYSIS

LIST OF APPENDICES

- A. Level of Service Descriptions and LOS Tables
- B. Existing Transit Routes
- C. Intersection Level of Service Calculations: Existing Conditions
- D. Intersection Level of Service Calculations: Existing plus Background Projects with Current General Plan Land Use Designations Conditions
- E. Intersection Level of Service Calculations: Existing plus Background Projects plus Project Conditions
- F. Intersection Level of Service Calculations: Cumulative with Current General Plan Land Use Designations Conditions
- G. Intersection Level of Service Calculations: Cumulative plus Project Conditions
- H. Mitigated Conditions Intersection Geometry: Cumulative plus Project Conditions
- I. Intersection Level of Service Calculations: Mitigated Conditions
- J. Peak Hour Signal Warrants

APPENDIX A

Level of Service Descriptions and LOS Tables

**LEVEL OF SERVICE (LOS) DESCRIPTION
UNSIGNALIZED INTERSECTIONS WITH TWO-WAY STOP CONTROL (TWSC)**

TWSC intersections are widely used and stop signs are used to control vehicle movements at such intersections. At TWSC intersections, the stop-controlled approaches are referred to as the minor street approaches; they can be either public streets or private driveways. The intersection approaches that are not controlled by stop signs are referred to as the major street approaches. A three-leg intersection is considered to be a standard type of TWSC intersection if the single minor street approach (i.e. the stem of the T configuration) is controlled by a stop sign. Three-leg intersections where two of the three approaches are controlled by stop signs are a special form of unsignalized intersection control.

At TWSC intersections, drivers on the controlled approaches are required to select gaps in the major street flow through which to execute crossing or turning maneuvers on the basis of judgement. In the presence of a queue, each driver on the controlled approach must use some time to move into the front-of-queue position and prepare to evaluate gaps in the major street flow. Capacity analysis at TWSC intersections depends on a clear description and understanding of the interaction of drivers on the minor or stop-controlled approach with drivers on the major street. Both gap acceptance and empirical models have been developed to describe this interaction.

Thus, the capacity of the controlled legs is based on three factors:

- the distribution of gaps in the major street traffic stream,;
- driver judgement in selecting gaps through which to execute the desired maneuvers; and
- the follow-up time required by each driver in a queue.

The delay experienced by a motorist is made up of a number of factors that relate to control, geometrics, traffic and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions, in the absence of incident, control, traffic or geometric delay. Average control delay for any particular minor movement is a function of the capacity of the approach and the degree of saturation and referred to as level of service.

LEVEL OF SERVICE (LOS) CRITERIA FOR TWSC INTERSECTIONS
(Reference Highway Capacity Manual 2000)

Level of Service	Control Delay (seconds / vehicle)
A	0 - 10
B	>10 - 15
C	>15 - 25
D	>25 - 35
E	>35 - 50
F	>50

LEVEL OF SERVICE (LOS) DESCRIPTION UNSIGNALIZED INTERSECTIONS WITH ALL-WAY STOP CONTROL (AWSC)

AWSC intersections require every vehicle to stop at the intersection before proceeding. Since each driver must stop, the judgement as to whether to proceed into the intersection is a function of traffic conditions on the other approaches. While giving priority to the driver on the right is a recognized rule in some areas, it is not a good descriptor of actual intersection operations. What happens is the development of a consensus of right-of-way that alternates between the drivers on the intersection approaches, a consensus that depends primarily on the intersection geometry and the arrival patterns at the stop line.

If no traffic is present on the other approaches, a driver can proceed immediately after the stop is made. If there is traffic on one or more of the other approaches, a driver proceeds only after determining that there are no vehicles currently in the intersection and that it is the driver's turn to proceed. Since no traffic signal controls the stream movement or allocates the right-of-way to each conflicting stream, the rate of departure is controlled by the interaction between the traffic streams themselves.

For AWSC intersections, the average control delay (in seconds per vehicle) is used as the primary measure of performance. Control delay is the increased time of travel for a vehicle approaching and passing through an AWSC intersection, compared with a free-flow vehicle if it were not required to slow down or stop at the intersection.

The criteria for AWSC intersections have different threshold values than do those for signalized intersections, primarily because drivers expect different levels of performance from different kinds of traffic control devices (i.e traffic signals, two way stop or all way stop, etc.). The expectation is that a signalized intersection is designed to carry higher traffic volumes than an AWSC intersection and a higher level of control delay is acceptable at a signalized intersection for the same LOS.

For AWSC analysis using the HCM 2000 method, the LOS shown reflects the weighted average of the delay on each of the approaches.

LEVEL OF SERVICE (LOS) CRITERIA FOR AWSC INTERSECTIONS (Reference Highway Capacity Manual 2000)

Level of Service	Control Delay (seconds / vehicle)
A	0 - 10
B	>10 - 15
C	>15 - 25
D	>25 - 35
E	>35 - 50
F	>50

LEVEL OF SERVICE (LOS) DESCRIPTION SIGNALIZED INTERSECTIONS

The capacity of an urban street is related primarily to the signal timing and the geometric characteristics of the facility as well as to the composition of traffic on the facility. Geometrics are a fixed characteristic of a facility. Thus, while traffic composition may vary somewhat over time, the capacity of a facility is generally a stable value that can be significantly improved only by initiating geometric improvements. A traffic signal essentially allocates time among conflicting traffic movements that seek to use the same space. The way in which time is allocated significantly affects the operation and the capacity of the intersection and its approaches.

The methodology for signalized intersection is designed to consider individual intersection approaches and individual lane groups within approaches. A lane group consists of one or more lanes on an intersection approach. The outputs from application of the method described in the HCM 2000 are reported on the basis of each lane. For a given lane group at a signalized intersection, three indications are displayed: green, yellow and red. The red indication may include a short period during which all indications are red, referred to as an all-red interval and the yellow indication forms the change and clearance interval between two green phases.

The methodology for analyzing the capacity and level of service must consider a wide variety of prevailing conditions, including the amount and distribution of traffic movements, traffic composition, geometric characteristics, and details of intersection signalization. The methodology addresses the capacity, LOS, and other performance measures for lane groups and the intersection approaches and the LOS for the intersection as a whole.

Capacity is evaluated in terms of the ratio of demand flow rate to capacity (v/c ratio), whereas LOS is evaluated on the basis of control delay per vehicle (in seconds per vehicle). The methodology does not take into account the potential impact of downstream congestion on intersection operation, nor does the methodology detect and adjust for the impacts of turn-pocket overflows on through traffic and intersection operation.

LEVEL OF SERVICE (LOS) CRITERIA FOR SIGNALIZED INTERSECTIONS (Reference Highway Capacity Manual 2000)

Level of Service	Control Delay (seconds / vehicle)
A	<10
B	>10 - 20
C	>20 - 35
D	>35 - 55
E	>55 - 80
F	>80

Grass Valley SOI Area

Intersection Level of Service Summary

SIGNALIZED INTERSECTIONS

N-S Street	E-W Street	Existing Intersection Control	LOS Threshold	Existing Condition			Existing + Background			Existing + Background + Project			Cumulative			Cumulative + Project			
				PM Peak Hour			PM Peak Hour			PM Peak Hour			PM Peak Hour			PM Peak Hour			
				V/C Ratio	Delay (Secs.)	LOS	V/C Ratio	Delay (Secs.)	LOS	V/C Ratio	Delay (Secs.)	LOS	V/C Ratio	Delay (Secs.)	LOS	V/C Ratio	Delay (Secs.)	LOS	
1	Nevada City Highway	Brunswick Road	Signal	Grass Valley LOS D	0.51	27.4	C	0.54	28.0	C	0.55	28.3	C	0.74	59.2	E	0.77	62.3	E
					<i>Mitigation: Modify Signal Timing</i>			0.76	41.8	D									
2	SR 20-49 SB Ramps	Brunswick Road	Signal	Caltrans LOS C/D	0.69	21.8	C	0.74	25.1	C	0.76	27.2	C	0.77	49.7	D	0.79	53.5	D
3	SR 20-49 NB Ramps	Brunswick Road	Signal	Caltrans LOS C/D	0.48	16.9	B	0.56	17.6	B	0.61	18.1	B	0.99	39.8	D	1.04	47.8	D
4	Sutton Way	Brunswick Road	Signal	Grass Valley LOS D	0.69	26.7	C	0.78	34.8	C	0.81	37.1	D	0.85	39.3	D	0.91	42.0	D
8	SR 49 SB Ramps	McKnight Way	Signal	Grass Valley LOS D	0.59	21.4	C	0.65	23.1	C	0.68	23.6	C	0.86	29.1	C	0.89	30.7	C
					<i>Mitigation: Roundabout</i>			0.73	13.7	B	0.74	14.2	B						
9	SR 49 NB Ramps	McKnight Way	Signal	Grass Valley LOS D	0.60	25.4	C	0.65	28.5	C	0.67	30.5	C	0.77	58.0	E	0.80	67.5	E
					<i>Mitigation: Roundabout Installed w/ Int #5,7,8,10</i>			0.60	9.1	A	0.77	16.9	C	0.79	18.3	C			

UNSIGNALIZED INTERSECTIONS

N-S Street	E-W Street	Existing Intersection Control	LOS Threshold	Existing Condition			Existing + Background			Existing + Background + Project			Cumulative			Cumulative + Project		
				PM Peak Hour			PM Peak Hour			PM Peak Hour			PM Peak Hour			PM Peak Hour		
				V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS
5	Brunswick Road	Idaho Maryland Road	Stop Sign (EB & WB) (Worst Approach)	Grass Valley LOS D	7.4	A	1915.5	F	1948.5	F	1788.3	F	1820.5	F				
					73.5	F	error	F	error	F	error	F						
<i>Mitigation: Roundabout Installed w/ Int #7,8,9,10</i>			0.48	7.9	A	0.51	8.3	A	0.61	10.6	B	0.64	11.2	B				
6	McCourtney Road	Personeni Road	Signal	Grass Valley LOS D	0.1	A	0.1	A	0.1	A	1.2	A	1.3	A				
					13.6	B	13.7	B	13.8	B	19.4	C	20.3	C				
7	Taylorville Road	McKnight Way	Stop Sign (2-way) (Worst Approach)	Grass Valley LOS D	0.4	A	0.4	A	0.4	A	0.5	A	0.5	A				
					14.2	B	15.5	C	15.5	C	18.3	C	18.4	C				
<i>Mitigation: Roundabout Installed w/ Int #5,8,9,10</i>			0.73	13.7	B	0.74	14.2	B										
10	La Barr Meadows Road	McKnight Way	Stop Sign (3-way) (Worst Approach)	Grass Valley LOS D	22.5	C	29.4	D	37.9	E	219.5	F	241.5	F				
					29.5	D	41.3	E	57.0	F	305.4	F	325.3	F				
<i>Mitigation: Roundabout Installed w/ Int #5,7,8,9</i>			0.60	9.1	A	0.77	16.9	C	0.79	18.3	C							
20	Brunswick Road	Town Talk Rd Driveway to Site 7, 8	Stop Sign (EB) (Worst Approach)	Grass Valley LOS D			0.5	A	2.2	A	0.7	A	4.9	A				
							20.3	C	20.3	C	45.9	E	48.2	E	148.5	F		
Meets Signal Warrant?								No	No	No	0.85	14.8	B					
			Yes								Yes	Yes						
21	Brunswick Road	Triple Crown Driveway to Site 3-6 & 9	Stop Sign (WB) (Worst Approach)	Grass Valley LOS D			3.9	A	32.0	D	17.9	C	441.9	F				
							61.6	F	448.8	F	428.3	F	7522.2	F				
<i>Mitigation: Signalize</i>			0.72	11.0	B	0.85	14.8	B										
Meets Signal Warrant?			No			No		No		Yes	Yes							
22	McCourtney Road	Driveway to Site 1	Stop Sign (WB) (Worst Approach)	Grass Valley LOS D			0.5	A	1.1	A	0.4	A	1.1	A				
							11.5	B	12.0	B	27.0	D	30.4	D				
27	Brunswick Road	Loma Rica Road	Stop Sign (WB) (Worst Approach)	Grass Valley LOS D	5.5	A	7.8	A	8.2	A	15.5	C	17.2	C				
					18.0	C	25.5	D	27.3	D	57.3	F	64.3	F				
<i>Mitigation: Signalize</i>			17.8	B	18.2	B												
Meets Signal Warrant?			Yes			Yes		Yes		Yes								

- NOTES:
- NB, SB, EB, WB = Northbound, Southbound, Eastbound, Westbound
 - Analysis performed using ICU methodologies for signalized intersections and HCM 2000 methodologies for unsignalized intersections.
 - Overall level of service standard for the Grass Valley is LOS D. Overall level of service standard for Caltrans is the LOS C/D threshold.
 - Intersection improvements are highlighted.
 - The overall delay for some intersections actually decreases with the addition of background and project trips. The reduction in delay occurs because the "intersection delay" is the weighted average of all approaches. When traffic volumes increase for an approach that has a free movement (zero delay) or very low delay, the "intersection delay" decreases.
 - The asterisk (*) indicates that the delay was beyond the capabilities of Synchro.

Yellow : Deficient LOS
 Red : Project Impact

Penn Valley Area Intersection Level of Service Summary

SIGNALIZED INTERSECTIONS

N-S Street	E-W Street	Existing Intersection Control	LOS Threshold	Existing Condition			Existing + Background			Existing + Background + Project			Cumulative			Cumulative + Project			
				PM Peak Hour			PM Peak Hour			PM Peak Hour			PM Peak Hour			PM Peak Hour			
				V/C Ratio	Delay (Secs.)	LOS	V/C Ratio	Delay (Secs.)	LOS	V/C Ratio	Delay (Secs.)	LOS	V/C Ratio	Delay (Secs.)	LOS	V/C Ratio	Delay (Secs.)	LOS	
11	Pleasant Valley Road	SR-20	Signal	Caltrans LOS C/D	0.58	23.8	C	0.61	25.3	C	0.62	25.5	C	0.63	26.6	C	0.65	28.0	C
13	Penn Valley Drive	SR-20	Signal	Caltrans LOS C/D	0.52	17.7	B	0.56	17.4	B	0.65	22.0	C	0.62	19.7	B	0.71	26.0	C

UNSIGNALIZED INTERSECTIONS

N-S Street	E-W Street	Existing Intersection Control	LOS Threshold	Existing Condition			Existing + Background			Existing + Background + Project			Cumulative			Cumulative + Project								
				PM Peak Hour			PM Peak Hour			PM Peak Hour			PM Peak Hour			PM Peak Hour								
				V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS						
12	Cattle Drive	SR-20	Stop Sign (SB) (Worst Approach)	Caltrans LOS C/D	1.0	A	27.6	D	1.0	A	29.3	D	1.0	A	31.2	D	1.5	A	32.9	D	1.5	A	34.9	D
14	Spenceville Road	Penn Valley Drive	Stop Sign (3-way) (Worst Approach)	Nevada County LOS C	10.2	B	10.5	B	10.6	B	11.1	B	13.3	B	14.8	B	11.8	B	12.6	B	15.5	C	18.2	C
23	Driveway to Site 10,11, 13	Penn Valley Drive	Stop Sign (SB) (Worst Approach)	Nevada County LOS C	0.0	A	0.0	A	0.5	A	10.9	B	2.3	A	13.2	B	0.5	A	11.0	B	2.3	A	13.4	B
24	Driveway to Site 12	Penn Valley Drive	Stop Sign (NB) (Worst Approach)	Nevada County LOS C	1.4	A	9.7	A	1.4	A	9.7	A	1.4	A	10.0	B	1.4	A	9.7	A	1.5	A	10.2	B

NOTES:

1. NB, SB, EB, WB = Northbound, Southbound, Eastbound, Westbound
2. Analysis performed using ICU methodologies for signalized intersections and HCM 2000 methodologies for unsignalized intersections.
3. Overall level of service standard for Nevada County is LOS C. Overall level of service standard for Caltrans is the LOS C/D threshold.
4. Intersection improvements are highlighted.
5. The overall delay for some intersections actually decreases with the addition of background and project trips. The reduction in delay occurs because the "intersection delay" is the weighted average of all approaches. When traffic volumes increase for an approach that has a free movement (zero delay) or very low delay, the "intersection delay" decreases.
6. The asterisk (*) indicates that the delay was beyond the capabilities of Synchro.

Lake of the Pines Area Intersection Level of Service Summary

SIGNALIZED INTERSECTIONS

N-S Street	E-W Street	Existing Intersection Control	LOS Threshold	Existing Condition			Existing + Background			Existing + Background + Project			Cumulative			Cumulative + Project		
				PM Peak Hour			PM Peak Hour			PM Peak Hour			PM Peak Hour			PM Peak Hour		
				V/C Ratio	Delay (Secs.)	LOS	V/C Ratio	Delay (Secs.)	LOS	V/C Ratio	Delay (Secs.)	LOS	V/C Ratio	Delay (Secs.)	LOS	V/C Ratio	Delay (Secs.)	LOS
16	SR-49 Combie Road	Signal <i>Mitigation: Add 1 SBL Lane</i>	Caltrans LOS C/D	0.72	31.5	C	0.99	98.6	F	1.02	105.9	F	1.14	121.1	F	1.15	136.3	F
							0.78	33.9	C	0.80	35.0	C	0.90	44.2	D	0.92	47.2	D
18	Hacienda Drive	Combie Road <i>Mitigation: Add 1 SBR Lane</i>	Nevada County LOS C	0.68	25.7	C	0.81	33.0	C	0.82	33.7	C	0.86	39.8	D	0.86	39.9	D

UNSIGNALIZED INTERSECTIONS

N-S Street	E-W Street	Existing Intersection Control	LOS Threshold	Existing Condition			Existing + Background			Existing + Background + Project			Cumulative			Cumulative + Project			
				PM Peak Hour			PM Peak Hour			PM Peak Hour			PM Peak Hour			PM Peak Hour			
				V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS	
15	SR-49	Cameo Drive Stop Sign (WB) (Worst Approach)	Caltrans LOS C/D	0.1	A	16.3	C	0.2	A	24.2	C	0.3	A	27.1	D	0.3	A	34.2	D
17	Rosewood / Armstrong Road	Combie Road Stop Sign (NB & SB) (Worst Approach) <i>Mitigation: Signalize Meets Signal Warrants?</i>	Nevada County LOS C	3.4	A	53.2	F	12.8	B	444.5	F	15.6	C	615.2	F	63.9	F	1979.0	F
							0.67	12.0	B	0.68	12.3	B	0.76	14.8	B	0.77	15.2	B	
19	SR-49	Woodridge Drive Stop Sign (WB) (Worst Approach) <i>Meets Signal Warrant?</i>	Caltrans LOS C/D	0.0	A	23.0	C	1.8	A	26.3	D	1.9	A	27.7	D	2.9	A	44.6	E
26	Driveway to Site 18	Combie Road Stop Sign (NB) (Worst Approach)	Nevada County LOS C					2.7	A	8.6	A	4.0	A	8.7	A	2.3	A	8.6	A
28	Higgins Road	Combie Road Stop Sign (NB & SB) (Worst Approach) <i>Mitigation: Signalize & Add 1 EBT Lane Meets Signal Warrants?</i>	Nevada County LOS C	2.5	A	20.8	C	68.6	F	313.2	F	1085.5	F	5137.4	F	126.1	F	566.9	F
							0.80	24.3	C	0.81	25.0	C	0.91	31.2	C	0.92	32.8	C	

NOTES:

- NB, SB, EB, WB = Northbound, Southbound, Eastbound, Westbound
- Analysis performed using ICU methodologies for signalized intersections and HCM 2000 methodologies for unsignalized intersections.
- Overall level of service standard for Nevada County is LOS C. Overall level of service standard for Caltrans is the LOS C/D threshold.
- Intersection improvements are highlighted.
- The overall delay for some intersections actually decreases with the addition of background and project trips. The reduction in delay occurs because the "intersection delay" is the weighted average of all approaches. When traffic volumes increase for an approach that has a free movement (zero delay) or very low delay, the "intersection delay" decreases.
- The asterisk (*) indicates that the delay was beyond the capabilities of Synchro.

Yellow : Deficient LOS
Red : Project Impact

APPENDIX B

Existing Transit Routes

General Information

Gold Country Stage provides regularly scheduled fixed route bus service to Grass Valley, Nevada City and surrounding communities. Regional service is available to Auburn. Our main Transit Center transfer hub is located at Tinley and Bank Streets in Grass Valley.

This guide has been prepared to help you use Gold Country Stage for your transportation needs. We are committed to providing safe, courteous, convenient and reliable transit service, and to make your ride comfortable and enjoyable. Thank you for riding Gold Country Stage!

Days & Hours of Bus Service

Currently Gold Country Stage routes run Monday through Friday and there is no Saturday or Sunday service. If weekend service is available in the future, a supplemental schedule will be added to the Riders Guide. Please check individual routes for specific time schedules.

Times indicated in **BOLD** are PM.

No service is provided on:

- New Year's Day
- Martin Luther King's Birthday
- President's Day
- Memorial Day
- Independence Day
- Labor Day
- Veteran's Day
- Thanksgiving Day
- Day after Thanksgiving
- Christmas Day

Wheelchair Lifts & Bike Racks

All Gold Country Stage buses are equipped with accessible wheelchair lifts and employ tie downs. All Gold Country Stage buses are equipped with front-mounted bike racks, available on a first-come, first-served basis. Passengers must be able to load and unload their bikes without assistance and Gold Country Stage is not responsible for damage to bicycles. Lost bicycles will be locked and stored at the Gold Country Stage office and must be claimed within 30 days. (See Lost & Found information.)

Transit Connections

Gold Country Stage Route 5 travels to the Auburn Station for connections to Placer County Transit, Auburn Transit, Sacramento Light Rail, and Amtrak. Through bus service **IS CONNECTING SCHEDULES ALLOW** (Amtrak schedules subject to change without notification). Please call these transportation services for current schedule information. Placer County Transit.....(800) 889-2877 or (530) 885-2877 Auburn Transit.....(530) 906-3700 Amtrak.....(800) 872-7245

Rider's Guide

- System Map
- Bus Schedules
- General Information

Office Hours:
8:00 AM to 5:00 PM
Monday through Friday

Office Site: 13081 John Bauer Avenue
Grass Valley, CA 95945

Mailing Address: 950 Maidu Avenue
Nevada City, CA 95959

(530) 477-0103 x 0
(888) 660-7433

TDD # (530) 271-2107

www.goldcountrystage.com

(e-mail) goldcountrystage@co.nevada.ca.us

EFFECTIVE: SEPTEMBER 10, 2012

"BE LIKE US...RIDE THE BUS!"

ROUTE 1 NEVADA CITY

Grass Valley to Nevada City

Tinley St Transit Center @ Bank St (Depart)	East Main Street & Grass Valley City Hall	Chapel Drive	Nevada City Hwy Fowler Center	Howe Hollow Rd. @ ON DEMAND	Zion Street & Anquil Seven Hills	Grass Street Bridge & Union Street	Nevada Street & Willow Valley Rd @ ON DEMAND	County Government Center (Arrive)
7:00	7:02	7:04	7:08	7:12	7:15	7:17	7:20	7:27
8:00	8:02	8:04	8:08	8:12	8:15	8:17	8:20	8:27
9:00	9:02	9:04	9:08	9:12	9:15	9:17	9:20	9:27
10:00	10:02	10:04	10:08	10:12	10:15	10:17	10:20	10:27
11:00	11:02	11:04	11:08	11:12	11:15	11:17	11:20	11:27
12:00	12:02	12:04	12:08	12:12	12:15	12:17	12:20	12:27
1:00	1:02	1:04	1:08	1:12	1:15	1:17	1:20	1:27
2:00	2:02	2:04	2:08	2:12	2:15	2:17	2:20	2:27
3:00	3:02	3:04	3:08	3:12	3:15	3:17	3:20	3:27
4:00	4:02	4:04	4:08	4:12	4:15	4:17	4:20	4:27
5:00	5:02	5:04	5:08	5:12	5:15	5:17	5:20	5:27
6:00	6:02	6:04	6:08	6:12	6:15	6:17	6:20	6:27

ROUTE 1 GRASS VALLEY

Nevada City to Grass Valley (Arrive)

County Government Center (Depart)	Broad Street @ National Hotel	Zion Street & Seven Hills	Nevada City Hwy Fowler Center	Dorsey Drive & Joneshale Drive	East Main Street & Central Street	Tinley St Transit Center @ Bank St (Arrive)
6:30	6:34	6:37	6:44	6:47	6:49	6:51
7:30	7:34	7:37	7:44	7:47	7:49	7:51
8:30	8:34	8:37	8:44	8:47	8:49	8:51
9:30	9:34	9:37	9:44	9:47	9:49	9:51
10:30	10:34	10:37	10:44	10:47	10:49	10:51
11:30	11:34	11:37	11:44	11:47	11:49	11:51
12:30	12:34	12:37	12:44	12:47	12:49	12:51
1:30	1:34	1:37	1:44	1:47	1:49	1:51
2:30	2:34	2:37	2:44	2:47	2:49	2:51
3:30	3:34	3:37	3:44	3:47	3:49	3:51
4:30	4:34	4:37	4:44	4:47	4:49	4:51
5:30	5:34	5:37	5:44	5:47	5:49	5:51

Route 1 serves New Mohawk Rd. and Nevada St. (on times indicated) as ON-DEMAND stops only. (SHADED AREAS)

Please see ON-DEMAND instructions under the "How To Ride The Bus" section of the Rider's Guide

* Route 3 continues onto Route 2 at Tinley Transit Center at 7:30am, 9:30am, 11:30am, 2:30pm, 4:30pm, and 4:30pm.

► Route 3 continues to Loma Rica stops at 8:25am, 10:25am, 12:25pm, 1:25pm, 3:25pm, and 5:25pm.

Route 3 serves Butler Street, Fairgrounds Gate 3 & Railroad Avenue as ON-DEMAND ONLY (SHADED AREAS) Please see specific route schedules and ON-DEMAND instructions in the "How To Ride The Bus" section.

ROUTE 2 RIDGE ROAD

Grass Valley to Ridge Road 'Loop' Back to Grass Valley

Tinley St Transit Center @ Bank St (Depart)	Alta Street	Hughes Road & Rockwood	East Main St. (Predestination Ridge)	Serra College Drive	Ridge Road & Venema	Serra Dr. - NU	Alta Street Drive (Bharabach)	Ridge Road & Morgan Ranch Drive	City Hall	Tinley St Transit Center @ Bank St (Arrive)
7:30	7:34	7:36	7:38	7:40	7:42	7:45	7:47	7:49	7:53	7:55
9:30	9:34	9:36	9:38	9:40	9:42	9:45	9:47	9:49	9:53	9:55
11:30	11:34	11:36	11:38	11:40	11:42	11:45	11:47	11:49	11:53	11:55
2:30	2:34	2:36	2:38	2:40	2:42	2:45	2:47	2:49	2:53	2:55
4:30	4:34	4:36	4:38	4:40	4:42	4:45	4:47	4:49	4:53	4:55

The Route 2 bus continues onto Routes 3 at Tinley St. Transit Center @ Bank St. (see specific route schedules)

ROUTE 3 GRASS VALLEY LOOP

Tinley St Transit Center @ Bank St (Depart)	Downtown Salweeny Main Street	Church & Neal Street	Brighton Street & Milne Park	Butler Street	Enterprise Gate 3 @ ON DEMAND	Rice Creek Shopping Center	Grass Valley Shopping Center	Whiting Street (Church & Chini)	Colfax Avenue & Ophir Street	Tinley St Transit Center @ Bank St (Arrive)
7:00	7:03	7:05	7:09	7:10	7:11	7:13	7:16	7:20	7:23	*7:25
8:00	8:03	8:05	8:09	8:10	8:11	8:13	8:16	8:20	8:23	*8:25
9:00	9:03	9:05	9:09	9:10	9:11	9:13	9:16	9:20	9:23	*9:25
10:00	10:03	10:05	10:09	10:10	10:11	10:13	10:16	10:20	10:23	*10:25
11:00	11:03	11:05	11:09	11:10	11:11	11:13	11:16	11:20	11:23	*11:25
12:00	12:03	12:05	12:09	12:10	12:11	12:13	12:16	12:20	12:23	*12:25
1:00	1:03	1:05	1:09	1:10	1:11	1:13	1:16	1:20	1:23	*1:25
2:00	2:03	2:05	2:09	2:10	2:11	2:13	2:16	2:20	2:23	*2:25
3:00	3:03	3:05	3:09	3:10	3:11	3:13	3:16	3:20	3:23	*3:25
4:00	4:03	4:05	4:09	4:10	4:11	4:13	4:16	4:20	4:23	*4:25
5:00	5:03	5:05	5:09	5:10	5:11	5:13	5:16	5:20	5:23	*5:25

ROUTE 3 GRASS VALLEY to Loma Rica

East Main St. Grass Valley City Hall @ ON DEMAND	Richard Avenue @ ON DEMAND	Crown Point Circle	Whispering Pines Loma & Brunswick (PIDE)	Loma Rica Dr. (PIDE)	Her Co Airport, GC Stage Office (Arrive)	Nevada, GC Stage Office (Depart)	Loma Rica Dr. (PIDE)	Whispering Pines Loma & Brunswick (PIDE)	East Main St. & Emma St	Tinley St Transit Center @ Bank St (Arrive)
8:25	8:28	8:31	8:34	8:37	8:40	8:41	8:42	8:45	8:50	8:53
10:25	10:28	10:31	10:34	10:37	10:40	10:41	10:42	10:45	10:50	10:53
12:25	12:28	12:31	12:34	12:37	12:40	12:41	12:42	12:45	12:50	12:53
1:25	1:28	1:31	1:34	1:37	1:40	1:41	1:42	1:45	1:50	1:53
3:25	3:28	3:31	3:34	3:37	3:40	3:41	3:42	3:45	3:50	3:53
5:25	5:28	5:31	5:34	5:37	5:40	5:41	5:42	5:45	5:50	5:53

Paratransit Services

The County of Nevada Transit Services administers a door-to-door paratransit service for persons with disabilities who are unable to use the fixed route bus system, as mandated by the Americans with Disabilities Act (ADA). The service area includes Grass Valley, Nevada City, Penn Valley, Lake Wildwood, and other local areas. The paratransit service is currently provided by Gold Country Telecare. In order to become eligible for paratransit service, a passenger must complete an ADA application form and be certified as eligible. Forms are available through Gold Country Stage (530) 477-0103, online at www.goldcountrystage.com and through Gold Country Telecare (530) 272-1710, online at www.goldcountrytelecare.org.

Reservations for paratransit trips must be made the day before the requested ride (or up to several days in advance, call Telecare for details.) There is no same day service. Reservations are made by calling Gold Country Telecare (530) 272-1710. You will be asked to make a reservation for the return trip at the same time you make your original reservation. Please contact Gold Country Telecare for current fares.

How To Ride The Bus Policies

- Please arrive at the bus stop at least five minutes before your bus is scheduled to leave.
- For passenger safety, driver is required to stop at authorized bus stops only.
- Please allow passengers to exit the bus before you board. Seats closest to the front of the bus are reserved for seniors and disabled passengers.
- **HAVE EXACT FARE READY. DRIVERS DO NOT CARRY CHANGE!**
- Please avoid using excessive amounts of coins.
- **PLEASE REQUEST TRANSFER UPON BOARDING BUS!**
- Limit CARRY-ONS to the size and number you can personally handle, that do not block aisles, adjacent seating, or wheelchair designated areas, and allow for safe boarding and passenger egressment.
- To ensure a pleasant ride at all, smoking, eating, drinking, playing of loud music or loud cell phone conversation is not allowed. Shirts and shoes are required.
- **ANY RE-CYCLE ITEMS MUST BE SECURED IN LEAK-PROOF BAG OR CONTAINER IF ITEMS LEAK THEY WILL BE REMOVED FROM THE BUS!**

ROUTE 4 BRUNSWICK BASIN

Grass Valley to Brunswick Basin

Tinley St Transit Center @ Bank St (Depart)	East Main St. Grass Valley City Hall	Berrhill	Reverend & Hughes Rd @ ON DEMAND	Serra College	Lake Center @ ON DEMAND	Sierra Nevada Memorial Hospital @ ON DEMAND	Hospital Diagnostic Center @ ON DEMAND	Shopping Center	Gold Country Shopping Center	Hospital House	Nevada City Hwy Fowler Center (Arrive)
6:30	6:32	6:34	6:39	6:43	6:45	6:47	6:49	6:53	7:00	7:06	7:10
7:30	7:32	7:34	7:39	7:43	7:45	7:47	7:49	7:53	7:55	8:00	8:06
8:30	8:32	8:34	8:39	8:43	8:45	8:47	8:49	8:53	9:00	9:06	9:10
9:30	9:32	9:34	9:39	9:43	9:45	9:47	9:49	9:53	10:00	10:06	10:10
10:30	10:32	10:34	10:39	10:43	10:45	10:47	10:49	10:53	11:00	11:06	11:10
11:30	11:32	11:34	11:39	11:43	11:45	11:47	11:49	11:53	12:00	12:06	12:10
12:30	12:32	12:34	12:39	12:43	12:45	12:47	12:49	12:53	12:55	1:00	1:06
1:30	1:32	1:34	1:37	1:39	1:43	1:45	1:47	1:49	1:53	2:00	2:06
2:30	2:32	2:34	2:37	2:39	2:43	2:45	2:47	2:49	2:53	3:00	3:06
3:30	3:32	3:34	3:37	3:39	3:43	3:45	3:47	3:49	3:53	4:00	4:06
4:30	4:32	4:34	4:37	4:39	4:43	4:45	4:47	4:49	4:53	4:55	5:00

(ON TIMES INDICATED) Route 4 serves Rockwood and Hughes Road, Lilton Drive, Sierra Nevada Memorial Hospital, and Hospital Diagnostic Center as ON-DEMAND stops only. (SHADED AREAS) Please see ON-DEMAND instructions under the "How To Ride The Bus" section of the Rider's Guide.

ROUTE 5 AUBURN - Regional Route

Grass Valley to Auburn

Sacramento & Adams Nevada City (Depart)	Tinley St Transit Center @ Bank St (Depart)	East Main St. Grass Valley City Hall	Howe Hollow Rd. @ ON DEMAND	Hwy 49 & Mt. Air @ ON DEMAND	Alta Sierra Drive & Willow Valley Road @ ON DEMAND	Hwy 49 & Loma Rica Road @ ON DEMAND	Hwy 49 & Colombe Higgins Village @ ON DEMAND	Lake Center @ ON DEMAND	Lake of the Pines @ ON DEMAND	Alta Sierra Drive & Willow Valley Road @ ON DEMAND	Hwy 49 & Mt. Air @ ON DEMAND	Professional Drive @ ON DEMAND	Hwy 49 (Dine-In/Out)	Auburn Station (Arrive)
5:50	6:00	6:02	6:10	6:15	6:18	6:24	6:28	6:40	6:42	6:50	6:55	6:58	7:01	7:04
7:50	8:00	8:02	8:10	8:15	8:18	8:24	8:28	8:40	8:42	8:50	8:55	8:58	9:01	9:04
9:50	10:00	10:02	10:10	10:15	10:18	10:24	10:28	10:40	10:42	10:50	10:55	10:58	11:01	11:04
11:50	12:00	12:02	12:10	12:15	12:18	12:24	12:28	12:40	12:42	12:50	12:55	12:58	13:01	13:04
14:50	15:00	15:02	15:10	15:15	15:18	15:24	15:28	15:40	15:42	15:50	15:55	15:58	16:01	16:04

- Inappropriate, disruptive, or abusive behavior is not permitted, nor will it be tolerated, and may result in removal from the bus, suspension of bus service, and/or criminal charges.
- If you must stand while bus is in motion, hold grab rails tightly.
- Notify driver one block prior to your stop by pulling the bell cord.
- No weapons, flammable, and/or hazardous material allowed on bus (hazardous materials and items list is posted on bus or available at the Gold Country Stage office.)
- **PLEASE, NO SMOKING IN BUS SHELTERS!** (and at least 20 feet away from shelter)
- Most bus stops are marked with a sign. In certain rural areas there are LIMITED stops the bus will make if passenger flags the bus and it is safe. (Driver will determine if a stop is safe.)
- **DUE TO SAFETY ISSUES, THERE ARE NO LONGER FLAG STOPS ALONG the Route 3 Hwy 49 corridor.**
- **LOST & FOUND:** If you lose an item on the bus, call us at 477-0103 x0 and tell us the date, time, and route the item was lost. Please do the same for found items. Items must be claimed within 30 days or they may be disposed of.

INSTRUCTIONS FOR ON-DEMAND BUS STOPS:

- ON-DEMAND stops are defined as stops that will only be served when requested by the passenger, ONLY at times indicated on route schedule.
- ON-DEMAND stops are indicated by shaded areas on schedule.
- **FOR A PICK-UP:**
 - Call the Gold Country Stage office (477-0103 x 0) AT LEAST 60 MINUTES PRIOR TO THE DESIRED STOP TIME TO INSURE A RIDE.
 - REQUESTS PRIOR TO 7:00 AM must be made by calling the office prior to 7:00 PM the day before.
 - REQUESTS FOR MONDAY (PRIOR TO 7:00 AM) must be made by calling the office prior to 7:00 PM on Friday.
 - **FOR A DROP-OFF:** Passenger must ask the driver for on-demand stop when boarding the bus.



