APPENDIX A

Notice of Preparation

COUNTY OF PLACER
Community Development Resource Agency

John Marin, Agency Director

ENVIRONMENTAL COORDINATION SERVICES

Gina Langford, Coordinator

DATE: June 15, 2007

TO: Interested Parties

SUBJECT: **Notice of Preparation of an Environmental Impact Report for Hidden Falls Regional Park (PEIR T20070444)**

REVIEW PERIOD: **June 15, 2007 – July 16, 2007**

Placer County will be the Lead Agency and will prepare an Environmental Impact Report (EIR) for the project identified above in accordance with the California Environmental Quality Act (CEQA), Section 15082. The purpose of the Notice of Preparation (NOP) is to provide responsible agencies and interested persons with sufficient information in order to make meaningful responses as to the scope and content of the EIR. Your timely comments will ensure an appropriate level of environmental review for the project.

Project Description/Location: Hidden Falls Regional Park is approximately 1,182 acres in the Sierra Nevada foothills, which consists of the properties formerly known as Spears Ranch (961 acres) and Didion Ranch (221 acres). The project site is situated along Coon Creek and is south of the Bear River. Garden Bar Road is located to the west; Mt. Vernon and Mt. Pleasant Roads are to the south; and Bell and Hubbard Roads are to the east.

For more information regarding the project, please contact Andy Fischer, Senior Planner, (530)889-6819 or email: afisher@placer.ca.gov

A copy of the 10-page NOP is available for review at the Auburn Library, Placer County Community Development Resource Agency, and County website:
http://www.placer.ca.gov/Home/CommunityDevelopment/EnvCoordSvcs/EnvDocs/EIR.aspx

Scoping Meeting: The Lead Agency will hold a public Scoping Meeting to receive oral comments on Thursday, June 28, 2007, 6:30 pm in the Planning Commission Hearing Room, Community Development Resource Center, located at 3091 County Center Drive, Auburn.

NOP Comment Period: Written comments should be submitted at the earliest possible date, but not later than 5:00 pm on July 16, 2007 to Maywan Krach, Environmental Coordination Services, Community Development Resource Agency, 3091 County Center Drive, Suite 190, Auburn, CA 95603, (530)745-3132, fax (530)745-3003, or cdraecs@placer.ca.gov

PURPOSE OF THE NOTICE OF PREPARATION

Placer County, as the Lead Agency, will prepare an Environmental Impact Report (EIR) under the California Environmental Quality Act (CEQA) for the proposed Hidden Falls Regional Park Project (proposed project). In accordance with Section 15082 of the CEQA Guidelines, Placer County has prepared this Notice of Preparation (NOP), which is intended to solicit comments from public agencies and other interested parties on the scope and content of the information to be addressed in the EIR for this project.

Once a decision is made to prepare an EIR, the lead agency must prepare a NOP to inform all responsible and trustee agencies (agencies) that an EIR will be prepared (CEQA Guidelines Section 15082). The NOP is designed to provide stakeholders with sufficient information describing the proposed project and its potential environmental effects to enable agencies and the public to make a meaningful response related to the scope and content of information to be included in the EIR.

The purpose of this notice is twofold:

(1) to solicit input, by July 16, 2007, from interested individuals, groups, and agencies about the desired content and scope of the draft EIR to be prepared by Placer County for the proposed project, and

(2) to announce a public scoping meeting on the proposed project, to be held at 6:30 p.m. on June 28, 2007, at the Planning Commission Hearing Room, Community Development Resource Center, located at 3091 County Center Drive, Auburn.

PROJECT DESCRIPTION

CEQA defines a "project" as any activity directly undertaken by a public agency that "may cause either a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment" (Public Resources Code Section 21065). Public Resources Code Section 21151(a) specifies that a local agency must prepare an EIR on any project that it proposes to carry out or approve that may have a significant impact on the environment. It has been determined that the proposed Hidden Falls Regional Park Project may result in significant environmental impacts, and therefore, Placer County will prepare an EIR on the proposed project. A description of the proposed project is provided below.

PROJECT LOCATION

The proposed project is located between North Auburn and the City of Lincoln in Placer County, approximately 40 miles northeast of Sacramento. Hidden Falls Regional Park is approximately 1,182 acres in the Sierra Nevada foothills, which consists of the properties formerly known as Spears Ranch (961 acres) and Didion Ranch (221 acres) (Exhibits 1 and 2). The project site is situated along Coon Creek and is south of the Bear River. Garden Bar Road is located to the west; Mt. Vernon and Mt. Pleasant Roads are to the south; and Bell and Hubbard Roads are to the east.

PROJECT BACKGROUND AND HISTORY

On December 23, 2003, Placer County acquired the 961-acre Spears Ranch, and on November 5, 2004, Placer County acquired the 221-acre Didion Ranch through the Placer Legacy Open Space and Agricultural Conservation Program (Placer Legacy) for park and open space purposes. Placer Legacy was created in 2000 to implement the goals and policies of the Placer County General Plan and to allow the community to retain its unique natural heritage, minimize conflicts between conservation and economic development, and enhance the prosperity of current and future residents. In September 2004, a mitigated negative declaration was adopted for the Didion Ranch portion of the park; therefore, the environmental review process has been completed for the Didion Ranch site. Thus, this EIR will focus on the Spears Ranch (961 acres) portion of the park.

PROJECT COMPONENTS

The proposed project would include many different features and uses of the proposed park. Specific features and uses that are being considered for the proposed park are as follows:

TRAIL SYSTEM / MISCELLANEOUS PASSIVE RECREATION FACILITIES

- approximately 12 miles of new unpaved trails in addition to 10 miles of existing ranch roads for hikers, bikers, and equestrians, including bridge crossings over Coon Creek, Deadman Creek, and ephemerals to support the trail network and connections to the existing trail system within the Didion Ranch portion of the park (Exhibit 3);
- trail/bridge connections to other public trails in proximity to the Hidden Falls Regional Park Property (in addition to the trail network constructed on site);
- no more than two permanent restroom facilities and associated septic/water systems in addition to existing facilities and septic systems;
- portable and/or pit type restroom facilities as required to accommodate authorized uses;
- emergency access bridge over Coon Creek;
- fire suppression amenities;
- equestrian facilities;
- picnic facilities including covered pavilions;
- benches and rest areas throughout the park;
- hunting as a management tool;
- improvements to facilitate public access to viewing areas;
- fitness/ropes course(s);
- disc golf;
- drinking fountains;
- holding organized events;
- interpretive programs including signage, displays, and/or guided tours; and
- other facilities and activities consistent with Placer Legacy Open Space and Agricultural Preservation Program goals and objectives.

VEHICLE ACCESS AND PARKING

A traffic study is required to determine the level of vehicle access that may be permitted to the project site via Garden Bar Road. Depending on the outcome of the study, any or all of the following public access options may be incorporated into the proposed project:

- public access to the site through the 221-acre site via the trail system currently existing on the Didion Ranch portion of the park; only maintenance/emergency vehicles would be allowed to enter the site beyond the existing parking lot on the 221-acre site (While it is anticipated that some level of public vehicle access to the westerly portion of the site via Garden Bar Road will be necessary to accommodate expected use demand, public vehicle access may be limited to the facilities at the 221 acre site during initial phases of development of the westerly 961 acres of the park);
- a parking/staging/drop-off area along Garden Bar Road near the existing service entrance road; pedestrian/equestrian access to the site would be permitted along the existing service road/easement;
- a parking/staging area on-site near the westerly property boundary with associated access road from Garden Bar Road; vehicle traffic would be allowed on-site, but regulated per the findings of the traffic study.

In addition, the following options are being considered for parking:

- a surfaced parking lot to accommodate anticipated uses and a gravel equestrian parking area;
- a gravel overflow parking area; and
- a parking lot to accommodate a nature/conference center.