Gold Country Stage
13081 John Bauer Avenue
Grass Valley, CA 95945

ROUTE 6 PENN VALLEY

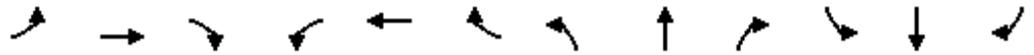
Grass Valley to Penn Valley

APPENDIX C

Intersection Level of Service Calculations: Existing Conditions

HCM Signalized Intersection Capacity Analysis
 1: Nevada City Highway & Brunswick Road

Existing PM Peak Hour
 1/9/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↖	↖	↖	↕	↖	↖↗	↖	↖
Volume (vph)	10	24	7	301	20	517	4	239	303	505	251	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		1.00		0.95	0.95	1.00	1.00	1.00	1.00	0.97	1.00	
Frbp, ped/bikes		1.00		1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1788		1698	1704	1596	1805	1881	1556	3433	1862	
Flt Permitted		0.99		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1788		1698	1704	1596	1805	1881	1556	3433	1862	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	11	26	8	324	22	556	4	257	326	543	270	1
RTOR Reduction (vph)	0	7	0	0	0	354	0	0	234	0	0	0
Lane Group Flow (vph)	0	38	0	172	174	202	4	257	92	543	271	0
Confl. Peds. (#/hr)	3					3	11		3	3		11
Heavy Vehicles (%)	0%	0%	14%	1%	5%	0%	0%	1%	2%	2%	2%	0%
Turn Type	Split	NA		Split	NA	pm+ov	Split	NA	Perm	Split	NA	
Protected Phases	6	6		8	8	4	2	2		4	4	
Permitted Phases						8			2			
Actuated Green, G (s)		16.0		13.5	13.5	32.7	25.3	25.3	25.3	19.2	19.2	
Effective Green, g (s)		16.0		13.5	13.5	32.7	25.3	25.3	25.3	19.2	19.2	
Actuated g/C Ratio		0.18		0.15	0.15	0.36	0.28	0.28	0.28	0.21	0.21	
Clearance Time (s)		4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		317		254	255	650	507	528	437	732	397	
v/s Ratio Prot		c0.02		0.10	c0.10	0.07	0.00	c0.14		c0.16	0.15	
v/s Ratio Perm						0.06			0.06			
v/c Ratio		0.12		0.68	0.68	0.31	0.01	0.49	0.21	0.74	0.68	
Uniform Delay, d1		31.1		36.2	36.2	20.6	23.3	26.9	24.7	33.1	32.6	
Progression Factor		1.00		0.72	0.71	0.42	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.8		6.7	7.0	0.3	0.0	3.2	1.1	4.1	4.8	
Delay (s)		31.9		32.6	32.9	8.9	23.3	30.1	25.8	37.2	37.4	
Level of Service		C		C	C	A	C	C	C	D	D	
Approach Delay (s)		31.9			18.1			27.7			37.2	
Approach LOS		C			B			C			D	

Intersection Summary		
HCM 2000 Control Delay	27.4	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.51	C
Actuated Cycle Length (s)	90.0	Sum of lost time (s)
Intersection Capacity Utilization	59.0%	16.0
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		B

HCM Signalized Intersection Capacity Analysis
 2: Maltman Drive/SR 20-49 SB Ramps & Brunswick Road

Existing PM Peak Hour
 1/9/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑↑		↖		↖	↖↖	↑	↖
Volume (vph)	0	772	60	132	583	0	48	0	317	378	60	207
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	4.0
Lane Util. Factor		0.95		1.00	0.95		1.00		1.00	0.97	1.00	1.00
Frbp, ped/bikes		1.00		1.00	1.00		1.00		0.99	1.00	1.00	1.00
Flpb, ped/bikes		1.00		1.00	1.00		1.00		1.00	1.00	1.00	1.00
Frt		0.99		1.00	1.00		1.00		0.85	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95		1.00	0.95	1.00	1.00
Satd. Flow (prot)		3494		1770	3610		1805		1603	3400	1881	1599
Flt Permitted		1.00		0.95	1.00		0.95		1.00	0.95	1.00	1.00
Satd. Flow (perm)		3494		1770	3610		1805		1603	3400	1881	1599
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	839	65	143	634	0	52	0	345	411	65	225
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	47	0	0	155
Lane Group Flow (vph)	0	898	0	143	634	0	52	0	298	411	65	70
Confl. Peds. (#/hr)			9						9			
Heavy Vehicles (%)	0%	1%	13%	2%	0%	0%	0%	0%	0%	3%	1%	1%
Turn Type		NA		Prot	NA		Prot		custom	Split	NA	Perm
Protected Phases		4		3	8		2		3	6	6	
Permitted Phases									2			6
Actuated Green, G (s)		25.5		14.9	44.4		5.6		20.5	28.0	28.0	28.0
Effective Green, g (s)		25.5		14.9	44.4		5.6		20.5	28.0	28.0	28.0
Actuated g/C Ratio		0.28		0.17	0.49		0.06		0.23	0.31	0.31	0.31
Clearance Time (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		989		293	1780		112		436	1057	585	497
v/s Ratio Prot		c0.26		0.08	0.18		0.03		c0.11	c0.12	0.03	
v/s Ratio Perm									0.07			0.04
v/c Ratio		0.91		0.49	0.36		0.46		0.68	0.39	0.11	0.14
Uniform Delay, d1		31.1		34.1	14.0		40.8		31.8	24.3	22.1	22.3
Progression Factor		0.37		0.75	0.57		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		9.7		5.1	0.1		3.0		4.4	1.1	0.4	0.6
Delay (s)		21.2		30.8	8.0		43.8		36.2	25.4	22.5	22.9
Level of Service		C		C	A		D		D	C	C	C
Approach Delay (s)		21.2			12.2			37.2			24.3	
Approach LOS		C			B			D			C	

Intersection Summary

HCM 2000 Control Delay	21.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
3: SR 20-49 NB Ramps & Brunswick Road

Existing PM Peak Hour
1/9/2013



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑↑	↘	↗
Volume (vph)	796	0	0	1291	234	315
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	0.95			0.91	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3574			5136	1805	1553
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3574			5136	1805	1553
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	829	0	0	1345	244	328
RTOR Reduction (vph)	0	0	0	0	0	58
Lane Group Flow (vph)	829	0	0	1345	244	270
Heavy Vehicles (%)	1%	0%	0%	1%	0%	4%
Turn Type	NA			NA	NA	Perm
Protected Phases	4			8	2	
Permitted Phases						2
Actuated Green, G (s)	42.0			42.0	40.0	40.0
Effective Green, g (s)	42.0			42.0	40.0	40.0
Actuated g/C Ratio	0.47			0.47	0.44	0.44
Clearance Time (s)	4.0			4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	1667			2396	802	690
v/s Ratio Prot	0.23			0.26	0.14	
v/s Ratio Perm						0.17
v/c Ratio	0.50			0.56	0.30	0.39
Uniform Delay, d1	16.7			17.3	16.1	16.8
Progression Factor	0.82			1.00	1.00	1.00
Incremental Delay, d2	0.2			1.0	1.0	1.7
Delay (s)	13.9			18.3	17.0	18.5
Level of Service	B			B	B	B
Approach Delay (s)	13.9			18.3	17.9	
Approach LOS	B			B	B	

Intersection Summary

HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	48.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
4: Sutton Way & Brunswick Road

Existing PM Peak Hour
1/9/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↖	↕↕		↗↗	↖		↖	↑	↗
Volume (vph)	226	502	436	170	564	24	467	83	135	60	70	266
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		0.97	1.00		1.00	1.00	1.00
Frbp, ped/bikes	1.00	1.00	0.92	1.00	1.00		1.00	1.00		1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.91		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3467	3471	1480	1787	3486		3467	1689		1787	1881	1524
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3467	3471	1480	1787	3486		3467	1689		1787	1881	1524
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	238	528	459	179	594	25	492	87	142	63	74	280
RTOR Reduction (vph)	0	0	356	0	5	0	0	85	0	0	0	56
Lane Group Flow (vph)	238	528	103	179	614	0	492	144	0	63	74	224
Confl. Peds. (#/hr)	1		32	32		1	36					36
Heavy Vehicles (%)	1%	4%	0%	1%	3%	0%	1%	2%	2%	1%	1%	2%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4									6
Actuated Green, G (s)	7.1	14.6	14.6	8.0	15.5		11.6	22.8		3.6	14.8	21.9
Effective Green, g (s)	7.1	14.6	14.6	8.0	15.5		11.6	22.8		3.6	14.8	21.9
Actuated g/C Ratio	0.11	0.22	0.22	0.12	0.24		0.18	0.35		0.06	0.23	0.34
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	378	779	332	219	831		618	592		98	428	607
v/s Ratio Prot	0.07	0.15		c0.10	c0.18		c0.14	0.09		0.04	0.04	c0.04
v/s Ratio Perm			0.07									0.11
v/c Ratio	0.63	0.68	0.31	0.82	0.74		0.80	0.24		0.64	0.17	0.37
Uniform Delay, d1	27.7	23.0	21.0	27.8	22.9		25.6	15.0		30.1	20.2	16.3
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	3.3	2.4	0.5	20.5	3.5		7.0	1.0		13.5	0.9	0.4
Delay (s)	31.0	25.4	21.5	48.3	26.4		32.6	16.0		43.6	21.1	16.7
Level of Service	C	C	C	D	C		C	B		D	C	B
Approach Delay (s)		25.0			31.3			27.3			21.5	
Approach LOS		C			C			C			C	

Intersection Summary		
HCM 2000 Control Delay	26.7	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.69	
Actuated Cycle Length (s)	65.0	Sum of lost time (s) 16.0
Intersection Capacity Utilization	63.3%	ICU Level of Service B
Analysis Period (min)	15	
c Critical Lane Group		

HCM Unsignalized Intersection Capacity Analysis
5: Brunswick Road & Idaho-Maryland Road

Existing PM Peak Hour
1/9/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	173	13	0	67	205	458	33	113	478	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	188	14	0	73	223	498	36	123	520	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						1						
Median type								TWLTL			None	
Median storage (veh)								2				
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1709	1745	520	1915	1734	516	527			534		
vC1, stage 1 conf vol	765	765		961	961							
vC2, stage 2 conf vol	943	979		953	773							
vCu, unblocked vol	1709	1745	520	1915	1734	516	527			534		
tC, single (s)	7.1	6.5	6.2	7.2	6.8	6.3	4.1			4.2		
tC, 2 stage (s)	6.1	5.5		6.2	5.8							
tF (s)	3.5	4.0	3.3	3.6	4.3	3.4	2.2			2.3		
p0 queue free %	100	100	66	40	100	87	79			87		
cM capacity (veh/h)	90	130	552	24	93	542	1040			976		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3					
Volume Total	188	87	223	534	123	520	8					
Volume Left	0	14	223	0	123	0	0					
Volume Right	188	73	0	36	0	0	8					
cSH	552	132	1040	1700	976	1700	1700					
Volume to Capacity	0.34	0.66	0.21	0.31	0.13	0.31	0.00					
Queue Length 95th (ft)	37	89	20	0	11	0	0					
Control Delay (s)	14.8	73.5	9.4	0.0	9.2	0.0	0.0					
Lane LOS	B	F	A		A							
Approach Delay (s)	14.8	73.5	2.8		1.7							
Approach LOS	B	F										
Intersection Summary												
Average Delay			7.4									
Intersection Capacity Utilization			49.8%	ICU Level of Service	A							
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
6: McCourtney Road & Personeni Road

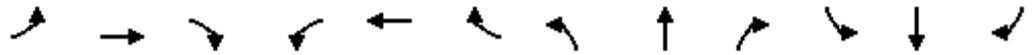
Existing PM Peak Hour
1/9/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	4	1	1	265	400	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	4	1	1	291	440	0
Pedestrians				1		
Lane Width (ft)				12.0		
Walking Speed (ft/s)				4.0		
Percent Blockage				0		
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	733	441	440			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	733	441	440			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	390	620	1131			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	5	292	440			
Volume Left	4	1	0			
Volume Right	1	0	0			
cSH	488	1131	1700			
Volume to Capacity	0.01	0.00	0.26			
Queue Length 95th (ft)	1	0	0			
Control Delay (s)	13.6	0.0	0.0			
Lane LOS	B	A				
Approach Delay (s)	13.6	0.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			31.4%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 7: Taylorville Road & McKnight Way

Existing PM Peak Hour
 1/9/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↗				↗			↖
Volume (veh/h)	0	706	11	17	519	256	0	0	33	0	0	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	767	12	18	564	278	0	0	36	0	0	9
Pedestrians								3				
Lane Width (ft)								12.0				
Walking Speed (ft/s)								4.0				
Percent Blockage								0				
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					172							
pX, platoon unblocked	0.87						0.87	0.87		0.87	0.87	0.87
vC, conflicting volume	842			782			1386	1656	265	1032	1523	703
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	741			782			1369	1680	265	960	1526	580
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			100	100	95	100	100	98
cM capacity (veh/h)	758			842			89	81	738	173	100	401

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	307	307	165	18	842	36	9
Volume Left	0	0	0	18	0	0	0
Volume Right	0	0	12	0	278	36	9
cSH	1700	1700	1700	842	1700	738	401
Volume to Capacity	0.18	0.18	0.10	0.02	0.50	0.05	0.02
Queue Length 95th (ft)	0	0	0	2	0	4	2
Control Delay (s)	0.0	0.0	0.0	9.4	0.0	10.1	14.2
Lane LOS				A		B	B
Approach Delay (s)	0.0			0.2		10.1	14.2
Approach LOS						B	B

Intersection Summary			
Average Delay		0.4	
Intersection Capacity Utilization	52.9%		ICU Level of Service A
Analysis Period (min)		15	

HCM Signalized Intersection Capacity Analysis
8: 49 SB Off-Ramp & McKnight Way

Existing PM Peak Hour
1/9/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑						↑	↑
Volume (vph)	0	558	181	52	367	0	0	0	0	374	0	425
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5	3.5	3.0	3.5						4.6	4.6
Lane Util. Factor		0.95	1.00	1.00	1.00						1.00	1.00
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (prot)		3610	1615	1787	1900						1770	1615
Flt Permitted		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (perm)		3610	1615	1787	1900						1770	1615
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.94	0.94
Adj. Flow (vph)	0	594	193	55	390	0	0	0	0	407	0	452
RTOR Reduction (vph)	0	0	137	0	0	0	0	0	0	0	0	224
Lane Group Flow (vph)	0	594	56	55	390	0	0	0	0	0	407	228
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%	2%	2%	2%	2%	3%	0%
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		2		1	2 1						4 12	
Permitted Phases			2							4 12		4 12
Actuated Green, G (s)		23.3	23.3	16.0	42.3						30.2	30.2
Effective Green, g (s)		23.3	23.3	16.0	39.3						30.2	30.2
Actuated g/C Ratio		0.29	0.29	0.20	0.49						0.38	0.38
Clearance Time (s)		3.5	3.5	3.0								
Vehicle Extension (s)		3.0	3.0	4.7								
Lane Grp Cap (vph)		1051	470	357	933						668	609
v/s Ratio Prot		c0.16		0.03	c0.21							
v/s Ratio Perm			0.03								0.23	0.14
v/c Ratio		0.57	0.12	0.15	0.42						0.61	0.37
Uniform Delay, d1		24.1	20.8	26.4	13.0						20.1	18.1
Progression Factor		1.00	1.00	1.69	1.02						1.00	1.00
Incremental Delay, d2		2.2	0.5	0.4	0.5						1.6	0.4
Delay (s)		26.3	21.3	45.0	13.8						21.7	18.4
Level of Service		C	C	D	B						C	B
Approach Delay (s)		25.0			17.6			0.0			20.0	
Approach LOS		C			B			A			B	

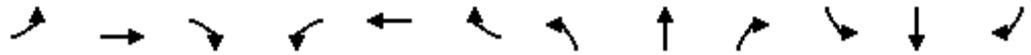
Intersection Summary

HCM 2000 Control Delay	21.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.6
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 9: 49 NB Off-Ramp/49 NB On-Ramp & McKnight Way

Existing PM Peak Hour
 1/9/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑			↑↑	↗		↗	↗			
Volume (vph)	247	685	0	0	280	187	139	0	68	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0			4.0	4.0		4.6	4.6			
Lane Util. Factor	1.00	1.00			0.95	1.00		1.00	1.00			
Frbp, ped/bikes	1.00	1.00			1.00	1.00		1.00	1.00			
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00	1.00			
Frt	1.00	1.00			1.00	0.85		1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00		0.95	1.00			
Satd. Flow (prot)	1787	1863			3574	1568		1787	1538			
Flt Permitted	0.95	1.00			1.00	1.00		0.95	1.00			
Satd. Flow (perm)	1787	1863			3574	1568		1787	1538			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	268	745	0	0	304	203	151	0	74	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	160	0	0	46	0	0	0
Lane Group Flow (vph)	268	745	0	0	304	43	0	151	28	0	0	0
Confl. Peds. (#/hr)			3	3								
Heavy Vehicles (%)	1%	2%	0%	0%	1%	3%	1%	0%	5%	2%	2%	2%
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	5	5 6			6			8 16				
Permitted Phases						6	8 16		8 16			
Actuated Green, G (s)	21.9	41.8			16.9	16.9		30.2	30.2			
Effective Green, g (s)	21.9	41.8			16.9	16.9		30.2	30.2			
Actuated g/C Ratio	0.27	0.52			0.21	0.21		0.38	0.38			
Clearance Time (s)	3.0				4.0	4.0						
Vehicle Extension (s)	4.7				3.0	3.0						
Lane Grp Cap (vph)	489	973			755	331		674	580			
v/s Ratio Prot	0.15	c0.40			0.09							
v/s Ratio Perm						0.03		0.08	0.02			
v/c Ratio	0.55	0.77			0.40	0.13		0.22	0.05			
Uniform Delay, d1	24.8	15.2			27.2	25.6		16.9	15.8			
Progression Factor	1.48	1.24			1.00	1.00		1.00	1.00			
Incremental Delay, d2	1.7	3.6			0.4	0.2		0.2	0.0			
Delay (s)	38.3	22.4			27.6	25.8		17.1	15.8			
Level of Service	D	C			C	C		B	B			
Approach Delay (s)		26.6			26.8			16.7			0.0	
Approach LOS		C			C			B			A	

Intersection Summary		
HCM 2000 Control Delay	25.4	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.60	
Actuated Cycle Length (s)	80.0	Sum of lost time (s) 15.6
Intersection Capacity Utilization	67.7%	ICU Level of Service C
Analysis Period (min)	15	
c Critical Lane Group		

HCM Unsignalized Intersection Capacity Analysis
 10: La Barr Meadows Road/S Auburn Street & McKnight Way

Existing PM Peak Hour
 1/9/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Yield			Stop			Stop			Stop	
Volume (vph)	191	105	457	26	60	15	238	96	7	19	114	169
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	203	112	486	28	64	16	253	102	7	20	121	180
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2					
Volume Total (vph)	315	486	107	253	110	141	180					
Volume Left (vph)	203	0	28	253	0	20	0					
Volume Right (vph)	0	486	16	0	7	0	180					
Hadj (s)	0.35	-0.63	0.03	0.53	0.02	0.17	-0.68					
Departure Headway (s)	7.3	6.3	7.9	8.2	7.7	8.0	7.1					
Degree Utilization, x	0.64	0.86	0.24	0.58	0.23	0.31	0.36					
Capacity (veh/h)	482	560	428	420	449	429	482					
Control Delay (s)	21.3	34.8	13.4	20.6	11.8	13.4	12.8					
Approach Delay (s)	29.5		13.4	18.0		13.1						
Approach LOS	D		B	C		B						
Intersection Summary												
Delay			22.5									
Level of Service			C									
Intersection Capacity Utilization			51.7%	ICU Level of Service				A				
Analysis Period (min)			15									

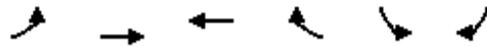
HCM Signalized Intersection Capacity Analysis
 11: Pleasant Valley Road & SR-20

Existing PM Peak Hour
 1/9/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	108	307	38	23	292	397	33	152	18	203	124	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1805	1810	1583	1805	1810	1599	1752	1881	1615	1736	1863	1564
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1805	1810	1583	1805	1810	1599	1752	1881	1615	1736	1863	1564
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	116	330	41	25	314	427	35	163	19	218	133	76
RTOR Reduction (vph)	0	0	25	0	0	295	0	0	16	0	0	51
Lane Group Flow (vph)	116	330	16	25	314	132	35	163	3	218	133	25
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	0%	5%	2%	0%	5%	1%	3%	1%	0%	4%	2%	1%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	7.4	27.7	27.7	1.5	21.8	21.8	1.8	10.9	10.9	14.5	23.6	23.6
Effective Green, g (s)	7.4	27.7	27.7	1.5	21.8	21.8	1.8	10.9	10.9	14.5	23.6	23.6
Actuated g/C Ratio	0.10	0.39	0.39	0.02	0.31	0.31	0.03	0.15	0.15	0.21	0.33	0.33
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	189	710	621	38	558	493	44	290	249	356	622	522
v/s Ratio Prot	c0.06	0.18		0.01	c0.17		0.02	c0.09		c0.13	0.07	
v/s Ratio Perm			0.01			0.08			0.00			0.02
v/c Ratio	0.61	0.46	0.03	0.66	0.56	0.27	0.80	0.56	0.01	0.61	0.21	0.05
Uniform Delay, d1	30.2	15.9	13.2	34.3	20.4	18.4	34.2	27.6	25.3	25.5	16.8	15.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.8	0.5	0.0	34.3	1.3	0.3	62.9	2.5	0.0	3.1	0.2	0.0
Delay (s)	36.0	16.4	13.2	68.6	21.7	18.7	97.1	30.1	25.3	28.6	17.0	15.9
Level of Service	D	B	B	E	C	B	F	C	C	C	B	B
Approach Delay (s)		20.8			21.6			40.5			22.7	
Approach LOS		C			C			D			C	
Intersection Summary												
HCM 2000 Control Delay			23.8	HCM 2000 Level of Service				C				
HCM 2000 Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			70.6	Sum of lost time (s)					16.0			
Intersection Capacity Utilization			53.9%	ICU Level of Service				A				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
 12: SR-20 & Cattle Drive

Existing PM Peak Hour
 1/9/2013



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	6	529	723	17	32	12
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	6	545	745	18	33	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	763				1312	754
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	763				1312	754
tC, single (s)	4.3				6.4	6.3
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.4
p0 queue free %	99				81	97
cM capacity (veh/h)	790				173	399

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	6	545	763	45
Volume Left	6	0	0	33
Volume Right	0	0	18	12
cSH	790	1700	1700	204
Volume to Capacity	0.01	0.32	0.45	0.22
Queue Length 95th (ft)	1	0	0	21
Control Delay (s)	9.6	0.0	0.0	27.6
Lane LOS	A			D
Approach Delay (s)	0.1		0.0	27.6
Approach LOS				D

Intersection Summary			
Average Delay		1.0	
Intersection Capacity Utilization		49.1%	ICU Level of Service A
Analysis Period (min)		15	

HCM Signalized Intersection Capacity Analysis
13: Penn Valley Drive & SR-20

Existing PM Peak Hour
1/9/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	58	439	49	236	605	36	59	77	125	19	61	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.8	4.0	3.0	6.8	4.0	3.0	4.8	3.0	3.0	4.8	4.8
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1805	3438	1583	1770	3539	1615	1752	1792	1583	1805	1845	1509
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1805	3438	1583	1770	3539	1615	1752	1792	1583	1805	1845	1509
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	61	462	52	248	637	38	62	81	132	20	64	69
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	89	0	0	57
Lane Group Flow (vph)	61	462	52	248	637	38	62	81	43	20	64	12
Heavy Vehicles (%)	0%	5%	2%	2%	2%	0%	3%	6%	2%	0%	3%	7%
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	NA	custom	Prot	NA	custom
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			Free			Free			8			4
Actuated Green, G (s)	3.2	15.8	53.6	10.3	22.9	53.6	2.7	9.1	17.5	0.8	7.2	9.1
Effective Green, g (s)	3.2	15.8	53.6	10.3	22.9	53.6	2.7	9.1	17.5	0.8	7.2	9.1
Actuated g/C Ratio	0.06	0.29	1.00	0.19	0.43	1.00	0.05	0.17	0.33	0.01	0.13	0.17
Clearance Time (s)	3.0	6.8		3.0	6.8		3.0	4.8	3.0	3.0	4.8	4.8
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	107	1013	1583	340	1511	1615	88	304	516	26	247	256
v/s Ratio Prot	0.03	0.13		c0.14	c0.18		c0.04	c0.05	0.02	0.01	0.03	
v/s Ratio Perm			c0.03			0.02			0.01			0.01
v/c Ratio	0.57	0.46	0.03	0.73	0.42	0.02	0.70	0.27	0.08	0.77	0.26	0.05
Uniform Delay, d1	24.5	15.4	0.0	20.3	10.7	0.0	25.1	19.3	12.5	26.3	20.8	18.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.1	0.3	0.0	7.6	0.2	0.0	22.5	0.5	0.1	80.9	0.6	0.1
Delay (s)	31.7	15.7	0.0	28.0	10.9	0.0	47.6	19.8	12.6	107.2	21.4	18.7
Level of Service	C	B	A	C	B	A	D	B	B	F	C	B
Approach Delay (s)		16.0			15.0			22.6			31.4	
Approach LOS		B			B			C			C	
Intersection Summary												
HCM 2000 Control Delay			17.7	HCM 2000 Level of Service				B				
HCM 2000 Volume to Capacity ratio			0.52									
Actuated Cycle Length (s)			53.6	Sum of lost time (s)				17.6				
Intersection Capacity Utilization			48.1%	ICU Level of Service				A				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
 14: Spenceville Road & Penn Valley Drive

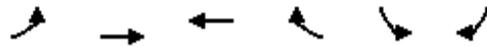
Existing PM Peak Hour
 1/9/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	96	77	70	127	153	148
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	107	86	78	141	170	164
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	192	219	334			
Volume Left (vph)	107	78	0			
Volume Right (vph)	86	0	164			
Hadj (s)	-0.15	0.09	-0.28			
Departure Headway (s)	5.0	4.9	4.4			
Degree Utilization, x	0.27	0.30	0.41			
Capacity (veh/h)	657	699	778			
Control Delay (s)	9.9	10.0	10.5			
Approach Delay (s)	9.9	10.0	10.5			
Approach LOS	A	A	B			
Intersection Summary						
Delay			10.2			
Level of Service			B			
Intersection Capacity Utilization			49.1%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 23: Penn Valley & Site 10,11,12 Dway

Existing PM Peak Hour
 1/9/2013



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	↕
Volume (veh/h)	0	148	188	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	161	204	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						1
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	204				365	204
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	204				365	204
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1367				634	836

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	161	204	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1367	1700	1700
Volume to Capacity	0.00	0.12	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		13.2%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 24: Broken Oak & Penn Valley

Existing PM Peak Hour
 1/9/2013



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	↔
Volume (veh/h)	136	15	32	152	7	16
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	148	16	35	165	8	17
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						1
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			164		391	156
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			164		391	156
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		99	98
cM capacity (veh/h)			1414		598	890

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	164	200	25
Volume Left	0	35	8
Volume Right	16	0	17
cSH	1700	1414	1279
Volume to Capacity	0.10	0.02	0.02
Queue Length 95th (ft)	0	2	1
Control Delay (s)	0.0	1.5	9.7
Lane LOS		A	A
Approach Delay (s)	0.0	1.5	9.7
Approach LOS			A

Intersection Summary			
Average Delay		1.4	
Intersection Capacity Utilization		31.2%	ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis
 27: Brunswick Road & Loma Rica Rd

Existing PM Peak Hour
 2/25/2013



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	75	313	383	37	127	537
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	82	340	416	40	138	584
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			None
Median storage veh			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1296	436			457	
vC1, stage 1 conf vol	436					
vC2, stage 2 conf vol	860					
vCu, unblocked vol	1296	436			457	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	75	45			87	
cM capacity (veh/h)	332	620			1104	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	82	340	457	138	584
Volume Left	82	0	0	138	0
Volume Right	0	340	40	0	0
cSH	332	620	1700	1104	1700
Volume to Capacity	0.25	0.55	0.27	0.13	0.34
Queue Length 95th (ft)	24	83	0	11	0
Control Delay (s)	19.3	17.6	0.0	8.7	0.0
Lane LOS	C	C		A	
Approach Delay (s)	18.0		0.0	1.7	
Approach LOS	C				

Intersection Summary					
Average Delay			5.5		
Intersection Capacity Utilization			48.4%	ICU Level of Service	A
Analysis Period (min)			15		

HCM Unsignalized Intersection Capacity Analysis
 15: SR-49 & Cameo Drive

Existing PM Peak Hour
 1/16/2013



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕	↗	↘	↕
Volume (veh/h)	2	4	1156	6	4	792
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	2	4	1192	6	4	816
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			None
Median storage veh			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2016	596			1198	
vC1, stage 1 conf vol	1192					
vC2, stage 2 conf vol	825					
vCu, unblocked vol	2016	596			1198	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	99			99	
cM capacity (veh/h)	209	447			578	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	6	596	596	6	4	816
Volume Left	2	0	0	0	4	0
Volume Right	4	0	0	6	0	0
cSH	324	1700	1700	1700	578	1700
Volume to Capacity	0.02	0.35	0.35	0.00	0.01	0.48
Queue Length 95th (ft)	1	0	0	0	1	0
Control Delay (s)	16.3	0.0	0.0	0.0	11.3	0.0
Lane LOS	C				B	
Approach Delay (s)	16.3	0.0			0.1	
Approach LOS	C					

Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			51.7%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis
 16: SR-49 & Wolf Road/Combie Road

Existing PM Peak Hour
 1/16/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	31	87	91	256	90	226	152	905	543	227	543	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	6.0	3.5	3.5	6.0	3.5
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1703	1881	1553	3433	1845	1568	1770	3505	1599	1752	3471	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1703	1881	1553	3433	1845	1568	1770	3505	1599	1752	3471	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	95	99	278	98	246	165	984	590	247	590	26
RTOR Reduction (vph)	0	0	88	0	0	186	0	0	189	0	0	16
Lane Group Flow (vph)	34	95	11	278	98	60	165	984	401	247	590	10
Heavy Vehicles (%)	6%	1%	4%	2%	3%	3%	2%	3%	1%	3%	4%	4%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	2.5	8.3	8.3	12.0	17.8	17.8	10.0	27.0	39.0	8.6	25.6	28.1
Effective Green, g (s)	2.5	8.3	8.3	12.0	17.8	17.8	10.0	27.0	39.0	8.6	25.6	28.1
Actuated g/C Ratio	0.03	0.11	0.11	0.17	0.25	0.25	0.14	0.37	0.54	0.12	0.35	0.39
Clearance Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	6.0	3.5	3.5	6.0	3.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	58	215	178	569	453	385	244	1307	861	208	1227	602
v/s Ratio Prot	0.02	c0.05		c0.08	0.05		0.09	c0.28	0.08	c0.14	0.17	0.00
v/s Ratio Perm			0.01			0.04			0.17			0.01
v/c Ratio	0.59	0.44	0.06	0.49	0.22	0.16	0.68	0.75	0.47	1.19	0.48	0.02
Uniform Delay, d1	34.4	29.9	28.6	27.4	21.7	21.4	29.7	19.8	10.3	31.9	18.2	13.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	14.2	1.4	0.2	0.7	0.2	0.2	7.2	4.0	0.4	122.2	1.4	0.0
Delay (s)	48.7	31.3	28.7	28.1	22.0	21.6	36.9	23.8	10.7	154.1	19.6	13.7
Level of Service	D	C	C	C	C	C	D	C	B	F	B	B
Approach Delay (s)		32.8			24.6			20.6			57.9	
Approach LOS		C			C			C			E	

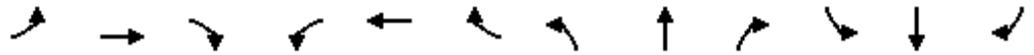
Intersection Summary

HCM 2000 Control Delay	31.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	72.4	Sum of lost time (s)	16.5
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 17: Rosewood Rd/Armstrong Rd & Combie Road

Existing PM Peak Hour
 2/27/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	59	752	12	3	465	46	4	0	3	62	1	77
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	66	836	13	3	517	51	4	0	3	69	1	86
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					955							
pX, platoon unblocked	0.89						0.89	0.89		0.89	0.89	0.89
vC, conflicting volume	568			849			1583	1548	424	1101	1529	542
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	456			849			1593	1554	424	1053	1532	427
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			100			91	100	99	55	99	83
cM capacity (veh/h)	983			785			50	93	578	152	96	514

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	66	557	292	3	568	8	70	86
Volume Left	66	0	0	3	0	4	69	0
Volume Right	0	0	13	0	51	3	0	86
cSH	983	1700	1700	785	1700	82	150	514
Volume to Capacity	0.07	0.33	0.17	0.00	0.33	0.09	0.47	0.17
Queue Length 95th (ft)	5	0	0	0	0	8	54	15
Control Delay (s)	8.9	0.0	0.0	9.6	0.0	53.2	48.4	13.4
Lane LOS	A			A		F	E	B
Approach Delay (s)	0.6			0.1		53.2	29.1	
Approach LOS						F	D	

Intersection Summary		
Average Delay		3.4
Intersection Capacity Utilization	46.0%	ICU Level of Service
Analysis Period (min)		15
		A

HCM Signalized Intersection Capacity Analysis
 18: Combie Road & Magnolia Road & Hacienda Drive

Existing PM Peak Hour
 2/27/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	61	568	188	81	322	48	121	14	133	52	14	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	0.98			1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.96	1.00		0.98	
Satd. Flow (prot)	1752	1881	1583	1787	1831			1803	1583		1699	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.96	1.00		0.98	
Satd. Flow (perm)	1752	1881	1583	1787	1831			1803	1583		1699	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	69	638	211	91	362	54	136	16	149	58	16	80
RTOR Reduction (vph)	0	0	123	0	5	0	0	0	125	0	40	0
Lane Group Flow (vph)	69	638	88	91	411	0	0	152	24	0	114	0
Heavy Vehicles (%)	3%	1%	2%	1%	2%	0%	1%	0%	2%	0%	0%	4%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4						2			
Actuated Green, G (s)	6.1	32.6	32.6	6.3	32.8			12.5	12.5		11.0	
Effective Green, g (s)	6.1	32.6	32.6	6.3	32.8			12.5	12.5		11.0	
Actuated g/C Ratio	0.08	0.42	0.42	0.08	0.42			0.16	0.16		0.14	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	136	782	658	143	766			287	252		238	
v/s Ratio Prot	0.04	c0.34		c0.05	0.22			c0.08			c0.07	
v/s Ratio Perm			0.06						0.02			
v/c Ratio	0.51	0.82	0.13	0.64	0.54			0.53	0.09		0.48	
Uniform Delay, d1	34.7	20.2	14.2	34.9	17.1			30.3	28.1		31.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	3.0	6.6	0.1	8.9	0.7			1.8	0.2		1.5	
Delay (s)	37.7	26.8	14.3	43.9	17.8			32.0	28.3		32.6	
Level of Service	D	C	B	D	B			C	C		C	
Approach Delay (s)		24.7			22.5			30.2			32.6	
Approach LOS		C			C			C			C	

Intersection Summary

HCM 2000 Control Delay	25.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	78.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 19: SR-49 & Woodridge Drive

Existing PM Peak Hour
 2/27/2013



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↗	↕	↗	↙	↕
Volume (veh/h)	2	2	1598	1	1	889
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Hourly flow rate (vph)	2	2	1614	1	1	898
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			None
Median storage veh			2			
Upstream signal (ft)						1119
pX, platoon unblocked	0.94					
vC, conflicting volume	2065	807			1615	
vC1, stage 1 conf vol	1614					
vC2, stage 2 conf vol	451					
vCu, unblocked vol	2004	807			1615	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	99			100	
cM capacity (veh/h)	146	329			409	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	2	2	807	807	1	1	449	449
Volume Left	2	0	0	0	0	1	0	0
Volume Right	0	2	0	0	1	0	0	0
cSH	146	329	1700	1700	1700	409	1700	1700
Volume to Capacity	0.01	0.01	0.47	0.47	0.00	0.00	0.26	0.26
Queue Length 95th (ft)	1	0	0	0	0	0	0	0
Control Delay (s)	30.1	16.0	0.0	0.0	0.0	13.8	0.0	0.0
Lane LOS	D	C				B		
Approach Delay (s)	23.0		0.0			0.0		
Approach LOS	C							

Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		54.2%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 27: Brunswick Road & Loma Rica Rd

Existing PM Peak Hour
 2/25/2013



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	75	313	383	37	127	537
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	82	340	416	40	138	584
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			None
Median storage veh			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1296	436			457	
vC1, stage 1 conf vol	436					
vC2, stage 2 conf vol	860					
vCu, unblocked vol	1296	436			457	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	75	45			87	
cM capacity (veh/h)	332	620			1104	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	82	340	457	138	584
Volume Left	82	0	0	138	0
Volume Right	0	340	40	0	0
cSH	332	620	1700	1104	1700
Volume to Capacity	0.25	0.55	0.27	0.13	0.34
Queue Length 95th (ft)	24	83	0	11	0
Control Delay (s)	19.3	17.6	0.0	8.7	0.0
Lane LOS	C	C		A	
Approach Delay (s)	18.0		0.0	1.7	
Approach LOS	C				

Intersection Summary					
Average Delay			5.5		
Intersection Capacity Utilization			48.4%	ICU Level of Service	A
Analysis Period (min)			15		

HCM Unsignalized Intersection Capacity Analysis
28: Higgins Road & Combie Road

Existing PM Peak Hour
2/26/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↻		↻	↻↻		↻		↻		↻	
Volume (veh/h)	0	733	10	50	505	0	67	0	80	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	814	11	56	561	0	74	0	89	0	0	0
Pedestrians								1				
Lane Width (ft)								12.0				
Walking Speed (ft/s)								4.0				
Percent Blockage								0				
Right turn flare (veh)												
Median type		TWLTL			None							
Median storage (veh)		2										
Upstream signal (ft)		640										
pX, platoon unblocked												
vC, conflicting volume	561			815			1213	1493	821	1581	1488	281
vC1, stage 1 conf vol							821	821		672	672	
vC2, stage 2 conf vol							392	672		909	815	
vCu, unblocked vol	561			815			1213	1493	821	1581	1488	281
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			93			75	100	72	100	100	100
cM capacity (veh/h)	1006			807			300	299	317	146	276	717

Direction, Lane #	EB 1	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1
Volume Total	826	56	374	187	74	89	0
Volume Left	0	56	0	0	74	0	0
Volume Right	11	0	0	0	0	89	0
cSH	1700	807	1700	1700	300	317	1700
Volume to Capacity	0.49	0.07	0.22	0.11	0.25	0.28	0.00
Queue Length 95th (ft)	0	6	0	0	24	28	0
Control Delay (s)	0.0	9.8	0.0	0.0	20.9	20.7	0.0
Lane LOS		A			C	C	A
Approach Delay (s)	0.0	0.9			20.8		0.0
Approach LOS					C		A

Intersection Summary

Average Delay	2.5
Intersection Capacity Utilization	51.9%
ICU Level of Service	A
Analysis Period (min)	15

APPENDIX D

Intersection Level of Service Calculations: Existing plus Background
Projects with Current General Plan Land Use Designations Conditions

HCM Signalized Intersection Capacity Analysis
 1: Nevada City Highway & Brunswick Road

Existing +Background PM Peak Hour

1/9/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕	↕	↕	↑	↕	↕	↕	↕
Volume (vph)	10	24	7	331	20	574	4	241	317	557	255	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		1.00		0.95	0.95	1.00	1.00	1.00	1.00	0.97	1.00	
Frbp, ped/bikes		1.00		1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1788		1698	1704	1596	1805	1881	1556	3433	1862	
Flt Permitted		0.99		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1788		1698	1704	1596	1805	1881	1556	3433	1862	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	11	26	8	356	22	617	4	259	341	599	274	1
RTOR Reduction (vph)	0	7	0	0	0	364	0	0	248	0	0	0
Lane Group Flow (vph)	0	38	0	189	189	253	4	259	93	599	275	0
Confl. Peds. (#/hr)	3					3	11		3	3		11
Heavy Vehicles (%)	0%	0%	14%	1%	5%	0%	0%	1%	2%	2%	2%	0%
Turn Type	Split	NA		Split	NA	pm+ov	Split	NA	Perm	Split	NA	
Protected Phases	6	6		8	8	4	2	2		4	4	
Permitted Phases						8			2			
Actuated Green, G (s)		16.0		13.9	13.9	33.4	24.6	24.6	24.6	19.5	19.5	
Effective Green, g (s)		16.0		13.9	13.9	33.4	24.6	24.6	24.6	19.5	19.5	
Actuated g/C Ratio		0.18		0.15	0.15	0.37	0.27	0.27	0.27	0.22	0.22	
Clearance Time (s)		4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		317		262	263	663	493	514	425	743	403	
v/s Ratio Prot		c0.02		c0.11	0.11	0.08	0.00	c0.14		c0.17	0.15	
v/s Ratio Perm						0.08			0.06			
v/c Ratio		0.12		0.72	0.72	0.38	0.01	0.50	0.22	0.81	0.68	
Uniform Delay, d1		31.1		36.2	36.2	20.7	23.8	27.6	25.3	33.5	32.4	
Progression Factor		1.00		0.71	0.71	0.36	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.8		8.9	8.6	0.3	0.0	3.5	1.2	6.4	4.7	
Delay (s)		31.9		34.5	34.2	7.8	23.8	31.1	26.5	39.8	37.1	
Level of Service		C		C	C	A	C	C	C	D	D	
Approach Delay (s)		31.9			17.9			28.4			39.0	
Approach LOS		C			B			C			D	

Intersection Summary		
HCM 2000 Control Delay	28.0	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.54	C
Actuated Cycle Length (s)	90.0	Sum of lost time (s)
Intersection Capacity Utilization	62.5%	16.0
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		B

HCM Signalized Intersection Capacity Analysis
 2: Maltman Drive/SR 20-49 SB Ramps & Brunswick Road

Existing +Background PM Peak Hour

1/9/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑		↑		↑	↑↑	↑	↑
Volume (vph)	0	847	60	170	656	0	48	0	326	439	60	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	4.0
Lane Util. Factor		0.95		1.00	0.95		1.00		1.00	0.97	1.00	1.00
Frbp, ped/bikes		1.00		1.00	1.00		1.00		0.99	1.00	1.00	1.00
Flpb, ped/bikes		1.00		1.00	1.00		1.00		1.00	1.00	1.00	1.00
Frt		0.99		1.00	1.00		1.00		0.85	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95		1.00	0.95	1.00	1.00
Satd. Flow (prot)		3501		1770	3610		1805		1603	3400	1881	1599
Flt Permitted		1.00		0.95	1.00		0.95		1.00	0.95	1.00	1.00
Satd. Flow (perm)		3501		1770	3610		1805		1603	3400	1881	1599
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	921	65	185	713	0	52	0	354	477	65	239
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	47	0	0	165
Lane Group Flow (vph)	0	980	0	185	713	0	52	0	307	477	65	74
Confl. Peds. (#/hr)			9						9			
Heavy Vehicles (%)	0%	1%	13%	2%	0%	0%	0%	0%	0%	3%	1%	1%
Turn Type		NA		Prot	NA		Prot		custom	Split	NA	Perm
Protected Phases		4		3	8		2		3	6	6	
Permitted Phases									2			6
Actuated Green, G (s)		26.0		14.4	44.4		5.6		20.0	28.0	28.0	28.0
Effective Green, g (s)		26.0		14.4	44.4		5.6		20.0	28.0	28.0	28.0
Actuated g/C Ratio		0.29		0.16	0.49		0.06		0.22	0.31	0.31	0.31
Clearance Time (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		1011		283	1780		112		427	1057	585	497
v/s Ratio Prot		c0.28		0.10	0.20		0.03		c0.11	c0.14	0.03	
v/s Ratio Perm									0.08			0.05
v/c Ratio		0.97		0.65	0.40		0.46		0.72	0.45	0.11	0.15
Uniform Delay, d1		31.6		35.5	14.4		40.8		32.4	24.8	22.1	22.4
Progression Factor		0.38		0.76	0.58		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		17.5		10.3	0.1		3.0		5.7	1.4	0.4	0.6
Delay (s)		29.4		37.4	8.4		43.8		38.1	26.2	22.5	23.0
Level of Service		C		D	A		D		D	C	C	C
Approach Delay (s)		29.4			14.4			38.8			24.9	
Approach LOS		C			B			D			C	

Intersection Summary

HCM 2000 Control Delay	25.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
3: SR 20-49 NB Ramps & Brunswick Road

Existing +Background PM Peak Hour
1/9/2013



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑↑	↘	↗
Volume (vph)	841	0	0	1411	236	376
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	0.95			0.91	1.00	1.00
Flt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3574			5136	1805	1553
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3574			5136	1805	1553
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	876	0	0	1470	246	392
RTOR Reduction (vph)	0	0	0	0	0	50
Lane Group Flow (vph)	876	0	0	1470	246	342
Heavy Vehicles (%)	1%	0%	0%	1%	0%	4%
Turn Type	NA			NA	NA	Perm
Protected Phases	4			8	2	
Permitted Phases						2
Actuated Green, G (s)	42.0			42.0	40.0	40.0
Effective Green, g (s)	42.0			42.0	40.0	40.0
Actuated g/C Ratio	0.47			0.47	0.44	0.44
Clearance Time (s)	4.0			4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	1667			2396	802	690
v/s Ratio Prot	0.25			c0.29	0.14	
v/s Ratio Perm						c0.22
v/c Ratio	0.53			0.61	0.31	0.50
Uniform Delay, d1	17.0			17.9	16.1	17.8
Progression Factor	0.81			1.00	1.00	1.00
Incremental Delay, d2	0.3			1.2	1.0	2.5
Delay (s)	13.9			19.1	17.1	20.3
Level of Service	B			B	B	C
Approach Delay (s)	13.9			19.1	19.1	
Approach LOS	B			B	B	

Intersection Summary

HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	53.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

4: Sutton Way & Brunswick Road

Existing +Background PM Peak Hour

1/9/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	227	676	442	229	719	40	500	89	216	74	75	268
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		0.97	1.00		1.00	1.00	1.00
Frbp, ped/bikes	1.00	1.00	0.91	1.00	1.00		1.00	1.00		1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.89		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3467	3471	1472	1787	3480		3467	1665		1787	1881	1520
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3467	3471	1472	1787	3480		3467	1665		1787	1881	1520
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	239	712	465	241	757	42	526	94	227	78	79	282
RTOR Reduction (vph)	0	0	359	0	6	0	0	120	0	0	0	52
Lane Group Flow (vph)	239	712	106	241	793	0	526	201	0	78	79	230
Confl. Peds. (#/hr)	1		32	32		1	36					36
Heavy Vehicles (%)	1%	4%	0%	1%	3%	0%	1%	2%	2%	1%	1%	2%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4									6
Actuated Green, G (s)	7.5	16.0	16.0	10.0	18.5		11.8	21.8		6.2	16.2	23.7
Effective Green, g (s)	7.5	16.0	16.0	10.0	18.5		11.8	21.8		6.2	16.2	23.7
Actuated g/C Ratio	0.11	0.23	0.23	0.14	0.26		0.17	0.31		0.09	0.23	0.34
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	371	793	336	255	919		584	518		158	435	601
v/s Ratio Prot	0.07	0.21		c0.13	c0.23		c0.15	0.12		0.04	0.04	c0.04
v/s Ratio Perm			0.07									0.11
v/c Ratio	0.64	0.90	0.32	0.95	0.86		0.90	0.39		0.49	0.18	0.38
Uniform Delay, d1	30.0	26.2	22.5	29.7	24.5		28.5	18.9		30.4	21.6	17.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	3.8	12.8	0.5	41.2	8.4		17.0	2.2		2.4	0.9	0.4
Delay (s)	33.8	39.1	23.0	70.9	33.0		45.5	21.1		32.8	22.5	18.0
Level of Service	C	D	C	E	C		D	C		C	C	B
Approach Delay (s)		32.9			41.8			36.3			21.4	
Approach LOS		C			D			D			C	

Intersection Summary

HCM 2000 Control Delay	34.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	72.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
5: Brunswick Road & Idaho-Maryland Road

Existing +Background PM Peak Hour

1/9/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	214	185	0	259	227	553	100	183	561	40
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	233	201	0	282	247	601	109	199	610	43
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						1						
Median type								TWLTL				None
Median storage (veh)								2				
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2102	2211	610	2389	2200	655	653			710		
vC1, stage 1 conf vol	1008	1008		1149	1149							
vC2, stage 2 conf vol	1095	1203		1240	1051							
vCu, unblocked vol	2102	2211	610	2389	2200	655	653			710		
tC, single (s)	7.1	6.5	6.2	7.2	6.8	6.3	4.1			4.2		
tC, 2 stage (s)	6.1	5.5		6.2	5.8							
tF (s)	3.5	4.0	3.3	3.6	4.3	3.4	2.2			2.3		
p0 queue free %	100	100	53	0	100	37	74			76		
cM capacity (veh/h)	9	25	491	7	20	450	934			836		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3					
Volume Total	233	483	247	710	199	610	43					
Volume Left	0	201	247	0	199	0	0					
Volume Right	233	282	0	109	0	0	43					
cSH	491	17	934	1700	836	1700	1700					
Volume to Capacity	0.47	27.90	0.26	0.42	0.24	0.36	0.03					
Queue Length 95th (ft)	63	Err	27	0	23	0	0					
Control Delay (s)	18.8	Err	10.2	0.0	10.6	0.0	0.0					
Lane LOS	C	F	B		B							
Approach Delay (s)	18.8	Err	2.6		2.5							
Approach LOS	C	F										
Intersection Summary												
Average Delay			1915.5									
Intersection Capacity Utilization			65.6%		ICU Level of Service					C		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
6: McCourtney Road & Personeni Road

Existing +Background PM Peak Hour
1/9/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	4	1	1	267	404	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	4	1	1	293	444	0
Pedestrians				1		
Lane Width (ft)				12.0		
Walking Speed (ft/s)				4.0		
Percent Blockage				0		
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	740	445	444			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	740	445	444			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	387	617	1127			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	5	295	444			
Volume Left	4	1	0			
Volume Right	1	0	0			
cSH	484	1127	1700			
Volume to Capacity	0.01	0.00	0.26			
Queue Length 95th (ft)	1	0	0			
Control Delay (s)	13.7	0.0	0.0			
Lane LOS	B	A				
Approach Delay (s)	13.7	0.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			31.6%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
7: Taylorville Road & McKnight Way

Existing +Background PM Peak Hour
1/9/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↗				↗			↖
Volume (veh/h)	0	764	11	23	592	256	0	0	36	0	0	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	830	12	25	643	278	0	0	39	0	0	9
Pedestrians								3				
Lane Width (ft)								12.0				
Walking Speed (ft/s)								4.0				
Percent Blockage								0				
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					172							
pX, platoon unblocked	0.84						0.84	0.84		0.84	0.84	0.84
vC, conflicting volume	922			845			1542	1811	286	1149	1678	783
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	809			845			1550	1872	286	1080	1713	643
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			97			100	100	95	100	100	98
cM capacity (veh/h)	691			798			63	59	715	135	74	352

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	332	332	178	25	922	39	9
Volume Left	0	0	0	25	0	0	0
Volume Right	0	0	12	0	278	39	9
cSH	1700	1700	1700	798	1700	715	352
Volume to Capacity	0.20	0.20	0.10	0.03	0.54	0.05	0.02
Queue Length 95th (ft)	0	0	0	2	0	4	2
Control Delay (s)	0.0	0.0	0.0	9.7	0.0	10.3	15.5
Lane LOS				A		B	C
Approach Delay (s)	0.0			0.3		10.3	15.5
Approach LOS						B	C

Intersection Summary

Average Delay	0.4
Intersection Capacity Utilization	56.7%
ICU Level of Service	B
Analysis Period (min)	15

HCM Signalized Intersection Capacity Analysis
8: 49 SB Off-Ramp & McKnight Way

Existing +Background PM Peak Hour

1/9/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑						↑	↑
Volume (vph)	0	612	189	63	417	0	0	0	0	390	0	454
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5	3.5	3.0	3.5						4.6	4.6
Lane Util. Factor		0.95	1.00	1.00	1.00						1.00	1.00
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (prot)		3610	1615	1787	1900						1770	1615
Flt Permitted		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (perm)		3610	1615	1787	1900						1770	1615
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.94	0.94
Adj. Flow (vph)	0	651	201	67	444	0	0	0	0	424	0	483
RTOR Reduction (vph)	0	0	148	0	0	0	0	0	0	0	0	187
Lane Group Flow (vph)	0	651	53	67	444	0	0	0	0	0	424	296
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%	2%	2%	2%	2%	3%	0%
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		2		1	2 1						4 12	
Permitted Phases			2							4 12		4 12
Actuated Green, G (s)		21.1	21.1	16.9	41.0						31.5	31.5
Effective Green, g (s)		21.1	21.1	16.9	38.0						31.5	31.5
Actuated g/C Ratio		0.26	0.26	0.21	0.48						0.39	0.39
Clearance Time (s)		3.5	3.5	3.0								
Vehicle Extension (s)		3.0	3.0	4.7								
Lane Grp Cap (vph)		952	425	377	902						696	635
v/s Ratio Prot		c0.18		0.04	c0.23							
v/s Ratio Perm			0.03								0.24	0.18
v/c Ratio		0.68	0.12	0.18	0.49						0.61	0.47
Uniform Delay, d1		26.5	22.4	25.9	14.4						19.3	18.0
Progression Factor		1.00	1.00	1.73	1.07						1.00	1.00
Incremental Delay, d2		4.0	0.6	0.4	0.7						1.5	0.5
Delay (s)		30.4	23.0	45.2	16.2						20.9	18.6
Level of Service		C	C	D	B						C	B
Approach Delay (s)		28.7			20.0			0.0			19.6	
Approach LOS		C			B			A			B	

Intersection Summary

HCM 2000 Control Delay	23.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.6
Intersection Capacity Utilization	74.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 9: 49 NB Off-Ramp/49 NB On-Ramp & McKnight Way

Existing +Background PM Peak Hour

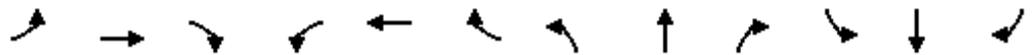
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	264	737	0	0	329	198	151	0	84	0	0	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0			4.0	4.0		4.6	4.6			
Lane Util. Factor	1.00	1.00			0.95	1.00		1.00	1.00			
Frbp, ped/bikes	1.00	1.00			1.00	1.00		1.00	1.00			
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00	1.00			
Frt	1.00	1.00			1.00	0.85		1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00		0.95	1.00			
Satd. Flow (prot)	1787	1863			3574	1568		1787	1538			
Flt Permitted	0.95	1.00			1.00	1.00		0.95	1.00			
Satd. Flow (perm)	1787	1863			3574	1568		1787	1538			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	287	801	0	0	358	215	164	0	91	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	172	0	0	55	0	0	0
Lane Group Flow (vph)	287	801	0	0	358	43	0	164	36	0	0	0
Confl. Peds. (#/hr)			3	3								
Heavy Vehicles (%)	1%	2%	0%	0%	1%	3%	1%	0%	5%	2%	2%	2%
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	5	5 6			6			8 16				
Permitted Phases						6	8 16		8 16			
Actuated Green, G (s)	21.5	40.5			16.0	16.0		31.5	31.5			
Effective Green, g (s)	21.5	40.5			16.0	16.0		31.5	31.5			
Actuated g/C Ratio	0.27	0.51			0.20	0.20		0.39	0.39			
Clearance Time (s)	3.0				4.0	4.0						
Vehicle Extension (s)	4.7				3.0	3.0						
Lane Grp Cap (vph)	480	943			714	313		703	605			
v/s Ratio Prot	0.16	c0.43			0.10							
v/s Ratio Perm						0.03		0.09	0.02			
v/c Ratio	0.60	0.85			0.50	0.14		0.23	0.06			
Uniform Delay, d1	25.5	17.1			28.5	26.3		16.2	15.1			
Progression Factor	1.52	1.29			1.00	1.00		1.00	1.00			
Incremental Delay, d2	2.2	6.3			0.6	0.2		0.2	0.0			
Delay (s)	41.0	28.4			29.0	26.5		16.4	15.1			
Level of Service	D	C			C	C		B	B			
Approach Delay (s)		31.7			28.1			15.9			0.0	
Approach LOS		C			C			B			A	

Intersection Summary

HCM 2000 Control Delay	28.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.6
Intersection Capacity Utilization	72.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↔		↖	↗			↕	↗
Sign Control		Yield			Stop			Stop			Stop	
Volume (vph)	235	105	481	26	60	15	255	100	7	19	119	212
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	250	112	512	28	64	16	271	106	7	20	127	226

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	362	512	107	271	114	147	226
Volume Left (vph)	250	0	28	271	0	20	0
Volume Right (vph)	0	512	16	0	7	0	226
Hadj (s)	0.37	-0.63	0.03	0.53	0.02	0.17	-0.68
Departure Headway (s)	7.6	6.6	8.3	8.5	8.0	8.2	7.4
Degree Utilization, x	0.77	0.94	0.25	0.64	0.25	0.34	0.46
Capacity (veh/h)	457	534	414	421	445	430	482
Control Delay (s)	30.2	49.2	14.0	24.3	12.5	14.2	15.3
Approach Delay (s)	41.3		14.0	20.8		14.9	
Approach LOS	E		B	C		B	

Intersection Summary	
Delay	29.4
Level of Service	D
Intersection Capacity Utilization	53.4%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
 20: Brunswick Road & Dwy Sites 7,8

Existing +Background PM Peak Hour
 1/9/2013



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	6	17	583	10	27	873
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	18	634	11	29	949
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1647	639			645	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1647	639			645	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	96			97	
cM capacity (veh/h)	106	476			941	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	7	18	645	29	949
Volume Left	7	0	0	29	0
Volume Right	0	18	11	0	0
cSH	106	476	1700	941	1700
Volume to Capacity	0.06	0.04	0.38	0.03	0.56
Queue Length 95th (ft)	5	3	0	2	0
Control Delay (s)	41.3	12.9	0.0	9.0	0.0
Lane LOS	E	B		A	
Approach Delay (s)	20.3		0.0	0.3	
Approach LOS	C				

Intersection Summary					
Average Delay			0.5		
Intersection Capacity Utilization			55.9%	ICU Level of Service	B
Analysis Period (min)			15		

HCM Unsignalized Intersection Capacity Analysis
 21: Brunswick Road & Dwy Sites 3-6 and 9

Existing +Background PM Peak Hour
 1/9/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	68	22	39	525	762	117
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	74	24	42	571	828	127
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1547	892	955			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1547	892	955			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	38	93	94			
cM capacity (veh/h)	118	341	720			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	74	24	42	571	955	
Volume Left	74	0	42	0	0	
Volume Right	0	24	0	0	127	
cSH	118	341	720	1700	1700	
Volume to Capacity	0.62	0.07	0.06	0.34	0.56	
Queue Length 95th (ft)	79	6	5	0	0	
Control Delay (s)	76.2	16.4	10.3	0.0	0.0	
Lane LOS	F	C	B			
Approach Delay (s)	61.6		0.7		0.0	
Approach LOS	F					
Intersection Summary						
Average Delay			3.9			
Intersection Capacity Utilization			57.6%	ICU Level of Service	B	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 22: Dwy Site 2

Existing +Background PM Peak Hour
 1/9/2013



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	2	18	344	2	29	597
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	20	374	2	32	649
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1087	375			376	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1087	375			376	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	97			97	
cM capacity (veh/h)	233	671			1182	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	2	20	376	32	649
Volume Left	2	0	0	32	0
Volume Right	0	20	2	0	0
cSH	233	671	1700	1182	1700
Volume to Capacity	0.01	0.03	0.22	0.03	0.38
Queue Length 95th (ft)	1	2	0	2	0
Control Delay (s)	20.6	10.5	0.0	8.1	0.0
Lane LOS	C	B		A	
Approach Delay (s)	11.5		0.0	0.4	
Approach LOS	B				

Intersection Summary					
Average Delay			0.5		
Intersection Capacity Utilization			41.4%	ICU Level of Service	A
Analysis Period (min)			15		

HCM Signalized Intersection Capacity Analysis
 11: Pleasant Valley Road & SR-20

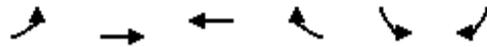
Ext + Bkgrd PM Peak Hour

1/16/2013

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	108	320	42	23	299	405	35	156	18	218	130	71	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1805	1810	1583	1805	1810	1599	1752	1881	1615	1736	1863	1563	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1805	1810	1583	1805	1810	1599	1752	1881	1615	1736	1863	1563	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	120	356	47	26	332	450	39	173	20	242	144	79	
RTOR Reduction (vph)	0	0	30	0	0	325	0	0	16	0	0	50	
Lane Group Flow (vph)	120	356	17	26	332	125	39	173	4	242	144	29	
Confl. Peds. (#/hr)							1					1	
Heavy Vehicles (%)	0%	5%	2%	0%	5%	1%	3%	1%	0%	4%	2%	1%	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases			4			8			2			6	
Actuated Green, G (s)	7.7	26.7	26.7	1.6	20.6	20.6	3.0	14.8	14.8	14.9	26.7	26.7	
Effective Green, g (s)	7.7	26.7	26.7	1.6	20.6	20.6	3.0	14.8	14.8	14.9	26.7	26.7	
Actuated g/C Ratio	0.10	0.36	0.36	0.02	0.28	0.28	0.04	0.20	0.20	0.20	0.36	0.36	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	187	653	571	39	503	445	71	376	323	349	672	563	
v/s Ratio Prot	c0.07	0.20		0.01	c0.18		0.02	c0.09		c0.14	0.08		
v/s Ratio Perm			0.01			0.08			0.00			0.02	
v/c Ratio	0.64	0.55	0.03	0.67	0.66	0.28	0.55	0.46	0.01	0.69	0.21	0.05	
Uniform Delay, d1	31.8	18.8	15.3	35.9	23.6	20.9	34.8	26.1	23.7	27.4	16.4	15.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	7.3	0.9	0.0	35.5	3.2	0.3	8.4	0.9	0.0	5.9	0.2	0.0	
Delay (s)	39.1	19.8	15.3	71.5	26.8	21.3	43.3	27.0	23.8	33.3	16.5	15.4	
Level of Service	D	B	B	E	C	C	D	C	C	C	B	B	
Approach Delay (s)		23.8			25.2			29.4			25.1		
Approach LOS		C			C			C			C		
Intersection Summary													
HCM 2000 Control Delay			25.3									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.61										
Actuated Cycle Length (s)			74.0									Sum of lost time (s)	16.0
Intersection Capacity Utilization			55.3%									ICU Level of Service	B
Analysis Period (min)			15										
c	Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
 12: SR-20 & Cattle Drive

Ext + Bkgrd PM Peak Hour
 1/16/2013



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	6	556	739	17	32	12
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	6	573	762	18	33	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	779				1356	771
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	779				1356	771
tC, single (s)	4.3				6.4	6.3
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.4
p0 queue free %	99				80	97
cM capacity (veh/h)	779				162	391

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	6	573	779	45
Volume Left	6	0	0	33
Volume Right	0	0	18	12
cSH	779	1700	1700	193
Volume to Capacity	0.01	0.34	0.46	0.23
Queue Length 95th (ft)	1	0	0	22
Control Delay (s)	9.7	0.0	0.0	29.3
Lane LOS	A			D
Approach Delay (s)	0.1		0.0	29.3
Approach LOS				D

Intersection Summary			
Average Delay		1.0	
Intersection Capacity Utilization		49.9%	ICU Level of Service A
Analysis Period (min)		15	

HCM Signalized Intersection Capacity Analysis
 13: Penn Valley Drive & SR-20

Ext + Bkgrd PM Peak Hour

1/16/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	58	466	49	256	621	40	59	81	137	27	67	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.8	4.0	3.0	6.8	4.0	3.0	4.8	3.0	3.0	4.8	4.8
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1805	3438	1583	1770	3539	1615	1752	1792	1583	1805	1845	1509
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1805	3438	1583	1770	3539	1615	1752	1792	1583	1805	1845	1509
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	62	496	52	272	661	43	63	86	146	29	71	70
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	98	0	0	60
Lane Group Flow (vph)	62	496	52	272	661	43	63	86	48	29	71	10
Heavy Vehicles (%)	0%	5%	2%	2%	2%	0%	3%	6%	2%	0%	3%	7%
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	NA	custom	Prot	NA	custom
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			Free			Free			8			4
Actuated Green, G (s)	3.1	15.4	53.0	10.5	22.8	53.0	2.6	7.8	17.4	1.7	6.9	7.8
Effective Green, g (s)	3.1	15.4	53.0	10.5	22.8	53.0	2.6	7.8	17.4	1.7	6.9	7.8
Actuated g/C Ratio	0.06	0.29	1.00	0.20	0.43	1.00	0.05	0.15	0.33	0.03	0.13	0.15
Clearance Time (s)	3.0	6.8		3.0	6.8		3.0	4.8	3.0	3.0	4.8	4.8
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	105	998	1583	350	1522	1615	85	263	519	57	240	222
v/s Ratio Prot	0.03	0.14		c0.15	c0.19		c0.04	c0.05	0.02	0.02	0.04	
v/s Ratio Perm			c0.03			0.03			0.01			0.01
v/c Ratio	0.59	0.50	0.03	0.78	0.43	0.03	0.74	0.33	0.09	0.51	0.30	0.05
Uniform Delay, d1	24.3	15.6	0.0	20.1	10.6	0.0	24.9	20.2	12.3	25.2	20.9	19.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.6	0.4	0.0	10.4	0.2	0.0	28.9	0.7	0.1	7.0	0.7	0.1
Delay (s)	32.9	16.0	0.0	30.5	10.8	0.0	53.8	21.0	12.4	32.2	21.5	19.5
Level of Service	C	B	A	C	B	A	D	C	B	C	C	B
Approach Delay (s)		16.3			15.8			23.7			22.5	
Approach LOS		B			B			C			C	
Intersection Summary												
HCM 2000 Control Delay			17.7	HCM 2000 Level of Service				B				
HCM 2000 Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			53.0	Sum of lost time (s)				17.6				
Intersection Capacity Utilization			50.0%	ICU Level of Service				A				
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 14: Spenceville Road & Penn Valley Drive

Ext + Bkgrd PM Peak Hour
 1/16/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	112	78	72	127	153	174
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	124	87	80	141	170	193

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	211	221	363
Volume Left (vph)	124	80	0
Volume Right (vph)	87	0	193
Hadj (s)	-0.12	0.09	-0.30
Departure Headway (s)	5.1	5.0	4.5
Degree Utilization, x	0.30	0.31	0.45
Capacity (veh/h)	642	682	769
Control Delay (s)	10.3	10.2	11.1
Approach Delay (s)	10.3	10.2	11.1
Approach LOS	B	B	B

Intersection Summary			
Delay		10.6	
Level of Service		B	
Intersection Capacity Utilization		51.5%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 15: SR-49 & Cameo Drive

Existing + Bkgrd PM Peak Hour
 3/1/2013

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	7	6	1335	15	8	1009
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	7	1451	16	9	1097
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			None		
Median storage veh	2					
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2565	726			1467	
vC1, stage 1 conf vol	1451					
vC2, stage 2 conf vol	1114					
vCu, unblocked vol	2565	726			1467	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	98			98	
cM capacity (veh/h)	146	367			456	
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	14	726	726	16	9	1097
Volume Left	8	0	0	0	9	0
Volume Right	7	0	0	16	0	0
cSH	202	1700	1700	1700	456	1700
Volume to Capacity	0.07	0.43	0.43	0.01	0.02	0.65
Queue Length 95th (ft)	6	0	0	0	1	0
Control Delay (s)	24.2	0.0	0.0	0.0	13.1	0.0
Lane LOS	C				B	
Approach Delay (s)	24.2	0.0			0.1	
Approach LOS	C					
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			63.1%	ICU Level of Service	B	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis
 16: SR-49 & Wolf Road/Combie Road

Existing + Bkgrd PM Peak Hour

3/1/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				 				 			 	
Volume (vph)	31	163	93	368	141	285	187	1034	591	405	586	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	6.0	3.5	3.5	6.0	3.5
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1703	1881	1553	3433	1845	1568	1770	3505	1599	1752	3471	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1703	1881	1553	3433	1845	1568	1770	3505	1599	1752	3471	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	177	101	400	153	310	203	1124	642	440	637	27
RTOR Reduction (vph)	0	0	83	0	0	209	0	0	113	0	0	18
Lane Group Flow (vph)	34	177	18	400	153	101	203	1124	529	440	637	9
Heavy Vehicles (%)	6%	1%	4%	2%	3%	3%	2%	3%	1%	3%	4%	4%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	2.6	14.0	14.0	14.4	25.8	25.8	10.6	26.7	41.1	8.5	24.6	27.2
Effective Green, g (s)	2.6	14.0	14.0	14.4	25.8	25.8	10.6	26.7	41.1	8.5	24.6	27.2
Actuated g/C Ratio	0.03	0.17	0.17	0.18	0.32	0.32	0.13	0.33	0.51	0.11	0.31	0.34
Clearance Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	6.0	3.5	3.5	6.0	3.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	55	328	271	617	594	505	234	1168	820	185	1066	527
v/s Ratio Prot	0.02	c0.09		c0.12	0.08		0.11	c0.32	0.12	c0.25	0.18	0.00
v/s Ratio Perm			0.01			0.06			0.21			0.01
v/c Ratio	0.62	0.54	0.07	0.65	0.26	0.20	0.87	0.96	0.65	2.38	0.60	0.02
Uniform Delay, d1	38.3	30.1	27.6	30.5	20.1	19.7	34.1	26.2	14.2	35.8	23.5	17.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	18.9	1.7	0.1	2.4	0.2	0.2	26.9	18.7	1.8	636.6	2.5	0.0
Delay (s)	57.2	31.8	27.7	32.9	20.3	19.9	61.0	44.9	15.9	672.4	26.0	17.6
Level of Service	E	C	C	C	C	B	E	D	B	F	C	B
Approach Delay (s)		33.2			26.0			37.1			283.4	
Approach LOS		C			C			D			F	

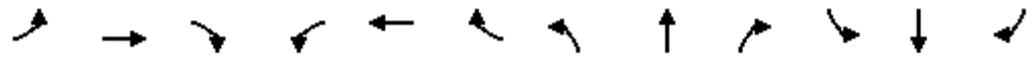
Intersection Summary

HCM 2000 Control Delay	98.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	80.1	Sum of lost time (s)	16.5
Intersection Capacity Utilization	85.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 17: Rosewood Rd/Armstrong Rd & Combie Road

Existing + Bkgrd PM Peak Hour
 3/1/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	59	979	18	6	692	46	8	0	4	62	1	77
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	66	1088	20	7	769	51	9	0	4	69	1	86
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					955							
pX, platoon unblocked	0.77						0.77	0.77		0.77	0.77	0.77
vC, conflicting volume	820			1108			2097	2062	554	1487	2047	794
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	621			1108			2272	2227	554	1483	2207	588
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			99			23	100	99	0	96	76
cM capacity (veh/h)	739			626			11	30	476	61	31	350

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	66	725	383	7	820	13	70	86
Volume Left	66	0	0	7	0	9	69	0
Volume Right	0	0	20	0	51	4	0	86
cSH	739	1700	1700	626	1700	17	60	350
Volume to Capacity	0.09	0.43	0.23	0.01	0.48	0.78	1.16	0.24
Queue Length 95th (ft)	7	0	0	1	0	50	144	24
Control Delay (s)	10.3	0.0	0.0	10.8	0.0	444.5	279.6	18.6
Lane LOS	B			B		F	F	C
Approach Delay (s)	0.6			0.1		444.5	136.1	
Approach LOS						F	F	

Intersection Summary		
Average Delay		12.8
Intersection Capacity Utilization	59.9%	ICU Level of Service
Analysis Period (min)		15
		B

HCM Signalized Intersection Capacity Analysis
 18: Combie Road & Magnolia Road & Hacienda Drive

Existing + Bkgrd PM Peak Hour

3/1/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	690	258	86	448	51	168	17	136	58	21	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	0.98			1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.96	1.00		0.98	
Satd. Flow (prot)	1752	1881	1583	1787	1838			1801	1583		1701	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.96	1.00		0.98	
Satd. Flow (perm)	1752	1881	1583	1787	1838			1801	1583		1701	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	84	775	290	97	503	57	189	19	153	65	24	96
RTOR Reduction (vph)	0	0	140	0	4	0	0	0	128	0	40	0
Lane Group Flow (vph)	84	775	150	97	556	0	0	208	25	0	145	0
Heavy Vehicles (%)	3%	1%	2%	1%	2%	0%	1%	0%	2%	0%	0%	4%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4						2			
Actuated Green, G (s)	6.5	40.8	40.8	6.7	41.0			14.6	14.6		12.4	
Effective Green, g (s)	6.5	40.8	40.8	6.7	41.0			14.6	14.6		12.4	
Actuated g/C Ratio	0.07	0.45	0.45	0.07	0.45			0.16	0.16		0.14	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	125	848	713	132	832			290	255		233	
v/s Ratio Prot	0.05	c0.41		c0.05	0.30			c0.12			c0.09	
v/s Ratio Perm			0.09						0.02			
v/c Ratio	0.67	0.91	0.21	0.73	0.67			0.72	0.10		0.62	
Uniform Delay, d1	41.0	23.2	15.1	41.0	19.4			36.0	32.3		36.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	13.3	14.1	0.1	19.0	2.0			8.2	0.2		5.1	
Delay (s)	54.3	37.3	15.2	60.0	21.5			44.2	32.5		42.0	
Level of Service	D	D	B	E	C			D	C		D	
Approach Delay (s)		33.0			27.2			39.2			42.0	
Approach LOS		C			C			D			D	

Intersection Summary

HCM 2000 Control Delay	33.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	90.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 19: SR-49 & Woodridge Drive

Existing + Bkgrd PM Peak Hour
 3/1/2013



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗	↖	↕
Volume (veh/h)	0	186	1626	136	33	1014
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Hourly flow rate (vph)	0	188	1642	137	33	1024
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			None
Median storage veh			2			
Upstream signal (ft)						1119
pX, platoon unblocked	0.90					
vC, conflicting volume	2221	821			1780	
vC1, stage 1 conf vol	1642					
vC2, stage 2 conf vol	579					
vCu, unblocked vol	2139	821			1780	
tC, single (s)	6.8	*6.5			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	47			91	
cM capacity (veh/h)	139	352			354	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	188	821	821	137	33	512	512
Volume Left	0	0	0	0	33	0	0
Volume Right	188	0	0	137	0	0	0
cSH	352	1700	1700	1700	354	1700	1700
Volume to Capacity	0.53	0.48	0.48	0.08	0.09	0.30	0.30
Queue Length 95th (ft)	75	0	0	0	8	0	0
Control Delay (s)	26.3	0.0	0.0	0.0	16.2	0.0	0.0
Lane LOS	D				C		
Approach Delay (s)	26.3	0.0			0.5		
Approach LOS	D						

Intersection Summary			
Average Delay		1.8	
Intersection Capacity Utilization		63.1%	ICU Level of Service B
Analysis Period (min)		15	

* User Entered Value

HCM Unsignalized Intersection Capacity Analysis
 20: Brunswick Road & Dwy Sites 7,8

Existing +Background PM Peak Hour
 1/9/2013



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	6	17	583	10	27	873
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	18	634	11	29	949
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1647	639			645	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1647	639			645	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	96			97	
cM capacity (veh/h)	106	476			941	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	7	18	645	29	949
Volume Left	7	0	0	29	0
Volume Right	0	18	11	0	0
cSH	106	476	1700	941	1700
Volume to Capacity	0.06	0.04	0.38	0.03	0.56
Queue Length 95th (ft)	5	3	0	2	0
Control Delay (s)	41.3	12.9	0.0	9.0	0.0
Lane LOS	E	B		A	
Approach Delay (s)	20.3		0.0	0.3	
Approach LOS	C				

Intersection Summary					
Average Delay			0.5		
Intersection Capacity Utilization			55.9%	ICU Level of Service	B
Analysis Period (min)			15		

HCM Unsignalized Intersection Capacity Analysis
 21: Brunswick Road & Dwy Sites 3-6 and 9

Existing +Background PM Peak Hour
 1/9/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	68	22	39	525	762	117
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	74	24	42	571	828	127
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1547	892	955			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1547	892	955			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	38	93	94			
cM capacity (veh/h)	118	341	720			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1
Volume Total	74	24	42	571	955
Volume Left	74	0	42	0	0
Volume Right	0	24	0	0	127
cSH	118	341	720	1700	1700
Volume to Capacity	0.62	0.07	0.06	0.34	0.56
Queue Length 95th (ft)	79	6	5	0	0
Control Delay (s)	76.2	16.4	10.3	0.0	0.0
Lane LOS	F	C	B		
Approach Delay (s)	61.6		0.7		0.0
Approach LOS	F				

Intersection Summary					
Average Delay			3.9		
Intersection Capacity Utilization			57.6%	ICU Level of Service	B
Analysis Period (min)			15		

HCM Unsignalized Intersection Capacity Analysis
22: Dwy Site 2

Existing +Background PM Peak Hour
1/9/2013



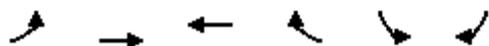
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	2	18	344	2	29	597
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	20	374	2	32	649
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1087	375			376	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1087	375			376	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	97			97	
cM capacity (veh/h)	233	671			1182	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	2	20	376	32	649
Volume Left	2	0	0	32	0
Volume Right	0	20	2	0	0
cSH	233	671	1700	1182	1700
Volume to Capacity	0.01	0.03	0.22	0.03	0.38
Queue Length 95th (ft)	1	2	0	2	0
Control Delay (s)	20.6	10.5	0.0	8.1	0.0
Lane LOS	C	B		A	
Approach Delay (s)	11.5		0.0	0.4	
Approach LOS	B				

Intersection Summary					
Average Delay			0.5		
Intersection Capacity Utilization			41.4%	ICU Level of Service	A
Analysis Period (min)			15		

HCM Unsignalized Intersection Capacity Analysis
 23: Penn Valley & Site 10,11,12 Dway

Ext + Bkgrd PM Peak Hour
 1/16/2013



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	↔
Volume (veh/h)	6	166	227	16	9	4
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	180	247	17	10	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						1
Median type		None	None			
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	264				449	255
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	264				449	255
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				98	99
cM capacity (veh/h)	1300				565	783

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	187	264	14
Volume Left	7	0	10
Volume Right	0	17	4
cSH	1300	1700	816
Volume to Capacity	0.01	0.16	0.02
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.3	0.0	10.9
Lane LOS	A		B
Approach Delay (s)	0.3	0.0	10.9
Approach LOS			B

Intersection Summary			
Average Delay		0.5	
Intersection Capacity Utilization		23.6%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 24: Broken Oak & Penn Valley

Ext + Bkgrd PM Peak Hour
 1/16/2013



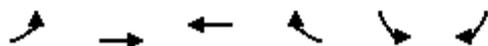
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	↔
Volume (veh/h)	146	17	14	156	9	32
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	162	19	16	173	10	36
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						1
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			181		376	172
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			181		376	172
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		98	96
cM capacity (veh/h)			1394		618	872

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	181	189	46
Volume Left	0	16	10
Volume Right	19	0	36
cSH	1700	1394	1117
Volume to Capacity	0.11	0.01	0.04
Queue Length 95th (ft)	0	1	3
Control Delay (s)	0.0	0.7	9.7
Lane LOS		A	A
Approach Delay (s)	0.0	0.7	9.7
Approach LOS			A

Intersection Summary			
Average Delay		1.4	
Intersection Capacity Utilization	29.8%		ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 26: Combie Road & Dwy Site 18

Existing + Bkgrd PM Peak Hour
 3/1/2013



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	27	52	28	1	1	16
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	57	30	1	1	17
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	32				146	31
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	32				146	31
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				100	98
cM capacity (veh/h)	1581				830	1043

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	29	57	32	18
Volume Left	29	0	0	1
Volume Right	0	0	1	17
cSH	1581	1700	1700	1028
Volume to Capacity	0.02	0.03	0.02	0.02
Queue Length 95th (ft)	1	0	0	1
Control Delay (s)	7.3	0.0	0.0	8.6
Lane LOS	A			A
Approach Delay (s)	2.5		0.0	8.6
Approach LOS				A

Intersection Summary			
Average Delay		2.7	
Intersection Capacity Utilization		18.2%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 27: Brunswick Road & Loma Rica Rd

Existing +Background PM Peak Hour
 2/25/2013



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	83	375	423	49	207	611
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	90	408	460	53	225	664
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			None
Median storage veh			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1601	486			513	
vC1, stage 1 conf vol	486					
vC2, stage 2 conf vol	1114					
vCu, unblocked vol	1601	486			513	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	61	30			79	
cM capacity (veh/h)	231	581			1052	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	90	408	513	225	664
Volume Left	90	0	0	225	0
Volume Right	0	408	53	0	0
cSH	231	581	1700	1052	1700
Volume to Capacity	0.39	0.70	0.30	0.21	0.39
Queue Length 95th (ft)	44	140	0	20	0
Control Delay (s)	30.2	24.5	0.0	9.3	0.0
Lane LOS	D	C		A	
Approach Delay (s)	25.5		0.0	2.4	
Approach LOS	D				

Intersection Summary					
Average Delay			7.8		
Intersection Capacity Utilization			55.1%	ICU Level of Service	B
Analysis Period (min)			15		

HCM Unsignalized Intersection Capacity Analysis
28: Higgins Road & Combie Road

Existing + Bkgrd PM Peak Hour
3/1/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↻		↻	↻↻		↻		↻		↻	
Volume (veh/h)	0	838	217	255	546	0	255	0	252	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	911	236	277	593	0	277	0	274	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLT			None							
Median storage (veh)		2										
Upstream signal (ft)		683										
pX, platoon unblocked				0.94			0.94	0.94	0.94	0.94	0.94	0.94
vC, conflicting volume	593			911			1880	2177	1029	2451	2059	297
vC1, stage 1 conf vol							1029	1029		1148	1148	
vC2, stage 2 conf vol							851	1148		1303	911	
vCu, unblocked vol	593			872			1905	2222	997	2514	2096	297
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			62			0	100	0	0	100	100
cM capacity (veh/h)	979			721			151	142	227	0	63	700

Direction, Lane #	EB 1	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1
Volume Total	1147	277	396	198	277	274	0
Volume Left	0	277	0	0	277	0	0
Volume Right	236	0	0	0	0	274	0
cSH	1700	721	1700	1700	151	227	1700
Volume to Capacity	0.67	0.38	0.23	0.12	1.84	1.20	0.00
Queue Length 95th (ft)	0	45	0	0	521	336	0
Control Delay (s)	0.0	13.1	0.0	0.0	454.2	170.5	0.0
Lane LOS		B			F	F	A
Approach Delay (s)	0.0	4.2			313.2		0.0
Approach LOS					F		A

Intersection Summary

Average Delay	68.6
Intersection Capacity Utilization	95.5%
ICU Level of Service	F
Analysis Period (min)	15

APPENDIX E

Intersection Level of Service Calculations: Existing plus Background Projects plus Project Conditions

HCM Signalized Intersection Capacity Analysis
 1: Nevada City Highway & Brunswick Road

Ex + Bkg + Proj PM Peak Hour

1/9/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕		↖	↖	↖	↖	↑	↗	↗	↗	↗	
Volume (vph)	10	24	7	333	20	581	4	241	322	573	255	1	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		
Lane Util. Factor		1.00		0.95	0.95	1.00	1.00	1.00	1.00	0.97	1.00		
Frbp, ped/bikes		1.00		1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00		
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Frt		0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		
Flt Protected		0.99		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)		1788		1698	1704	1596	1805	1881	1556	3433	1862		
Flt Permitted		0.99		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (perm)		1788		1698	1704	1596	1805	1881	1556	3433	1862		
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Adj. Flow (vph)	11	26	8	358	22	625	4	259	346	616	274	1	
RTOR Reduction (vph)	0	7	0	0	0	363	0	0	252	0	0	0	
Lane Group Flow (vph)	0	38	0	190	190	262	4	259	94	616	275	0	
Confl. Peds. (#/hr)	3					3	11		3	3		11	
Heavy Vehicles (%)	0%	0%	14%	1%	5%	0%	0%	1%	2%	2%	2%	0%	
Turn Type	Split	NA		Split	NA	pm+ov	Split	NA	Perm	Split	NA		
Protected Phases	6	6		8	8	4	2	2		4	4		
Permitted Phases						8			2				
Actuated Green, G (s)		16.0		13.9	13.9	33.5	24.5	24.5	24.5	19.6	19.6		
Effective Green, g (s)		16.0		13.9	13.9	33.5	24.5	24.5	24.5	19.6	19.6		
Actuated g/C Ratio		0.18		0.15	0.15	0.37	0.27	0.27	0.27	0.22	0.22		
Clearance Time (s)		4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)		317		262	263	665	491	512	423	747	405		
v/s Ratio Prot		c0.02		c0.11	0.11	0.09	0.00	c0.14		c0.18	0.15		
v/s Ratio Perm						0.08			0.06				
v/c Ratio		0.12		0.73	0.72	0.39	0.01	0.51	0.22	0.82	0.68		
Uniform Delay, d1		31.1		36.2	36.2	20.8	23.9	27.6	25.4	33.6	32.3		
Progression Factor		1.00		0.71	0.71	0.36	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2		0.8		9.1	8.9	0.4	0.0	3.5	1.2	7.4	4.5		
Delay (s)		31.9		34.7	34.5	7.8	23.9	31.2	26.6	40.9	36.8		
Level of Service		C		C	C	A	C	C	C	D	D		
Approach Delay (s)		31.9			17.9			28.5			39.7		
Approach LOS		C			B			C			D		
Intersection Summary													
HCM 2000 Control Delay			28.3		HCM 2000 Level of Service					C			
HCM 2000 Volume to Capacity ratio			0.55										
Actuated Cycle Length (s)			90.0		Sum of lost time (s)					16.0			
Intersection Capacity Utilization			63.0%		ICU Level of Service					B			
Analysis Period (min)			15										
c	Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: Maltman Drive/SR 20-49 SB Ramps & Brunswick Road

Ex + Bkg + Proj PM Peak Hour

1/9/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑↑		↖		↖	↖↖	↑	↖
Volume (vph)	0	864	64	195	665	0	48	0	326	463	60	220
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	4.0
Lane Util. Factor		0.95		1.00	0.95		1.00		1.00	0.97	1.00	1.00
Frbp, ped/bikes		1.00		1.00	1.00		1.00		0.99	1.00	1.00	1.00
Flpb, ped/bikes		1.00		1.00	1.00		1.00		1.00	1.00	1.00	1.00
Frt		0.99		1.00	1.00		1.00		0.85	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95		1.00	0.95	1.00	1.00
Satd. Flow (prot)		3497		1770	3610		1805		1603	3400	1881	1599
Flt Permitted		1.00		0.95	1.00		0.95		1.00	0.95	1.00	1.00
Satd. Flow (perm)		3497		1770	3610		1805		1603	3400	1881	1599
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	939	70	212	723	0	52	0	354	503	65	239
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	47	0	0	165
Lane Group Flow (vph)	0	1003	0	212	723	0	52	0	307	503	65	74
Confl. Peds. (#/hr)			9						9			
Heavy Vehicles (%)	0%	1%	13%	2%	0%	0%	0%	0%	0%	3%	1%	1%
Turn Type		NA		Prot	NA		Prot		custom	Split	NA	Perm
Protected Phases		4		3	8		2		3	6	6	
Permitted Phases									2			6
Actuated Green, G (s)		26.0		14.4	44.4		5.6		20.0	28.0	28.0	28.0
Effective Green, g (s)		26.0		14.4	44.4		5.6		20.0	28.0	28.0	28.0
Actuated g/C Ratio		0.29		0.16	0.49		0.06		0.22	0.31	0.31	0.31
Clearance Time (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		1010		283	1780		112		427	1057	585	497
v/s Ratio Prot		c0.29		0.12	0.20		0.03		c0.11	c0.15	0.03	
v/s Ratio Perm									0.08			0.05
v/c Ratio		0.99		0.75	0.41		0.46		0.72	0.48	0.11	0.15
Uniform Delay, d1		31.9		36.1	14.4		40.8		32.4	25.1	22.1	22.4
Progression Factor		0.37		0.77	0.58		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		22.4		15.3	0.1		3.0		5.7	1.5	0.4	0.6
Delay (s)		34.2		43.1	8.6		43.8		38.1	26.6	22.5	23.0
Level of Service		C		D	A		D		D	C	C	C
Approach Delay (s)		34.2			16.4			38.8			25.2	
Approach LOS		C			B			D			C	

Intersection Summary

HCM 2000 Control Delay	27.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	70.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 3: SR 20-49 NB Ramps & Brunswick Road

Ex + Bkg + Proj PM Peak Hour
 1/9/2013



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑↑	↘	↗
Volume (vph)	881	0	0	1443	238	435
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	0.95			0.91	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3574			5136	1805	1553
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3574			5136	1805	1553
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	918	0	0	1503	248	453
RTOR Reduction (vph)	0	0	0	0	0	44
Lane Group Flow (vph)	918	0	0	1503	248	409
Heavy Vehicles (%)	1%	0%	0%	1%	0%	4%
Turn Type	NA			NA	NA	Perm
Protected Phases	4			8	2	
Permitted Phases						2
Actuated Green, G (s)	42.0			42.0	40.0	40.0
Effective Green, g (s)	42.0			42.0	40.0	40.0
Actuated g/C Ratio	0.47			0.47	0.44	0.44
Clearance Time (s)	4.0			4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	1667			2396	802	690
v/s Ratio Prot	0.26			c0.29	0.14	
v/s Ratio Perm						c0.26
v/c Ratio	0.55			0.63	0.31	0.59
Uniform Delay, d1	17.2			18.1	16.1	18.9
Progression Factor	0.80			1.00	1.00	1.00
Incremental Delay, d2	0.4			1.3	1.0	3.7
Delay (s)	14.1			19.4	17.1	22.6
Level of Service	B			B	B	C
Approach Delay (s)	14.1			19.4	20.6	
Approach LOS	B			B	C	

Intersection Summary

HCM 2000 Control Delay	18.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
4: Sutton Way & Brunswick Road