SIGNAGE / INTERPRETIVE PROGRAM

- directional signage would be placed along primary public access routes from both Auburn and Lincoln;
- directional and informational signage located at strategic locations throughout the Park; and
- a kiosk would be placed at each parking/staging area in addition to interpretive and directional signage and/or audio-visual displays at key points throughout the property.

EMERGENCY FACILITIES / VEHICLE ACCESS

- an emergency access bridge capable of supporting fire fighting equipment will be constructed over Coon Creek;
- existing low flow crossings along ranch roads would be improved and maintained across Coon Creek;
- a fuel load reduction/fire prevention plan would be prepared and implemented for the site; and
- a water storage tank/pond and hydrant assembly.

USE OF EXISTING RANCH HOUSE / EVENTS

- A variety of renovation and use options will be evaluated for the existing primary ranch house. Uses under consideration include conference facility, nature center, event facility, environmental education camp, and others.
- Group events such as cross country track meets, weddings, conferences, and educational field trips/camps will be evaluated in conjunction with the traffic study. The study will evaluate and define group events in the following categories:

    1. Group events that may be conducted as a regular use.
    2. Group events that should be regulated by separate event permit.

EDUCATIONAL FACILITIES / USES

Under the direction of the Placer County Department of Facility Services, any or all of the following may be evaluated:

- educational /agricultural / scouting camps may be conducted on-site;
- academic agricultural / ecological research projects;
- multi-day or overnight educational / agricultural / scouting camps may be conducted on-site subject to agreement and conditions determined by the County on a case-by-case basis;
- access for school programs such as cross-country training and track meets, and educational field trips that are consistent with passive recreation and education would be permitted; potential uses include renovation of the existing ranch house as a conference/nature center, caretaker residence, wedding facility, or camp facility; and
- the two existing site buildings to the southeast of the ranch house will be re-constructed for educational, maintenance, caretaker, or other uses.

MAINTENANCE FACILITIES

- maintenance yard – to be located in proximity to the ranch house and staging area. Yard would be used to store and maintain equipment including tractors, mowers, ATVs, and attachments;
- maintenance shop/barn – would be a new building or renovation of one or more of the existing buildings;
- an enclosed dumpster;
- maintenance yard lighting; and
- perimeter and cross fencing will have maintained access for maintenance vehicles.

FISHING / WILDLIFE / HABITAT RESTORATION

- designated fishing locations may be developed in coordination with Department of Fish and Game;
- fish passage amenities;
- fishing ponds may be developed in conjunction with the fuel load reduction/grazing plans and in coordination with Department of Fish and Game; and
- habitat restoration projects to include oak woodland, grassland, and riparian restoration/habitat enhancement.

FENCING

- perimeter fencing around the property would be maintained; and
- cross fencing and riparian/sensitive area exclusionary fencing may be constructed where appropriate throughout the property.

AGRICULTURE

Under the direction of the Placer County Department of Facility Services, any or all of the following may be conducted:

- continued agricultural activities, including grazing; and
- farm management practices (fence maintenance, irrigated pasture expansion, etc.);
- agricultural research projects by qualified institutions;
- agricultural education programs; and
- potential leases for grazing and/or growing.

FILM PRODUCTION/THEATRE

- film and theatre productions subject to approval by Placer County.

PROJECT ALTERNATIVES

The EIR will evaluate a range of alternatives in accordance with Section 15126.6 of the State CEQA Guidelines. The alternatives evaluation will consist of a qualitative and comparative analysis of several project alternatives, at a varying level of detail, including the "No Project" Alternative.

SCOPING

Scoping is an initial, essential, and critically important component of the proposed project. Scoping will help to identify the final range of actions, alternatives, site design options, environmental impacts to be evaluated, methods of assessment, and mitigation measures that will be analyzed in the EIR. The scoping process will help to eliminate from detailed study those issues that are not critical to the decision at hand. It is also an effective way to bring together and resolve the concerns of interested federal, state, and local agencies; specific stakeholder groups; and the general public.

As specified by the CEQA Guidelines, the NOP will be circulated for a 30-day review period. The 30-day NOP review and comment period begins **June 15, 2007** and ends **July 16, 2007**. Written responses can be submitted anytime during the NOP review period. Please include the name of a contact person for your agency, if applicable. All written public and agency comments should be directed to:

Maywan Krach
Placer County Community Development Resource Agency
3091 County Center Drive, Suite 190
Auburn, CA 95603
fax 530-745-3003
cdraecs@placer.ca.gov

SCOPING MEETING

In accordance with Public Resources Code Section 21083.9, notice is hereby given that Placer County will conduct a scoping meeting on June 28, 2007 at 6:30 p.m. at the Planning Commission Hearing Room, Community Development Resource Center, located at 3091 County Center Drive, Auburn, California to accept oral comments on the environmental issues that should be addressed in the EIR.

AGENCY ROLES AND RESPONSIBILITIES

PLACER COUNTY

Placer County will serve as the lead agency for CEQA compliance and will coordinate with CEQA responsible and trustee agencies. As lead agency under CEQA, Placer County will be primarily responsible for conducting the environmental review process, including scoping, preparing appropriate environmental documentation, and obtaining required permits and other regulatory approvals. Following completion of the EIR, the Placer County Board of Supervisors will decide whether to certify and approve the EIR.

REQUIRED APPROVALS AND PERMITS

Permits and approvals would be required from the following federal, state, and local agencies for the construction of the proposed project:

- U.S. Army Corps of Engineers (USACE)
- Central Valley Regional Water Quality Control Board (RWQCB)
- California Department of Fish and Game (DFG)
- U.S. Fish and Wildlife Service (USFWS)
- County Community Development Resource Agency (CDRA) (Minor Use Permit)
- County Department of Public Works (encroachment permit for Garden Bar Road)
- County Environmental Health Division (sewage system evaluation and water system permit)

PROBABLE ENVIRONMENTAL IMPACTS OF THE PROPOSED PROJECT

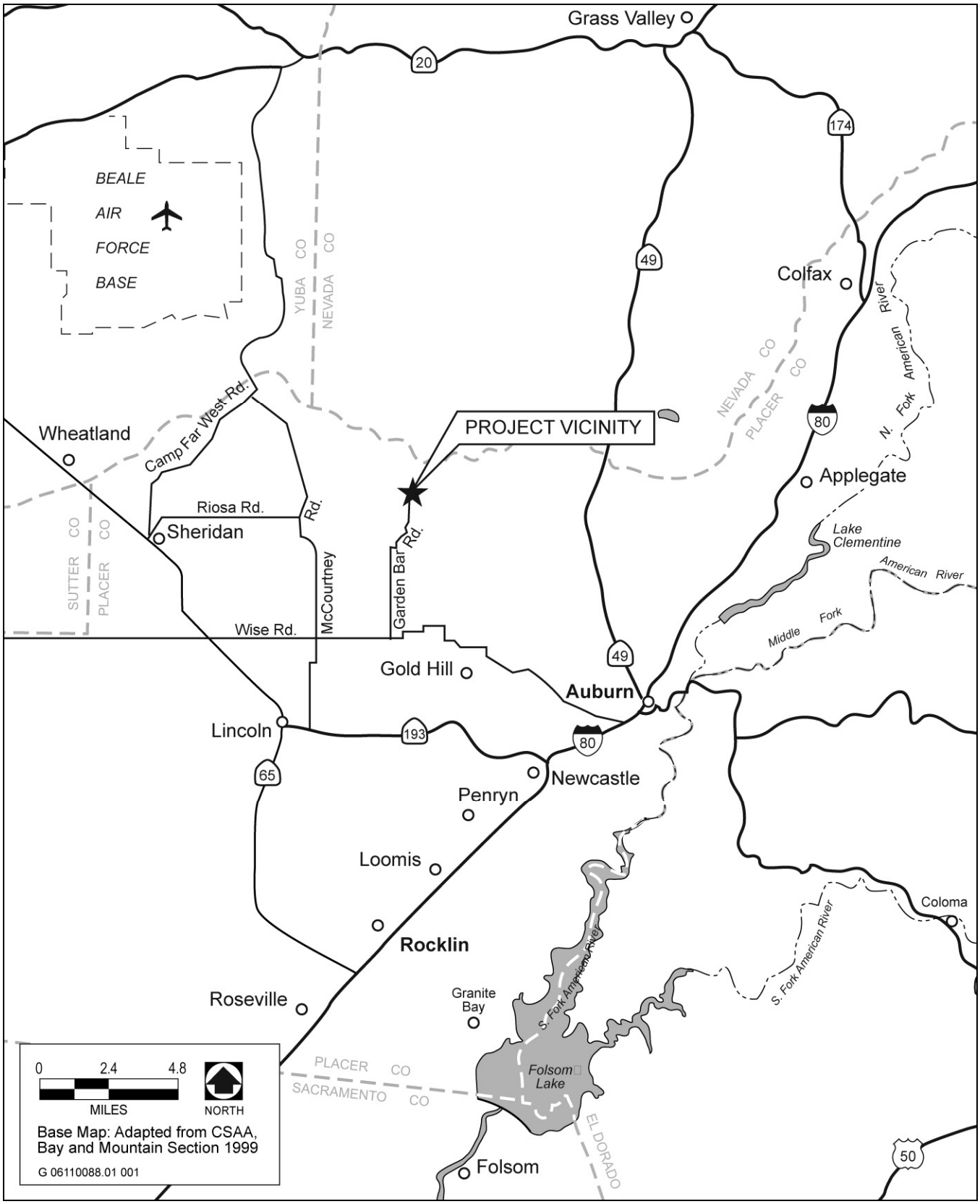
The EIR will analyze a broad range of environmental impacts associated with the implementation of the proposed project. Based on the environmental analysis previously conducted in Placer County's Initial Study (IS), Placer County has determined that the proposed project has the potential to result in environmental impacts on the following resources:

- Land Use and Planning
- Geology and Soils
- Hydrology and Water Quality
- Air Quality
- Traffic and Transportation
- Biological Resources
- Noise
- Public Services and Utilities
- Aesthetics and Visual Resources
- Cultural Resources
- Hazards and Hazardous Materials

Project-related impacts to the following resources were found to be absent, or at less-than-significant levels, and therefore, will not be carried forward for further analysis in the EIR:

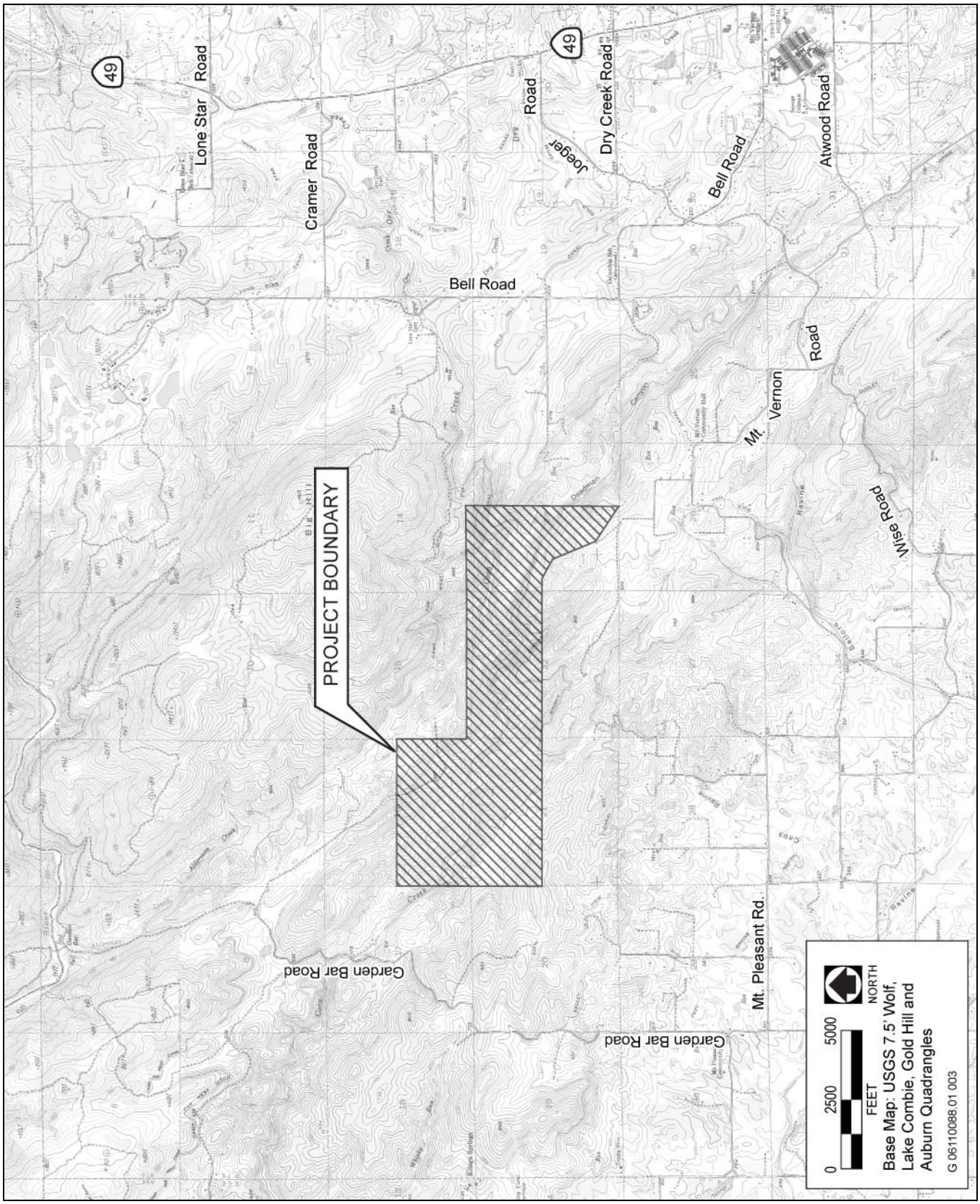
- Energy and Mineral Resources
- Population and Housing

Your views and comments on how the project may affect the environment are welcomed. Please contact Andy Fisher if you have any questions about the environmental review process for the proposed Hidden Falls Regional Park Project.