Ex + Bkg + Proj PM Peak Hour

1/9/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	230	773	442	265	754	42	500	89	292	79	75	274
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		0.97	1.00		1.00	1.00	1.00
Frbp, ped/bikes	1.00	1.00	0.90	1.00	1.00		1.00	1.00		1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.89		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3467	3471	1456	1787	3480		3467	1649		1787	1881	1520
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3467	3471	1456	1787	3480		3467	1649		1787	1881	1520
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	242	814	465	279	794	44	526	94	307	83	79	288
RTOR Reduction (vph)	0	0	342	0	5	0	0	144	0	0	0	82
Lane Group Flow (vph)	242	814	123	279	833	0	526	257	0	83	79	206
Confl. Peds. (#/hr)	1		32	32		1	36					36
Heavy Vehicles (%)	1%	4%	0%	1%	3%	0%	1%	2%	2%	1%	1%	2%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4									6
Actuated Green, G (s)	10.3	20.0	20.0	13.9	23.6		13.8	25.3		4.8	16.3	26.6
Effective Green, g (s)	10.3	20.0	20.0	13.9	23.6		13.8	25.3		4.8	16.3	26.6
Actuated g/C Ratio	0.13	0.25	0.25	0.17	0.30		0.17	0.32		0.06	0.20	0.33
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	446	867	364	310	1026		598	521		107	383	581
v/s Ratio Prot	0.07	c0.23		c0.16	0.24		c0.15	c0.16		c0.05	0.04	0.05
v/s Ratio Perm			0.08									0.09
v/c Ratio	0.54	0.94	0.34	0.90	0.81		0.88	0.49		0.78	0.21	0.35
Uniform Delay, d1	32.6	29.4	24.6	32.4	26.1		32.3	22.2		37.1	26.5	20.2
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.4	17.4	0.6	27.3	5.0		13.9	3.3		28.9	1.2	0.4
Delay (s)	34.0	46.8	25.1	59.7	31.1		46.2	25.5		65.9	27.7	20.6
Level of Service	C	D	C	E	C		D	C		E	C	C
Approach Delay (s)		38.1			38.3			37.2			30.2	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	37.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	77.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
5: Brunswick Road & Idaho-Maryland Road

Ex + Bkg + Proj PM Peak Hour
1/9/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	214	185	0	283	227	588	100	193	576	40
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	233	201	0	308	247	639	109	210	626	43
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						1						
Median type								TWLTL			None	
Median storage (veh)								2				
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2178	2287	626	2465	2276	693	670			748		
vC1, stage 1 conf vol	1046	1046		1187	1187							
vC2, stage 2 conf vol	1133	1241		1278	1089							
vCu, unblocked vol	2178	2287	626	2465	2276	693	670			748		
tC, single (s)	7.1	6.5	6.2	7.2	6.8	6.3	4.1			4.2		
tC, 2 stage (s)	6.1	5.5		6.2	5.8							
tF (s)	3.5	4.0	3.3	3.6	4.3	3.4	2.2			2.3		
p0 queue free %	100	100	52	0	100	28	73			74		
cM capacity (veh/h)	6	22	480	6	18	428	921			809		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3					
Volume Total	233	509	247	748	210	626	43					
Volume Left	0	201	247	0	210	0	0					
Volume Right	233	308	0	109	0	0	43					
cSH	480	15	921	1700	809	1700	1700					
Volume to Capacity	0.48	33.12	0.27	0.44	0.26	0.37	0.03					
Queue Length 95th (ft)	65	Err	27	0	26	0	0					
Control Delay (s)	19.3	Err	10.3	0.0	11.0	0.0	0.0					
Lane LOS	C	F	B		B							
Approach Delay (s)	19.3	Err	2.6		2.6							
Approach LOS	C	F										
Intersection Summary												
Average Delay			1948.5									
Intersection Capacity Utilization			68.0%		ICU Level of Service					C		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
6: McCourtney Road & Personeni Road

Ex + Bkg + Proj PM Peak Hour
1/9/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	4	1	1	272	410	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	4	1	1	299	451	0
Pedestrians				1		
Lane Width (ft)				12.0		
Walking Speed (ft/s)				4.0		
Percent Blockage				0		
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	752	452	451			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	752	452	451			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	381	612	1121			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	5	300	451			
Volume Left	4	1	0			
Volume Right	1	0	0			
cSH	476	1121	1700			
Volume to Capacity	0.01	0.00	0.27			
Queue Length 95th (ft)	1	0	0			
Control Delay (s)	13.8	0.0	0.0			
Lane LOS	B	A				
Approach Delay (s)	13.8	0.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			31.9%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
7: Taylorville Road & McKnight Way

Ex + Bkg + Proj PM Peak Hour
1/9/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↗				↗			↖
Volume (veh/h)	0	774	11	23	596	256	0	0	36	0	0	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	841	12	25	648	278	0	0	39	0	0	9
Pedestrians								3				
Lane Width (ft)								12.0				
Walking Speed (ft/s)								4.0				
Percent Blockage								0				
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					172							
pX, platoon unblocked	0.83						0.83	0.83		0.83	0.83	0.83
vC, conflicting volume	926			856			1557	1826	289	1157	1693	787
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	812			856			1568	1892	289	1088	1732	645
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			97			100	100	94	100	100	98
cM capacity (veh/h)	687			791			60	57	711	133	72	350

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	337	337	180	25	926	39	9
Volume Left	0	0	0	25	0	0	0
Volume Right	0	0	12	0	278	39	9
cSH	1700	1700	1700	791	1700	711	350
Volume to Capacity	0.20	0.20	0.11	0.03	0.54	0.06	0.02
Queue Length 95th (ft)	0	0	0	2	0	4	2
Control Delay (s)	0.0	0.0	0.0	9.7	0.0	10.4	15.5
Lane LOS				A		B	C
Approach Delay (s)	0.0			0.3		10.4	15.5
Approach LOS						B	C

Intersection Summary

Average Delay	0.4
Intersection Capacity Utilization	57.0%
ICU Level of Service	B
Analysis Period (min)	15

HCM Signalized Intersection Capacity Analysis
 8: 49 SB Off-Ramp & McKnight Way

Ex + Bkg + Proj PM Peak Hour

1/9/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑						↑	↑
Volume (vph)	0	621	190	68	419	0	0	0	0	420	0	456
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5	3.5	3.0	3.5						4.6	4.6
Lane Util. Factor		0.95	1.00	1.00	1.00						1.00	1.00
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (prot)		3610	1615	1787	1900						1770	1615
Flt Permitted		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (perm)		3610	1615	1787	1900						1770	1615
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.94	0.94
Adj. Flow (vph)	0	661	202	72	446	0	0	0	0	457	0	485
RTOR Reduction (vph)	0	0	150	0	0	0	0	0	0	0	0	183
Lane Group Flow (vph)	0	661	52	72	446	0	0	0	0	0	457	302
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%	2%	2%	2%	2%	3%	0%
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		2		1	2 1						4 12	
Permitted Phases			2							4 12		4 12
Actuated Green, G (s)		20.6	20.6	16.8	40.4						32.1	32.1
Effective Green, g (s)		20.6	20.6	16.8	37.4						32.1	32.1
Actuated g/C Ratio		0.26	0.26	0.21	0.47						0.40	0.40
Clearance Time (s)		3.5	3.5	3.0								
Vehicle Extension (s)		3.0	3.0	4.7								
Lane Grp Cap (vph)		929	415	375	888						710	648
v/s Ratio Prot		c0.18		0.04	c0.23							
v/s Ratio Perm			0.03								0.26	0.19
v/c Ratio		0.71	0.13	0.19	0.50						0.64	0.47
Uniform Delay, d1		27.0	22.8	26.0	14.8						19.3	17.6
Progression Factor		1.00	1.00	1.74	1.05						1.00	1.00
Incremental Delay, d2		4.6	0.6	0.4	0.8						2.0	0.5
Delay (s)		31.6	23.4	45.6	16.4						21.3	18.2
Level of Service		C	C	D	B						C	B
Approach Delay (s)		29.7			20.5			0.0			19.7	
Approach LOS		C			C			A			B	

Intersection Summary

HCM 2000 Control Delay	23.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.6
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 9: 49 NB Off-Ramp/49 NB On-Ramp & McKnight Way

Ex + Bkg + Proj PM Peak Hour

1/9/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑			↑↑	↗		↖	↗			
Volume (vph)	269	771	0	0	335	216	151	0	94	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0			4.0	4.0		4.6	4.6			
Lane Util. Factor	1.00	1.00			0.95	1.00		1.00	1.00			
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00	1.00			
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00	1.00			
Frt	1.00	1.00			1.00	0.85		1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00		0.95	1.00			
Satd. Flow (prot)	1787	1863			3574	1568		1787	1538			
Flt Permitted	0.95	1.00			1.00	1.00		0.95	1.00			
Satd. Flow (perm)	1787	1863			3574	1568		1787	1538			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	292	838	0	0	364	235	164	0	102	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	188	0	0	58	0	0	0
Lane Group Flow (vph)	292	838	0	0	364	47	0	164	44	0	0	0
Confl. Peds. (#/hr)			3	3								
Heavy Vehicles (%)	1%	2%	0%	0%	1%	3%	1%	0%	5%	2%	2%	2%
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	5	5 6			6			8 16				
Permitted Phases						6	8 16		8 16			
Actuated Green, G (s)	20.9	39.9			16.0	16.0		32.1	32.1			
Effective Green, g (s)	20.9	39.9			16.0	16.0		32.1	32.1			
Actuated g/C Ratio	0.26	0.50			0.20	0.20		0.40	0.40			
Clearance Time (s)	3.0				4.0	4.0						
Vehicle Extension (s)	4.7				3.0	3.0						
Lane Grp Cap (vph)	466	929			714	313		717	617			
v/s Ratio Prot	0.16	c0.45			0.10							
v/s Ratio Perm						0.03		0.09	0.03			
v/c Ratio	0.63	0.90			0.51	0.15		0.23	0.07			
Uniform Delay, d1	26.1	18.3			28.5	26.4		15.8	14.8			
Progression Factor	1.49	1.28			1.00	1.00		1.00	1.00			
Incremental Delay, d2	2.6	9.8			0.6	0.2		0.2	0.0			
Delay (s)	41.4	33.2			29.1	26.6		16.0	14.8			
Level of Service	D	C			C	C		B	B			
Approach Delay (s)		35.3			28.1			15.5			0.0	
Approach LOS		D			C			B			A	

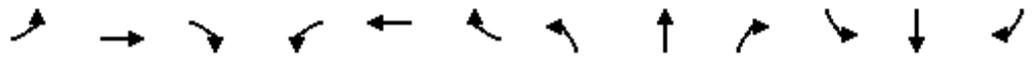
Intersection Summary

HCM 2000 Control Delay	30.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.6
Intersection Capacity Utilization	73.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 10: La Barr Meadows Road/S Auburn Street & McKnight Way

Ex + Bkg + Proj PM Peak Hour

1/9/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↖	↗			↕	↗
Sign Control		Yield			Stop			Stop			Stop	
Volume (vph)	238	105	522	26	60	15	274	104	7	19	128	218
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	253	112	555	28	64	16	291	111	7	20	136	232

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	365	555	107	291	118	156	232
Volume Left (vph)	253	0	28	291	0	20	0
Volume Right (vph)	0	555	16	0	7	0	232
Hadj (s)	0.38	-0.63	0.03	0.53	0.02	0.17	-0.68
Departure Headway (s)	7.7	6.7	8.4	8.4	7.9	8.2	7.4
Degree Utilization, x	0.78	1.04	0.25	0.68	0.26	0.36	0.47
Capacity (veh/h)	451	539	408	416	442	427	478
Control Delay (s)	32.3	73.2	14.2	26.6	12.5	14.5	15.6
Approach Delay (s)	57.0		14.2	22.6		15.1	
Approach LOS	F		B	C		C	

Intersection Summary	
Delay	37.9
Level of Service	E
Intersection Capacity Utilization	58.7%
ICU Level of Service	B
Analysis Period (min)	15

HCM Signalized Intersection Capacity Analysis
 11: Pleasant Valley Road & SR-20

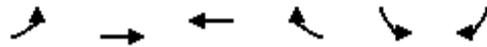
Ext + Bkgrd + Proj PM Peak Hour

1/9/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	108	335	55	23	305	412	41	167	18	234	154	71
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1805	1810	1583	1805	1810	1599	1752	1881	1615	1736	1863	1563
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1805	1810	1583	1805	1810	1599	1752	1881	1615	1736	1863	1563
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	116	360	59	25	328	443	44	180	19	252	166	76
RTOR Reduction (vph)	0	0	38	0	0	320	0	0	15	0	0	48
Lane Group Flow (vph)	116	360	21	25	328	123	44	180	4	252	166	28
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	0%	5%	2%	0%	5%	1%	3%	1%	0%	4%	2%	1%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	7.6	26.7	26.7	1.6	20.7	20.7	3.0	15.0	15.0	15.3	27.3	27.3
Effective Green, g (s)	7.6	26.7	26.7	1.6	20.7	20.7	3.0	15.0	15.0	15.3	27.3	27.3
Actuated g/C Ratio	0.10	0.36	0.36	0.02	0.28	0.28	0.04	0.20	0.20	0.21	0.37	0.37
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	183	647	566	38	502	443	70	378	324	356	681	571
v/s Ratio Prot	c0.06	0.20		0.01	c0.18		0.03	c0.10		c0.15	0.09	
v/s Ratio Perm			0.01			0.08			0.00			0.02
v/c Ratio	0.63	0.56	0.04	0.66	0.65	0.28	0.63	0.48	0.01	0.71	0.24	0.05
Uniform Delay, d1	32.2	19.2	15.6	36.2	23.8	21.1	35.3	26.3	23.9	27.6	16.5	15.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.0	1.0	0.0	34.3	3.0	0.3	16.3	0.9	0.0	6.3	0.2	0.0
Delay (s)	39.2	20.2	15.6	70.5	26.8	21.4	51.6	27.3	23.9	33.9	16.7	15.3
Level of Service	D	C	B	E	C	C	D	C	C	C	B	B
Approach Delay (s)		23.8			25.2			31.4			25.2	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM 2000 Control Delay			25.6			HCM 2000 Level of Service		C				
HCM 2000 Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			74.6			Sum of lost time (s)		16.0				
Intersection Capacity Utilization			57.1%			ICU Level of Service		B				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
 12: SR-20 & Cattle Drive

Ext + Bkgrd + Proj PM Peak Hour
 1/9/2013



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	6	587	752	17	32	12
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	6	605	775	18	33	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	793				1402	784
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	793				1402	784
tC, single (s)	4.3				6.4	6.3
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.4
p0 queue free %	99				78	97
cM capacity (veh/h)	769				152	384

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	6	605	793	45
Volume Left	6	0	0	33
Volume Right	0	0	18	12
cSH	769	1700	1700	182
Volume to Capacity	0.01	0.36	0.47	0.25
Queue Length 95th (ft)	1	0	0	24
Control Delay (s)	9.7	0.0	0.0	31.2
Lane LOS	A			D
Approach Delay (s)	0.1		0.0	31.2
Approach LOS				D

Intersection Summary			
Average Delay		1.0	
Intersection Capacity Utilization		50.6%	ICU Level of Service A
Analysis Period (min)		15	

HCM Signalized Intersection Capacity Analysis
13: Penn Valley Drive & SR-20

Ext + Bkgrd + Proj PM Peak Hour

1/9/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	58	497	49	329	634	43	59	92	173	35	91	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.8	4.0	3.0	6.8	4.0	3.0	4.8	3.0	3.0	4.8	4.8
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1805	3438	1583	1770	3539	1615	1752	1792	1583	1805	1845	1509
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1805	3438	1583	1770	3539	1615	1752	1792	1583	1805	1845	1509
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	61	523	52	346	667	45	62	97	182	37	96	69
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	120	0	0	59
Lane Group Flow (vph)	61	523	52	346	667	45	62	97	62	37	96	10
Heavy Vehicles (%)	0%	5%	2%	2%	2%	0%	3%	6%	2%	0%	3%	7%
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	NA	custom	Prot	NA	custom
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			Free			Free			8			4
Actuated Green, G (s)	3.0	14.4	52.4	10.9	22.3	52.4	2.5	7.9	17.9	1.6	7.0	7.9
Effective Green, g (s)	3.0	14.4	52.4	10.9	22.3	52.4	2.5	7.9	17.9	1.6	7.0	7.9
Actuated g/C Ratio	0.06	0.27	1.00	0.21	0.43	1.00	0.05	0.15	0.34	0.03	0.13	0.15
Clearance Time (s)	3.0	6.8		3.0	6.8		3.0	4.8	3.0	3.0	4.8	4.8
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	103	944	1583	368	1506	1615	83	270	540	55	246	227
v/s Ratio Prot	0.03	c0.15		c0.20	0.19		c0.04	c0.05	0.02	0.02	0.05	
v/s Ratio Perm			c0.03			0.03			0.02			0.01
v/c Ratio	0.59	0.55	0.03	0.94	0.44	0.03	0.75	0.36	0.12	0.67	0.39	0.05
Uniform Delay, d1	24.1	16.3	0.0	20.4	10.7	0.0	24.6	20.0	11.8	25.1	20.7	19.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.8	0.7	0.0	31.8	0.2	0.0	30.2	0.8	0.1	27.8	1.0	0.1
Delay (s)	32.9	17.0	0.0	52.3	10.9	0.0	54.8	20.8	11.9	53.0	21.8	19.1
Level of Service	C	B	A	D	B	A	D	C	B	D	C	B
Approach Delay (s)		17.1			23.9			22.2			26.6	
Approach LOS		B			C			C			C	

Intersection Summary

HCM 2000 Control Delay	22.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	52.4	Sum of lost time (s)	17.6
Intersection Capacity Utilization	54.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 14: Spenceville Road & Penn Valley Drive

Ext + Bkgrd + Proj PM Peak Hour
 1/9/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	159	82	81	127	153	271
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	177	91	90	141	170	301
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	268	231	471			
Volume Left (vph)	177	90	0			
Volume Right (vph)	91	0	301			
Hadj (s)	-0.07	0.10	-0.36			
Departure Headway (s)	5.5	5.4	4.7			
Degree Utilization, x	0.41	0.35	0.61			
Capacity (veh/h)	600	629	741			
Control Delay (s)	12.4	11.3	14.8			
Approach Delay (s)	12.4	11.3	14.8			
Approach LOS	B	B	B			
Intersection Summary						
Delay			13.3			
Level of Service			B			
Intersection Capacity Utilization			60.3%	ICU Level of Service	B	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 15: SR-49 & Cameo Drive

Existing + Bkgrd + Proj PM Peak Hour

3/1/2013

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	12	8	1364	26	12	1033
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	9	1483	28	13	1123
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			None		
Median storage veh	2					
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2632	741			1511	
vC1, stage 1 conf vol	1483					
vC2, stage 2 conf vol	1149					
vCu, unblocked vol	2632	741			1511	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	98			97	
cM capacity (veh/h)	139	359			439	
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	22	741	741	28	13	1123
Volume Left	13	0	0	0	13	0
Volume Right	9	0	0	28	0	0
cSH	184	1700	1700	1700	439	1700
Volume to Capacity	0.12	0.44	0.44	0.02	0.03	0.66
Queue Length 95th (ft)	10	0	0	0	2	0
Control Delay (s)	27.1	0.0	0.0	0.0	13.5	0.0
Lane LOS	D				B	
Approach Delay (s)	27.1	0.0			0.2	
Approach LOS	D					
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			64.4%		ICU Level of Service	C
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis
 16: SR-49 & Wolf Road/Combie Road

Existing + Bkgrd + Proj PM Peak Hour

3/1/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	33	168	93	374	143	295	187	1062	603	420	599	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	6.0	3.5	3.5	6.0	3.5
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1703	1881	1553	3433	1845	1568	1770	3505	1599	1752	3471	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1703	1881	1553	3433	1845	1568	1770	3505	1599	1752	3471	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	183	101	407	155	321	203	1154	655	457	651	28
RTOR Reduction (vph)	0	0	83	0	0	207	0	0	109	0	0	19
Lane Group Flow (vph)	36	183	18	407	155	114	203	1154	546	457	651	9
Heavy Vehicles (%)	6%	1%	4%	2%	3%	3%	2%	3%	1%	3%	4%	4%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	2.6	14.2	14.2	14.5	26.1	26.1	10.6	26.7	41.2	8.5	24.6	27.2
Effective Green, g (s)	2.6	14.2	14.2	14.5	26.1	26.1	10.6	26.7	41.2	8.5	24.6	27.2
Actuated g/C Ratio	0.03	0.18	0.18	0.18	0.32	0.32	0.13	0.33	0.51	0.11	0.31	0.34
Clearance Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	6.0	3.5	3.5	6.0	3.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	55	332	274	619	598	509	233	1163	819	185	1062	525
v/s Ratio Prot	0.02	c0.10		0.12	0.08		0.11	c0.33	c0.12	c0.26	0.19	0.00
v/s Ratio Perm			0.01			0.07			0.22			0.01
v/c Ratio	0.65	0.55	0.07	0.66	0.26	0.22	0.87	0.99	0.67	2.47	0.61	0.02
Uniform Delay, d1	38.5	30.2	27.6	30.6	20.0	19.8	34.2	26.7	14.5	36.0	23.8	17.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	24.6	2.0	0.1	2.5	0.2	0.2	27.9	24.6	2.1	677.6	2.6	0.0
Delay (s)	63.1	32.2	27.7	33.2	20.3	20.0	62.2	51.4	16.6	713.5	26.5	17.7
Level of Service	E	C	C	C	C	C	E	D	B	F	C	B
Approach Delay (s)		34.2			26.1			41.1			302.7	
Approach LOS		C			C			D			F	

Intersection Summary

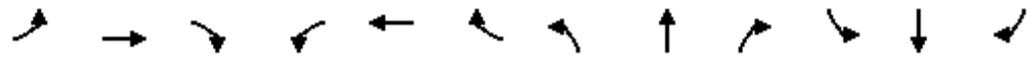
HCM 2000 Control Delay	105.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	80.4	Sum of lost time (s)	16.5
Intersection Capacity Utilization	87.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 17: Rosewood Rd/Armstrong Rd & Combie Road

Existing + Bkgrd + Proj PM Peak Hour

3/1/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	59	1007	22	7	710	46	9	0	4	62	1	77
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	66	1119	24	8	789	51	10	0	4	69	1	86
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					955							
pX, platoon unblocked	0.77						0.77	0.77		0.77	0.77	0.77
vC, conflicting volume	840			1143			2153	2118	572	1525	2104	814
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	642			1143			2349	2303	572	1533	2286	609
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			99			0	100	99	0	96	75
cM capacity (veh/h)	722			607			10	26	463	56	27	337

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	66	746	397	8	840	14	70	86
Volume Left	66	0	0	8	0	10	69	0
Volume Right	0	0	24	0	51	4	0	86
cSH	722	1700	1700	607	1700	14	55	337
Volume to Capacity	0.09	0.44	0.23	0.01	0.49	1.03	1.27	0.25
Queue Length 95th (ft)	7	0	0	1	0	59	154	25
Control Delay (s)	10.5	0.0	0.0	11.0	0.0	615.2	335.0	19.3
Lane LOS	B			B		F	F	C
Approach Delay (s)	0.6			0.1		615.2	161.4	
Approach LOS						F	F	

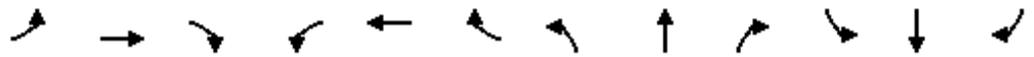
Intersection Summary

Average Delay	15.6
Intersection Capacity Utilization	60.9%
ICU Level of Service	B
Analysis Period (min)	15

HCM Signalized Intersection Capacity Analysis
 18: Combie Road & Magnolia Road & Hacienda Drive

Existing + Bkgrd + Proj PM Peak Hour

3/1/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	692	284	92	455	51	180	17	139	58	22	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	0.98			1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.96	1.00		0.98	
Satd. Flow (prot)	1752	1881	1583	1787	1838			1801	1583		1701	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.96	1.00		0.98	
Satd. Flow (perm)	1752	1881	1583	1787	1838			1801	1583		1701	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	84	778	319	103	511	57	202	19	156	65	25	97
RTOR Reduction (vph)	0	0	153	0	4	0	0	0	131	0	40	0
Lane Group Flow (vph)	84	778	166	103	564	0	0	221	25	0	147	0
Heavy Vehicles (%)	3%	1%	2%	1%	2%	0%	1%	0%	2%	0%	0%	4%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4						2			
Actuated Green, G (s)	6.6	42.1	42.1	6.8	42.3			15.1	15.1		12.5	
Effective Green, g (s)	6.6	42.1	42.1	6.8	42.3			15.1	15.1		12.5	
Actuated g/C Ratio	0.07	0.46	0.46	0.07	0.46			0.16	0.16		0.14	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	125	856	720	131	840			294	258		229	
v/s Ratio Prot	0.05	c0.41		c0.06	0.31			c0.12			c0.09	
v/s Ratio Perm			0.11						0.02			
v/c Ratio	0.67	0.91	0.23	0.79	0.67			0.75	0.10		0.64	
Uniform Delay, d1	41.9	23.4	15.3	42.1	19.7			36.9	32.9		37.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	13.3	13.3	0.2	26.0	2.1			10.3	0.2		6.1	
Delay (s)	55.2	36.7	15.5	68.1	21.8			47.3	33.1		43.9	
Level of Service	E	D	B	E	C			D	C		D	
Approach Delay (s)		32.3			28.9			41.4			43.9	
Approach LOS		C			C			D			D	

Intersection Summary

HCM 2000 Control Delay	33.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	92.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 19: SR-49 & Woodridge Drive

Existing + Bkgrd + Proj PM Peak Hour

3/1/2013



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗	↖	↕
Volume (veh/h)	0	187	1665	139	35	1031
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Hourly flow rate (vph)	0	189	1682	140	35	1041
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			None
Median storage (veh)			2			
Upstream signal (ft)						1119
pX, platoon unblocked	0.90					
vC, conflicting volume	2273	841			1822	
vC1, stage 1 conf vol	1682					
vC2, stage 2 conf vol	591					
vCu, unblocked vol	2191	841			1822	
tC, single (s)	6.8	*6.5			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	45			90	
cM capacity (veh/h)	132	343			341	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	189	841	841	140	35	521	521
Volume Left	0	0	0	0	35	0	0
Volume Right	189	0	0	140	0	0	0
cSH	343	1700	1700	1700	341	1700	1700
Volume to Capacity	0.55	0.49	0.49	0.08	0.10	0.31	0.31
Queue Length 95th (ft)	79	0	0	0	9	0	0
Control Delay (s)	27.7	0.0	0.0	0.0	16.8	0.0	0.0
Lane LOS	D				C		
Approach Delay (s)	27.7	0.0			0.6		
Approach LOS	D						

Intersection Summary			
Average Delay		1.9	
Intersection Capacity Utilization		64.3%	ICU Level of Service C
Analysis Period (min)		15	

* User Entered Value

HCM Unsignalized Intersection Capacity Analysis
 20: Brunswick Road & Dwy Sites 7,8

Ex + Bkg + Proj PM Peak Hour
 1/9/2013



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	18	53	763	36	106	971
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	58	829	39	115	1055
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2135	849			868	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2135	849			868	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	58	84			85	
cM capacity (veh/h)	46	361			776	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	20	58	868	115	1055
Volume Left	20	0	0	115	0
Volume Right	0	58	39	0	0
cSH	46	361	1700	776	1700
Volume to Capacity	0.42	0.16	0.51	0.15	0.62
Queue Length 95th (ft)	38	14	0	13	0
Control Delay (s)	131.6	16.9	0.0	10.4	0.0
Lane LOS	F	C		B	
Approach Delay (s)	45.9		0.0	1.0	
Approach LOS	E				

Intersection Summary					
Average Delay			2.2		
Intersection Capacity Utilization			61.5%	ICU Level of Service	B
Analysis Period (min)			15		

HCM Unsignalized Intersection Capacity Analysis
 21: Brunswick Road & Dwy Sites 3-6 and 9

Ex + Bkg + Proj PM Peak Hour
 1/9/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	106	35	72	799	774	215
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	115	38	78	868	841	234
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1983	958	1075			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1983	958	1075			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	88	88			
cM capacity (veh/h)	59	312	649			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	115	38	78	868	1075	
Volume Left	115	0	78	0	0	
Volume Right	0	38	0	0	234	
cSH	59	312	649	1700	1700	
Volume to Capacity	1.94	0.12	0.12	0.51	0.63	
Queue Length 95th (ft)	273	10	10	0	0	
Control Delay (s)	591.0	18.1	11.3	0.0	0.0	
Lane LOS	F	C	B			
Approach Delay (s)	448.8		0.9		0.0	
Approach LOS	F					
Intersection Summary						
Average Delay			32.0			
Intersection Capacity Utilization			72.4%		ICU Level of Service	C
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 22: Dwy Site 2

Ex + Bkg + Proj PM Peak Hour
 1/9/2013



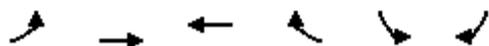
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	4	39	346	4	79	597
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	42	376	4	86	649
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1199	378			380	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1199	378			380	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	94			93	
cM capacity (veh/h)	190	668			1178	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	4	42	380	86	649
Volume Left	4	0	0	86	0
Volume Right	0	42	4	0	0
cSH	190	668	1700	1178	1700
Volume to Capacity	0.02	0.06	0.22	0.07	0.38
Queue Length 95th (ft)	2	5	0	6	0
Control Delay (s)	24.4	10.7	0.0	8.3	0.0
Lane LOS	C	B		A	
Approach Delay (s)	12.0		0.0	1.0	
Approach LOS	B				

Intersection Summary					
Average Delay			1.1		
Intersection Capacity Utilization			41.4%	ICU Level of Service	A
Analysis Period (min)			15		

HCM Unsignalized Intersection Capacity Analysis
 23: Penn Valley & Site 10,11,12 Dway

Ext + Bkgrd + Proj PM Peak Hour
 1/9/2013



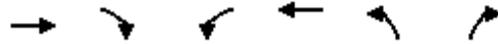
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↔		↕	↕
Volume (veh/h)	47	168	234	115	57	23
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	51	183	254	125	62	25
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						1
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	379				602	317
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	379				602	317
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				86	97
cM capacity (veh/h)	1179				443	724

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	234	379	87
Volume Left	51	0	62
Volume Right	0	125	25
cSH	1179	1700	622
Volume to Capacity	0.04	0.22	0.14
Queue Length 95th (ft)	3	0	12
Control Delay (s)	2.1	0.0	13.2
Lane LOS	A		B
Approach Delay (s)	2.1	0.0	13.2
Approach LOS			B

Intersection Summary			
Average Delay		2.3	
Intersection Capacity Utilization		44.1%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 24: Broken Oak & Penn Valley

Ext + Bkgrd + Proj PM Peak Hour
 1/9/2013



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↻			↻	↻	↻
Volume (veh/h)	187	18	21	175	9	34
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	208	20	23	194	10	38
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						1
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			228		459	218
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			228		459	218
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		98	95
cM capacity (veh/h)			1340		550	822

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	228	218	48
Volume Left	0	23	10
Volume Right	20	0	38
cSH	1700	1340	1040
Volume to Capacity	0.13	0.02	0.05
Queue Length 95th (ft)	0	1	4
Control Delay (s)	0.0	1.0	10.0
Lane LOS		A	B
Approach Delay (s)	0.0	1.0	10.0
Approach LOS			B

Intersection Summary			
Average Delay		1.4	
Intersection Capacity Utilization		34.6%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 26: Combie Road & Dwy Site 18

Existing + Bkgrd + Proj PM Peak Hour
 1/16/2013



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	59	52	28	3	2	28
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	64	57	30	3	2	30
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	34				217	32
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	34				217	32
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				100	97
cM capacity (veh/h)	1578				740	1042

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	64	57	34	33
Volume Left	64	0	0	2
Volume Right	0	0	3	30
cSH	1578	1700	1700	1014
Volume to Capacity	0.04	0.03	0.02	0.03
Queue Length 95th (ft)	3	0	0	2
Control Delay (s)	7.4	0.0	0.0	8.7
Lane LOS	A			A
Approach Delay (s)	3.9		0.0	8.7
Approach LOS				A

Intersection Summary			
Average Delay		4.0	
Intersection Capacity Utilization		19.9%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
28: Higgins Road & Combie Road

Existing + Bkgrd + Proj PM Peak Hour

3/1/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↕↕		↔		↔		↕	
Volume (veh/h)	0	869	218	258	562	0	257	0	253	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	945	237	280	611	0	279	0	275	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		755										
pX, platoon unblocked				0.95			0.95	0.95	0.95	0.95	0.95	0.95
vC, conflicting volume	611			945			1929	2235	1063	2510	2116	305
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	611			916			1951	2272	1041	2561	2148	305
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			60			0	100	0	0	100	100
cM capacity (veh/h)	964			704			25	23	216	0	27	691

Direction, Lane #	EB 1	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1
Volume Total	1182	280	407	204	279	275	0
Volume Left	0	280	0	0	279	0	0
Volume Right	237	0	0	0	0	275	0
cSH	1700	704	1700	1700	25	216	1700
Volume to Capacity	0.70	0.40	0.24	0.12	11.06	1.27	0.00
Queue Length 95th (ft)	0	48	0	0	Err	363	0
Control Delay (s)	0.0	13.5	0.0	0.0	Err	199.0	0.0
Lane LOS		B			F	F	A
Approach Delay (s)	0.0	4.2			5137.4		0.0
Approach LOS					F		A

Intersection Summary

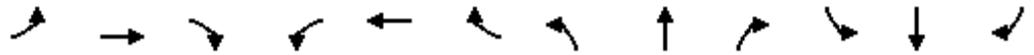
Average Delay		1085.5					
Intersection Capacity Utilization		97.5%		ICU Level of Service		F	
Analysis Period (min)		15					

APPENDIX F

Intersection Level of Service Calculations: Cumulative with Current General Plan Land Use Designations Conditions

HCM Signalized Intersection Capacity Analysis
 1: Nevada City Highway & Brunswick Road

Cumulative PM Peak Hour
 1/9/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↙	↘	↗	↖	↑	↗	↖	↘	↙
Volume (vph)	10	34	13	338	24	802	12	332	263	838	291	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		1.00		0.95	0.95	1.00	1.00	1.00	1.00	0.97	1.00	
Frbp, ped/bikes		1.00		1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1770		1698	1704	1596	1805	1881	1556	3433	1861	
Flt Permitted		0.99		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1770		1698	1704	1596	1805	1881	1556	3433	1861	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	11	37	14	363	26	862	13	357	283	901	313	2
RTOR Reduction (vph)	0	12	0	0	0	319	0	0	154	0	0	0
Lane Group Flow (vph)	0	50	0	192	197	543	13	357	129	901	315	0
Confl. Peds. (#/hr)	3					3	11		3	3		11
Heavy Vehicles (%)	0%	0%	14%	1%	5%	0%	0%	1%	2%	2%	2%	0%
Turn Type	Split	NA		Split	NA	pm+ov	Split	NA	Perm	Split	NA	
Protected Phases	6	6		8	8	4	2	2		4	4	
Permitted Phases						8			2			
Actuated Green, G (s)		16.0		14.1	14.1	34.1	23.9	23.9	23.9	20.0	20.0	
Effective Green, g (s)		16.0		14.1	14.1	34.1	23.9	23.9	23.9	20.0	20.0	
Actuated g/C Ratio		0.18		0.16	0.16	0.38	0.27	0.27	0.27	0.22	0.22	
Clearance Time (s)		4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		314		266	266	675	479	499	413	762	413	
v/s Ratio Prot		c0.03		0.11	0.12	c0.18	0.01	c0.19		c0.26	0.17	
v/s Ratio Perm						0.16			0.08			
v/c Ratio		0.16		0.72	0.74	0.80	0.03	0.72	0.31	1.18	0.76	
Uniform Delay, d1		31.3		36.1	36.2	25.0	24.4	30.0	26.5	35.0	32.8	
Progression Factor		1.00		0.72	0.72	0.71	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		1.1		8.3	9.5	6.2	0.1	8.5	2.0	95.3	8.1	
Delay (s)		32.4		34.2	35.4	23.9	24.6	38.5	28.4	130.3	40.9	
Level of Service		C		C	D	C	C	D	C	F	D	
Approach Delay (s)		32.4			27.3			33.8			107.1	
Approach LOS		C			C			C			F	

Intersection Summary

HCM 2000 Control Delay	59.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	80.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

2: Maltman Drive/SR 20-49 SB Ramps & Brunswick Road

Cumulative PM Peak Hour

1/9/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑↑		↖		↖	↖↖	↑	↖
Volume (vph)	0	1072	50	191	894	0	54	0	338	274	50	224
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	4.0
Lane Util. Factor		0.95		1.00	0.95		1.00		1.00	0.97	1.00	1.00
Frbp, ped/bikes		1.00		1.00	1.00		1.00		0.99	1.00	1.00	1.00
Flpb, ped/bikes		1.00		1.00	1.00		1.00		1.00	1.00	1.00	1.00
Frt		0.99		1.00	1.00		1.00		0.85	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95		1.00	0.95	1.00	1.00
Satd. Flow (prot)		3525		1770	3610		1805		1601	3400	1881	1599
Flt Permitted		1.00		0.95	1.00		0.95		1.00	0.95	1.00	1.00
Satd. Flow (perm)		3525		1770	3610		1805		1601	3400	1881	1599
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1165	54	208	972	0	59	0	367	298	54	243
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	46	0	0	174
Lane Group Flow (vph)	0	1215	0	208	972	0	59	0	321	298	54	69
Confl. Peds. (#/hr)			9						9			
Heavy Vehicles (%)	0%	1%	13%	2%	0%	0%	0%	0%	0%	3%	1%	1%
Turn Type		NA		Prot	NA		Prot		custom	Split	NA	Perm
Protected Phases		4		3	8		2		3	6	6	
Permitted Phases									2			6
Actuated Green, G (s)		26.0		15.2	45.2		7.2		22.4	25.6	25.6	25.6
Effective Green, g (s)		26.0		15.2	45.2		7.2		22.4	25.6	25.6	25.6
Actuated g/C Ratio		0.29		0.17	0.50		0.08		0.25	0.28	0.28	0.28
Clearance Time (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		1018		298	1813		144		469	967	535	454
v/s Ratio Prot		c0.34		0.12	0.27		0.03		c0.12	c0.09	0.03	
v/s Ratio Perm									0.09			0.04
v/c Ratio		1.19		0.70	0.54		0.41		0.68	0.31	0.10	0.15
Uniform Delay, d1		32.0		35.2	15.3		39.4		30.6	25.3	23.7	24.1
Progression Factor		0.31		0.79	0.65		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		89.8		11.7	0.3		1.9		4.1	0.8	0.4	0.7
Delay (s)		99.6		39.7	10.2		41.3		34.7	26.1	24.1	24.8
Level of Service		F		D	B		D		C	C	C	C
Approach Delay (s)		99.6			15.4			35.6			25.4	
Approach LOS		F			B			D			C	

Intersection Summary

HCM 2000 Control Delay	49.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
3: SR 20-49 NB Ramps & Brunswick Road

Cumulative PM Peak Hour
1/9/2013



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑↑	↘	↗
Volume (vph)	849	0	0	1880	377	817
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	0.95			0.91	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3574			5136	1805	1553
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3574			5136	1805	1553
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	884	0	0	1958	393	851
RTOR Reduction (vph)	0	0	0	0	0	49
Lane Group Flow (vph)	884	0	0	1958	393	802
Heavy Vehicles (%)	1%	0%	0%	1%	0%	4%
Turn Type	NA			NA	NA	Perm
Protected Phases	4			8	2	
Permitted Phases						2
Actuated Green, G (s)	42.0			42.0	40.0	40.0
Effective Green, g (s)	42.0			42.0	40.0	40.0
Actuated g/C Ratio	0.47			0.47	0.44	0.44
Clearance Time (s)	4.0			4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	1667			2396	802	690
v/s Ratio Prot	0.25			c0.38	0.22	
v/s Ratio Perm						c0.52
v/c Ratio	0.53			0.82	0.49	1.16
Uniform Delay, d1	17.0			20.7	17.8	25.0
Progression Factor	0.75			1.00	1.00	1.00
Incremental Delay, d2	0.3			3.2	2.1	88.5
Delay (s)	13.0			23.9	19.9	113.5
Level of Service	B			C	B	F
Approach Delay (s)	13.0			23.9	83.9	
Approach LOS	B			C	F	

Intersection Summary

HCM 2000 Control Delay	39.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

4: Sutton Way & Brunswick Road

Cumulative PM Peak Hour
1/9/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 		 				 	
Volume (vph)	246	879	541	228	966	29	568	75	195	108	69	346
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		0.97	1.00		1.00	1.00	1.00
Frbp, ped/bikes	1.00	1.00	0.91	1.00	1.00		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.89		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3467	3471	1464	1787	3491		3467	1661		1787	1881	1530
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3467	3471	1464	1787	3491		3467	1661		1787	1881	1530
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	251	897	552	233	986	30	580	77	199	110	70	353
RTOR Reduction (vph)	0	0	393	0	3	0	0	119	0	0	0	60
Lane Group Flow (vph)	251	897	159	233	1013	0	580	157	0	110	70	293
Confl. Peds. (#/hr)	1		32	32		1	36					36
Heavy Vehicles (%)	1%	4%	0%	1%	3%	0%	1%	2%	2%	1%	1%	2%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4									6
Actuated Green, G (s)	6.2	20.0	20.0	10.0	23.8		21.6	21.3		7.7	7.4	13.6
Effective Green, g (s)	6.2	20.0	20.0	10.0	23.8		21.6	21.3		7.7	7.4	13.6
Actuated g/C Ratio	0.08	0.27	0.27	0.13	0.32		0.29	0.28		0.10	0.10	0.18
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	286	925	390	238	1107		998	471		183	185	359
v/s Ratio Prot	0.07	0.26		c0.13	c0.29		c0.17	0.09		0.06	0.04	c0.07
v/s Ratio Perm			0.11									0.12
v/c Ratio	0.88	0.97	0.41	0.98	0.92		0.58	0.33		0.60	0.38	0.82
Uniform Delay, d1	34.0	27.2	22.6	32.4	24.6		22.8	21.2		32.2	31.6	29.5
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	24.7	22.2	0.7	51.8	11.5		0.9	1.9		5.5	5.8	13.4
Delay (s)	58.7	49.4	23.3	84.2	36.2		23.7	23.1		37.6	37.4	42.9
Level of Service	E	D	C	F	D		C	C		D	D	D
Approach Delay (s)		42.3			45.1			23.5			41.1	
Approach LOS		D			D			C			D	
Intersection Summary												
HCM 2000 Control Delay			39.3			HCM 2000 Level of Service		D				
HCM 2000 Volume to Capacity ratio			0.85									
Actuated Cycle Length (s)			75.0			Sum of lost time (s)		16.0				
Intersection Capacity Utilization			79.8%			ICU Level of Service		D				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
5: Brunswick Road & Idaho-Maryland Road

Cumulative PM Peak Hour
1/9/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	240	192	0	294	184	796	110	192	622	93
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	261	209	0	320	200	865	120	209	676	101
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						1						
Median type								TWLTL			None	
Median storage (veh)								2				
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2359	2478	676	2679	2520	925	777			985		
vC1, stage 1 conf vol	1093	1093		1325	1325							
vC2, stage 2 conf vol	1265	1385		1354	1195							
vCu, unblocked vol	2359	2478	676	2679	2520	925	777			985		
tC, single (s)	7.1	6.5	6.2	7.2	6.8	6.3	4.1			4.2		
tC, 2 stage (s)	6.1	5.5		6.2	5.8							
tF (s)	3.5	4.0	3.3	3.6	4.3	3.4	2.2			2.3		
p0 queue free %	0	100	42	0	100	0	76			68		
cM capacity (veh/h)	0	16	450	3	12	314	839			656		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3					
Volume Total	261	528	200	985	209	676	101					
Volume Left	0	209	200	0	209	0	0					
Volume Right	261	320	0	120	0	0	101					
cSH	450	8	839	1700	656	1700	1700					
Volume to Capacity	0.58	62.31	0.24	0.58	0.32	0.40	0.06					
Queue Length 95th (ft)	90	Err	23	0	34	0	0					
Control Delay (s)	23.5	Err	10.6	0.0	13.0	0.0	0.0					
Lane LOS	C	F	B		B							
Approach Delay (s)	23.5	Err	1.8		2.8							
Approach LOS	C	F										
Intersection Summary												
Average Delay			1788.3									
Intersection Capacity Utilization			79.8%	ICU Level of Service	D							
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
6: McCourtney Road & Personeni Road

Cumulative PM Peak Hour
1/9/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	27	22	20	378	623	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	30	24	22	415	685	7
Pedestrians				1		
Lane Width (ft)				12.0		
Walking Speed (ft/s)				4.0		
Percent Blockage				0		
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1147	689	691			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1147	689	691			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	86	95	98			
cM capacity (veh/h)	217	449	913			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	54	437	691			
Volume Left	30	22	0			
Volume Right	24	0	7			
cSH	393	913	1700			
Volume to Capacity	0.14	0.02	0.41			
Queue Length 95th (ft)	12	2	0			
Control Delay (s)	19.4	0.7	0.0			
Lane LOS	C	A				
Approach Delay (s)	19.4	0.7	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			1.2			
Intersection Capacity Utilization			46.5%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
7: Taylorville Road & McKnight Way

Cumulative PM Peak Hour
1/9/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↗				↗			↖
Volume (veh/h)	0	984	40	30	676	301	0	0	40	0	0	19
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1070	43	33	735	327	0	0	43	0	0	21
Pedestrians								3				
Lane Width (ft)								12.0				
Walking Speed (ft/s)								4.0				
Percent Blockage								0				
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					172							
pX, platoon unblocked	0.74						0.74	0.74		0.74	0.74	0.74
vC, conflicting volume	1062			1116			1915	2221	381	1364	2080	898
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	910			1116			2059	2472	381	1316	2281	689
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			95			100	100	93	100	100	93
cM capacity (veh/h)	562			632			22	21	621	78	28	291

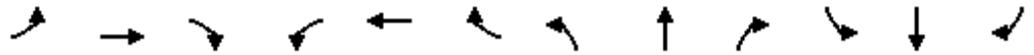
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	428	428	257	33	1062	43	21
Volume Left	0	0	0	33	0	0	0
Volume Right	0	0	43	0	327	43	21
cSH	1700	1700	1700	632	1700	621	291
Volume to Capacity	0.25	0.25	0.15	0.05	0.62	0.07	0.07
Queue Length 95th (ft)	0	0	0	4	0	6	6
Control Delay (s)	0.0	0.0	0.0	11.0	0.0	11.2	18.3
Lane LOS				B		B	C
Approach Delay (s)	0.0			0.3		11.2	18.3
Approach LOS						B	C

Intersection Summary

Average Delay	0.5
Intersection Capacity Utilization	63.9%
ICU Level of Service	B
Analysis Period (min)	15

HCM Signalized Intersection Capacity Analysis
8: 49 SB Off-Ramp & McKnight Way

Cumulative PM Peak Hour
1/9/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑						↑	↑
Volume (vph)	0	632	397	100	550	0	0	0	0	575	0	457
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5	3.5	3.0	3.5						4.6	4.6
Lane Util. Factor		0.95	1.00	1.00	1.00						1.00	1.00
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (prot)		3610	1615	1787	1900						1770	1615
Flt Permitted		1.00	1.00	0.95	1.00						0.95	1.00
Satd. Flow (perm)		3610	1615	1787	1900						1770	1615
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.94	0.94
Adj. Flow (vph)	0	672	422	106	585	0	0	0	0	625	0	486
RTOR Reduction (vph)	0	0	329	0	0	0	0	0	0	0	0	116
Lane Group Flow (vph)	0	672	93	106	585	0	0	0	0	0	625	370
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%	2%	2%	2%	2%	3%	0%
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		2		1	2						4	12
Permitted Phases			2							4	12	4
Actuated Green, G (s)		17.7	17.7	17.1	37.8						34.7	34.7
Effective Green, g (s)		17.7	17.7	17.1	34.8						34.7	34.7
Actuated g/C Ratio		0.22	0.22	0.21	0.43						0.43	0.43
Clearance Time (s)		3.5	3.5	3.0								
Vehicle Extension (s)		3.0	3.0	4.7								
Lane Grp Cap (vph)		798	357	381	826						767	700
v/s Ratio Prot		c0.19		0.06	c0.31							
v/s Ratio Perm			0.06								0.35	0.23
v/c Ratio		0.84	0.26	0.28	0.71						0.81	0.53
Uniform Delay, d1		29.8	25.7	26.3	18.5						19.8	16.6
Progression Factor		1.00	1.00	1.78	1.30						1.00	1.00
Incremental Delay, d2		10.5	1.8	0.6	2.5						6.7	0.7
Delay (s)		40.3	27.5	47.4	26.5						26.5	17.4
Level of Service		D	C	D	C						C	B
Approach Delay (s)		35.4			29.7			0.0			22.5	
Approach LOS		D			C			A			C	

Intersection Summary

HCM 2000 Control Delay	29.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.6
Intersection Capacity Utilization	103.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 9: 49 NB Off-Ramp/49 NB On-Ramp & McKnight Way

Cumulative PM Peak Hour
 1/9/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑			↑↑	↗		↖	↗			
Volume (vph)	279	923	0	0	513	480	137	0	140	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0			4.0	4.0		4.6	4.6			
Lane Util. Factor	1.00	1.00			0.95	1.00		1.00	1.00			
Frbp, ped/bikes	1.00	1.00			1.00	1.00		1.00	1.00			
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00	1.00			
Frt	1.00	1.00			1.00	0.85		1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00		0.95	1.00			
Satd. Flow (prot)	1787	1863			3574	1568		1787	1538			
Flt Permitted	0.95	1.00			1.00	1.00		0.95	1.00			
Satd. Flow (perm)	1787	1863			3574	1568		1787	1538			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	303	1003	0	0	558	522	149	0	152	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	418	0	0	33	0	0	0
Lane Group Flow (vph)	303	1003	0	0	558	104	0	149	119	0	0	0
Confl. Peds. (#/hr)			3	3								
Heavy Vehicles (%)	1%	2%	0%	0%	1%	3%	1%	0%	5%	2%	2%	2%
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	5	5 6			6			8 16				
Permitted Phases						6	8 16		8 16			
Actuated Green, G (s)	18.3	37.3			16.0	16.0		34.7	34.7			
Effective Green, g (s)	18.3	37.3			16.0	16.0		34.7	34.7			
Actuated g/C Ratio	0.23	0.47			0.20	0.20		0.43	0.43			
Clearance Time (s)	3.0				4.0	4.0						
Vehicle Extension (s)	4.7				3.0	3.0						
Lane Grp Cap (vph)	408	868			714	313		775	667			
v/s Ratio Prot	0.17	c0.54			0.16							
v/s Ratio Perm						0.07		0.08	0.08			
v/c Ratio	0.74	1.16			0.78	0.33		0.19	0.18			
Uniform Delay, d1	28.7	21.4			30.3	27.4		14.0	13.9			
Progression Factor	1.39	1.19			1.00	1.00		1.00	1.00			
Incremental Delay, d2	4.7	77.7			5.6	0.6		0.1	0.1			
Delay (s)	44.6	103.2			35.9	28.1		14.1	14.0			
Level of Service	D	F			D	C		B	B			
Approach Delay (s)		89.6			32.1			14.1			0.0	
Approach LOS		F			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	58.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.6
Intersection Capacity Utilization	101.5%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 10: La Barr Meadows Road/S Auburn Street & McKnight Way

Cumulative PM Peak Hour
 1/9/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Yield			Stop			Stop			Stop	
Volume (vph)	240	80	743	27	60	17	720	290	10	20	220	213
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	255	85	790	29	64	18	766	309	11	21	234	227
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2					
Volume Total (vph)	340	790	111	766	319	255	227					
Volume Left (vph)	255	0	29	766	0	21	0					
Volume Right (vph)	0	790	18	0	11	0	227					
Hadj (s)	0.40	-0.63	0.02	0.53	0.04	0.15	-0.68					
Departure Headway (s)	8.6	7.6	9.4	8.8	8.3	9.0	8.1					
Degree Utilization, x	0.82	1.67	0.29	1.87	0.74	0.64	0.51					
Capacity (veh/h)	409	478	376	415	425	389	426					
Control Delay (s)	38.8	328.2	16.1	420.2	30.0	25.1	18.2					
Approach Delay (s)	241.1		16.1	305.4		21.8						
Approach LOS	F		C	F		C						
Intersection Summary												
Delay			219.5									
Level of Service			F									
Intersection Capacity Utilization			86.8%	ICU Level of Service								E
Analysis Period (min)			15									

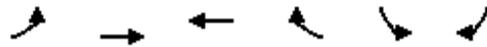
HCM Signalized Intersection Capacity Analysis
 11: Pleasant Valley Road & SR-20

Cumulative PM Peak Hour
 1/9/2013

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	112	330	52	25	305	411	45	170	25	246	140	77	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1805	1810	1583	1805	1810	1599	1752	1881	1615	1736	1863	1563	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1805	1810	1583	1805	1810	1599	1752	1881	1615	1736	1863	1563	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Adj. Flow (vph)	120	355	56	27	328	442	48	183	27	265	151	83	
RTOR Reduction (vph)	0	0	36	0	0	320	0	0	22	0	0	52	
Lane Group Flow (vph)	120	355	20	27	328	122	48	183	5	265	151	31	
Confl. Peds. (#/hr)							1					1	
Heavy Vehicles (%)	0%	5%	2%	0%	5%	1%	3%	1%	0%	4%	2%	1%	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases			4			8			2			6	
Actuated Green, G (s)	7.7	26.8	26.8	1.6	20.7	20.7	3.0	15.1	15.1	15.8	27.9	27.9	
Effective Green, g (s)	7.7	26.8	26.8	1.6	20.7	20.7	3.0	15.1	15.1	15.8	27.9	27.9	
Actuated g/C Ratio	0.10	0.36	0.36	0.02	0.27	0.27	0.04	0.20	0.20	0.21	0.37	0.37	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	184	644	563	38	497	439	69	377	323	364	690	579	
v/s Ratio Prot	c0.07	0.20		0.01	c0.18		0.03	c0.10		c0.15	0.08		
v/s Ratio Perm			0.01			0.08			0.00			0.02	
v/c Ratio	0.65	0.55	0.04	0.71	0.66	0.28	0.70	0.49	0.02	0.73	0.22	0.05	
Uniform Delay, d1	32.5	19.4	15.8	36.6	24.2	21.4	35.7	26.7	24.1	27.7	16.2	15.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	8.0	1.0	0.0	47.3	3.2	0.3	26.2	1.0	0.0	7.1	0.2	0.0	
Delay (s)	40.5	20.5	15.8	83.9	27.4	21.8	61.9	27.6	24.2	34.9	16.4	15.3	
Level of Service	D	C	B	F	C	C	E	C	C	C	B	B	
Approach Delay (s)		24.5			26.2			33.7			26.0		
Approach LOS		C			C			C			C		
Intersection Summary													
HCM 2000 Control Delay			26.6									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.63										
Actuated Cycle Length (s)			75.3									Sum of lost time (s)	16.0
Intersection Capacity Utilization			58.2%									ICU Level of Service	B
Analysis Period (min)			15										
c Critical Lane Group													

HCM Unsignalized Intersection Capacity Analysis
 12: SR-20 & Cattle Drive

Cumulative PM Peak Hour
 1/9/2013



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑	↗		↙	↘
Volume (veh/h)	6	601	721	25	43	20
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	6	620	743	26	44	21
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	769				1388	756
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	769				1388	756
tC, single (s)	4.3				6.4	6.3
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.4
p0 queue free %	99				71	95
cM capacity (veh/h)	786				155	398

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	6	620	769	65
Volume Left	6	0	0	44
Volume Right	0	0	26	21
cSH	786	1700	1700	193
Volume to Capacity	0.01	0.36	0.45	0.34
Queue Length 95th (ft)	1	0	0	35
Control Delay (s)	9.6	0.0	0.0	32.9
Lane LOS	A			D
Approach Delay (s)	0.1		0.0	32.9
Approach LOS				D

Intersection Summary			
Average Delay		1.5	
Intersection Capacity Utilization		49.7%	ICU Level of Service A
Analysis Period (min)		15	

HCM Signalized Intersection Capacity Analysis
 13: Penn Valley Drive & SR-20

Cumulative PM Peak Hour
 1/9/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	72	519	53	268	608	42	66	102	139	50	72	75
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.8	4.0	3.0	6.8	4.0	3.0	4.8	3.0	3.0	4.8	4.8
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1805	3438	1583	1770	3539	1615	1752	1792	1583	1805	1845	1509
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1805	3438	1583	1770	3539	1615	1752	1792	1583	1805	1845	1509
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	76	546	56	282	640	44	69	107	146	53	76	79
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	98	0	0	69
Lane Group Flow (vph)	76	546	56	282	640	44	69	107	48	53	76	10
Heavy Vehicles (%)	0%	5%	2%	2%	2%	0%	3%	6%	2%	0%	3%	7%
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	NA	custom	Prot	NA	custom
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			Free			Free			8			4
Actuated Green, G (s)	3.1	15.8	53.5	10.6	23.3	53.5	2.6	6.9	17.5	2.6	6.9	6.9
Effective Green, g (s)	3.1	15.8	53.5	10.6	23.3	53.5	2.6	6.9	17.5	2.6	6.9	6.9
Actuated g/C Ratio	0.06	0.30	1.00	0.20	0.44	1.00	0.05	0.13	0.33	0.05	0.13	0.13
Clearance Time (s)	3.0	6.8		3.0	6.8		3.0	4.8	3.0	3.0	4.8	4.8
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	104	1015	1583	350	1541	1615	85	231	517	87	237	194
v/s Ratio Prot	0.04	c0.16		c0.16	0.18		c0.04	c0.06	0.02	0.03	0.04	
v/s Ratio Perm			0.04			0.03			0.01			0.01
v/c Ratio	0.73	0.54	0.04	0.81	0.42	0.03	0.81	0.46	0.09	0.61	0.32	0.05
Uniform Delay, d1	24.8	15.8	0.0	20.5	10.4	0.0	25.2	21.6	12.5	25.0	21.2	20.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	23.0	0.6	0.0	12.7	0.2	0.0	42.4	1.5	0.1	11.5	0.8	0.1
Delay (s)	47.8	16.3	0.0	33.1	10.6	0.0	67.6	23.1	12.6	36.5	22.0	20.5
Level of Service	D	B	A	C	B	A	E	C	B	D	C	C
Approach Delay (s)		18.5			16.7			27.8			25.1	
Approach LOS		B			B			C			C	

Intersection Summary		
HCM 2000 Control Delay	19.7	HCM 2000 Level of Service B
HCM 2000 Volume to Capacity ratio	0.62	
Actuated Cycle Length (s)	53.5	Sum of lost time (s) 17.6
Intersection Capacity Utilization	52.5%	ICU Level of Service A
Analysis Period (min)	15	

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 14: Spenceville Road & Penn Valley Drive

Cumulative PM Peak Hour
 1/9/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	124	81	84	154	178	186
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	138	90	93	171	198	207
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	228	264	404			
Volume Left (vph)	138	93	0			
Volume Right (vph)	90	0	207			
Hadj (s)	-0.11	0.09	-0.29			
Departure Headway (s)	5.4	5.2	4.6			
Degree Utilization, x	0.34	0.38	0.52			
Capacity (veh/h)	612	664	745			
Control Delay (s)	11.2	11.3	12.6			
Approach Delay (s)	11.2	11.3	12.6			
Approach LOS	B	B	B			
Intersection Summary						
Delay			11.8			
Level of Service			B			
Intersection Capacity Utilization			56.2%	ICU Level of Service		B
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 15: SR-49 & Cameo Drive

Cumulative PM Peak Hour
 3/1/2013

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	11	8	1571	15	10	1232
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	9	1708	16	11	1339
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			None
Median storage (veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	3068	854			1724	
vC1, stage 1 conf vol	1708					
vC2, stage 2 conf vol	1361					
vCu, unblocked vol	3068	854			1724	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	89	97			97	
cM capacity (veh/h)	104	302			363	
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	21	854	854	16	11	1339
Volume Left	12	0	0	0	11	0
Volume Right	9	0	0	16	0	0
cSH	144	1700	1700	1700	363	1700
Volume to Capacity	0.14	0.50	0.50	0.01	0.03	0.79
Queue Length 95th (ft)	12	0	0	0	2	0
Control Delay (s)	34.2	0.0	0.0	0.0	15.2	0.0
Lane LOS	D				C	
Approach Delay (s)	34.2	0.0			0.1	
Approach LOS	D					
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			74.8%		ICU Level of Service	D
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis
 16: SR-49 & Wolf Road/Combie Road

Cumulative PM Peak Hour
 3/1/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	42	175	103	415	158	313	210	1231	704	435	755	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	6.0	3.5	3.5	6.0	3.5
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1703	1881	1553	3433	1845	1568	1770	3505	1599	1752	3471	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1703	1881	1553	3433	1845	1568	1770	3505	1599	1752	3471	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	46	190	112	451	172	340	228	1338	765	473	821	58
RTOR Reduction (vph)	0	0	93	0	0	199	0	0	102	0	0	38
Lane Group Flow (vph)	46	190	19	451	172	141	228	1338	663	473	821	20
Heavy Vehicles (%)	6%	1%	4%	2%	3%	3%	2%	3%	1%	3%	4%	4%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	3.5	13.7	13.7	15.3	25.5	25.5	10.5	26.6	41.9	8.5	24.6	28.1
Effective Green, g (s)	3.5	13.7	13.7	15.3	25.5	25.5	10.5	26.6	41.9	8.5	24.6	28.1
Actuated g/C Ratio	0.04	0.17	0.17	0.19	0.32	0.32	0.13	0.33	0.52	0.11	0.31	0.35
Clearance Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	6.0	3.5	3.5	6.0	3.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	73	319	263	651	583	496	230	1156	831	184	1059	541
v/s Ratio Prot	0.03	c0.10		0.13	0.09		0.13	c0.38	c0.15	c0.27	0.24	0.00
v/s Ratio Perm			0.01			0.09			0.26			0.01
v/c Ratio	0.63	0.60	0.07	0.69	0.30	0.28	0.99	1.16	0.80	2.57	0.78	0.04
Uniform Delay, d1	37.9	30.9	28.1	30.5	20.8	20.7	35.0	27.0	15.9	36.0	25.5	17.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	16.4	3.0	0.1	3.2	0.3	0.3	56.7	80.9	5.4	722.5	5.6	0.0
Delay (s)	54.3	33.9	28.2	33.7	21.1	21.0	91.7	107.9	21.3	758.5	31.0	17.4
Level of Service	D	C	C	C	C	C	F	F	C	F	C	B
Approach Delay (s)		34.8			26.9			77.9			285.0	
Approach LOS		C			C			E			F	

Intersection Summary

HCM 2000 Control Delay	121.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	80.6	Sum of lost time (s)	16.5
Intersection Capacity Utilization	94.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 17: Rosewood Rd/Armstrong Rd & Combie Road

Cumulative PM Peak Hour
 3/1/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (veh/h)	107	1041	20	10	753	69	11	0	6	91	2	102	
Sign Control		Free			Free			Stop			Stop		
Grade		0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	116	1132	22	11	818	75	12	0	7	99	2	111	
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type	None					None							
Median storage (veh)													
Upstream signal (ft)	955												
pX, platoon unblocked	0.72						0.72	0.72			0.72	0.72	0.72
vC, conflicting volume	893	1153				2327		2290	577	1683	2264	856	
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	654	1153				2654	2602	577	1755	2565	602		
tC, single (s)	4.1	4.1				7.5	6.5	6.9	7.5	6.5	6.9		
tC, 2 stage (s)													
tF (s)	2.2	2.2				3.5	4.0	3.3	3.5	4.0	3.3		
p0 queue free %	83	98				0	100	99	0	86	65		
cM capacity (veh/h)	676	613				4	15	465	34	15	321		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1	SB 2					
Volume Total	116	754	399	11	893	18	99	113					
Volume Left	116	0	0	11	0	12	99	0					
Volume Right	0	0	22	0	75	7	0	111					
cSH	676	1700	1700	613	1700	6	34	233					
Volume to Capacity	0.17	0.44	0.23	0.02	0.53	2.93	2.95	0.49					
Queue Length 95th (ft)	15	0	0	1	0	88	286	61					
Control Delay (s)	11.4	0.0	0.0	11.0	0.0	1979.0	1129.7	34.3					
Lane LOS	B			B			F	F	D				
Approach Delay (s)	1.0				0.1	1979.0	545.5						
Approach LOS						F	F						
Intersection Summary													
Average Delay			63.9										
Intersection Capacity Utilization			Err%					ICU Level of Service			H		
Analysis Period (min)	15												

HCM Signalized Intersection Capacity Analysis
 18: Combie Road & Magnolia Road & Hacienda Drive

Cumulative PM Peak Hour
 3/1/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	775	265	97	534	60	169	19	149	58	22	86
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	0.98			1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.96	1.00		0.98	
Satd. Flow (prot)	1752	1881	1583	1787	1838			1802	1583		1702	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.96	1.00		0.98	
Satd. Flow (perm)	1752	1881	1583	1787	1838			1802	1583		1702	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	842	288	105	580	65	184	21	162	63	24	93
RTOR Reduction (vph)	0	0	140	0	4	0	0	0	127	0	45	0
Lane Group Flow (vph)	82	842	148	105	641	0	0	205	35	0	135	0
Heavy Vehicles (%)	3%	1%	2%	1%	2%	0%	1%	0%	2%	0%	0%	4%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	pm+ov	Split	NA	
Protected Phases	7	4		3	8		2	2	3	6	6	
Permitted Phases			4						2			
Actuated Green, G (s)	4.7	38.2	38.2	5.0	38.5			13.4	18.4		11.4	
Effective Green, g (s)	4.7	38.2	38.2	5.0	38.5			13.4	18.4		11.4	
Actuated g/C Ratio	0.06	0.45	0.45	0.06	0.46			0.16	0.22		0.14	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	98	855	719	106	842			287	346		230	
v/s Ratio Prot	0.05	c0.45		c0.06	0.35			c0.11	0.01		c0.08	
v/s Ratio Perm			0.09						0.02			
v/c Ratio	0.84	0.98	0.21	0.99	0.76			0.71	0.10		0.59	
Uniform Delay, d1	39.3	22.6	13.8	39.5	18.9			33.5	26.2		34.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	43.2	26.8	0.1	84.2	4.1			8.2	0.1		3.8	
Delay (s)	82.4	49.4	13.9	123.7	23.0			41.7	26.3		37.9	
Level of Service	F	D	B	F	C			D	C		D	
Approach Delay (s)		43.2			37.1			34.9			37.9	
Approach LOS		D			D			C			D	

Intersection Summary

HCM 2000 Control Delay	39.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	84.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	73.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 19: SR-49 & Woodridge Drive

Cumulative PM Peak Hour
 3/1/2013



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↗	↖	↕
Volume (veh/h)	0	199	1946	136	66	1207
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Hourly flow rate (vph)	0	201	1966	137	67	1219
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						1119
pX, platoon unblocked	0.86					
vC, conflicting volume	2709	983			2103	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2661	983			2103	
tC, single (s)	6.8	*6.5			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	28			75	
cM capacity (veh/h)	12	281			265	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	201	983	983	137	67	610	610
Volume Left	0	0	0	0	67	0	0
Volume Right	201	0	0	137	0	0	0
cSH	281	1700	1700	1700	265	1700	1700
Volume to Capacity	0.72	0.58	0.58	0.08	0.25	0.36	0.36
Queue Length 95th (ft)	126	0	0	0	24	0	0
Control Delay (s)	44.6	0.0	0.0	0.0	23.1	0.0	0.0
Lane LOS	E				C		
Approach Delay (s)	44.6	0.0			1.2		
Approach LOS	E						

Intersection Summary			
Average Delay		2.9	
Intersection Capacity Utilization		72.8%	ICU Level of Service C
Analysis Period (min)		15	

* User Entered Value

HCM Unsignalized Intersection Capacity Analysis
 20: Brunswick Road & Dwy Sites 7,8

Cumulative PM Peak Hour
 1/9/2013



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	6	17	1109	10	27	996
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	18	1205	11	29	1083
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2352	1211			1216	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2352	1211			1216	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	83	92			95	
cM capacity (veh/h)	37	222			573	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	7	18	1216	29	1083
Volume Left	7	0	0	29	0
Volume Right	0	18	11	0	0
cSH	37	222	1700	573	1700
Volume to Capacity	0.17	0.08	0.72	0.05	0.64
Queue Length 95th (ft)	14	7	0	4	0
Control Delay (s)	120.6	22.7	0.0	11.6	0.0
Lane LOS	F	C		B	
Approach Delay (s)	48.2		0.0	0.3	
Approach LOS	E				

Intersection Summary					
Average Delay			0.7		
Intersection Capacity Utilization			69.0%	ICU Level of Service	C
Analysis Period (min)			15		

HCM Unsignalized Intersection Capacity Analysis
 21: Brunswick Road & Dwy Sites 3-6 and 9

Cumulative PM Peak Hour
 1/9/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	68	22	39	1051	885	117
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	74	24	42	1142	962	127
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2253	1026	1089			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2253	1026	1089			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	92	93			
cM capacity (veh/h)	43	285	641			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1
Volume Total	74	24	42	1142	1089
Volume Left	74	0	42	0	0
Volume Right	0	24	0	0	127
cSH	43	285	641	1700	1700
Volume to Capacity	1.74	0.08	0.07	0.67	0.64
Queue Length 95th (ft)	189	7	5	0	0
Control Delay (s)	560.9	18.8	11.0	0.0	0.0
Lane LOS	F	C	B		
Approach Delay (s)	428.3		0.4		0.0
Approach LOS	F				

Intersection Summary			
Average Delay		17.9	
Intersection Capacity Utilization		65.7%	ICU Level of Service C
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
22: Dwy Site 2

Cumulative PM Peak Hour
1/9/2013



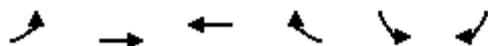
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	2	18	1018	2	29	961
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	20	1107	2	32	1045
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2215	1108			1109	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2215	1108			1109	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	92			95	
cM capacity (veh/h)	46	255			630	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	2	20	1109	32	1045
Volume Left	2	0	0	32	0
Volume Right	0	20	2	0	0
cSH	46	255	1700	630	1700
Volume to Capacity	0.05	0.08	0.65	0.05	0.61
Queue Length 95th (ft)	4	6	0	4	0
Control Delay (s)	87.6	20.3	0.0	11.0	0.0
Lane LOS	F	C		B	
Approach Delay (s)	27.0		0.0	0.3	
Approach LOS	D				

Intersection Summary					
Average Delay			0.4		
Intersection Capacity Utilization			63.7%	ICU Level of Service	B
Analysis Period (min)			15		

HCM Unsignalized Intersection Capacity Analysis
 23: Penn Valley & Site 10,11,12 Dway

Cumulative PM Peak Hour
 1/9/2013



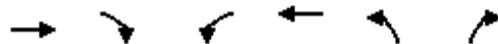
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↔		↕	↕
Volume (veh/h)	6	168	239	16	9	4
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	7	185	263	18	10	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						1
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	280				469	271
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	280				469	271
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				98	99
cM capacity (veh/h)	1282				550	767

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	191	280	14
Volume Left	7	0	10
Volume Right	0	18	4
cSH	1282	1700	794
Volume to Capacity	0.01	0.16	0.02
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.3	0.0	11.1
Lane LOS	A		B
Approach Delay (s)	0.3	0.0	11.1
Approach LOS			B

Intersection Summary			
Average Delay		0.4	
Intersection Capacity Utilization		23.7%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 24: Broken Oak & Penn Valley

Cumulative PM Peak Hour
 1/9/2013



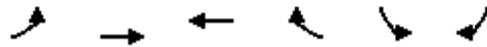
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↻			↻	↻	↻
Volume (veh/h)	148	17	15	162	9	32
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	164	19	17	180	10	36
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						1
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			183		387	174
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			183		387	174
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		98	96
cM capacity (veh/h)			1392		609	870

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	183	197	46
Volume Left	0	17	10
Volume Right	19	0	36
cSH	1700	1392	1114
Volume to Capacity	0.11	0.01	0.04
Queue Length 95th (ft)	0	1	3
Control Delay (s)	0.0	0.7	9.7
Lane LOS		A	A
Approach Delay (s)	0.0	0.7	9.7
Approach LOS			A

Intersection Summary			
Average Delay		1.4	
Intersection Capacity Utilization		31.0%	ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis
 26: Combie Road & Dwy Site 18

Cumulative PM Peak Hour
 3/1/2013



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	27	61	39	1	1	15
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	66	42	1	1	16
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	43				168	43
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	43				168	43
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				100	98
cM capacity (veh/h)	1565				807	1027

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	29	66	43	17
Volume Left	29	0	0	1
Volume Right	0	0	1	16
cSH	1565	1700	1700	1010
Volume to Capacity	0.02	0.04	0.03	0.02
Queue Length 95th (ft)	1	0	0	1
Control Delay (s)	7.3	0.0	0.0	8.6
Lane LOS	A			A
Approach Delay (s)	2.3		0.0	8.6
Approach LOS				A

Intersection Summary			
Average Delay		2.3	
Intersection Capacity Utilization		18.2%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
28: Higgins Road & Combie Road

Cumulative PM Peak Hour
3/1/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	876	268	284	576	0	310	0	254	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	952	291	309	626	0	337	0	276	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			None							
Median storage (veh)		2										
Upstream signal (ft)		707										
pX, platoon unblocked				0.94			0.94	0.94	0.94	0.94	0.94	0.94
vC, conflicting volume	626			952			2028	2341	1098	2617	2196	313
vC1, stage 1 conf vol							1098	1098		1243	1243	
vC2, stage 2 conf vol							930	1243		1374	952	
vCu, unblocked vol	626			914			2065	2400	1070	2695	2244	313
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			55			0	100	0	0	100	100
cM capacity (veh/h)	951			693			125	118	203	0	22	683
Direction, Lane #	EB 1	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1					
Volume Total	1243	309	417	209	337	276	0					
Volume Left	0	309	0	0	337	0	0					
Volume Right	291	0	0	0	0	276	0					
cSH	1700	693	1700	1700	125	203	1700					
Volume to Capacity	0.73	0.45	0.25	0.12	2.69	1.36	0.00					
Queue Length 95th (ft)	0	57	0	0	765	393	0					
Control Delay (s)	0.0	14.3	0.0	0.0	837.8	236.3	0.0					
Lane LOS		B			F	F	A					
Approach Delay (s)	0.0	4.7			566.9		0.0					
Approach LOS					F		A					
Intersection Summary												
Average Delay				126.1								
Intersection Capacity Utilization			105.3%		ICU Level of Service		G					
Analysis Period (min)			15									

APPENDIX G

Intersection Level of Service Calculations: Cumulative plus Project Conditions

HCM Signalized Intersection Capacity Analysis
 1: Nevada City Highway & Brunswick Road

Cumulative + Proj PM Peak Hour

1/9/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗	↖	↖	↖	↖	↖	↖	↖
Volume (vph)	10	34	13	340	24	809	12	332	268	854	291	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		1.00		0.95	0.95	1.00	1.00	1.00	1.00	0.97	1.00	
Frbp, ped/bikes		1.00		1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1770		1698	1704	1596	1805	1881	1556	3433	1861	
Flt Permitted		0.99		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1770		1698	1704	1596	1805	1881	1556	3433	1861	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	11	37	14	366	26	870	13	357	288	918	313	2
RTOR Reduction (vph)	0	12	0	0	0	319	0	0	157	0	0	0
Lane Group Flow (vph)	0	50	0	194	198	551	13	357	131	918	315	0
Confl. Peds. (#/hr)	3					3	11		3	3		11
Heavy Vehicles (%)	0%	0%	14%	1%	5%	0%	0%	1%	2%	2%	2%	0%
Turn Type	Split	NA		Split	NA	pm+ov	Split	NA	Perm	Split	NA	
Protected Phases	6	6		8	8	4	2	2		4	4	
Permitted Phases						8			2			
Actuated Green, G (s)		16.0		14.2	14.2	34.2	23.8	23.8	23.8	20.0	20.0	
Effective Green, g (s)		16.0		14.2	14.2	34.2	23.8	23.8	23.8	20.0	20.0	
Actuated g/C Ratio		0.18		0.16	0.16	0.38	0.26	0.26	0.26	0.22	0.22	
Clearance Time (s)		4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		314		267	268	677	477	497	411	762	413	
v/s Ratio Prot		c0.03		0.11	0.12	c0.18	0.01	c0.19		c0.27	0.17	
v/s Ratio Perm						0.16			0.08			
v/c Ratio		0.16		0.73	0.74	0.81	0.03	0.72	0.32	1.20	0.76	
Uniform Delay, d1		31.3		36.1	36.1	25.0	24.5	30.1	26.6	35.0	32.8	
Progression Factor		1.00		0.74	0.74	0.70	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		1.1		8.4	9.1	6.7	0.1	8.6	2.0	104.4	8.1	
Delay (s)		32.4		35.0	35.7	24.2	24.6	38.7	28.6	139.4	40.9	
Level of Service		C		C	D	C	C	D	C	F	D	
Approach Delay (s)		32.4			27.7			34.0			114.2	
Approach LOS		C			C			C			F	

Intersection Summary

HCM 2000 Control Delay	62.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

2: Maltman Drive/SR 20-49 SB Ramps & Brunswick Road

Cumulative + Proj PM Peak Hour

1/9/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑↑		↖		↖	↖↖	↑	↖
Volume (vph)	0	1089	54	216	903	0	54	0	338	298	50	224
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	4.0
Lane Util. Factor		0.95		1.00	0.95		1.00		1.00	0.97	1.00	1.00
Frbp, ped/bikes		1.00		1.00	1.00		1.00		0.99	1.00	1.00	1.00
Flpb, ped/bikes		1.00		1.00	1.00		1.00		1.00	1.00	1.00	1.00
Fr _t		0.99		1.00	1.00		1.00		0.85	1.00	1.00	0.85
Fl _t Protected		1.00		0.95	1.00		0.95		1.00	0.95	1.00	1.00
Satd. Flow (prot)		3521		1770	3610		1805		1601	3400	1881	1599
Fl _t Permitted		1.00		0.95	1.00		0.95		1.00	0.95	1.00	1.00
Satd. Flow (perm)		3521		1770	3610		1805		1601	3400	1881	1599
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1184	59	235	982	0	59	0	367	324	54	243
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	46	0	0	174
Lane Group Flow (vph)	0	1239	0	235	982	0	59	0	321	324	54	69
Confl. Peds. (#/hr)			9						9			
Heavy Vehicles (%)	0%	1%	13%	2%	0%	0%	0%	0%	0%	3%	1%	1%
Turn Type		NA		Prot	NA		Prot		custom	Split	NA	Perm
Protected Phases		4		3	8		2		3	6	6	
Permitted Phases									2			6
Actuated Green, G (s)		26.0		15.2	45.2		7.2		22.4	25.6	25.6	25.6
Effective Green, g (s)		26.0		15.2	45.2		7.2		22.4	25.6	25.6	25.6
Actuated g/C Ratio		0.29		0.17	0.50		0.08		0.25	0.28	0.28	0.28
Clearance Time (s)		4.0		4.0	4.0		4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		1017		298	1813		144		469	967	535	454
v/s Ratio Prot		c0.35		c0.13	0.27		0.03		c0.12	c0.10	0.03	
v/s Ratio Perm									0.09			0.04
v/c Ratio		1.22		0.79	0.54		0.41		0.68	0.34	0.10	0.15
Uniform Delay, d ₁		32.0		35.9	15.3		39.4		30.6	25.5	23.7	24.1
Progression Factor		0.31		0.78	0.62		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d ₂		99.0		17.3	0.3		1.9		4.1	0.9	0.4	0.7
Delay (s)		108.9		45.2	9.8		41.3		34.7	26.4	24.1	24.8
Level of Service		F		D	A		D		C	C	C	C
Approach Delay (s)		108.9			16.6			35.6			25.6	
Approach LOS		F			B			D			C	

Intersection Summary

HCM 2000 Control Delay	53.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
3: SR 20-49 NB Ramps & Brunswick Road

Cumulative + Proj PM Peak Hour
1/9/2013



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑↑	↘	↗
Volume (vph)	889	0	0	1912	379	876
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	0.95			0.91	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3574			5136	1805	1553
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3574			5136	1805	1553
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	926	0	0	1992	395	912
RTOR Reduction (vph)	0	0	0	0	0	43
Lane Group Flow (vph)	926	0	0	1992	395	869
Heavy Vehicles (%)	1%	0%	0%	1%	0%	4%
Turn Type	NA			NA	NA	Perm
Protected Phases	4			8	2	
Permitted Phases						2
Actuated Green, G (s)	42.0			42.0	40.0	40.0
Effective Green, g (s)	42.0			42.0	40.0	40.0
Actuated g/C Ratio	0.47			0.47	0.44	0.44
Clearance Time (s)	4.0			4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	1667			2396	802	690
v/s Ratio Prot	0.26			c0.39	0.22	
v/s Ratio Perm						c0.56
v/c Ratio	0.56			0.83	0.49	1.26
Uniform Delay, d1	17.3			20.9	17.8	25.0
Progression Factor	0.74			0.93	1.00	1.00
Incremental Delay, d2	0.4			1.7	2.2	128.1
Delay (s)	13.2			21.1	19.9	153.1
Level of Service	B			C	B	F
Approach Delay (s)	13.2			21.1	112.8	
Approach LOS	B			C	F	

Intersection Summary

HCM 2000 Control Delay	47.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	85.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
4: Sutton Way & Brunswick Road

Cumulative + Proj PM Peak Hour

1/9/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑	↖	↖	↑↑		↖↗	↖		↖	↑	↖
Volume (vph)	249	976	541	264	1001	31	568	75	271	113	69	352
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		0.97	1.00		1.00	1.00	1.00
Frbp, ped/bikes	1.00	1.00	0.89	1.00	1.00		1.00	1.00		1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.88		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3467	3471	1440	1787	3491		3467	1644		1787	1881	1516
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3467	3471	1440	1787	3491		3467	1644		1787	1881	1516
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	262	1027	569	278	1054	33	598	79	285	119	73	371
RTOR Reduction (vph)	0	0	295	0	3	0	0	144	0	0	0	76
Lane Group Flow (vph)	262	1027	274	278	1084	0	598	220	0	119	73	295
Confl. Peds. (#/hr)	1		32	32		1	36					36
Heavy Vehicles (%)	1%	4%	0%	1%	3%	0%	1%	2%	2%	1%	1%	2%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4									6
Actuated Green, G (s)	10.9	27.0	27.0	15.0	31.1		16.0	23.3		8.7	16.0	26.9
Effective Green, g (s)	10.9	27.0	27.0	15.0	31.1		16.0	23.3		8.7	16.0	26.9
Actuated g/C Ratio	0.12	0.30	0.30	0.17	0.35		0.18	0.26		0.10	0.18	0.30
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	419	1041	432	297	1206		616	425		172	334	520
v/s Ratio Prot	0.08	c0.30		c0.16	c0.31		c0.17	0.13		0.07	0.04	c0.07
v/s Ratio Perm			0.19									0.13
v/c Ratio	0.63	0.99	0.63	0.94	0.90		0.97	0.52		0.69	0.22	0.57
Uniform Delay, d1	37.6	31.3	27.2	37.0	28.0		36.8	28.5		39.4	31.7	26.6
Progression Factor	0.93	0.91	0.87	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.3	15.3	1.3	35.3	9.1		28.9	4.5		11.4	1.5	1.4
Delay (s)	36.1	43.8	24.9	72.4	37.1		65.7	33.0		50.7	33.2	28.0
Level of Service	D	D	C	E	D		E	C		D	C	C
Approach Delay (s)		36.9			44.3			53.3			33.5	
Approach LOS		D			D			D			C	

Intersection Summary		
HCM 2000 Control Delay	42.0	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.91	D
Actuated Cycle Length (s)	90.0	Sum of lost time (s)
Intersection Capacity Utilization	84.5%	16.0
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		E

HCM Unsignalized Intersection Capacity Analysis
5: Brunswick Road & Idaho-Maryland Road

Cumulative + Proj PM Peak Hour
1/9/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	240	192	0	318	184	831	110	202	637	93
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	261	209	0	346	200	903	120	220	692	101
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						1						
Median type								TWLTL			None	
Median storage (veh)								2				
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2435	2554	692	2755	2596	963	793			1023		
vC1, stage 1 conf vol	1132	1132		1363	1363							
vC2, stage 2 conf vol	1303	1423		1392	1233							
vCu, unblocked vol	2435	2554	692	2755	2596	963	793			1023		
tC, single (s)	7.1	6.5	6.2	7.2	6.8	6.3	4.1			4.2		
tC, 2 stage (s)	6.1	5.5		6.2	5.8							
tF (s)	3.5	4.0	3.3	3.6	4.3	3.4	2.2			2.3		
p0 queue free %	0	100	41	0	100	0	76			65		
cM capacity (veh/h)	0	13	440	3	10	298	828			634		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3					
Volume Total	261	554	200	1023	220	692	101					
Volume Left	0	209	200	0	220	0	0					
Volume Right	261	346	0	120	0	0	101					
cSH	440	7	828	1700	634	1700	1700					
Volume to Capacity	0.59	75.48	0.24	0.60	0.35	0.41	0.06					
Queue Length 95th (ft)	93	Err	24	0	39	0	0					
Control Delay (s)	24.4	Err	10.7	0.0	13.7	0.0	0.0					
Lane LOS	C	F	B		B							
Approach Delay (s)	24.4	Err	1.8		3.0							
Approach LOS	C	F										
Intersection Summary												
Average Delay			1820.5									
Intersection Capacity Utilization			82.2%		ICU Level of Service					E		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
6: McCourtney Road & Personeni Road