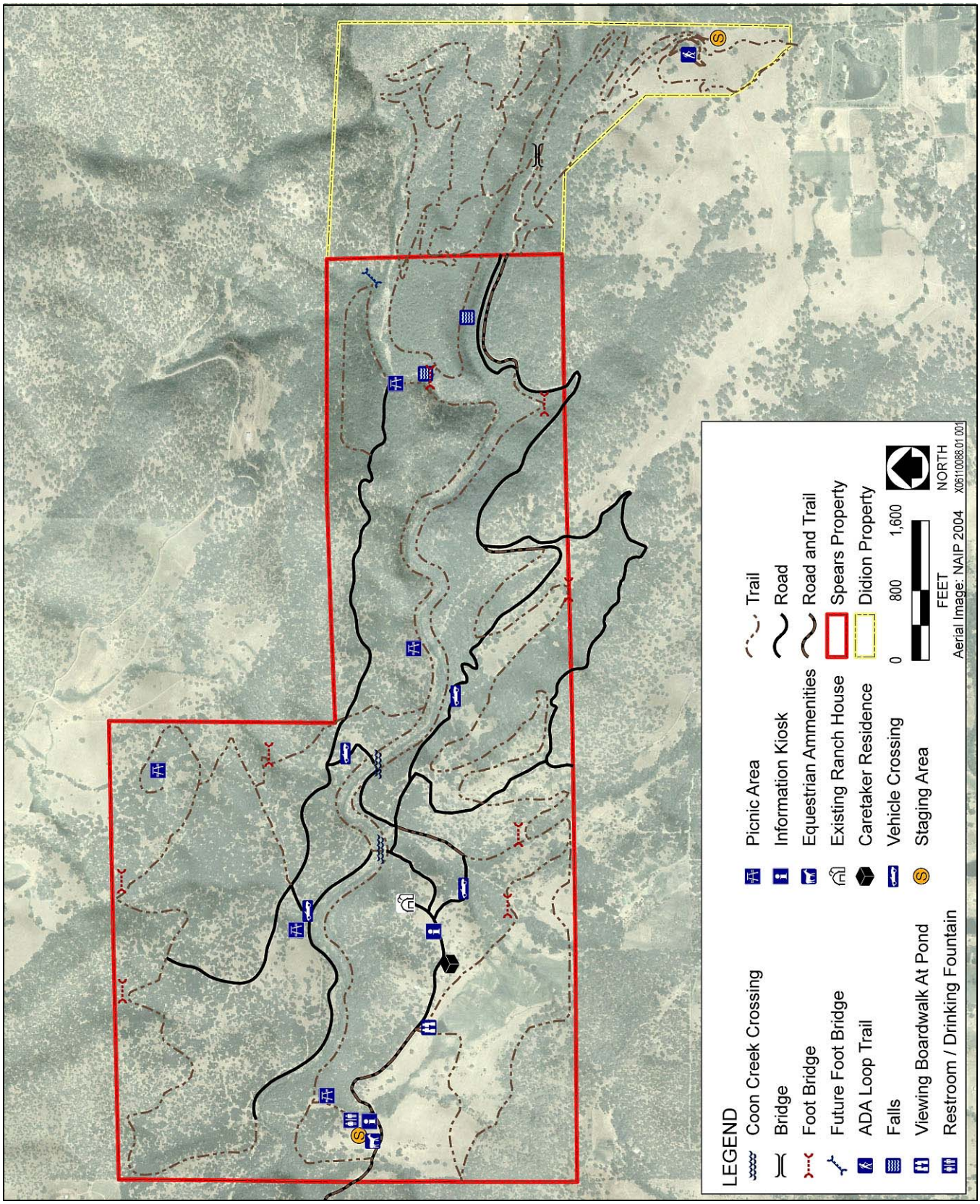
Source: EDAW 2006

Project Vicinity Map **Exhibit 1**



Source: EDAW 2007

Project Location Map **Exhibit 2**



Source: Placer County 2006

Proposed Hidden Falls Project Features **Exhibit 3**

APPENDIX B

Traffic Report

TRAFFIC IMPACT ANALYSIS

FOR

HIDDEN FALLS REGIONAL PARK ADDITION

Placer County, California

Prepared For:

EDAW
2022 J Street
Sacramento, CA 95811

Prepared By:

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April 23, 2008

Job No. 2630-26

Hidden Falls Park 4.23.08.rpt

TRAFFIC IMPACT ANALYSIS FOR
HIDDEN FALLS REGIONAL PARK ADDITION
Placer County, CA

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April 23, 2008

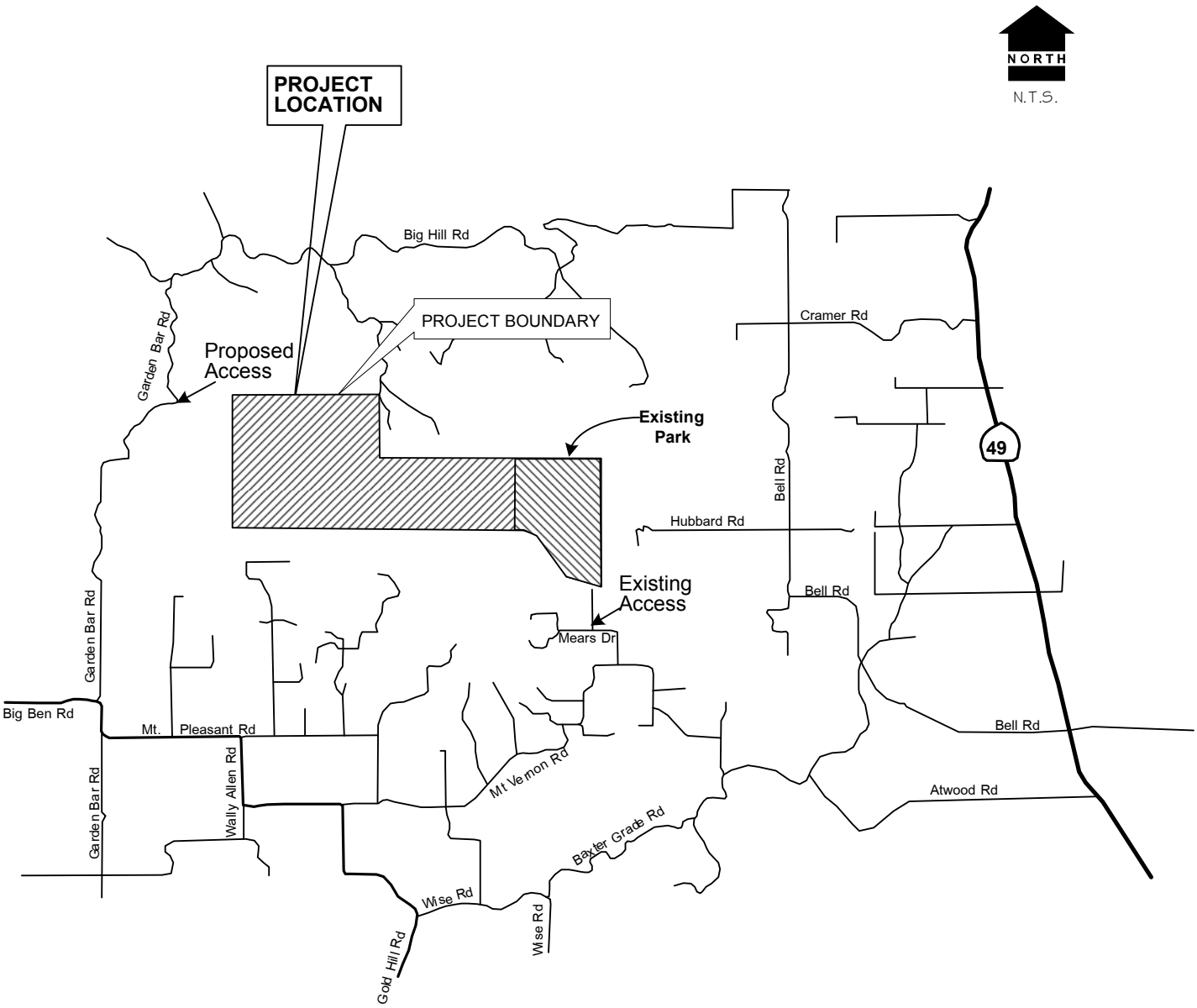
TRAFFIC IMPACT ANALYSIS FOR
HIDDEN FALLS REGIONAL PARK ADDITION

INTRODUCTION

This report documents **KD Anderson & Associates'** assessment of traffic impacts associated with development of the **Hidden Falls Regional Park Addition** project in Placer County. This analysis is intended to quantify the traffic impacts of the project and address circulation and access in the vicinity of the project site within the context of both current and future background conditions.

Project Description

The Hidden Falls Regional Park Addition project proposes development of an 979 acre site to be added to the County's existing park west of the City of Auburn. The current park facilities are located off of Mears Drive in the area north of Mount Vernon Road. The park addition is generally located to the west between the existing facilities and Garden Bar Road, as shown in Figure 1. While the facilities in the project can be accessed via the roadways already serving the existing site, a new access to the project site will be created onto Garden Bar Road. The proposed project includes phased implementation of improvements to Garden Bar Road to support use of that road by the public. Regional access to the project will be via rural Placer County roads such as Mt Pleasant Road, Garden Bar Road and Mt Vernon Road, which link the site with SR 193 to the south and SR 49 to the east.