Cumulative + Proj PM Peak Hour
1/9/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	31	22	21	381	630	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	34	24	23	419	692	7
Pedestrians				1		
Lane Width (ft)				12.0		
Walking Speed (ft/s)				4.0		
Percent Blockage				0		
Right turn flare (veh)		2				
Median type				None	None	
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1160	697	699			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1160	697	699			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	84	95	97			
cM capacity (veh/h)	212	444	907			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	58	442	699			
Volume Left	34	23	0			
Volume Right	24	0	7			
cSH	363	907	1700			
Volume to Capacity	0.16	0.03	0.41			
Queue Length 95th (ft)	14	2	0			
Control Delay (s)	20.3	0.8	0.0			
Lane LOS	C	A				
Approach Delay (s)	20.3	0.8	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization		47.5%		ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
7: Taylorville Road & McKnight Way

Cumulative + Proj PM Peak Hour

1/9/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  										
Volume (veh/h)	0	994	40	30	680	301	0	0	40	0	0	19
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1080	43	33	739	327	0	0	43	0	0	21
Pedestrians								3				
Lane Width (ft)								12.0				
Walking Speed (ft/s)								4.0				
Percent Blockage								0				
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					172							
pX, platoon unblocked	0.74						0.74	0.74		0.74	0.74	0.74
vC, conflicting volume	1066			1127			1930	2237	385	1372	2095	903
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	912			1127			2083	2498	385	1326	2306	691
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			95			100	100	93	100	100	93
cM capacity (veh/h)	557			626			21	20	618	76	27	289
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1					
Volume Total	432	432	260	33	1066	43	21					
Volume Left	0	0	0	33	0	0	0					
Volume Right	0	0	43	0	327	43	21					
cSH	1700	1700	1700	626	1700	618	289					
Volume to Capacity	0.25	0.25	0.15	0.05	0.63	0.07	0.07					
Queue Length 95th (ft)	0	0	0	4	0	6	6					
Control Delay (s)	0.0	0.0	0.0	11.1	0.0	11.3	18.4					
Lane LOS				B		B	C					
Approach Delay (s)	0.0			0.3		11.3	18.4					
Approach LOS						B	C					
Intersection Summary												
Average Delay			0.5									
Intersection Capacity Utilization		64.1%		ICU Level of Service	C							
Analysis Period (min)		15										

HCM Signalized Intersection Capacity Analysis
 8: 49 SB Off-Ramp & McKnight Way

Cumulative + Proj PM Peak Hour

1/9/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑	↑	↑	↑						↑	↑	
Volume (vph)	0	641	398	105	552	0	0	0	0	605	0	459	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		3.5	3.5	3.0	3.5						4.6	4.6	
Lane Util. Factor		0.95	1.00	1.00	1.00						1.00	1.00	
Frt		1.00	0.85	1.00	1.00						1.00	0.85	
Flt Protected		1.00	1.00	0.95	1.00						0.95	1.00	
Satd. Flow (prot)		3610	1615	1787	1900						1770	1615	
Flt Permitted		1.00	1.00	0.95	1.00						0.95	1.00	
Satd. Flow (perm)		3610	1615	1787	1900						1770	1615	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.94	0.94	
Adj. Flow (vph)	0	682	423	112	587	0	0	0	0	658	0	488	
RTOR Reduction (vph)	0	0	333	0	0	0	0	0	0	0	0	113	
Lane Group Flow (vph)	0	682	90	112	587	0	0	0	0	0	658	375	
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%	2%	2%	2%	2%	3%	0%	
Turn Type		NA	Perm	Prot	NA						Perm	NA	Perm
Protected Phases		2		1	2							4	12
Permitted Phases			2								4	12	4
Actuated Green, G (s)		17.1	17.1	17.2	37.3						35.2	35.2	
Effective Green, g (s)		17.1	17.1	17.2	34.3						35.2	35.2	
Actuated g/C Ratio		0.21	0.21	0.21	0.43						0.44	0.44	
Clearance Time (s)		3.5	3.5	3.0									
Vehicle Extension (s)		3.0	3.0	4.7									
Lane Grp Cap (vph)		771	345	384	814						778	710	
v/s Ratio Prot		c0.19		0.06	c0.31								
v/s Ratio Perm			0.06								0.37	0.23	
v/c Ratio		0.88	0.26	0.29	0.72						0.85	0.53	
Uniform Delay, d1		30.5	26.2	26.3	18.9						20.0	16.3	
Progression Factor		1.00	1.00	1.79	1.29						1.00	1.00	
Incremental Delay, d2		14.1	1.8	0.6	2.8						8.4	0.7	
Delay (s)		44.6	28.0	47.6	27.2						28.4	17.1	
Level of Service		D	C	D	C						C	B	
Approach Delay (s)		38.2			30.5			0.0			23.6		
Approach LOS		D			C			A			C		

Intersection Summary

HCM 2000 Control Delay	30.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.6
Intersection Capacity Utilization	107.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 9: 49 NB Off-Ramp/49 NB On-Ramp & McKnight Way

Cumulative + Proj PM Peak Hour

1/9/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑			↑↑	↗		↘	↗			
Volume (vph)	284	957	0	0	519	498	137	0	150	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0			4.0	4.0		4.6	4.6			
Lane Util. Factor	1.00	1.00			0.95	1.00		1.00	1.00			
Frbp, ped/bikes	1.00	1.00			1.00	1.00		1.00	1.00			
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00	1.00			
Frt	1.00	1.00			1.00	0.85		1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00		0.95	1.00			
Satd. Flow (prot)	1787	1863			3574	1568		1787	1538			
Flt Permitted	0.95	1.00			1.00	1.00		0.95	1.00			
Satd. Flow (perm)	1787	1863			3574	1568		1787	1538			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	309	1040	0	0	564	541	149	0	163	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	433	0	0	31	0	0	0
Lane Group Flow (vph)	309	1040	0	0	564	108	0	149	132	0	0	0
Confl. Peds. (#/hr)			3	3								
Heavy Vehicles (%)	1%	2%	0%	0%	1%	3%	1%	0%	5%	2%	2%	2%
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	5	5 6			6			8 16				
Permitted Phases						6	8 16		8 16			
Actuated Green, G (s)	17.8	36.8			16.0	16.0		35.2	35.2			
Effective Green, g (s)	17.8	36.8			16.0	16.0		35.2	35.2			
Actuated g/C Ratio	0.22	0.46			0.20	0.20		0.44	0.44			
Clearance Time (s)	3.0				4.0	4.0						
Vehicle Extension (s)	4.7				3.0	3.0						
Lane Grp Cap (vph)	397	856			714	313		786	676			
v/s Ratio Prot	0.17	c0.56			0.16							
v/s Ratio Perm						0.07		0.08	c0.09			
v/c Ratio	0.78	1.21			0.79	0.35		0.19	0.20			
Uniform Delay, d1	29.2	21.6			30.4	27.5		13.7	13.7			
Progression Factor	1.37	1.17			1.00	1.00		1.00	1.00			
Incremental Delay, d2	5.4	102.2			5.8	0.7		0.1	0.1			
Delay (s)	45.4	127.5			36.2	28.2		13.8	13.9			
Level of Service	D	F			D	C		B	B			
Approach Delay (s)		108.7			32.3			13.8			0.0	
Approach LOS		F			C			B			A	

Intersection Summary

HCM 2000 Control Delay	67.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.6
Intersection Capacity Utilization	105.0%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 10: La Barr Meadows Road/S Auburn Street & McKnight Way

Cumulative + Proj PM Peak Hour

1/9/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Yield			Stop			Stop			Stop	
Volume (vph)	243	80	784	27	60	17	739	294	10	20	229	219
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	259	85	834	29	64	18	786	313	11	21	244	233
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2					
Volume Total (vph)	344	834	111	786	323	265	233					
Volume Left (vph)	259	0	29	786	0	21	0					
Volume Right (vph)	0	834	18	0	11	0	233					
Hadj (s)	0.41	-0.63	0.02	0.53	0.04	0.15	-0.68					
Departure Headway (s)	8.7	7.6	9.4	8.8	8.3	9.0	8.2					
Degree Utilization, x	0.83	1.77	0.29	1.93	0.75	0.66	0.53					
Capacity (veh/h)	407	476	374	414	423	389	426					
Control Delay (s)	40.5	373.2	16.2	446.3	31.2	26.6	18.7					
Approach Delay (s)	276.1		16.2	325.3		22.9						
Approach LOS	F		C	F		C						
Intersection Summary												
Delay			241.5									
Level of Service			F									
Intersection Capacity Utilization			88.4%		ICU Level of Service				E			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis
 11: Pleasant Valley Road & SR-20

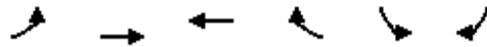
Cumulative + Proj PM Peak Hour

1/9/2013

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	112	345	65	25	311	418	51	181	25	262	164	77	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1805	1810	1583	1805	1810	1599	1752	1881	1615	1736	1863	1563	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1805	1810	1583	1805	1810	1599	1752	1881	1615	1736	1863	1563	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Adj. Flow (vph)	120	371	70	27	334	449	55	195	27	282	176	83	
RTOR Reduction (vph)	0	0	45	0	0	327	0	0	22	0	0	52	
Lane Group Flow (vph)	120	371	25	27	334	122	55	195	5	282	176	31	
Confl. Peds. (#/hr)							1					1	
Heavy Vehicles (%)	0%	5%	2%	0%	5%	1%	3%	1%	0%	4%	2%	1%	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases			4			8			2			6	
Actuated Green, G (s)	7.8	27.1	27.1	1.6	20.9	20.9	3.1	15.6	15.6	16.5	29.0	29.0	
Effective Green, g (s)	7.8	27.1	27.1	1.6	20.9	20.9	3.1	15.6	15.6	16.5	29.0	29.0	
Actuated g/C Ratio	0.10	0.35	0.35	0.02	0.27	0.27	0.04	0.20	0.20	0.21	0.38	0.38	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	183	638	558	37	492	435	70	382	328	372	703	590	
v/s Ratio Prot	c0.07	0.21		0.01	c0.18		0.03	c0.10		c0.16	0.09		
v/s Ratio Perm			0.02			0.08			0.00			0.02	
v/c Ratio	0.66	0.58	0.04	0.73	0.68	0.28	0.79	0.51	0.02	0.76	0.25	0.05	
Uniform Delay, d1	33.2	20.2	16.3	37.4	25.0	22.0	36.5	27.2	24.5	28.3	16.4	15.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	8.2	1.4	0.0	52.2	3.7	0.4	42.6	1.2	0.0	8.6	0.2	0.0	
Delay (s)	41.4	21.6	16.4	89.6	28.7	22.4	79.1	28.4	24.5	36.9	16.6	15.2	
Level of Service	D	C	B	F	C	C	E	C	C	D	B	B	
Approach Delay (s)		25.2			27.2			38.1			26.9		
Approach LOS		C			C			D			C		
Intersection Summary													
HCM 2000 Control Delay			28.0									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.65										
Actuated Cycle Length (s)			76.8									Sum of lost time (s)	16.0
Intersection Capacity Utilization			59.9%									ICU Level of Service	B
Analysis Period (min)			15										
c Critical Lane Group													

HCM Unsignalized Intersection Capacity Analysis
 12: SR-20 & Cattle Drive

Cumulative + Proj PM Peak Hour
 1/9/2013



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	6	632	734	25	43	20
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	1.00	1.00
Hourly flow rate (vph)	6	652	757	26	43	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	782				1434	770
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	782				1434	770
tC, single (s)	4.3				6.4	6.3
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.4
p0 queue free %	99				70	95
cM capacity (veh/h)	777				146	391

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	6	652	782	63
Volume Left	6	0	0	43
Volume Right	0	0	26	20
cSH	777	1700	1700	182
Volume to Capacity	0.01	0.38	0.46	0.35
Queue Length 95th (ft)	1	0	0	36
Control Delay (s)	9.7	0.0	0.0	34.9
Lane LOS	A			D
Approach Delay (s)	0.1		0.0	34.9
Approach LOS				D

Intersection Summary			
Average Delay		1.5	
Intersection Capacity Utilization		50.4%	ICU Level of Service A
Analysis Period (min)		15	

HCM Signalized Intersection Capacity Analysis
13: Penn Valley Drive & SR-20

Cumulative + Proj PM Peak Hour

1/9/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗	↘	↘	↗↗	↘	↘	↗	↘	↘	↗	↘
Volume (vph)	72	550	53	341	621	45	66	113	175	58	96	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.8	4.0	3.0	6.8	4.0	3.0	4.8	3.0	3.0	4.8	4.8
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1805	3438	1583	1770	3539	1615	1752	1792	1583	1805	1845	1509
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1805	3438	1583	1770	3539	1615	1752	1792	1583	1805	1845	1509
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	76	579	56	359	654	47	69	119	184	61	101	79
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	85	0	0	68
Lane Group Flow (vph)	76	579	56	359	654	47	69	119	99	61	101	11
Heavy Vehicles (%)	0%	5%	2%	2%	2%	0%	3%	6%	2%	0%	3%	7%
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	NA	custom	Prot	NA	custom
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			Free			Free			8			4
Actuated Green, G (s)	3.0	15.1	53.2	10.9	23.0	53.2	2.5	7.1	18.0	2.5	7.1	7.1
Effective Green, g (s)	3.0	15.1	53.2	10.9	23.0	53.2	2.5	7.1	18.0	2.5	7.1	7.1
Actuated g/C Ratio	0.06	0.28	1.00	0.20	0.43	1.00	0.05	0.13	0.34	0.05	0.13	0.13
Clearance Time (s)	3.0	6.8		3.0	6.8		3.0	4.8	3.0	3.0	4.8	4.8
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	101	975	1583	362	1530	1615	82	239	535	84	246	201
v/s Ratio Prot	0.04	c0.17		c0.20	0.18		c0.04	c0.07	0.04	0.03	0.05	
v/s Ratio Perm			0.04			0.03			0.02			0.01
v/c Ratio	0.75	0.59	0.04	0.99	0.43	0.03	0.84	0.50	0.18	0.73	0.41	0.05
Uniform Delay, d1	24.7	16.4	0.0	21.1	10.5	0.0	25.2	21.4	12.4	25.0	21.1	20.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	26.7	1.0	0.0	44.9	0.2	0.0	50.7	1.6	0.2	26.6	1.1	0.1
Delay (s)	51.4	17.4	0.0	66.0	10.7	0.0	75.8	23.0	12.6	51.6	22.2	20.2
Level of Service	D	B	A	E	B	A	E	C	B	D	C	C
Approach Delay (s)		19.7			29.0			27.7			29.0	
Approach LOS		B			C			C			C	

Intersection Summary

HCM 2000 Control Delay	26.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	53.2	Sum of lost time (s)	17.6
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 14: Spenceville Road & Penn Valley Drive

Cumulative + Proj PM Peak Hour
 1/9/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	171	85	93	154	178	283
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	190	94	103	171	198	314
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	284	274	512			
Volume Left (vph)	190	103	0			
Volume Right (vph)	94	0	314			
Hadj (s)	-0.06	0.10	-0.35			
Departure Headway (s)	5.8	5.6	4.9			
Degree Utilization, x	0.46	0.43	0.69			
Capacity (veh/h)	565	602	717			
Control Delay (s)	13.6	12.7	18.2			
Approach Delay (s)	13.6	12.7	18.2			
Approach LOS	B	B	C			
Intersection Summary						
Delay			15.5			
Level of Service			C			
Intersection Capacity Utilization			65.2%	ICU Level of Service	C	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 15: SR-49 & Cameo Drive

Cumulative + Proj PM Peak Hour
 3/1/2013

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	16	10	1600	26	14	1256
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	17	11	1702	28	15	1336
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			None
Median storage (veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	3068	851			1730	
vC1, stage 1 conf vol	1702					
vC2, stage 2 conf vol	1366					
vCu, unblocked vol	3068	851			1730	
tC, single (s)	*6.7	*6.4			4.1	
tC, 2 stage (s)	5.7					
tF (s)	3.5	3.3			2.2	
p0 queue free %	84	97			96	
cM capacity (veh/h)	111	345			361	
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	28	851	851	28	15	1336
Volume Left	17	0	0	0	15	0
Volume Right	11	0	0	28	0	0
cSH	150	1700	1700	1700	361	1700
Volume to Capacity	0.19	0.50	0.50	0.02	0.04	0.79
Queue Length 95th (ft)	16	0	0	0	3	0
Control Delay (s)	34.4	0.0	0.0	0.0	15.4	0.0
Lane LOS	D				C	
Approach Delay (s)	34.4	0.0			0.2	
Approach LOS	D					
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			76.1%		ICU Level of Service	D
Analysis Period (min)			15			

* User Entered Value

HCM Signalized Intersection Capacity Analysis
 16: SR-49 & Wolf Road/Combie Road

Cumulative + Proj PM Peak Hour

3/1/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	44	180	103	421	160	323	210	1259	716	450	768	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	6.0	3.5	3.5	6.0	3.5
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1703	1881	1553	3433	1845	1568	1770	3505	1599	1752	3471	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1703	1881	1553	3433	1845	1568	1770	3505	1599	1752	3471	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	48	196	112	458	174	351	228	1368	778	489	835	59
RTOR Reduction (vph)	0	0	92	0	0	185	0	0	120	0	0	38
Lane Group Flow (vph)	48	196	20	458	174	166	228	1368	658	489	835	21
Heavy Vehicles (%)	6%	1%	4%	2%	3%	3%	2%	3%	1%	3%	4%	4%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	3.5	14.1	14.1	14.1	24.7	24.7	10.5	27.6	41.7	7.5	24.6	28.1
Effective Green, g (s)	3.5	14.1	14.1	14.1	24.7	24.7	10.5	27.6	41.7	7.5	24.6	28.1
Actuated g/C Ratio	0.04	0.18	0.18	0.18	0.31	0.31	0.13	0.35	0.52	0.09	0.31	0.35
Clearance Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	6.0	3.5	3.5	6.0	3.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	74	332	274	606	571	485	232	1212	835	164	1070	546
v/s Ratio Prot	0.03	c0.10		0.13	0.09		0.13	c0.39	c0.14	c0.28	0.24	0.00
v/s Ratio Perm			0.01			0.11			0.27			0.01
v/c Ratio	0.65	0.59	0.07	0.76	0.30	0.34	0.98	1.13	0.79	2.98	0.78	0.04
Uniform Delay, d1	37.5	30.2	27.4	31.2	21.0	21.3	34.6	26.1	15.5	36.1	25.1	17.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	17.9	2.8	0.1	5.3	0.3	0.4	53.9	68.9	5.0	908.0	5.7	0.0
Delay (s)	55.5	33.0	27.5	36.6	21.3	21.7	88.4	95.0	20.4	944.1	30.8	17.0
Level of Service	E	C	C	D	C	C	F	F	C	F	C	B
Approach Delay (s)		34.3			28.6			69.9			353.1	
Approach LOS		C			C			E			F	

Intersection Summary

HCM 2000 Control Delay	136.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	79.8	Sum of lost time (s)	16.5
Intersection Capacity Utilization	96.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 17: Rosewood Rd/Armstrong Rd & Combie Road

Cumulative + Proj PM Peak Hour

3/1/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	107	1069	24	11	771	69	12	0	6	91	2	102
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	119	1188	27	12	857	77	13	0	7	101	2	113
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					955							
pX, platoon unblocked	0.72						0.72	0.72		0.72	0.72	0.72
vC, conflicting volume	933			1214			2434	2397	607	1758	2372	895
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	708			1214			2807	2754	607	1860	2719	654
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	82			98			0	100	98	0	82	62
cM capacity (veh/h)	644			581			3	11	444	27	12	296

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	119	792	423	12	933	20	101	116
Volume Left	119	0	0	12	0	13	101	0
Volume Right	0	0	27	0	77	7	0	113
cSH	644	1700	1700	581	1700	4	27	204
Volume to Capacity	0.18	0.47	0.25	0.02	0.55	4.79	3.68	0.57
Queue Length 95th (ft)	17	0	0	2	0	Err	Err	77
Control Delay (s)	11.9	0.0	0.0	11.3	0.0	Err	Err	43.6
Lane LOS	B			B		F	F	E
Approach Delay (s)	1.1			0.1		Err	4689.5	
Approach LOS						F	F	

Intersection Summary

Average Delay	484.0
Intersection Capacity Utilization	Err%
ICU Level of Service	H
Analysis Period (min)	15

HCM Signalized Intersection Capacity Analysis
 18: Combie Road & Magnolia Road & Hacienda Drive

Cumulative + Proj PM Peak Hour

3/1/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	777	291	103	541	60	181	19	152	58	23	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	0.99			1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.96	1.00		0.98	
Satd. Flow (prot)	1752	1881	1583	1787	1839			1802	1583		1702	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.96	1.00		0.98	
Satd. Flow (perm)	1752	1881	1583	1787	1839			1802	1583		1702	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	845	316	112	588	65	197	21	165	63	25	95
RTOR Reduction (vph)	0	0	140	0	4	0	0	0	139	0	40	0
Lane Group Flow (vph)	82	845	176	112	649	0	0	218	26	0	143	0
Heavy Vehicles (%)	3%	1%	2%	1%	2%	0%	1%	0%	2%	0%	0%	4%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4						2			
Actuated Green, G (s)	6.8	43.1	43.1	8.7	45.0			15.0	15.0		12.4	
Effective Green, g (s)	6.8	43.1	43.1	8.7	45.0			15.0	15.0		12.4	
Actuated g/C Ratio	0.07	0.45	0.45	0.09	0.47			0.16	0.16		0.13	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	125	851	716	163	869			283	249		221	
v/s Ratio Prot	0.05	c0.45		c0.06	0.35			c0.12			c0.08	
v/s Ratio Perm			0.11						0.02			
v/c Ratio	0.66	0.99	0.25	0.69	0.75			0.77	0.10		0.65	
Uniform Delay, d1	43.1	25.9	16.0	41.9	20.5			38.4	34.3		39.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	11.7	29.0	0.2	11.4	3.5			12.2	0.2		6.4	
Delay (s)	54.8	54.8	16.2	53.3	24.0			50.6	34.5		45.7	
Level of Service	D	D	B	D	C			D	C		D	
Approach Delay (s)		45.0			28.3			43.7			45.7	
Approach LOS		D			C			D			D	

Intersection Summary

HCM 2000 Control Delay	39.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	95.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	74.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 19: SR-49 & Woodridge Drive

Cumulative + Proj PM Peak Hour

3/1/2013



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↖	↗	↕
Volume (veh/h)	0	200	1985	139	68	1224
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Hourly flow rate (vph)	0	202	2005	140	69	1236
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						1119
pX, platoon unblocked	0.81					
vC, conflicting volume	2761	1003			2005	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2706	1003			2005	
tC, single (s)	6.8	*6.5			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	26			76	
cM capacity (veh/h)	11	273			289	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	202	1003	1003	140	69	618	618
Volume Left	0	0	0	0	69	0	0
Volume Right	202	0	0	140	0	0	0
cSH	273	1700	1700	1700	289	1700	1700
Volume to Capacity	0.74	0.59	0.59	0.08	0.24	0.36	0.36
Queue Length 95th (ft)	133	0	0	0	23	0	0
Control Delay (s)	48.1	0.0	0.0	0.0	21.3	0.0	0.0
Lane LOS	E					C	
Approach Delay (s)	48.1	0.0			1.1		
Approach LOS	E						

Intersection Summary			
Average Delay		3.1	
Intersection Capacity Utilization		73.9%	ICU Level of Service D
Analysis Period (min)		15	

* User Entered Value

HCM Unsignalized Intersection Capacity Analysis
 20: Brunswick Road & Dwy Sites 7,8

Cumulative + Proj PM Peak Hour
 1/9/2013



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	18	53	1147	36	106	1094
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	58	1247	39	115	1189
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2686	1266			1286	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2686	1266			1286	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	72			79	
cM capacity (veh/h)	19	206			539	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	20	58	1286	115	1189
Volume Left	20	0	0	115	0
Volume Right	0	58	39	0	0
cSH	19	206	1700	539	1700
Volume to Capacity	1.03	0.28	0.76	0.21	0.70
Queue Length 95th (ft)	69	27	0	20	0
Control Delay (s)	500.1	29.1	0.0	13.5	0.0
Lane LOS	F	D		B	
Approach Delay (s)	148.5		0.0	1.2	
Approach LOS	F				

Intersection Summary					
Average Delay			4.9		
Intersection Capacity Utilization			81.8%	ICU Level of Service	D
Analysis Period (min)			15		

HCM Unsignalized Intersection Capacity Analysis
 21: Brunswick Road & Dwy Sites 3-6 and 9

Cumulative + Proj PM Peak Hour
 1/9/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	106	35	72	1077	897	215
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	115	38	78	1171	975	234
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2419	1092	1209			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2419	1092	1209			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	85	86			
cM capacity (veh/h)	31	261	577			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	115	38	78	1171	1209	
Volume Left	115	0	78	0	0	
Volume Right	0	38	0	0	234	
cSH	31	261	577	1700	1700	
Volume to Capacity	3.73	0.15	0.14	0.69	0.71	
Queue Length 95th (ft)	Err	13	12	0	0	
Control Delay (s)	Err	21.1	12.2	0.0	0.0	
Lane LOS	F	C	B			
Approach Delay (s)	7522.2		0.8		0.0	
Approach LOS	F					
Intersection Summary						
Average Delay			441.9			
Intersection Capacity Utilization			72.8%		ICU Level of Service	C
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
22: Dwy Site 2

Cumulative + Proj PM Peak Hour
1/9/2013



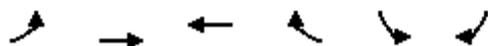
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	4	39	1004	4	79	961
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	42	1091	4	86	1045
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2310	1093			1096	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2310	1093			1096	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	88	84			87	
cM capacity (veh/h)	36	260			637	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	4	42	1096	86	1045
Volume Left	4	0	0	86	0
Volume Right	0	42	4	0	0
cSH	36	260	1700	637	1700
Volume to Capacity	0.12	0.16	0.64	0.13	0.61
Queue Length 95th (ft)	9	14	0	12	0
Control Delay (s)	117.3	21.5	0.0	11.5	0.0
Lane LOS	F	C		B	
Approach Delay (s)	30.4		0.0	0.9	
Approach LOS	D				

Intersection Summary					
Average Delay			1.1		
Intersection Capacity Utilization			70.8%	ICU Level of Service	C
Analysis Period (min)			15		

HCM Unsignalized Intersection Capacity Analysis
 23: Penn Valley & Site 10,11,12 Dway

Cumulative + Proj PM Peak Hour
 1/9/2013



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	↔
Volume (veh/h)	47	170	246	115	57	23
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	51	185	267	125	62	25
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						1
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	392				617	330
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	392				617	330
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				86	96
cM capacity (veh/h)	1166				434	712

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	236	392	87
Volume Left	51	0	62
Volume Right	0	125	25
cSH	1166	1700	609
Volume to Capacity	0.04	0.23	0.14
Queue Length 95th (ft)	3	0	12
Control Delay (s)	2.1	0.0	13.4
Lane LOS	A		B
Approach Delay (s)	2.1	0.0	13.4
Approach LOS			B

Intersection Summary			
Average Delay		2.3	
Intersection Capacity Utilization		44.8%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 24: Broken Oak & Penn Valley

Cumulative + Proj PM Peak Hour
 1/9/2013



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	←	→
Volume (veh/h)	189	22	23	181	12	37
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	210	24	26	201	13	41
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						1
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			234		474	222
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			234		474	222
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		98	95
cM capacity (veh/h)			1333		538	817

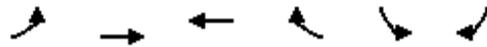
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	234	227	54
Volume Left	0	26	13
Volume Right	24	0	41
cSH	1700	1333	1082
Volume to Capacity	0.14	0.02	0.05
Queue Length 95th (ft)	0	1	4
Control Delay (s)	0.0	1.0	10.2
Lane LOS		A	B
Approach Delay (s)	0.0	1.0	10.2
Approach LOS			B

Intersection Summary			
Average Delay		1.5	
Intersection Capacity Utilization		35.4%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 26: Combie Road & Dwy Site 18

Cumulative + Proj PM Peak Hour

3/1/2013



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	59	61	39	3	2	29
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	64	66	42	3	2	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	46				239	44
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	46				239	44
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				100	97
cM capacity (veh/h)	1562				719	1026

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	64	66	46	34
Volume Left	64	0	0	2
Volume Right	0	0	3	32
cSH	1562	1700	1700	999
Volume to Capacity	0.04	0.04	0.03	0.03
Queue Length 95th (ft)	3	0	0	3
Control Delay (s)	7.4	0.0	0.0	8.7
Lane LOS	A			A
Approach Delay (s)	3.6		0.0	8.7
Approach LOS				A

Intersection Summary			
Average Delay		3.7	
Intersection Capacity Utilization		19.9%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 27: Brunswick Road & Loma Rica Road

Cumulative + Proj PM Peak Hour
 2/25/2013



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↶	↶↷	↷		↶↷	↷
Volume (veh/h)	105	405	566	88	282	648
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	114	440	615	96	307	704
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			None
Median storage veh			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1980	663			711	
vC1, stage 1 conf vol	663					
vC2, stage 2 conf vol	1317					
vCu, unblocked vol	1980	663			711	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	26	5			66	
cM capacity (veh/h)	154	461			889	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	114	440	711	307	704
Volume Left	114	0	0	307	0
Volume Right	0	440	96	0	0
cSH	154	461	1700	889	1700
Volume to Capacity	0.74	0.95	0.42	0.34	0.41
Queue Length 95th (ft)	112	290	0	39	0
Control Delay (s)	75.5	61.4	0.0	11.2	0.0
Lane LOS	F	F		B	
Approach Delay (s)	64.3		0.0	3.4	
Approach LOS	F				

Intersection Summary					
Average Delay			17.2		
Intersection Capacity Utilization			66.9%	ICU Level of Service	C
Analysis Period (min)			15		

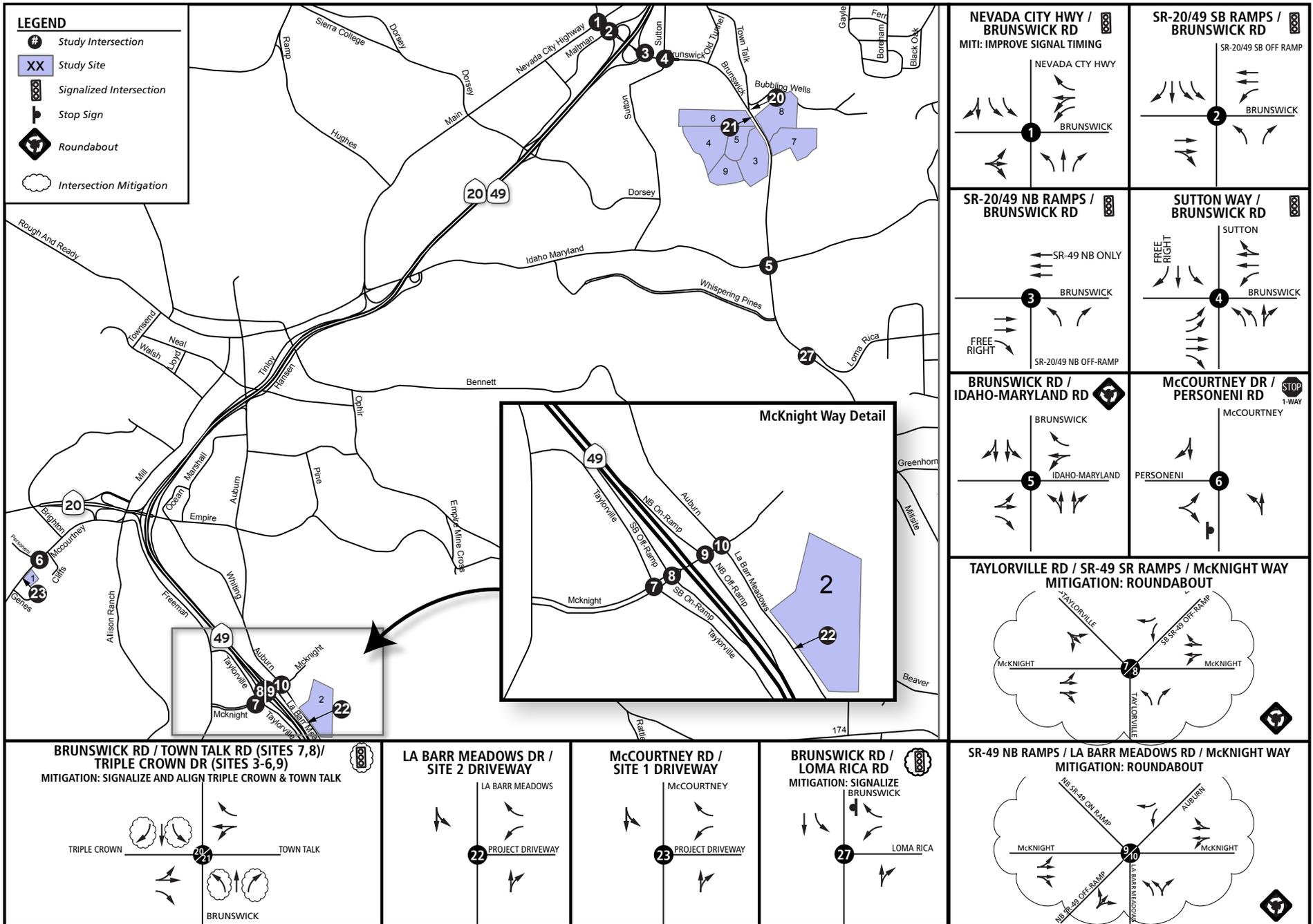
HCM Unsignalized Intersection Capacity Analysis
28: Higgins Road & Combie Road

Cumulative + Proj PM Peak Hour
3/1/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	907	269	287	592	0	312	0	255	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	986	292	312	643	0	339	0	277	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLT			None							
Median storage (veh)		2										
Upstream signal (ft)		718										
pX, platoon unblocked				0.93			0.93	0.93	0.93	0.93	0.93	0.93
vC, conflicting volume	643			986			2078	2399	1132	2677	2253	322
vC1, stage 1 conf vol							1132	1132		1267	1267	
vC2, stage 2 conf vol							946	1267		1409	986	
vCu, unblocked vol	643			949			2119	2464	1106	2761	2308	322
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			54			0	100	0	0	100	100
cM capacity (veh/h)	937			671			118	111	191	0	19	674
Direction, Lane #	EB 1	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1					
Volume Total	1278	312	429	214	339	277	0					
Volume Left	0	312	0	0	339	0	0					
Volume Right	292	0	0	0	0	277	0					
cSH	1700	671	1700	1700	118	191	1700					
Volume to Capacity	0.75	0.46	0.25	0.13	2.87	1.45	0.00					
Queue Length 95th (ft)	0	62	0	0	791	422	0					
Control Delay (s)	0.0	14.9	0.0	0.0	922.4	274.2	0.0					
Lane LOS		B			F	F	A					
Approach Delay (s)	0.0	4.9			630.9		0.0					
Approach LOS					F		A					
Intersection Summary												
Average Delay				138.1								
Intersection Capacity Utilization			107.3%		ICU Level of Service		G					
Analysis Period (min)			15									

APPENDIX H

Mitigated Conditions Intersection Geometry: Cumulative plus Project Conditions



Source: RBF Consulting 2013



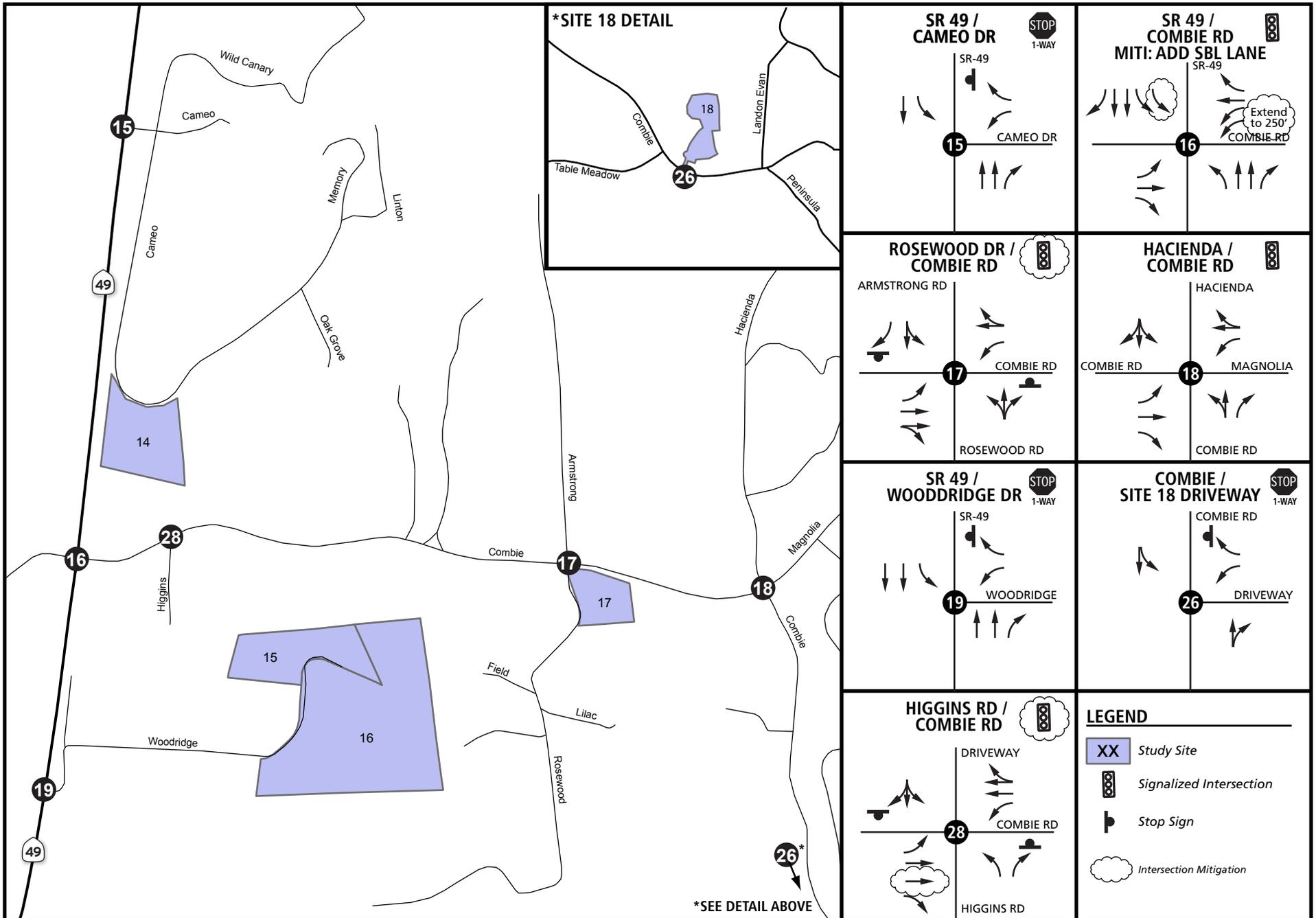
Not to Scale

4/21/2013 • JN 131242-18945

GRASS VALLEY SOI STUDY AREA
 COUNTY OF NEVADA: 2009-2014 HOUSING ELEMENT REZONE PROGRAM IMPLEMENTATION EIR

Intersection Mitigations - Cumulative plus Project Conditions

FIGURE 5.2.14-3A



Source: RBF Consulting 2013



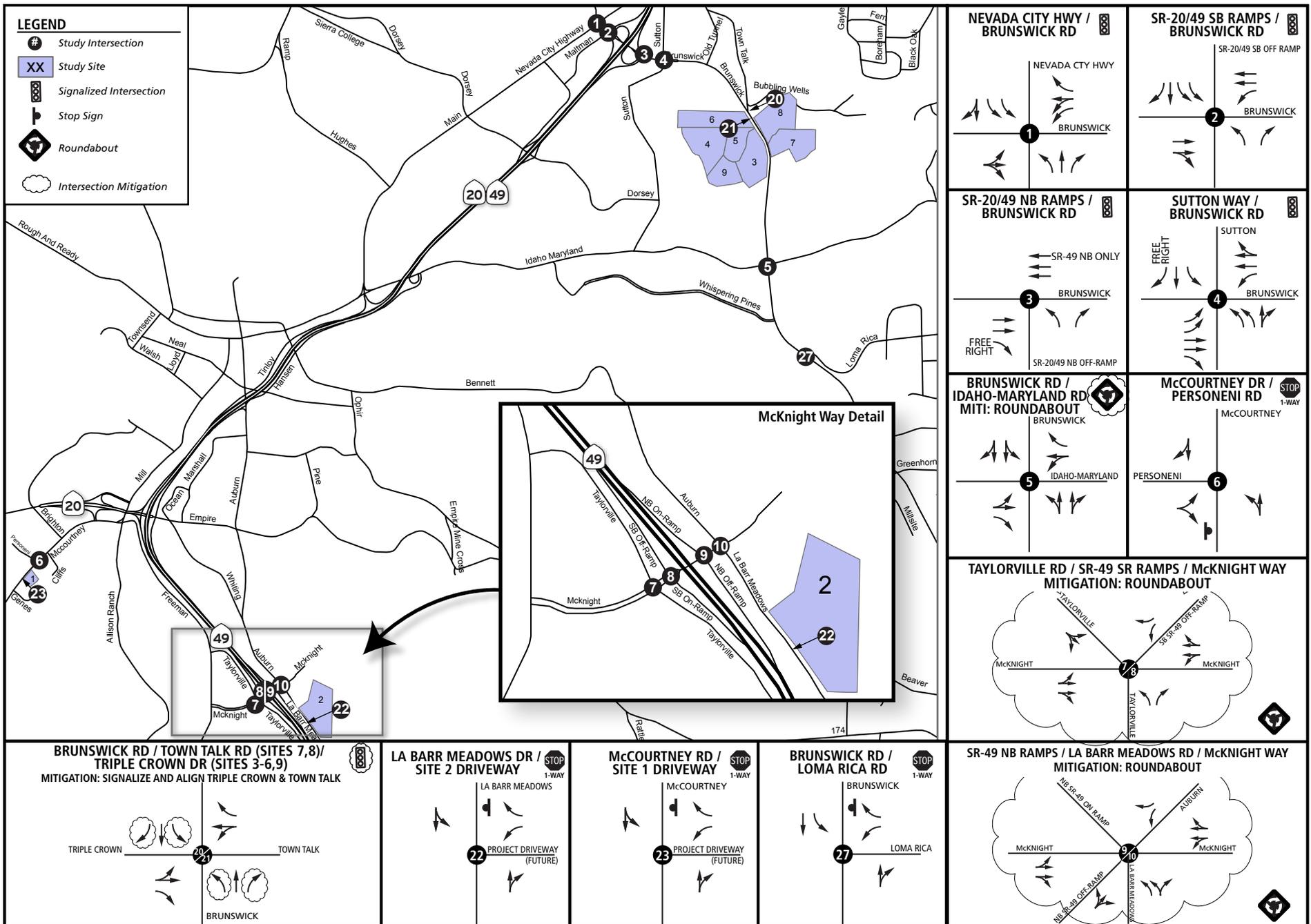
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Intersection Mitigations - Existing plus Background plus Project Conditions

LAKE OF THE PINES STUDY AREA
 COUNTY OF NEVADA: 2009-2014 HOUSING ELEMENT REZONE PROGRAM IMPLEMENTATION EIR

FIGURE 4.15-7B



Source: RBF Consulting 2013

GRASS VALLEY SOI STUDY AREA
 COUNTY OF NEVADA: 2009-2014 HOUSING ELEMENT REZONE PROGRAM IMPLEMENTATION EIR



Not to Scale

Intersection Mitigations - Existing plus Background plus Project Conditions

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FIGURE 4.15-7A

APPENDIX I

Intersection Level of Service Calculations: Mitigated Conditions

HCM Signalized Intersection Capacity Analysis
 1: Nevada City Highway & Brunswick Road

Cumulative + Proj Mitigated PM Peak Hour

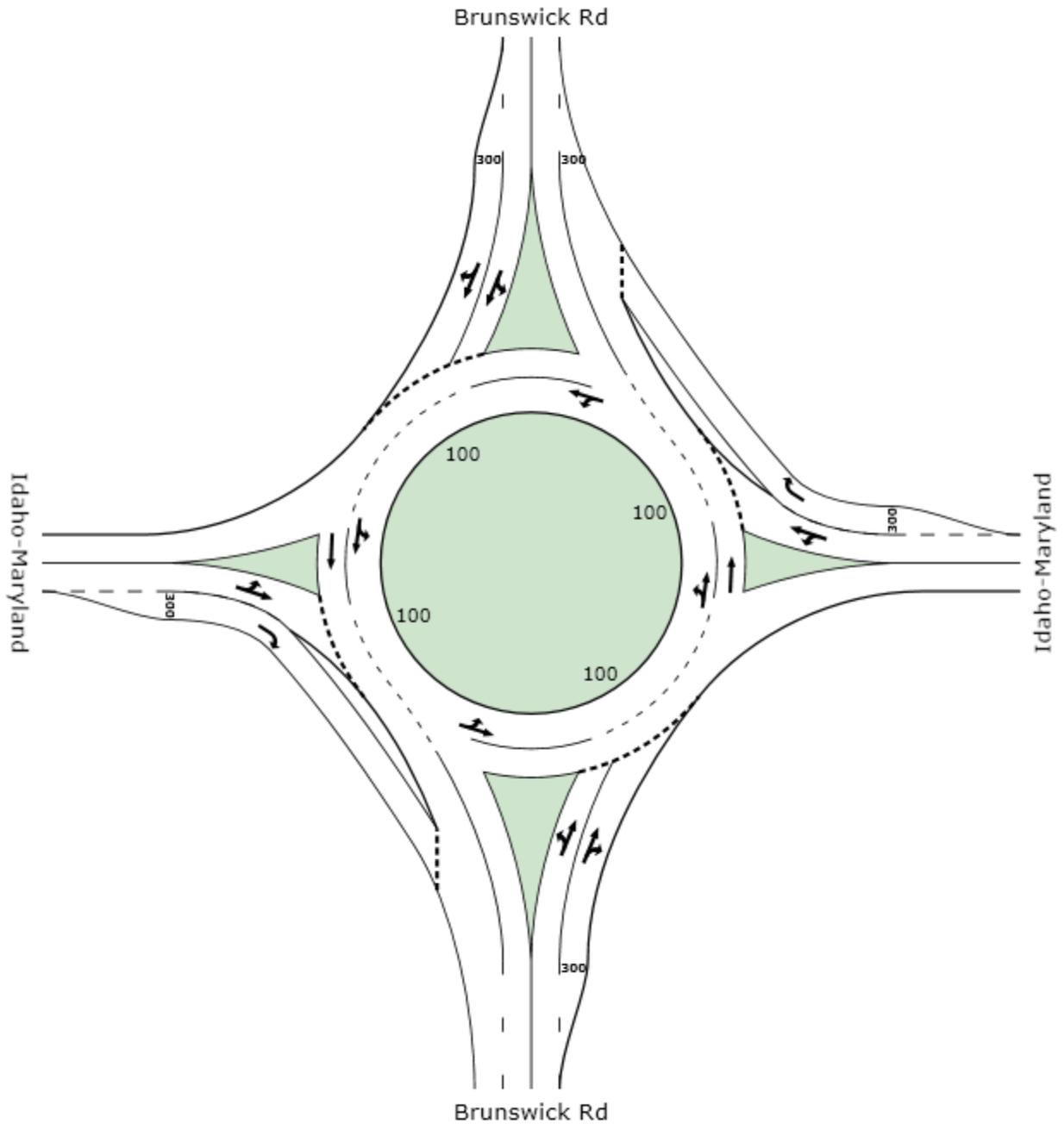
1/9/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗	↖	↖	↑	↖	↖↗	↖	↖
Volume (vph)	10	34	13	340	24	809	12	332	268	854	291	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		1.00		0.95	0.95	1.00	1.00	1.00	1.00	0.97	1.00	
Frbp, ped/bikes		1.00		1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1770		1698	1704	1598	1805	1881	1556	3433	1861	
Flt Permitted		0.99		0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1770		1698	1704	1598	1805	1881	1556	3433	1861	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	11	37	14	366	26	870	13	357	288	918	313	2
RTOR Reduction (vph)	0	12	0	0	0	303	0	0	158	0	0	0
Lane Group Flow (vph)	0	50	0	194	198	567	13	357	130	918	315	0
Confl. Peds. (#/hr)	3					3	11		3	3		11
Heavy Vehicles (%)	0%	0%	14%	1%	5%	0%	0%	1%	2%	2%	2%	0%
Turn Type	Split	NA		Split	NA	pm+ov	Split	NA	Perm	Split	NA	
Protected Phases	6	6		8	8	4	2	2		4	4	
Permitted Phases						8			2			
Actuated Green, G (s)		16.0		14.2	14.2	38.2	19.8	19.8	19.8	24.0	24.0	
Effective Green, g (s)		16.0		14.2	14.2	38.2	19.8	19.8	19.8	24.0	24.0	
Actuated g/C Ratio		0.18		0.16	0.16	0.42	0.22	0.22	0.22	0.27	0.27	
Clearance Time (s)		4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		314		267	268	749	397	413	342	915	496	
v/s Ratio Prot		c0.03		0.11	0.12	c0.20	0.01	c0.19		c0.27	0.17	
v/s Ratio Perm						0.15			0.08			
v/c Ratio		0.16		0.73	0.74	0.76	0.03	0.86	0.38	1.00	0.64	
Uniform Delay, d1		31.3		36.1	36.1	22.0	27.6	33.8	29.9	33.0	29.1	
Progression Factor		1.00		0.74	0.74	0.92	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		1.1		8.4	9.1	3.9	0.2	20.7	3.2	30.5	2.7	
Delay (s)		32.4		35.0	35.7	24.1	27.7	54.5	33.1	63.5	31.8	
Level of Service		C		C	D	C	C	D	C	E	C	
Approach Delay (s)		32.4			27.6			44.6			55.4	
Approach LOS		C			C			D			E	

Intersection Summary

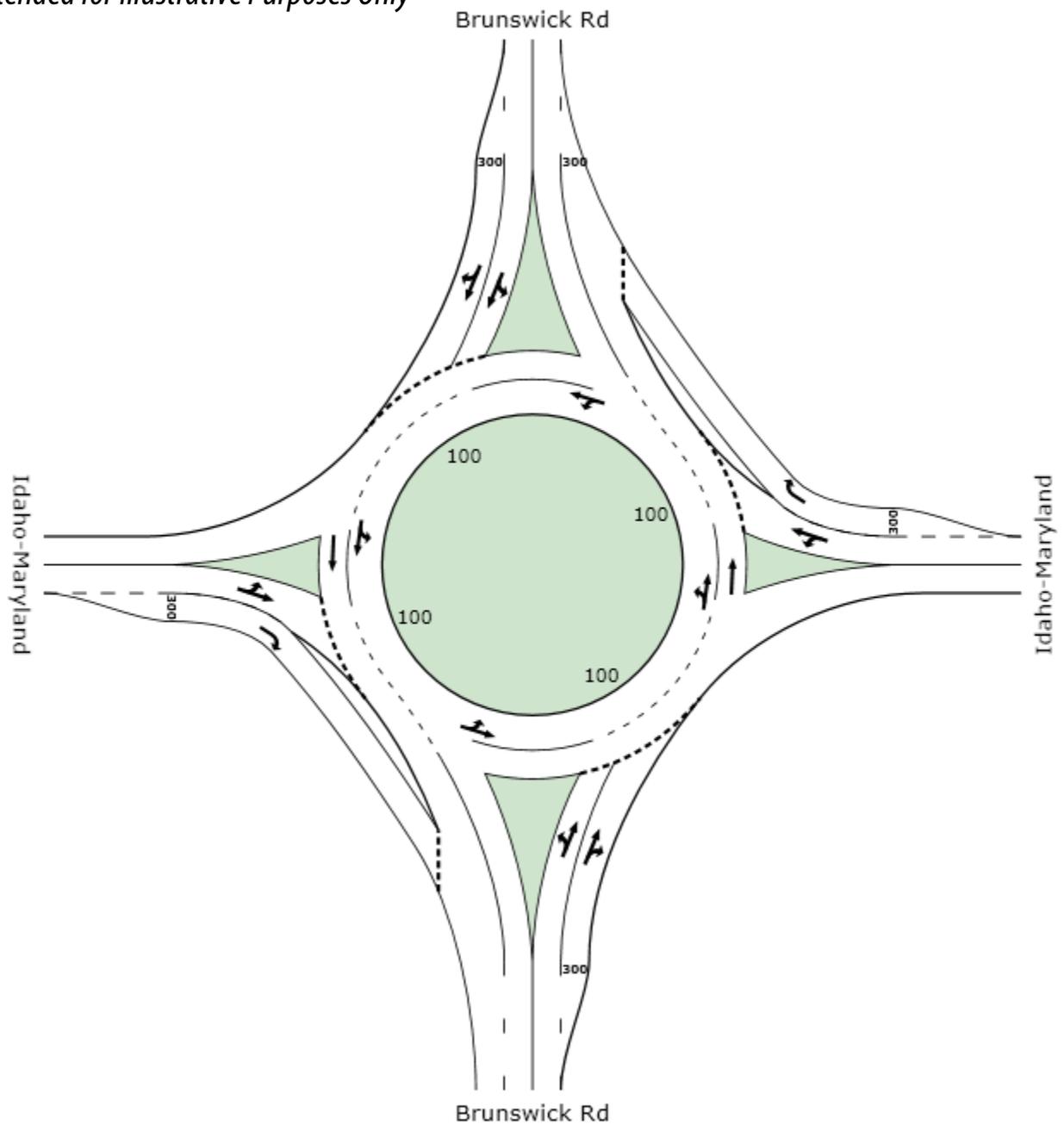
HCM 2000 Control Delay	41.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Brunswick Rd / Idaho-Maryland Rd SIDRA Intersection Roundabout Layout



**Intended for Illustrative Purposes Only*



MOVEMENT SUMMARY

Site: Brunswick / Idaho-Maryland
(E+B)

PM Peak Hour
Existing + Background Mitigation
Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Brunswick Rd											
3L	L	215	2.0	0.479	8.5	LOS A	3.0	76.2	0.64	0.87	26.0
8T	T	577	2.0	0.479	7.6	LOS A	3.0	76.2	0.62	0.69	28.9
8R	R	91	2.0	0.315	6.4	LOS A	1.8	44.9	0.59	0.72	29.4
Approach		884	2.0	0.479	7.7	LOS A	3.0	76.2	0.62	0.73	28.2
East: Idaho-Maryland											
1L	L	146	2.0	0.378	11.1	LOS B	1.9	48.3	0.77	1.00	24.8
6T	T	90	2.0	0.378	11.1	LOS B	1.9	48.3	0.77	0.90	26.6
6R	R	275	2.0	0.329	8.0	LOS A	1.5	38.8	0.67	0.83	28.5
Approach		511	2.0	0.378	9.5	LOS A	1.9	48.3	0.72	0.89	26.9
North: Brunswick Rd											
7L	L	166	2.0	0.370	7.5	LOS A	2.1	53.4	0.65	0.88	26.5
4T	T	480	2.0	0.370	7.3	LOS A	2.1	53.4	0.63	0.71	29.1
4R	R	122	2.0	0.370	7.2	LOS A	2.0	49.8	0.61	0.76	28.9
Approach		768	2.0	0.370	7.3	LOS A	2.1	53.4	0.63	0.76	28.4
West: Idaho-Maryland											
5L	L	135	2.0	0.303	8.7	LOS A	1.4	36.4	0.72	0.95	25.8
2T	T	83	2.0	0.303	8.7	LOS A	1.4	36.4	0.72	0.83	27.9
2R	R	228	2.0	0.252	6.6	LOS A	1.1	29.2	0.62	0.78	29.4
Approach		446	2.0	0.303	7.6	LOS A	1.4	36.4	0.67	0.84	27.9
All Vehicles		2609	2.0	0.479	7.9	LOS A	3.0	76.2	0.65	0.79	27.9

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Model used. Geometric Delay not included.

MOVEMENT SUMMARY

Site: Brunswick / Idaho-Maryland
(C)

PM Peak Hour
Cumulative Mitigation
Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Brunswick Rd											
3L	L	238	2.0	0.611	11.1	LOS B	5.2	131.0	0.74	0.94	25.0
8T	T	789	2.0	0.611	9.6	LOS A	5.2	131.0	0.70	0.76	27.8
8R	R	101	2.0	0.402	7.5	LOS A	2.4	61.8	0.64	0.74	28.8
Approach		1128	2.0	0.611	9.7	LOS A	5.2	131.0	0.70	0.80	27.2
East: Idaho-Maryland											
1L	L	153	2.0	0.489	16.0	LOS C	2.6	66.6	0.82	1.06	22.9
6T	T	98	2.0	0.489	16.0	LOS C	2.6	66.6	0.82	0.98	24.3
6R	R	317	2.0	0.443	11.2	LOS B	2.3	59.4	0.75	0.93	26.7
Approach		568	2.0	0.489	13.3	LOS B	2.6	66.6	0.78	0.97	25.1
North: Brunswick Rd											
7L	L	217	2.0	0.541	10.6	LOS B	4.1	103.3	0.77	0.99	25.1
4T	T	764	2.0	0.541	10.4	LOS B	4.1	103.3	0.74	0.86	27.3
4R	R	101	2.0	0.541	10.3	LOS B	3.8	96.6	0.73	0.89	27.3
Approach		1083	2.0	0.541	10.4	LOS B	4.1	103.3	0.75	0.89	26.8
West: Idaho-Maryland											
5L	L	91	2.0	0.293	10.4	LOS B	1.2	30.7	0.73	0.97	25.1
2T	T	75	2.0	0.293	10.4	LOS B	1.2	30.7	0.73	0.85	27.0
2R	R	161	2.0	0.232	7.9	LOS A	1.0	24.5	0.68	0.83	28.6
Approach		327	2.0	0.293	9.2	LOS A	1.2	30.7	0.71	0.87	27.1
All Vehicles		3107	2.0	0.611	10.6	LOS B	5.2	131.0	0.73	0.87	26.6

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Model used. Geometric Delay not included.

MOVEMENT SUMMARY

Site: Brunswick / Idaho-Maryland
(C+P)

PM Peak Hour
Cumulative + Project Mitigation
Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Brunswick Rd											
3L	L	238	2.0	0.639	11.9	LOS B	5.7	145.2	0.77	0.96	24.7
8T	T	827	2.0	0.639	10.2	LOS B	5.7	145.2	0.72	0.79	27.4
8R	R	101	2.0	0.420	7.8	LOS A	2.6	65.2	0.66	0.76	28.6
Approach		1166	2.0	0.639	10.3	LOS B	5.7	145.2	0.73	0.82	26.9
East: Idaho-Maryland											
1L	L	153	2.0	0.508	17.1	LOS C	2.7	69.7	0.82	1.07	22.5
6T	T	98	2.0	0.508	17.1	LOS C	2.7	69.7	0.82	0.99	23.8
6R	R	343	2.0	0.496	12.7	LOS B	2.8	70.5	0.78	0.96	26.0
Approach		595	2.0	0.508	14.6	LOS B	2.8	70.5	0.80	0.99	24.6
North: Brunswick Rd											
7L	L	228	2.0	0.554	10.9	LOS B	4.3	108.7	0.78	0.99	25.0
4T	T	780	2.0	0.554	10.7	LOS B	4.3	108.7	0.75	0.87	27.2
4R	R	101	2.0	0.554	10.5	LOS B	4.0	101.7	0.74	0.90	27.1
Approach		1110	2.0	0.554	10.7	LOS B	4.3	108.7	0.76	0.90	26.6
West: Idaho-Maryland											
5L	L	91	2.0	0.301	10.8	LOS B	1.2	31.6	0.73	0.97	25.0
2T	T	75	2.0	0.301	10.8	LOS B	1.2	31.6	0.73	0.85	26.8
2R	R	163	2.0	0.239	8.1	LOS A	1.0	25.2	0.69	0.84	28.4
Approach		329	2.0	0.301	9.5	LOS A	1.2	31.6	0.71	0.88	27.0
All Vehicles		3200	2.0	0.639	11.2	LOS B	5.7	145.2	0.75	0.89	26.3

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

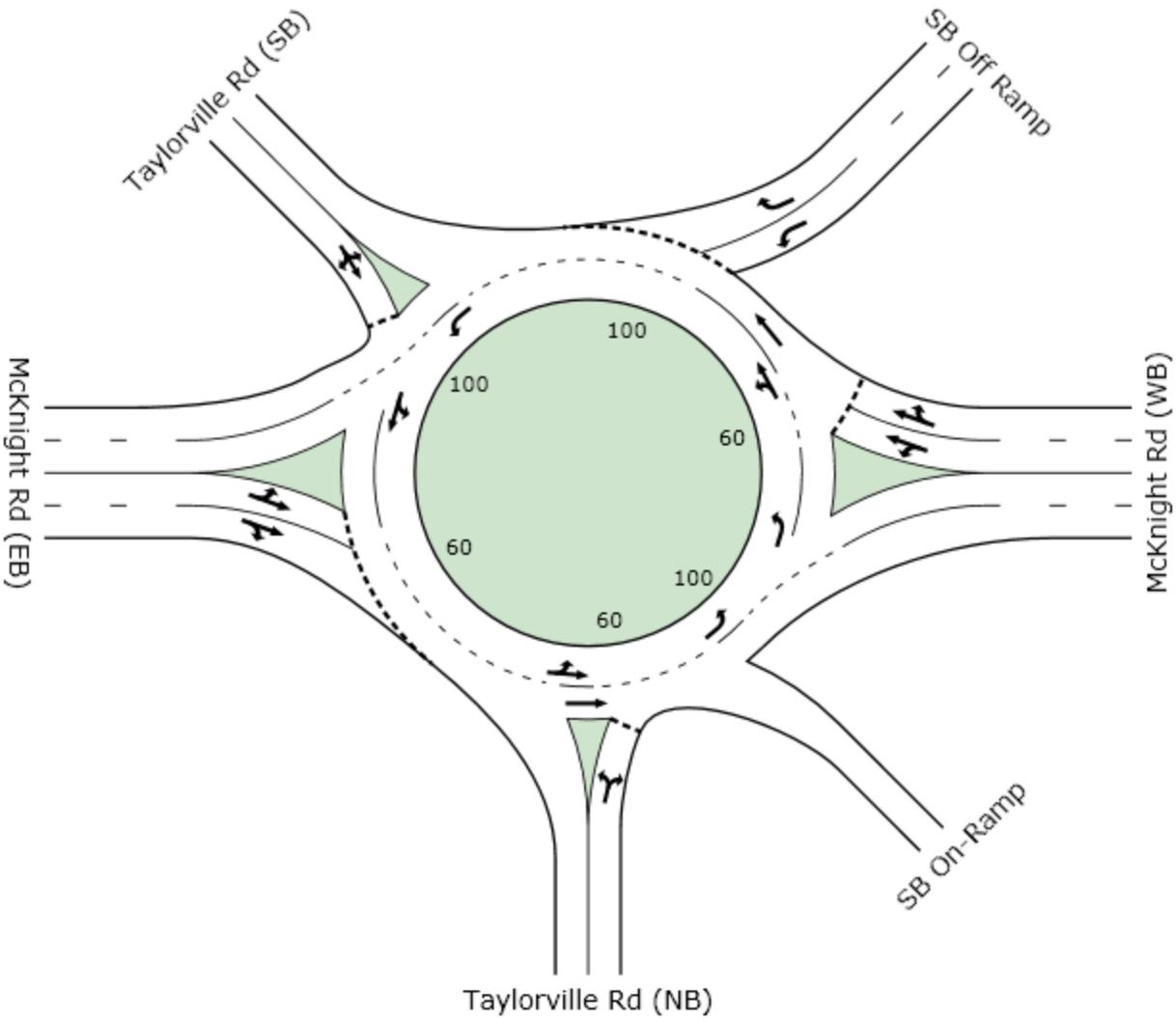
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Model used. Geometric Delay not included.



MOVEMENT SUMMARY

Site: McKnight / Taylorville
Cumulative PM

McKnight Way / Taylorville Rd - McKnight Way / SR 49 SB Ramps
Cumulative Mitigation - PM Peak Hour
Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Taylorville Rd (NB)											
3	L	12	2.1	0.168	14.4	LOS B	0.6	14.6	0.83	0.96	23.3
18	R	42	2.4	0.168	14.4	LOS B	0.6	14.6	0.83	0.93	24.4
Approach		54	2.3	0.168	14.4	LOS B	0.6	14.6	0.83	0.93	24.2
East: McKnight Rd (WB)											
1	L	126	2.8	0.215	4.0	LOS A	1.3	32.9	0.09	0.86	27.4
6	T	389	2.0	0.215	4.0	LOS A	1.3	32.9	0.08	0.42	31.3
16	R	163	3.0	0.215	4.0	LOS A	1.2	29.6	0.08	0.46	31.2
Approach		679	2.4	0.215	4.0	LOS A	1.3	32.9	0.08	0.51	30.4
North East: SB Off Ramp											
1X	L	616	3.0	0.731	18.6	LOS C	6.7	170.9	0.89	1.15	21.5
16X	R	337	3.0	0.429	10.1	LOS B	2.5	63.0	0.75	0.91	27.5
Approach		953	3.0	0.731	15.6	LOS C	6.7	170.9	0.84	1.06	23.2
North West: Taylorville Rd (SB)											
7X	L	5	3.0	0.050	8.8	LOS A	0.2	4.5	0.73	0.95	26.1
4X	T	5	3.0	0.050	8.8	LOS A	0.2	4.5	0.73	0.85	27.6
14X	R	12	3.0	0.050	8.8	LOS A	0.2	4.5	0.73	0.88	27.4
Approach		22	3.0	0.050	8.8	LOS A	0.2	4.5	0.73	0.89	27.1
West: McKnight Rd (EB)											
5	L	1	3.0	0.697	18.8	LOS C	6.1	154.1	0.90	1.18	22.0
2	T	626	2.0	0.697	18.6	LOS C	6.1	154.1	0.90	1.12	23.3
12	R	442	2.9	0.697	17.8	LOS C	5.7	145.9	0.87	1.10	23.4
Approach		1069	2.4	0.697	18.2	LOS C	6.1	154.1	0.89	1.11	23.3
All Vehicles		2777	2.6	0.731	13.7	LOS B	6.7	170.9	0.67	0.94	24.7

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Model used. Geometric Delay not included.

MOVEMENT SUMMARY

Site: McKnight / Taylorville
Cumulative + Proj PM

McKnight Way / Taylorville Rd - McKnight Way / SR 49 SB Ramps
Cumulative + Project Mitigation - PM Peak Hour
Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Taylorville Rd (NB)											
3	L	12	2.1	0.172	14.8	LOS B	0.6	14.9	0.83	0.96	23.2
18	R	42	2.4	0.172	14.8	LOS B	0.6	14.9	0.83	0.93	24.3
Approach		54	2.3	0.172	14.8	LOS B	0.6	14.9	0.83	0.94	24.0
East: McKnight Rd (WB)											
1	L	132	2.8	0.219	4.0	LOS A	1.3	33.6	0.09	0.86	27.4
6	T	397	2.0	0.219	4.0	LOS A	1.3	33.6	0.08	0.42	31.3
16	R	163	3.0	0.219	4.0	LOS A	1.2	30.3	0.08	0.46	31.2
Approach		692	2.4	0.219	4.0	LOS A	1.3	33.6	0.08	0.51	30.4
North East: SB Off Ramp											
1X	L	616	3.0	0.740	19.3	LOS C	6.8	174.9	0.90	1.16	21.3
16X	R	347	3.0	0.449	10.6	LOS B	2.6	67.5	0.76	0.92	27.2
Approach		963	3.0	0.740	16.1	LOS C	6.8	174.9	0.85	1.07	23.0
North West: Taylorville Rd (SB)											
7X	L	5	3.0	0.050	8.9	LOS A	0.2	4.5	0.73	0.95	26.0
4X	T	5	3.0	0.050	8.9	LOS A	0.2	4.5	0.73	0.86	27.6
14X	R	12	3.0	0.050	8.9	LOS A	0.2	4.5	0.73	0.88	27.4
Approach		22	3.0	0.050	8.9	LOS A	0.2	4.5	0.73	0.89	27.1
West: McKnight Rd (EB)											
5	L	1	3.0	0.714	19.7	LOS C	6.4	162.5	0.91	1.19	21.7
2	T	643	2.0	0.714	19.5	LOS C	6.4	162.5	0.91	1.14	22.9
12	R	445	2.9	0.714	18.6	LOS C	6.0	153.9	0.88	1.12	23.1
Approach		1089	2.4	0.714	19.1	LOS C	6.4	162.5	0.90	1.13	23.0
All Vehicles		2820	2.6	0.740	14.2	LOS B	6.8	174.9	0.68	0.95	24.5

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

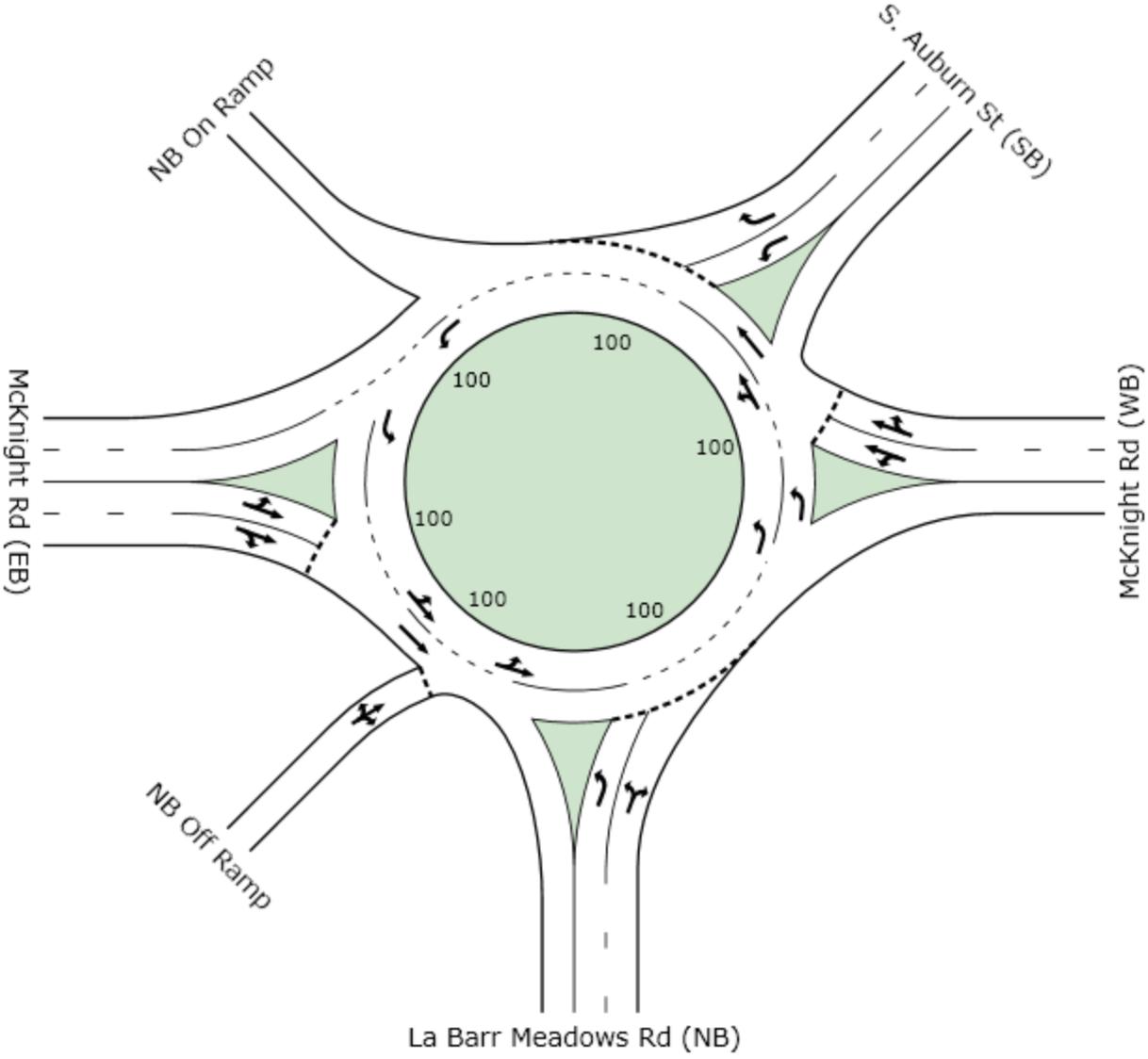
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Model used. Geometric Delay not included.



MOVEMENT SUMMARY

Site: McKnight / La Barr Ext + Proj
PM

McKnight Way / La Barr Meadows Road - McKnight Way / SR 49 NB Ramps
Existing + Background + Project Mitigation - PM Peak Hour
Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: La Barr Meadows Rd (NB)											
3	L	298	2.0	0.278	8.1	LOS A	1.3	33.0	0.70	0.93	26.1
18	R	121	2.0	0.278	7.7	LOS A	1.2	31.1	0.67	0.80	28.6
Approach		418	2.0	0.278	8.0	LOS A	1.3	33.0	0.69	0.89	26.7
East: McKnight Rd (WB)											
1	L	28	2.0	0.098	8.0	LOS A	0.4	10.0	0.71	0.95	26.2
6	T	33	2.0	0.098	7.8	LOS A	0.4	10.0	0.70	0.82	28.6
16	R	49	2.0	0.098	7.3	LOS A	0.4	9.4	0.67	0.83	29.0
Approach		110	2.0	0.098	7.6	LOS A	0.4	10.0	0.69	0.86	28.1
North East: S. Auburn St (SB)											
1X	L	160	2.0	0.233	8.0	LOS A	1.0	26.7	0.71	0.91	26.1
16X	R	241	2.0	0.323	8.7	LOS A	1.5	37.2	0.70	0.85	28.2
Approach		401	2.0	0.323	8.4	LOS A	1.5	37.2	0.70	0.87	27.3
West: McKnight Rd (EB)											
5	L	496	2.0	0.419	6.7	LOS A	2.7	68.1	0.46	0.71	26.5
2	T	71	2.0	0.419	6.7	LOS A	2.7	68.1	0.46	0.50	29.2
12	R	564	2.0	0.425	6.8	LOS A	3.0	76.0	0.50	0.59	28.8
Approach		1130	2.0	0.425	6.7	LOS A	3.0	76.0	0.48	0.63	27.7
South West: NB Off Ramp											
5X	L	152	2.0	0.599	21.1	LOS C	3.2	82.4	0.85	1.11	21.0
2X	T	33	2.0	0.599	21.1	LOS C	3.2	82.4	0.85	1.04	22.1
12X	R	102	2.0	0.599	21.1	LOS C	3.2	82.4	0.85	1.07	21.9
Approach		287	2.0	0.599	21.1	LOS C	3.2	82.4	0.85	1.08	21.4
All Vehicles		2347	2.0	0.599	9.1	LOS A	3.2	82.4	0.61	0.79	26.5

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Model used. Geometric Delay not included.

MOVEMENT SUMMARY

Site: McKnight / La Barr
Cumulative PM

McKnight Way / La Barr Meadows Road - McKnight Way / SR 49 NB Ramps
Cumulative Mitigation - PM Peak Hour
Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: La Barr Meadows Rd (NB)											
3	L	766	2.0	0.727	20.4	LOS C	6.6	166.9	0.91	1.18	21.4
18	R	319	2.0	0.727	19.6	LOS C	6.3	159.1	0.89	1.12	22.9
Approach		1085	2.0	0.727	20.2	LOS C	6.6	166.9	0.90	1.16	21.8
East: McKnight Rd (WB)											
1	L	21	2.0	0.181	17.4	LOS C	0.6	16.4	0.86	0.98	22.6
6	T	32	2.0	0.181	17.0	LOS C	0.6	16.4	0.86	0.91	24.0
16	R	53	2.0	0.181	14.7	LOS B	0.6	15.8	0.83	0.91	25.0
Approach		106	2.0	0.181	15.9	LOS C	0.6	16.4	0.84	0.93	24.1
North East: S. Auburn St (SB)											
1X	L	255	2.0	0.520	17.6	LOS C	2.6	66.3	0.82	1.05	22.3
16X	R	223	2.0	0.519	19.7	LOS C	2.7	68.3	0.85	1.03	23.0
Approach		479	2.0	0.520	18.6	LOS C	2.7	68.3	0.83	1.04	22.6
West: McKnight Rd (EB)											
5	L	505	2.0	0.478	8.0	LOS A	3.4	85.2	0.62	0.76	25.9
2	T	74	2.0	0.478	8.0	LOS A	3.4	85.2	0.62	0.61	28.2
12	R	691	2.0	0.554	9.2	LOS A	4.0	102.3	0.63	0.69	27.5
Approach		1271	2.0	0.554	8.7	LOS A	4.0	102.3	0.63	0.71	26.8
South West: NB Off Ramp											
5X	L	149	2.0	0.767	37.8	LOS E	4.8	121.5	0.93	1.24	17.1
2X	T	32	2.0	0.767	37.8	LOS E	4.8	121.5	0.93	1.21	17.4
12X	R	117	2.0	0.767	37.8	LOS E	4.8	121.5	0.93	1.22	17.3
Approach		298	2.0	0.767	37.8	LOS E	4.8	121.5	0.93	1.23	17.2
All Vehicles		3239	2.0	0.767	16.9	LOS C	6.6	166.9	0.78	0.96	23.1

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Model used. Geometric Delay not included.

MOVEMENT SUMMARY

Site: McKnight / La Barr
Cumulative + Proj PM

McKnight Way / La Barr Meadows Road - McKnight Way / SR 49 NB Ramps
Cumulative + Project Mitigation - PM Peak Hour
Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: La Barr Meadows Rd (NB)											
3	L	804	2.0	0.788	25.2	LOS D	8.0	202.9	0.94	1.25	20.0
18	R	330	2.0	0.788	24.1	LOS C	7.6	194.0	0.93	1.21	21.2
Approach		1135	2.0	0.788	24.9	LOS C	8.0	202.9	0.94	1.24	20.3
East: McKnight Rd (WB)											
1	L	22	2.0	0.201	19.4	LOS C	0.7	17.9	0.87	0.98	21.9
6	T	33	2.0	0.201	18.9	LOS C	0.7	17.9	0.87	0.92	23.2
16	R	54	2.0	0.201	16.2	LOS C	0.7	17.4	0.85	0.92	24.3
Approach		109	2.0	0.201	17.7	LOS C	0.7	17.9	0.86	0.93	23.4
North East: S. Auburn St (SB)											
1X	L	282	2.0	0.607	22.1	LOS C	3.3	83.2	0.86	1.10	20.9
16X	R	238	2.0	0.589	23.9	LOS C	3.2	81.4	0.88	1.08	21.4
Approach		520	2.0	0.607	22.9	LOS C	3.3	83.2	0.87	1.09	21.1
West: McKnight Rd (EB)											
5	L	534	2.0	0.517	8.8	LOS A	3.7	94.3	0.67	0.78	25.5
2	T	76	2.0	0.517	8.8	LOS A	3.7	94.3	0.67	0.65	27.6
12	R	741	2.0	0.609	10.5	LOS B	5.2	130.9	0.70	0.75	26.8
Approach		1351	2.0	0.609	9.8	LOS A	5.2	130.9	0.68	0.76	26.3
South West: NB Off Ramp											
5X	L	154	2.0	0.534	24.0	LOS C	2.4	61.2	0.88	1.09	20.2
2X	T	34	2.0	0.534	24.0	LOS C	2.4	61.2	0.88	1.04	21.1
12X	R	129	2.0	0.435	23.3	LOS C	1.9	47.1	0.88	1.03	21.2
Approach		317	2.0	0.534	23.7	LOS C	2.4	61.2	0.88	1.06	20.6
All Vehicles		3432	2.0	0.788	18.3	LOS C	8.0	202.9	0.82	1.00	22.6

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Model used. Geometric Delay not included.