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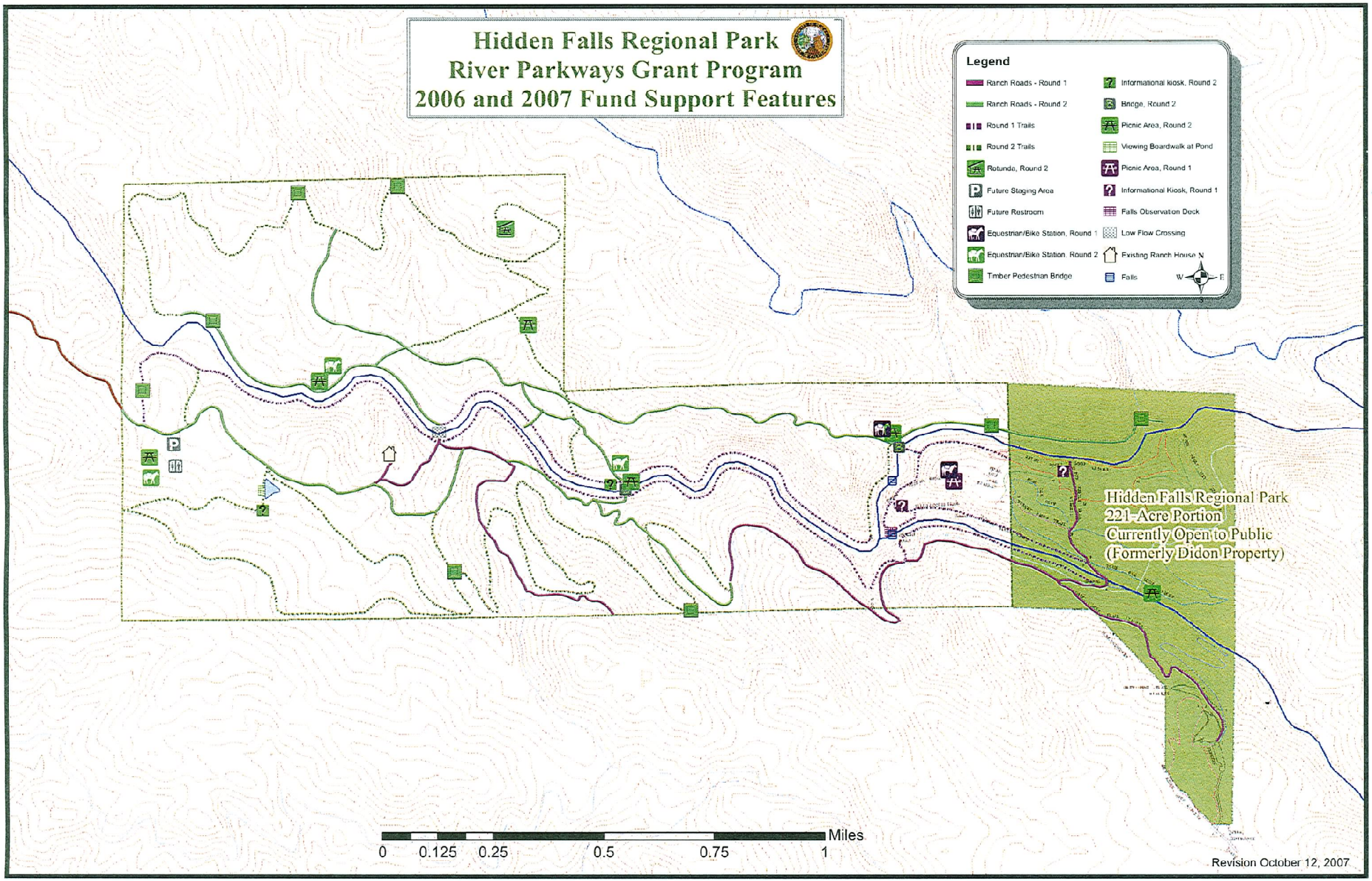
Transportation Engineers

VICINITY MAP

2630-26.VSD 12/29/2008

figure 1



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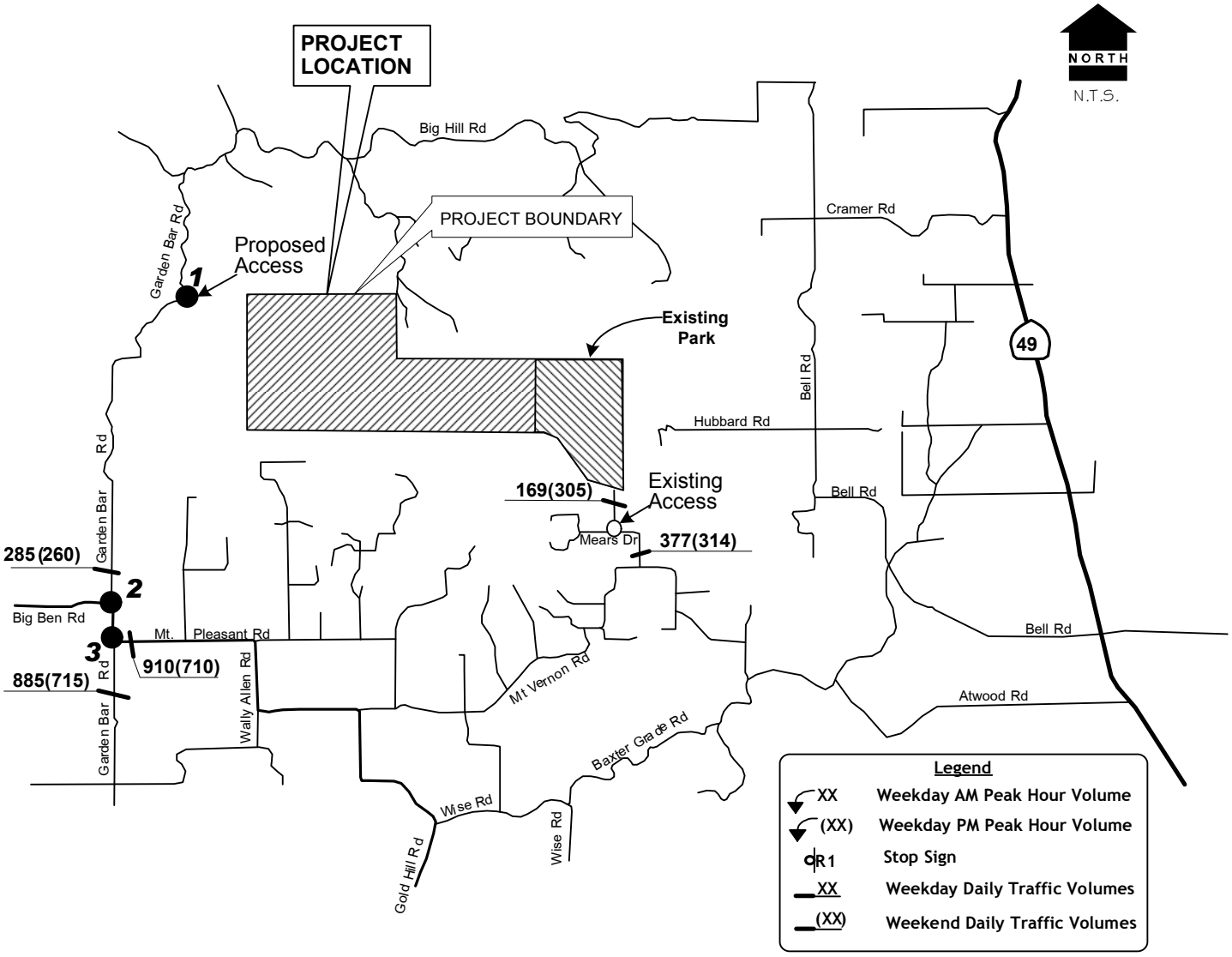
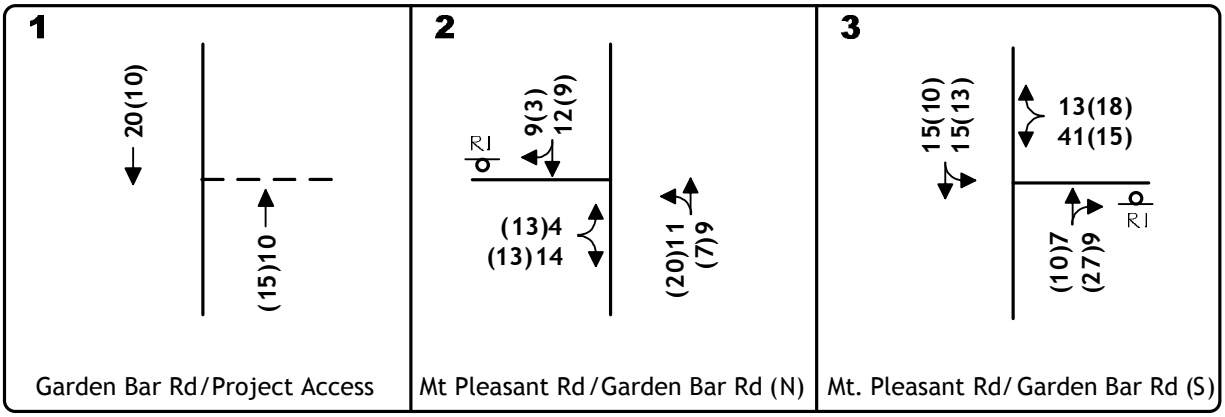
SITE PLAN