HCM Signalized Intersection Capacity Analysis
16: SR-49 & Wolf Road/Combie Road

Existing + Backgrnd - Mitigated
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	31	163	93	368	141	285	187	1034	591	405	586	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	6.0	3.5	3.5	6.0	3.5
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1703	1881	1553	3433	1845	1568	1770	3505	1599	3400	3471	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1703	1881	1553	3433	1845	1568	1770	3505	1599	3400	3471	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	34	177	101	400	153	310	199	1100	629	431	623	27
RTOR Reduction (vph)	0	0	86	0	0	228	0	0	79	0	0	16
Lane Group Flow (vph)	34	177	15	400	153	82	199	1100	550	431	623	11
Heavy Vehicles (%)	6%	1%	4%	2%	3%	3%	2%	3%	1%	3%	4%	4%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	3.5	14.8	14.8	14.7	26.0	26.0	15.5	37.5	52.2	15.0	37.0	40.5
Effective Green, g (s)	3.5	14.8	14.8	14.7	26.0	26.0	15.5	37.5	52.2	15.0	37.0	40.5
Actuated g/C Ratio	0.04	0.15	0.15	0.15	0.26	0.26	0.16	0.38	0.53	0.15	0.38	0.41
Clearance Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	6.0	3.5	3.5	6.0	3.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	60	282	233	512	487	413	278	1334	847	517	1303	638
v/s Ratio Prot	0.02	c0.09		c0.12	0.08		0.11	c0.31	0.10	c0.13	0.18	0.00
v/s Ratio Perm			0.01			0.05			0.25			0.01
v/c Ratio	0.57	0.63	0.07	0.78	0.31	0.20	0.72	0.82	0.65	0.83	0.48	0.02
Uniform Delay, d1	46.8	39.3	35.9	40.4	29.1	28.2	39.4	27.5	16.6	40.5	23.4	17.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.7	4.3	0.1	7.6	0.4	0.2	8.5	5.9	1.7	11.1	1.3	0.0
Delay (s)	58.4	43.6	36.0	48.0	29.5	28.4	47.9	33.4	18.3	51.6	24.7	17.2
Level of Service	E	D	D	D	C	C	D	C	B	D	C	B
Approach Delay (s)		42.8			37.6			30.0			35.2	
Approach LOS		D			D			C			D	
Intersection Summary												
HCM 2000 Control Delay			33.9			HCM 2000 Level of Service		C				
HCM 2000 Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			98.5			Sum of lost time (s)		16.5				
Intersection Capacity Utilization			74.2%			ICU Level of Service		D				
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 16: SR-49 & Wolf Road/Combie Road

Existing + Backgrnd + Proj - Mitigated
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	33	168	93	374	143	295	187	1062	603	420	599	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	6.0	3.5	3.5	6.0	3.5
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1703	1881	1553	3433	1845	1568	1770	3505	1599	3400	3471	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1703	1881	1553	3433	1845	1568	1770	3505	1599	3400	3471	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	36	183	101	407	155	321	199	1130	641	447	637	28
RTOR Reduction (vph)	0	0	86	0	0	236	0	0	75	0	0	17
Lane Group Flow (vph)	36	183	15	407	155	85	199	1130	566	447	637	11
Heavy Vehicles (%)	6%	1%	4%	2%	3%	3%	2%	3%	1%	3%	4%	4%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	3.5	15.0	15.0	14.8	26.3	26.3	15.6	37.5	52.3	15.2	37.1	40.6
Effective Green, g (s)	3.5	15.0	15.0	14.8	26.3	26.3	15.6	37.5	52.3	15.2	37.1	40.6
Actuated g/C Ratio	0.04	0.15	0.15	0.15	0.27	0.27	0.16	0.38	0.53	0.15	0.37	0.41
Clearance Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	6.0	3.5	3.5	6.0	3.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	60	285	235	513	490	416	278	1327	844	522	1300	636
v/s Ratio Prot	0.02	c0.10		c0.12	0.08		0.11	c0.32	0.10	c0.13	0.18	0.00
v/s Ratio Perm			0.01			0.05			0.25			0.01
v/c Ratio	0.60	0.64	0.07	0.79	0.32	0.20	0.72	0.85	0.67	0.86	0.49	0.02
Uniform Delay, d1	47.1	39.5	36.0	40.6	29.1	28.2	39.6	28.2	17.0	40.8	23.7	17.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	15.1	4.9	0.1	8.2	0.4	0.2	8.5	7.0	2.1	13.0	1.3	0.0
Delay (s)	62.2	44.4	36.1	48.9	29.5	28.5	48.1	35.2	19.2	53.8	25.0	17.4
Level of Service	E	D	D	D	C	C	D	D	B	D	C	B
Approach Delay (s)		43.8			38.1			31.3			36.4	
Approach LOS		D			D			C			D	

Intersection Summary

HCM 2000 Control Delay	35.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	99.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
16: SR-49 & Wolf Road/Combie Road

Cumulative - Mitigated
3/1/2013

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	42	175	103	415	158	313	210	1231	704	435	755	53	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	6.0	3.5	3.5	6.0	3.5	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	1.00	0.97	0.95	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1703	1881	1553	3433	1845	1568	1770	3505	1599	3400	3471	1553	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1703	1881	1553	3433	1845	1568	1770	3505	1599	3400	3471	1553	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	46	190	112	451	172	340	228	1338	765	473	821	58	
RTOR Reduction (vph)	0	0	95	0	0	214	0	0	67	0	0	34	
Lane Group Flow (vph)	46	190	17	451	172	126	228	1338	698	473	821	24	
Heavy Vehicles (%)	6%	1%	4%	2%	3%	3%	2%	3%	1%	3%	4%	4%	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov	
Protected Phases	7	4		3	8		5	2	3	1	6	7	
Permitted Phases			4			8			2			6	
Actuated Green, G (s)	3.6	15.6	15.6	15.5	27.5	27.5	16.1	41.4	56.9	13.5	38.8	42.4	
Effective Green, g (s)	3.6	15.6	15.6	15.5	27.5	27.5	16.1	41.4	56.9	13.5	38.8	42.4	
Actuated g/C Ratio	0.04	0.15	0.15	0.15	0.27	0.27	0.16	0.40	0.56	0.13	0.38	0.41	
Clearance Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	6.0	3.5	3.5	6.0	3.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	59	286	236	519	495	420	278	1415	887	447	1313	642	
v/s Ratio Prot	0.03	c0.10		c0.13	0.09		0.13	c0.38	0.12	c0.14	0.24	0.00	
v/s Ratio Perm			0.01			0.08			0.32			0.01	
v/c Ratio	0.78	0.66	0.07	0.87	0.35	0.30	0.82	0.95	0.79	1.06	0.63	0.04	
Uniform Delay, d1	49.1	41.0	37.2	42.5	30.3	29.8	41.8	29.5	18.0	44.5	25.9	17.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	46.8	5.7	0.1	14.4	0.4	0.4	17.3	14.0	4.7	58.8	2.3	0.0	
Delay (s)	95.8	46.7	37.4	56.9	30.7	30.3	59.1	43.5	22.7	103.3	28.2	17.9	
Level of Service	F	D	D	E	C	C	E	D	C	F	C	B	
Approach Delay (s)		50.2			42.8			38.2			54.0		
Approach LOS		D			D			D			D		
Intersection Summary													
HCM 2000 Control Delay			44.2		HCM 2000 Level of Service						D		
HCM 2000 Volume to Capacity ratio			0.90										
Actuated Cycle Length (s)			102.5		Sum of lost time (s)						16.5		
Intersection Capacity Utilization			82.5%		ICU Level of Service						E		
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis
16: SR-49 & Wolf Road/Combie Road

Cumulative + Proj - Mitigated
3/1/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	44	180	103	421	160	323	210	1259	716	450	768	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	6.0	3.5	3.5	6.0	3.5
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1703	1881	1553	3433	1845	1568	1770	3505	1599	3400	3471	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1703	1881	1553	3433	1845	1568	1770	3505	1599	3400	3471	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	48	196	112	458	174	351	228	1368	778	489	835	59
RTOR Reduction (vph)	0	0	95	0	0	212	0	0	64	0	0	35
Lane Group Flow (vph)	48	196	17	458	174	139	228	1368	714	489	835	24
Heavy Vehicles (%)	6%	1%	4%	2%	3%	3%	2%	3%	1%	3%	4%	4%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	3.6	15.8	15.8	15.5	27.7	27.7	16.1	41.4	56.9	13.5	38.8	42.4
Effective Green, g (s)	3.6	15.8	15.8	15.5	27.7	27.7	16.1	41.4	56.9	13.5	38.8	42.4
Actuated g/C Ratio	0.04	0.15	0.15	0.15	0.27	0.27	0.16	0.40	0.55	0.13	0.38	0.41
Clearance Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	6.0	3.5	3.5	6.0	3.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	59	289	238	518	497	422	277	1412	885	446	1311	641
v/s Ratio Prot	0.03	c0.10		c0.13	0.09		0.13	c0.39	0.12	c0.14	0.24	0.00
v/s Ratio Perm			0.01			0.09			0.32			0.01
v/c Ratio	0.81	0.68	0.07	0.88	0.35	0.33	0.82	0.97	0.81	1.10	0.64	0.04
Uniform Delay, d1	49.2	41.0	37.2	42.7	30.2	30.1	41.9	30.0	18.5	44.6	26.2	18.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	55.7	6.2	0.1	16.3	0.4	0.5	17.6	17.6	5.4	71.3	2.4	0.0
Delay (s)	104.9	47.2	37.3	59.0	30.7	30.5	59.5	47.6	23.9	115.9	28.6	18.0
Level of Service	F	D	D	E	C	C	E	D	C	F	C	B
Approach Delay (s)		51.9			43.8			41.0			59.0	
Approach LOS		D			D			D			E	

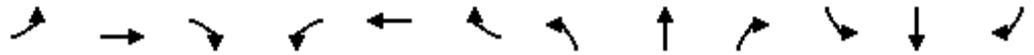
Intersection Summary

HCM 2000 Control Delay	47.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	102.7	Sum of lost time (s)	16.5
Intersection Capacity Utilization	84.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 17: Rosewood Rd/Armstrong Rd & Combie Road

Existing + Backgrnd - Mitigated
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	59	979	18	6	692	46	8	0	4	62	1	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	1.00			1.00			1.00	1.00
Frt	1.00	1.00		1.00	0.99			0.96			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.95	1.00
Satd. Flow (prot)	1805	3531		1805	1848			1760			1811	1615
Flt Permitted	0.95	1.00		0.95	1.00			0.83			0.72	1.00
Satd. Flow (perm)	1805	3531		1805	1848			1518			1368	1615
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	66	1088	20	7	769	51	9	0	4	69	1	86
RTOR Reduction (vph)	0	2	0	0	3	0	0	11	0	0	0	72
Lane Group Flow (vph)	66	1106	0	7	817	0	0	2	0	0	70	14
Heavy Vehicles (%)	0%	2%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		6
Actuated Green, G (s)	2.4	33.8		0.6	32.0			9.0			9.0	9.0
Effective Green, g (s)	2.4	33.8		0.6	32.0			9.0			9.0	9.0
Actuated g/C Ratio	0.04	0.61		0.01	0.58			0.16			0.16	0.16
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	78	2154		19	1067			246			222	262
v/s Ratio Prot	c0.04	0.31		0.00	c0.44							
v/s Ratio Perm								0.00			c0.05	0.01
v/c Ratio	0.85	0.51		0.37	0.77			0.01			0.32	0.05
Uniform Delay, d1	26.3	6.1		27.2	8.9			19.5			20.5	19.6
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	53.3	0.2		11.7	3.3			0.0			0.8	0.1
Delay (s)	79.7	6.3		38.9	12.2			19.5			21.3	19.7
Level of Service	E	A		D	B			B			C	B
Approach Delay (s)		10.5			12.4			19.5			20.4	
Approach LOS		B			B			B			C	

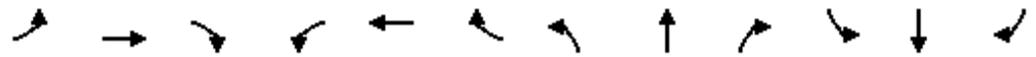
Intersection Summary

HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	55.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 17: Rosewood Rd/Armstrong Rd & Combie Road

Existing + Backgrnd + Proj - Mitigated
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	59	1007	22	7	710	46	9	0	4	62	1	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	1.00			1.00			1.00	1.00
Frt	1.00	1.00		1.00	0.99			0.96			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.95	1.00
Satd. Flow (prot)	1805	3530		1805	1848			1764			1811	1615
Flt Permitted	0.95	1.00		0.95	1.00			0.83			0.72	1.00
Satd. Flow (perm)	1805	3530		1805	1848			1509			1367	1615
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	66	1119	24	8	789	51	10	0	4	69	1	86
RTOR Reduction (vph)	0	2	0	0	3	0	0	12	0	0	0	72
Lane Group Flow (vph)	66	1141	0	8	837	0	0	2	0	0	70	14
Heavy Vehicles (%)	0%	2%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		6
Actuated Green, G (s)	2.4	34.8		0.6	33.0			9.0			9.0	9.0
Effective Green, g (s)	2.4	34.8		0.6	33.0			9.0			9.0	9.0
Actuated g/C Ratio	0.04	0.62		0.01	0.59			0.16			0.16	0.16
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	76	2178		19	1081			240			218	257
v/s Ratio Prot	c0.04	0.32		0.00	c0.45							
v/s Ratio Perm								0.00			c0.05	0.01
v/c Ratio	0.87	0.52		0.42	0.77			0.01			0.32	0.05
Uniform Delay, d1	26.8	6.1		27.7	8.9			19.9			21.0	20.1
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	60.2	0.2		14.4	3.5			0.0			0.9	0.1
Delay (s)	87.0	6.3		42.1	12.4			20.0			21.9	20.2
Level of Service	F	A		D	B			B			C	C
Approach Delay (s)		10.7			12.7			20.0			20.9	
Approach LOS		B			B			B			C	

Intersection Summary

HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	56.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	60.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 17: Rosewood Rd/Armstrong Rd & Combie Road

Cumulative - Mitigated
 3/1/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	107	1041	20	10	753	69	11	0	6	91	2	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	1.00			1.00			1.00	1.00
Frt	1.00	1.00		1.00	0.99			0.95			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.95	1.00
Satd. Flow (prot)	1805	3531		1805	1842			1750			1811	1615
Flt Permitted	0.95	1.00		0.95	1.00			0.83			0.72	1.00
Satd. Flow (perm)	1805	3531		1805	1842			1500			1361	1615
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	119	1157	22	11	837	77	12	0	7	101	2	113
RTOR Reduction (vph)	0	1	0	0	4	0	0	16	0	0	0	96
Lane Group Flow (vph)	119	1178	0	11	910	0	0	3	0	0	103	17
Heavy Vehicles (%)	0%	2%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		6
Actuated Green, G (s)	7.2	48.5		0.7	42.0			10.7			10.7	10.7
Effective Green, g (s)	7.2	48.5		0.7	42.0			10.7			10.7	10.7
Actuated g/C Ratio	0.10	0.67		0.01	0.58			0.15			0.15	0.15
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	180	2381		17	1075			223			202	240
v/s Ratio Prot	c0.07	0.33		0.01	c0.49							
v/s Ratio Perm								0.00			c0.08	0.01
v/c Ratio	0.66	0.49		0.65	0.85			0.01			0.51	0.07
Uniform Delay, d1	31.2	5.7		35.5	12.3			26.1			28.2	26.3
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	8.8	0.2		62.0	6.3			0.0			2.0	0.1
Delay (s)	40.0	5.9		97.5	18.6			26.1			30.2	26.4
Level of Service	D	A		F	B			C			C	C
Approach Delay (s)		9.0			19.5			26.1			28.2	
Approach LOS		A			B			C			C	

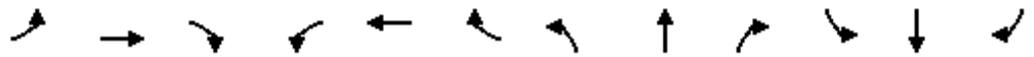
Intersection Summary

HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	71.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 17: Rosewood Rd/Armstrong Rd & Combie Road

Cumulative + Proj - Mitigated
 3/1/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	107	1069	24	11	771	69	12	0	6	91	2	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	1.00			1.00			1.00	1.00
Frt	1.00	1.00		1.00	0.99			0.95			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.95	1.00
Satd. Flow (prot)	1805	3529		1805	1843			1753			1811	1615
Flt Permitted	0.95	1.00		0.95	1.00			0.82			0.72	1.00
Satd. Flow (perm)	1805	3529		1805	1843			1491			1360	1615
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	119	1188	27	12	857	77	13	0	7	101	2	113
RTOR Reduction (vph)	0	2	0	0	4	0	0	17	0	0	0	96
Lane Group Flow (vph)	119	1213	0	12	930	0	0	3	0	0	103	17
Heavy Vehicles (%)	0%	2%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		6
Actuated Green, G (s)	7.1	49.3		0.7	42.9			10.7			10.7	10.7
Effective Green, g (s)	7.1	49.3		0.7	42.9			10.7			10.7	10.7
Actuated g/C Ratio	0.10	0.68		0.01	0.59			0.15			0.15	0.15
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	176	2393		17	1087			219			200	237
v/s Ratio Prot	c0.07	0.34		0.01	c0.50						c0.08	0.01
v/s Ratio Perm								0.00				0.01
v/c Ratio	0.68	0.51		0.71	0.86			0.01			0.52	0.07
Uniform Delay, d1	31.7	5.7		35.9	12.3			26.5			28.6	26.7
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	9.8	0.2		84.0	6.8			0.0			2.2	0.1
Delay (s)	41.5	5.9		119.9	19.1			26.5			30.8	26.8
Level of Service	D	A		F	B			C			C	C
Approach Delay (s)		9.1			20.4			26.5			28.7	
Approach LOS		A			C			C			C	

Intersection Summary

HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	72.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 21: Brunswick Road & Dwy Sites 3-6 and 9

Ex + Bkg + Proj PM Peak Hour Mitigation
 1/10/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	106	35	72	799	774	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	1770	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	115	38	78	868	841	234
RTOR Reduction (vph)	0	33	0	0	0	87
Lane Group Flow (vph)	115	5	78	868	841	147
Turn Type	NA	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Actuated Green, G (s)	7.2	7.2	2.9	40.4	33.5	33.5
Effective Green, g (s)	7.2	7.2	2.9	40.4	33.5	33.5
Actuated g/C Ratio	0.13	0.13	0.05	0.73	0.60	0.60
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	229	204	92	1353	1122	953
v/s Ratio Prot	c0.06		0.04	c0.47	c0.45	
v/s Ratio Perm		0.00				0.09
v/c Ratio	0.50	0.02	0.85	0.64	0.75	0.15
Uniform Delay, d1	22.5	21.1	26.1	3.9	8.0	4.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.7	0.0	47.8	1.1	2.8	0.1
Delay (s)	24.3	21.2	73.9	4.9	10.8	4.9
Level of Service	C	C	E	A	B	A
Approach Delay (s)	23.5			10.6	9.5	
Approach LOS	C			B	A	

Intersection Summary

HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	55.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 21: Brunswick Road & Dwy Sites 3-6 and 9

Cumulative + Proj Mitigated PM Peak Hour

1/9/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	106	35	72	1077	897	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	1770	1863	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	115	38	78	1171	975	234
RTOR Reduction (vph)	0	33	0	0	0	47
Lane Group Flow (vph)	115	5	78	1171	975	187
Turn Type	NA	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Actuated Green, G (s)	7.8	7.8	2.9	49.6	42.7	42.7
Effective Green, g (s)	7.8	7.8	2.9	49.6	42.7	42.7
Actuated g/C Ratio	0.12	0.12	0.04	0.76	0.65	0.65
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	211	188	78	1412	1216	1033
v/s Ratio Prot	c0.06		0.04	c0.63	0.52	
v/s Ratio Perm		0.00				0.12
v/c Ratio	0.55	0.02	1.00	0.83	0.80	0.18
Uniform Delay, d1	27.1	25.4	31.3	5.1	8.3	4.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.9	0.1	101.9	4.2	3.9	0.1
Delay (s)	30.0	25.5	133.2	9.3	12.2	4.6
Level of Service	C	C	F	A	B	A
Approach Delay (s)	28.9			17.1	10.7	
Approach LOS	C			B	B	

Intersection Summary

HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	65.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

28: Higgins Road & Combie Road

Existing + Backgrnd - Mitigated
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 						 	
Volume (vph)	0	838	217	255	546	0	255	0	252	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0			4.0	4.0			
Lane Util. Factor		0.95		1.00	0.95			1.00	1.00			
Frt		0.97		1.00	1.00			1.00	0.85			
Flt Protected		1.00		0.95	1.00			0.95	1.00			
Satd. Flow (prot)		3430		1770	3539			1770	1583			
Flt Permitted		1.00		0.95	1.00			0.76	1.00			
Satd. Flow (perm)		3430		1770	3539			1410	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	911	236	277	593	0	277	0	274	0	0	0
RTOR Reduction (vph)	0	25	0	0	0	0	0	0	204	0	0	0
Lane Group Flow (vph)	0	1122	0	277	593	0	0	277	70	0	0	0
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm		
Protected Phases	7	4		3	8			2				6
Permitted Phases							2		2	6		
Actuated Green, G (s)		31.3		16.6	51.9			20.4	20.4			
Effective Green, g (s)		31.3		16.6	51.9			20.4	20.4			
Actuated g/C Ratio		0.39		0.21	0.65			0.25	0.25			
Clearance Time (s)		4.0		4.0	4.0			4.0	4.0			
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0			
Lane Grp Cap (vph)		1336		365	2287			358	402			
v/s Ratio Prot		c0.33		c0.16	0.17							
v/s Ratio Perm								c0.20	0.04			
v/c Ratio		0.84		0.76	0.26			0.77	0.17			
Uniform Delay, d1		22.2		30.0	6.0			27.8	23.4			
Progression Factor		1.00		1.00	1.00			1.00	1.00			
Incremental Delay, d2		4.8		8.8	0.1			10.0	0.2			
Delay (s)		27.0		38.7	6.1			37.8	23.6			
Level of Service		C		D	A			D	C			
Approach Delay (s)		27.0			16.5			30.7			0.0	
Approach LOS		C			B			C			A	
Intersection Summary												
HCM 2000 Control Delay			24.3			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			80.3			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			68.3%			ICU Level of Service			C			
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis
28: Higgins Road & Combie Road

Existing + Backgrnd + Proj - Mitigated
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 						 	
Volume (vph)	0	869	218	258	562	0	257	0	253	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0			4.0	4.0			
Lane Util. Factor		0.95		1.00	0.95			1.00	1.00			
Frt		0.97		1.00	1.00			1.00	0.85			
Flt Protected		1.00		0.95	1.00			0.95	1.00			
Satd. Flow (prot)		3433		1770	3539			1770	1583			
Flt Permitted		1.00		0.95	1.00			0.76	1.00			
Satd. Flow (perm)		3433		1770	3539			1410	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	945	237	280	611	0	279	0	275	0	0	0
RTOR Reduction (vph)	0	24	0	0	0	0	0	0	205	0	0	0
Lane Group Flow (vph)	0	1158	0	280	611	0	0	279	70	0	0	0
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm		
Protected Phases	7	4		3	8			2				6
Permitted Phases							2		2	6		
Actuated Green, G (s)		31.9		16.7	52.6			20.5	20.5			
Effective Green, g (s)		31.9		16.7	52.6			20.5	20.5			
Actuated g/C Ratio		0.39		0.21	0.65			0.25	0.25			
Clearance Time (s)		4.0		4.0	4.0			4.0	4.0			
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0			
Lane Grp Cap (vph)		1350		364	2295			356	400			
v/s Ratio Prot		c0.34		c0.16	0.17							
v/s Ratio Perm								c0.20	0.04			
v/c Ratio		0.86		0.77	0.27			0.78	0.17			
Uniform Delay, d1		22.5		30.4	6.1			28.2	23.7			
Progression Factor		1.00		1.00	1.00			1.00	1.00			
Incremental Delay, d2		5.6		9.4	0.1			10.8	0.2			
Delay (s)		28.1		39.8	6.1			39.0	23.9			
Level of Service		C		D	A			D	C			
Approach Delay (s)		28.1			16.7			31.5			0.0	
Approach LOS		C			B			C			A	
Intersection Summary												
HCM 2000 Control Delay			25.0			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			81.1			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			69.5%			ICU Level of Service			C			
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis
28: Higgins Road & Combie Road

Cumulative - Mitigated
3/1/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 				 		 	
Volume (vph)	0	876	268	284	576	0	310	0	254	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0			4.0	4.0			
Lane Util. Factor		0.95		1.00	0.95			1.00	1.00			
Frt		0.96		1.00	1.00			1.00	0.85			
Flt Protected		1.00		0.95	1.00			0.95	1.00			
Satd. Flow (prot)		3415		1770	3539			1770	1583			
Flt Permitted		1.00		0.95	1.00			0.76	1.00			
Satd. Flow (perm)		3415		1770	3539			1410	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	952	291	309	626	0	337	0	276	0	0	0
RTOR Reduction (vph)	0	36	0	0	0	0	0	0	202	0	0	0
Lane Group Flow (vph)	0	1207	0	309	626	0	0	337	74	0	0	0
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm		
Protected Phases	7	4		3	8			2				6
Permitted Phases							2		2	6		
Actuated Green, G (s)		29.6		15.5	49.1			20.9	20.9			
Effective Green, g (s)		29.6		15.5	49.1			20.9	20.9			
Actuated g/C Ratio		0.38		0.20	0.63			0.27	0.27			
Clearance Time (s)		4.0		4.0	4.0			4.0	4.0			
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0			
Lane Grp Cap (vph)		1295		351	2227			377	424			
v/s Ratio Prot		c0.35		c0.17	0.18							
v/s Ratio Perm								c0.24	0.05			
v/c Ratio		0.93		0.88	0.28			0.89	0.17			
Uniform Delay, d1		23.2		30.3	6.5			27.5	21.9			
Progression Factor		1.00		1.00	1.00			1.00	1.00			
Incremental Delay, d2		12.1		21.7	0.1			22.5	0.2			
Delay (s)		35.4		52.1	6.6			50.0	22.1			
Level of Service		D		D	A			D	C			
Approach Delay (s)		35.4			21.6			37.5			0.0	
Approach LOS		D			C			D			A	
Intersection Summary												
HCM 2000 Control Delay			31.2			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.91									
Actuated Cycle Length (s)			78.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			75.7%			ICU Level of Service			D			
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis
28: Higgins Road & Combie Road

Cumulative + Proj - Mitigated
3/1/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 						 	
Volume (vph)	0	907	269	287	592	0	312	0	255	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0			4.0	4.0			
Lane Util. Factor		0.95		1.00	0.95			1.00	1.00			
Frt		0.97		1.00	1.00			1.00	0.85			
Flt Protected		1.00		0.95	1.00			0.95	1.00			
Satd. Flow (prot)		3418		1770	3539			1770	1583			
Flt Permitted		1.00		0.95	1.00			0.76	1.00			
Satd. Flow (perm)		3418		1770	3539			1410	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	986	292	312	643	0	339	0	277	0	0	0
RTOR Reduction (vph)	0	34	0	0	0	0	0	0	203	0	0	0
Lane Group Flow (vph)	0	1244	0	312	643	0	0	339	74	0	0	0
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm		
Protected Phases	7	4		3	8			2				6
Permitted Phases							2		2	6		
Actuated Green, G (s)		30.1		15.5	49.6			20.9	20.9			
Effective Green, g (s)		30.1		15.5	49.6			20.9	20.9			
Actuated g/C Ratio		0.38		0.20	0.63			0.27	0.27			
Clearance Time (s)		4.0		4.0	4.0			4.0	4.0			
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0			
Lane Grp Cap (vph)		1310		349	2236			375	421			
v/s Ratio Prot		c0.36		c0.18	0.18							
v/s Ratio Perm								c0.24	0.05			
v/c Ratio		0.95		0.89	0.29			0.90	0.18			
Uniform Delay, d1		23.5		30.7	6.5			27.8	22.2			
Progression Factor		1.00		1.00	1.00			1.00	1.00			
Incremental Delay, d2		14.4		23.9	0.1			24.3	0.2			
Delay (s)		37.8		54.6	6.6			52.1	22.4			
Level of Service		D		D	A			D	C			
Approach Delay (s)		37.8			22.3			38.7			0.0	
Approach LOS		D			C			D			A	
Intersection Summary												
HCM 2000 Control Delay			32.8			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			78.5			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			76.8%			ICU Level of Service			D			
Analysis Period (min)			15									
c	Critical Lane Group											

APPENDIX J

Peak Hour Signal Warrants

**CUMULATIVE PLUS PROJECT - PEAK HOUR VOLUME WARRANT
(URBAN CONDITIONS)**

General Information

Description Intersection 19: Cumulative + Project

Major Approach Street Name SR-49

Minor Approach Street Name Woodridge

Geometry

Number of Approach Legs 3

Number of Major Approach Lanes 2

Number of Minor Approach Lanes 1

Volumes and Delay

Major Approach Volumes (Both Directions) 3090

Minor Approach Volume (One Direction Only) 230

Total Entering Volume 3320

Minor Approach Delay per Vehicle 36.9

SIGNAL WARRANT SATISFIED

**WARRANT 3 - Peak Hour
(Part A or Part B must be satisfied)**

PART A

SATISFIED YES NO

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced for traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; **AND**

YES NO

Total Delay (Vehicle Hours) 2.36

2. The volume on the same minor street approach (one direction only equal or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; **AND**

YES NO

Total Minor Approach Volume 230

3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.

YES NO

Total Entering Volume 3320

PART B

SATISFIED YES NO

APPROACH LANES	Hour		
	One	2 or More	
Both Approaches - Major Street		✓	3090
Higher Approach - Minor Street	✓		230

The plotted point falls above the curve in Figure 4C-3. YES NO

OR. The plotted point falls above the curve in Figure 4C-4. YES NO

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

CUMULATIVE PLUS PROJECT - PEAK HOUR VOLUME WARRANT (URBAN CONDITIONS)

Peak Hour **PM**

Major Stre **SR-49**

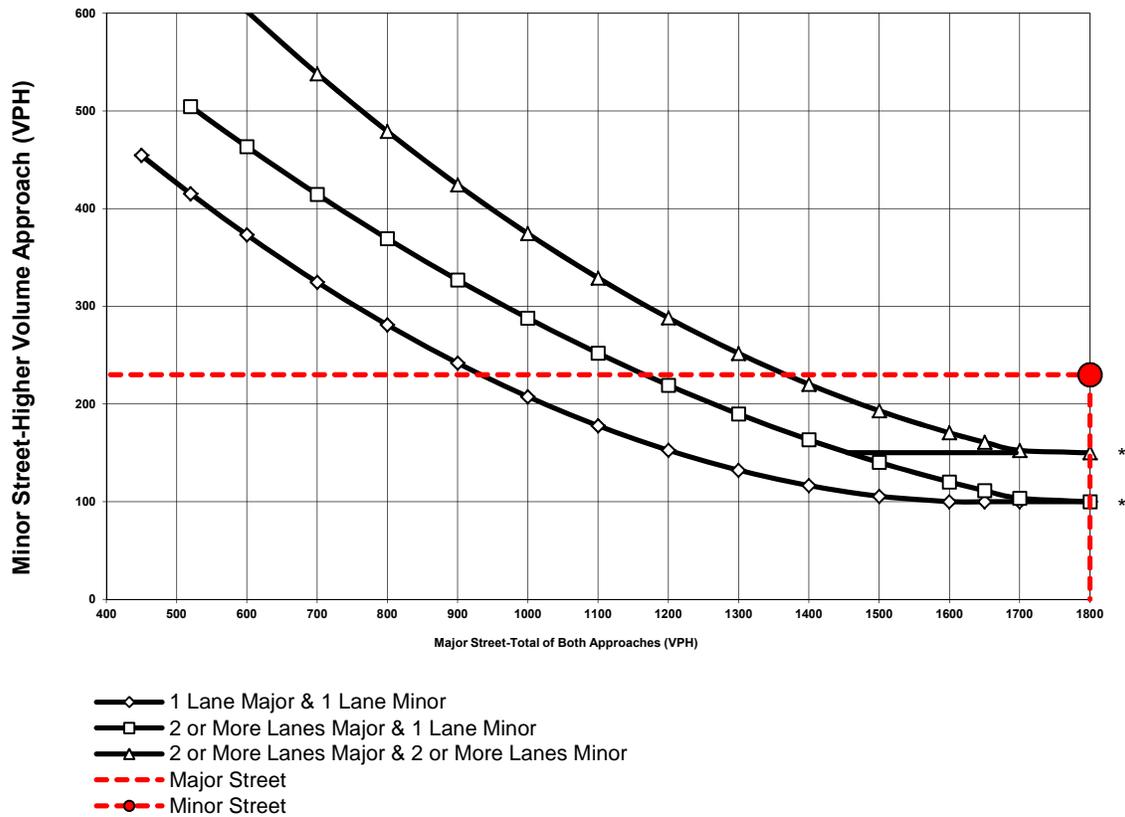
Minor **Woodridge**

Total of Both Approaches (VPH): **3090**
Number of Approach Lanes: **2**

Higher Volume Approach (VPH): **230**
Number of Approach Lanes: **1**

SIGNAL WARRANT SATISFIED

Figure 4C-3. Peak Hour Warrant (Urban)



* Note:
vph Applies as the
Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2003 Revision 1, as amended for use in California (September 26, 2006).

**EXISTING + BACKGROUND + PROJECT CONDITIONS - PEAK HOUR VOLUME WARRANT
(URBAN CONDITIONS)**

General Information

Description Intersection 21: Existing + Background + Project
 Major Approach Street Name Brunswick Rd
 Minor Approach Street Name Driveway Site 3-6,9

Geometry

Number of Approach Legs 3
 Number of Major Approach Lanes 1
 Number of Minor Approach Lanes 1

Volumes and Delay

Major Approach Volumes (Both Directions) 1860
 Minor Approach Volume (One Direction Only) 141
 Total Entering Volume 2001
 Minor Approach Delay per Vehicle 448.8

SIGNAL WARRANT SATISFIED

**WARRANT 3 - Peak Hour
(Part A or Part B must be satisfied)**

PART A

SATISFIED YES NO

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced for traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; **AND**

Total Delay (Vehicle Hours) 17.58

2. The volume on the same minor street approach (one direction only equal or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; **AND**

Total Minor Approach Volume 141

3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.

Total Entering Volume 2001

PART B

SATISFIED YES NO

APPROACH LANES	Hour		
	One	2 or More	
Both Approaches - Major Street	✓		1860
Higher Approach - Minor Street	✓		141

The plotted point falls above the curve in Figure 4C-3. YES NO

OR. The plotted point falls above the curve in Figure 4C-4. YES NO

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

**EXISTING + BACKGROUND + PROJECT CONDITIONS - PEAK HOUR VOLUME WARRANT
(URBAN CONDITIONS)**

Peak Hour **PM**

Major Stre **Brunswick Rd**

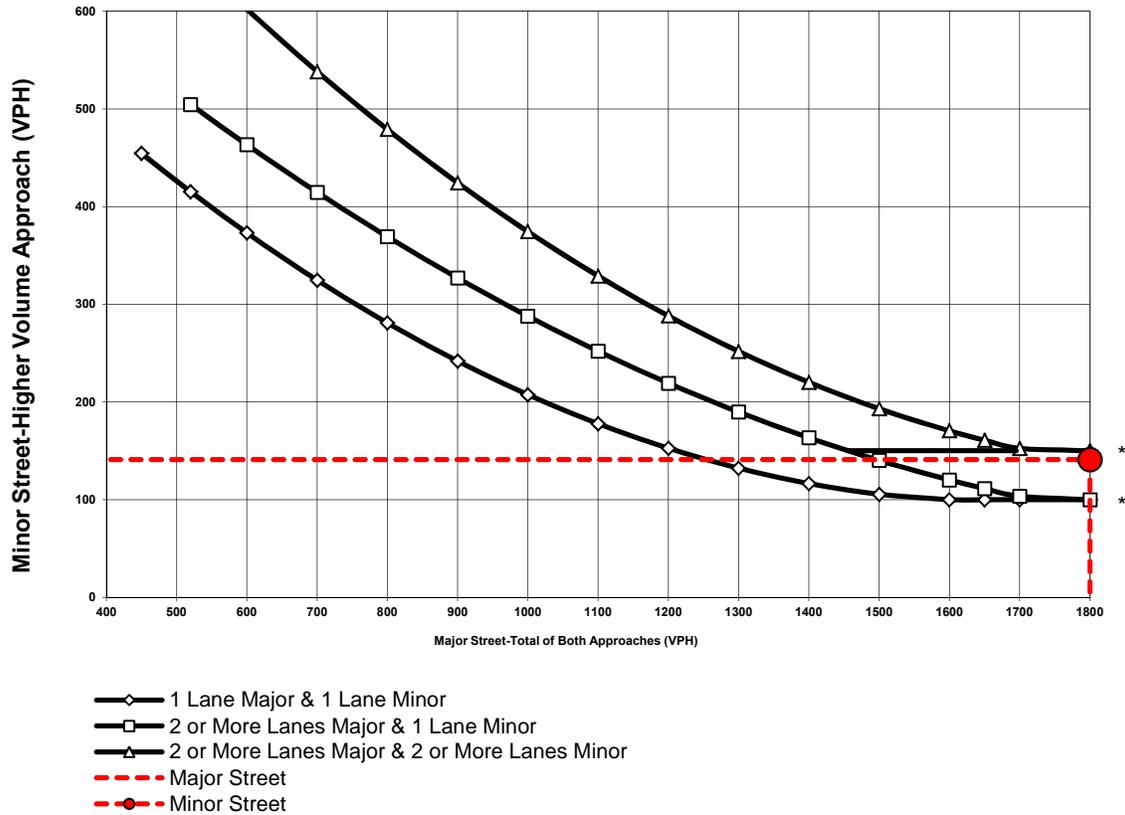
Minor **Driveway Site 3-6,9**

Total of Both Approaches (VPH): **1860**
Number of Approach Lanes: **1**

Higher Volume Approach (VPH): **141**
Number of Approach Lanes: **1**

SIGNAL WARRANT SATISFIED

Figure 4C-3. Peak Hour Warrant (Urban)



* Note:
vph Applies as the
Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2003 Revision 1, as amended for use in California (September 26, 2006).

**CUMULATIVE CONDITIONS - PEAK HOUR VOLUME WARRANT
(URBAN CONDITIONS)**

General Information

Description Intersection 21: Cumulative
 Major Approach Street Name Brunswick Rd
 Minor Approach Street Name Driveway Site 3-6,9

Geometry

Number of Approach Legs 3
 Number of Major Approach Lanes 1
 Number of Minor Approach Lanes 1

Volumes and Delay

Major Approach Volumes (Both Directions) 2092
 Minor Approach Volume (One Direction Only) 90
 Total Entering Volume 2182
 Minor Approach Delay per Vehicle 428.3

SIGNAL WARRANT NOT SATISFIED

**WARRANT 3 - Peak Hour
(Part A or Part B must be satisfied)**

PART A

SATISFIED YES NO

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced for traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; **AND**

Total Delay (Vehicle Hours) 10.71

2. The volume on the same minor street approach (one direction only equal or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; **AND**

Total Minor Approach Volume 90

3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.

Total Entering Volume 2182

PART B

SATISFIED YES NO

APPROACH LANES	Hour		
	One	2 or More	
Both Approaches - Major Street	✓		2092
Higher Approach - Minor Street	✓		90

The plotted point falls above the curve in Figure 4C-3. YES NO

OR. The plotted point falls above the curve in Figure 4C-4. YES NO

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

CUMULATIVE CONDITIONS - PEAK HOUR VOLUME WARRANT

**CUMULATIVE CONDITIONS - PEAK HOUR VOLUME WARRANT
(URBAN CONDITIONS)**

Peak Hour **PM**

Major Stre **Brunswick Rd**

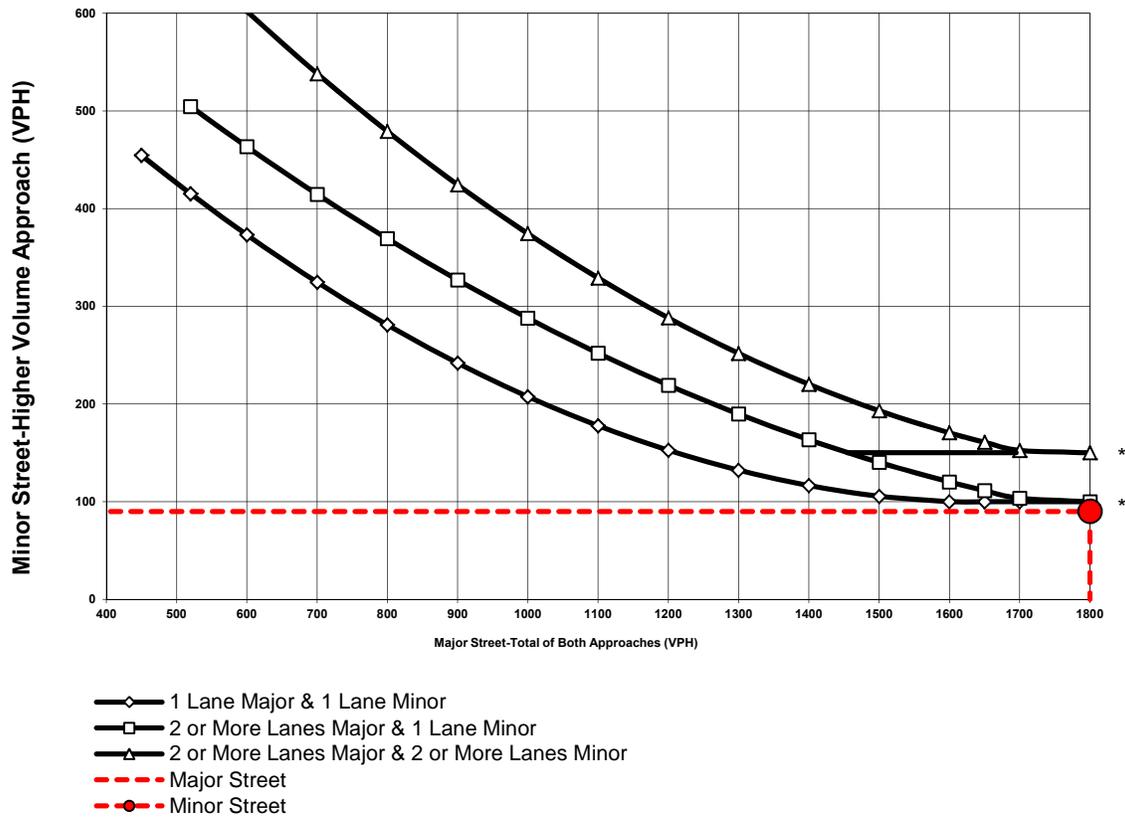
Minor **Driveway Site 3-6,9**

Total of Both Approaches (VPH): **2092**
Number of Approach Lanes: **1**

Higher Volume Approach (VPH): **90**
Number of Approach Lanes: **1**

SIGNAL WARRANT NOT SATISFIED

Figure 4C-3. Peak Hour Warrant (Urban)



* Note:
vph Applies as the
Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2003 Revision 1, as amended for use in California (September 26, 2006).

**CUMULATIVE + PROJECT CONDITIONS - PEAK HOUR VOLUME WARRANT
(URBAN CONDITIONS)**

General Information

Description Intersection 21: Cumulative + Project Conditions

Major Approach Street Name Brunswick Rd

Minor Approach Street Name Driveway Site 3-6,9

Geometry

Number of Approach Legs 3

Number of Major Approach Lanes 1

Number of Minor Approach Lanes 1

Volumes and Delay

Major Approach Volumes (Both Directions) 2261

Minor Approach Volume (One Direction Only) 141

Total Entering Volume 2402

Minor Approach Delay per Vehicle 200

SIGNAL WARRANT SATISFIED

**WARRANT 3 - Peak Hour
(Part A or Part B must be satisfied)**

PART A

SATISFIED YES NO

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced for traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; **AND**

YES NO

Total Delay (Vehicle Hours) 7.83

2. The volume on the same minor street approach (one direction only equal or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; **AND**

YES NO

Total Minor Approach Volume 141

3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.

YES NO

Total Entering Volume 2402

PART B

SATISFIED YES NO

APPROACH LANES	Hour		
	One	2 or More	
Both Approaches - Major Street	✓		2261
Higher Approach - Minor Street	✓		141

The plotted point falls above the curve in Figure 4C-3. YES NO

OR. The plotted point falls above the curve in Figure 4C-4. YES NO

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

CUMULATIVE + PROJECT CONDITIONS - PEAK HOUR VOLUME WARRANT (URBAN CONDITIONS)

Peak Hour **PM**

Major Stre **Brunswick Rd**

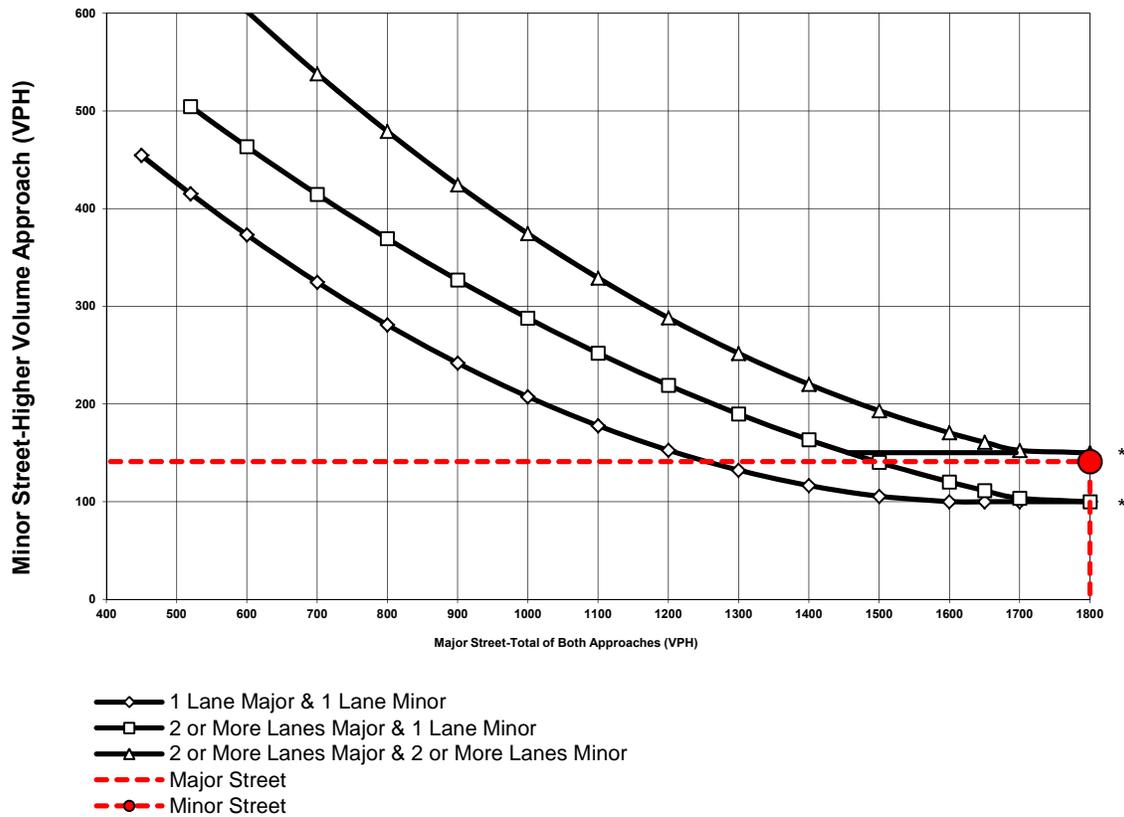
Minor **Driveway Site 3-6,9**

Total of Both Approaches (VPH): **2261**
Number of Approach Lanes: **1**

Higher Volume Approach (VPH): **141**
Number of Approach Lanes: **1**

SIGNAL WARRANT SATISFIED

Figure 4C-3. Peak Hour Warrant (Urban)



* Note:
vph Applies as the
Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: MUTCD 2003 Revision 1, as amended for use in California (September 26, 2006).