2630-26.VSD 12/29/2008

figure 2





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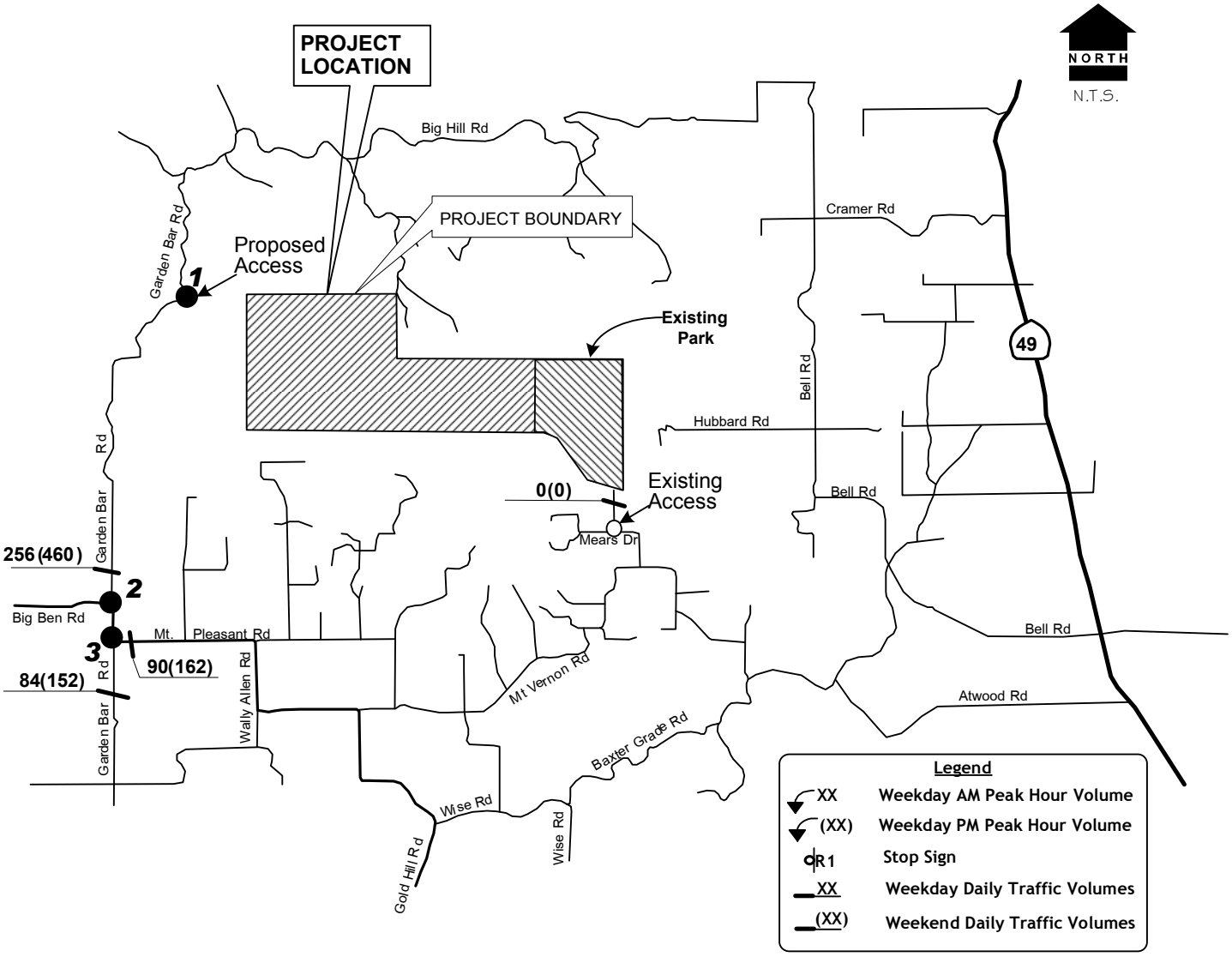
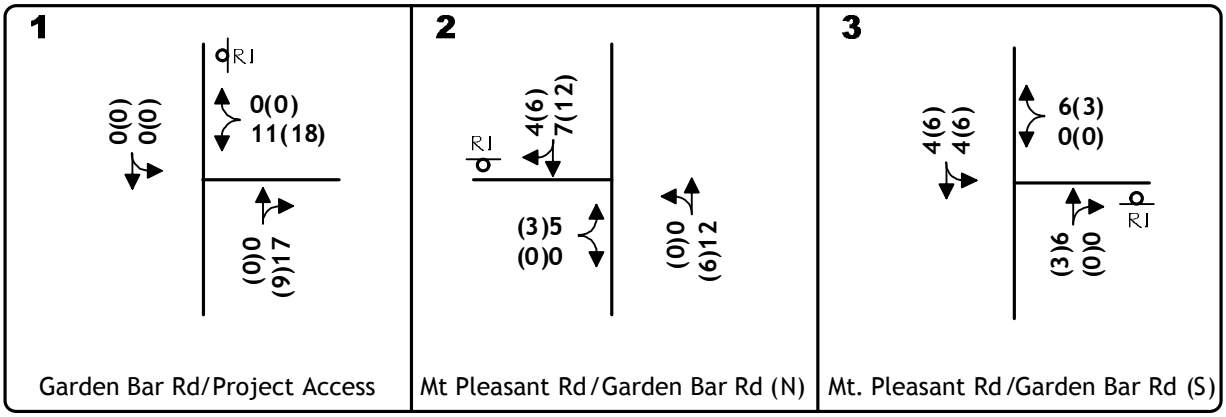
EXISTING TRAFFIC VOLUMES AND LANE CONFIGURATIONS

2630-26.VSD 12/29/2008

figure 3





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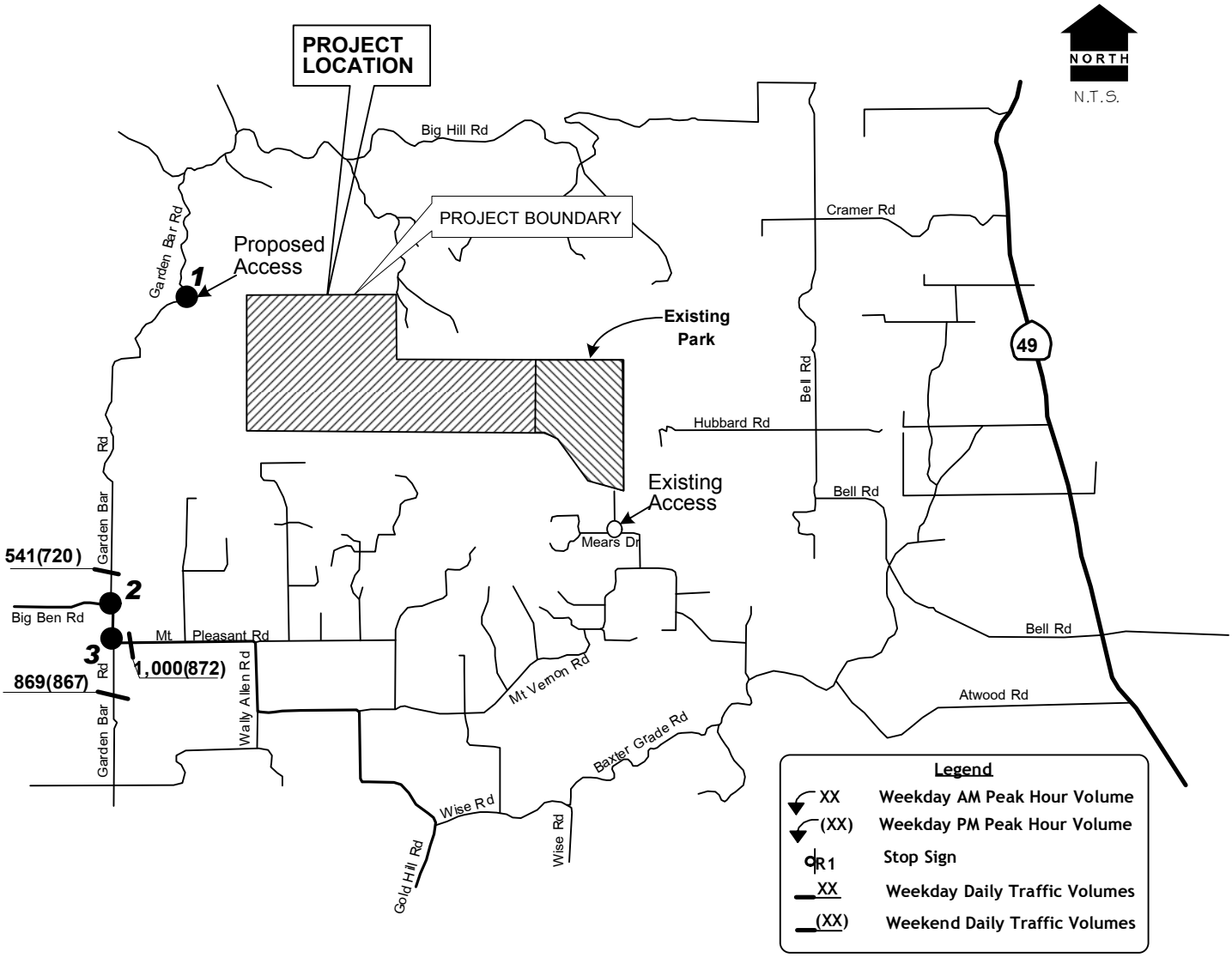
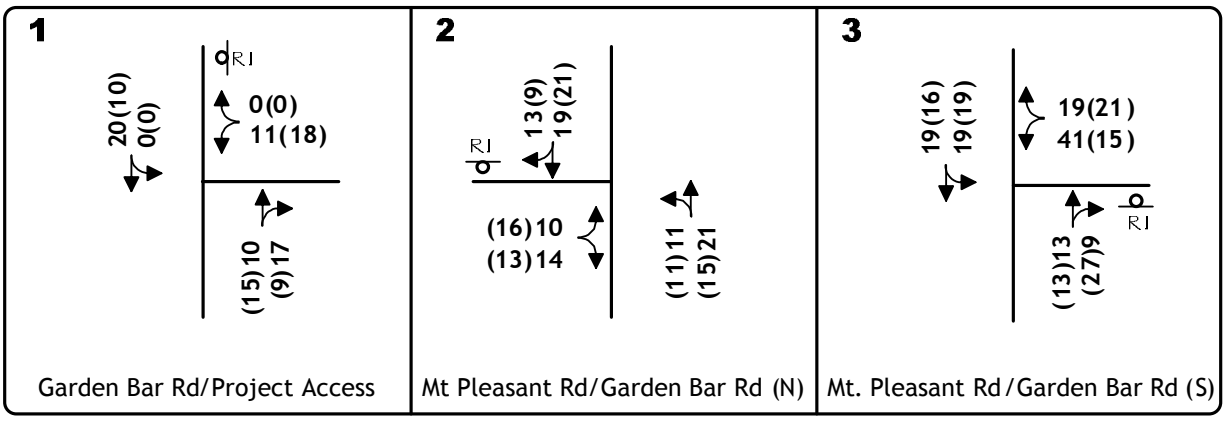
PROJECT ONLY TRAFFIC VOLUMES AND LANE CONFIGURATIONS

2630-26.VSD 12/29/2008

figure 4





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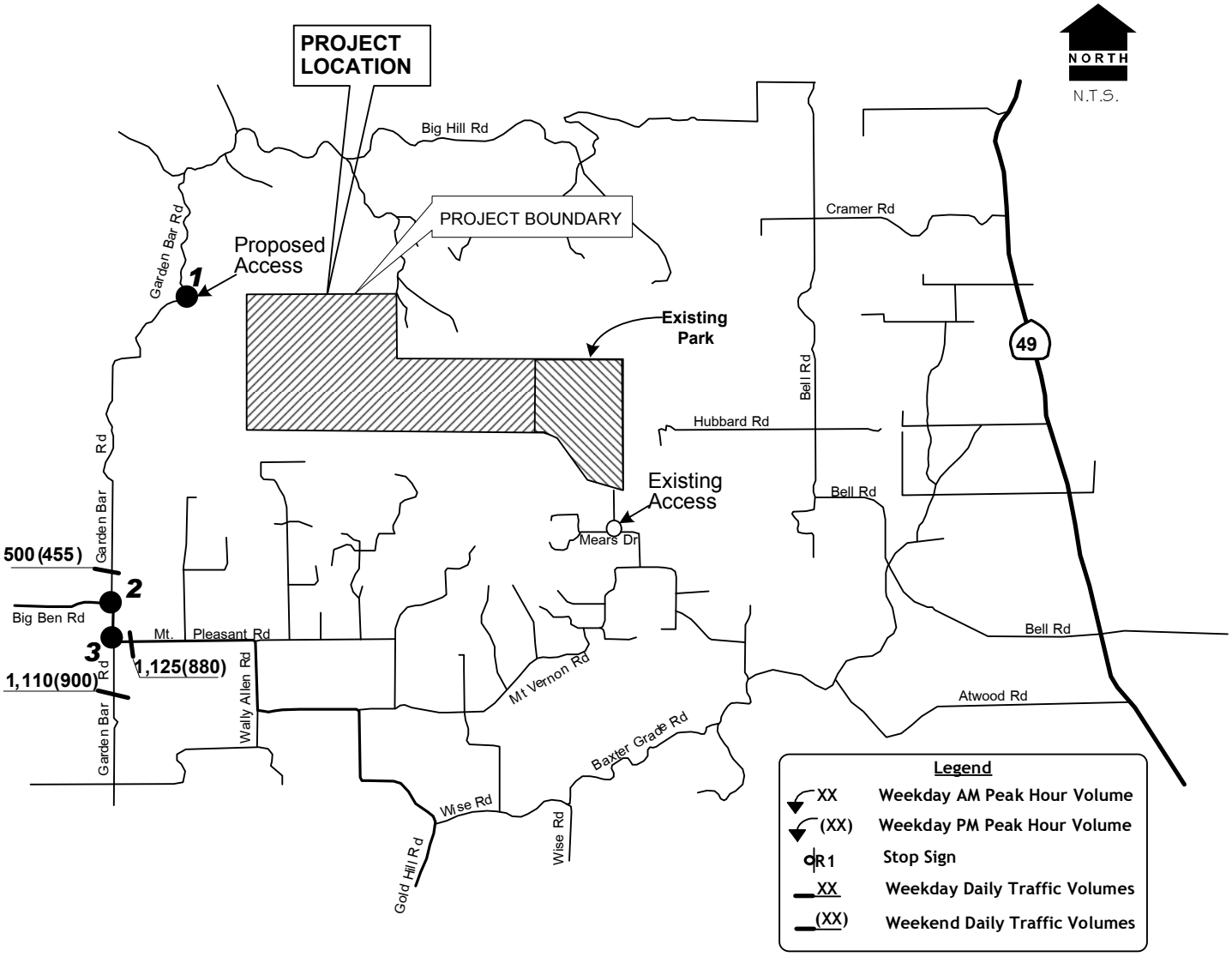
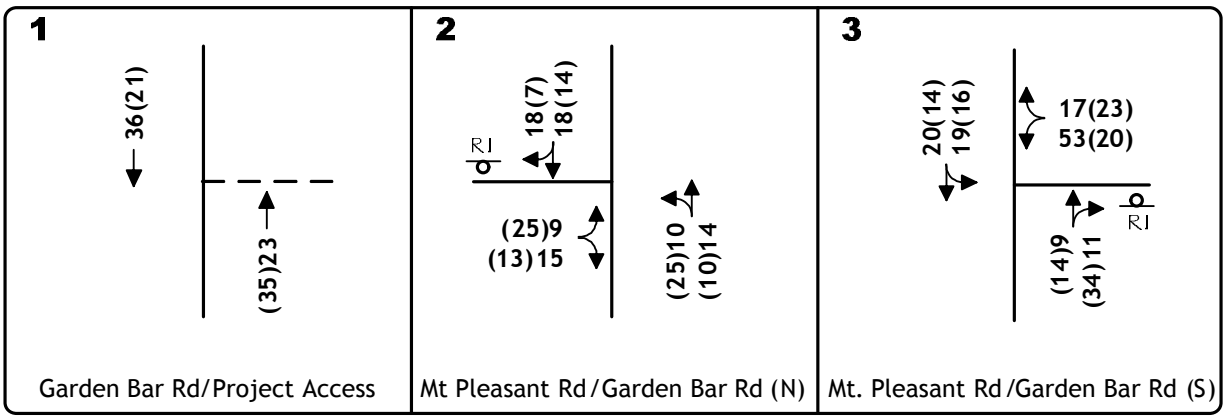
EXISTING PLUS PROJECT
TRAFFIC VOLUMES
AND LANE CONFIGURATIONS

2630-26.VSD 12/29/2008

figure 5





YEAR 2027 NO PROJECT
TRAFFIC VOLUMES
AND LANE CONFIGURATIONS

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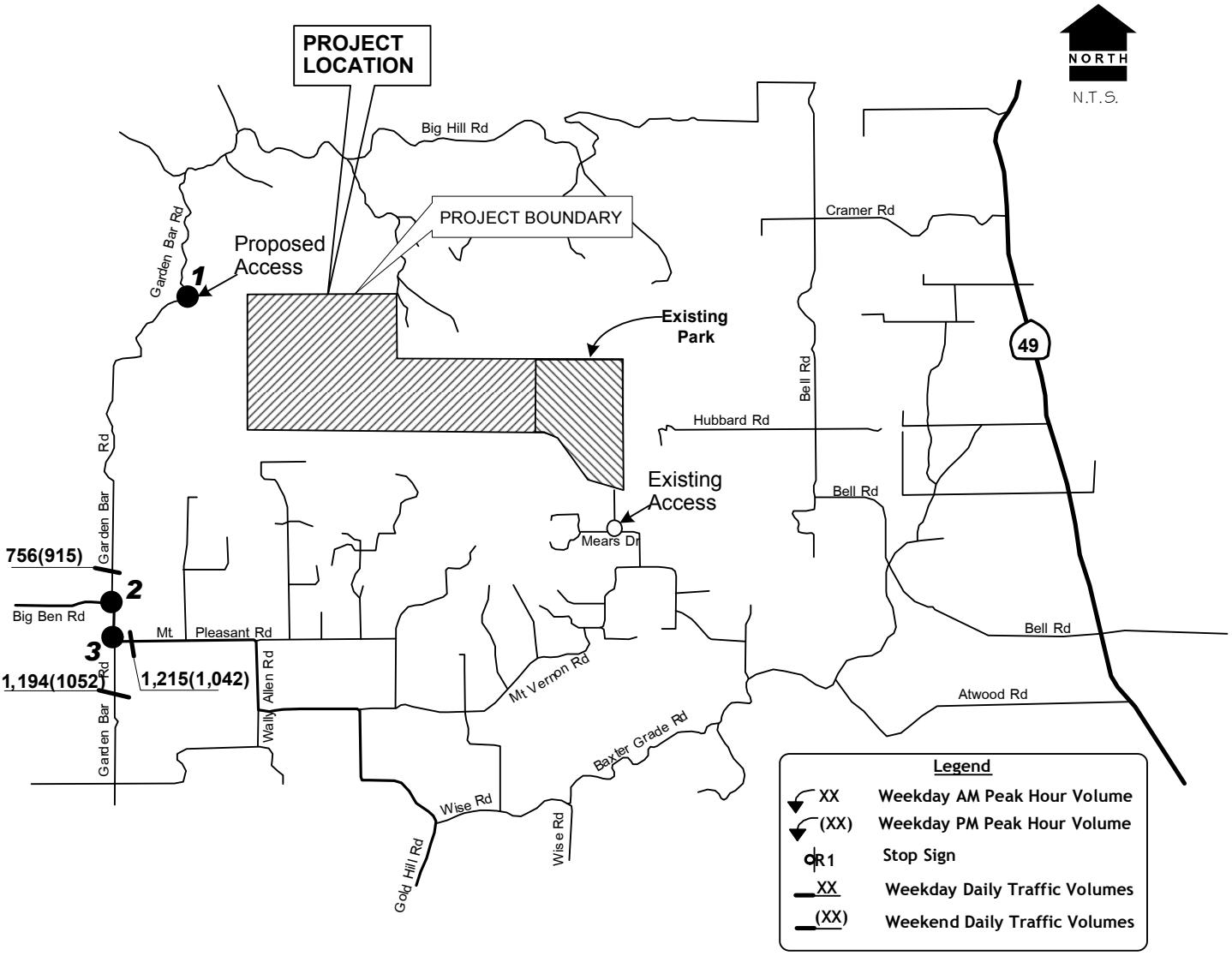
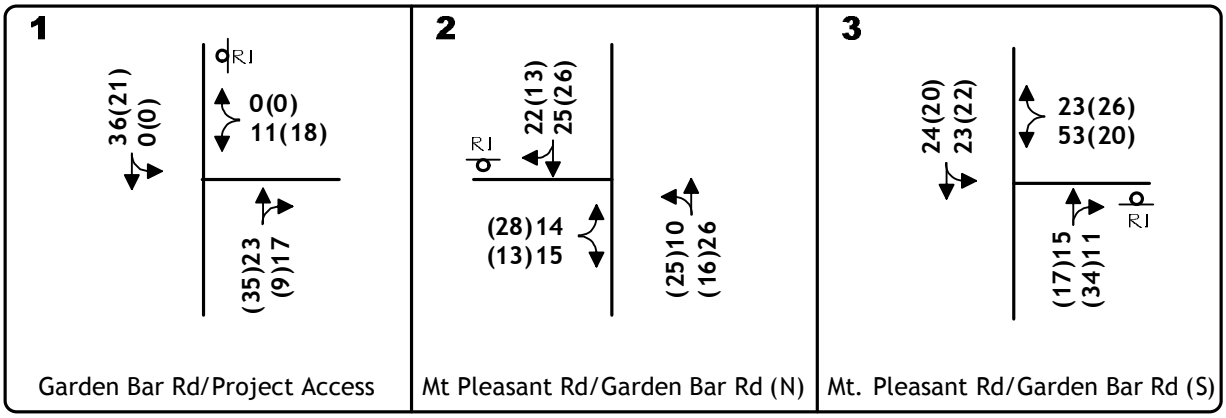
2630-26.VSD 12/29/2008

figure 6





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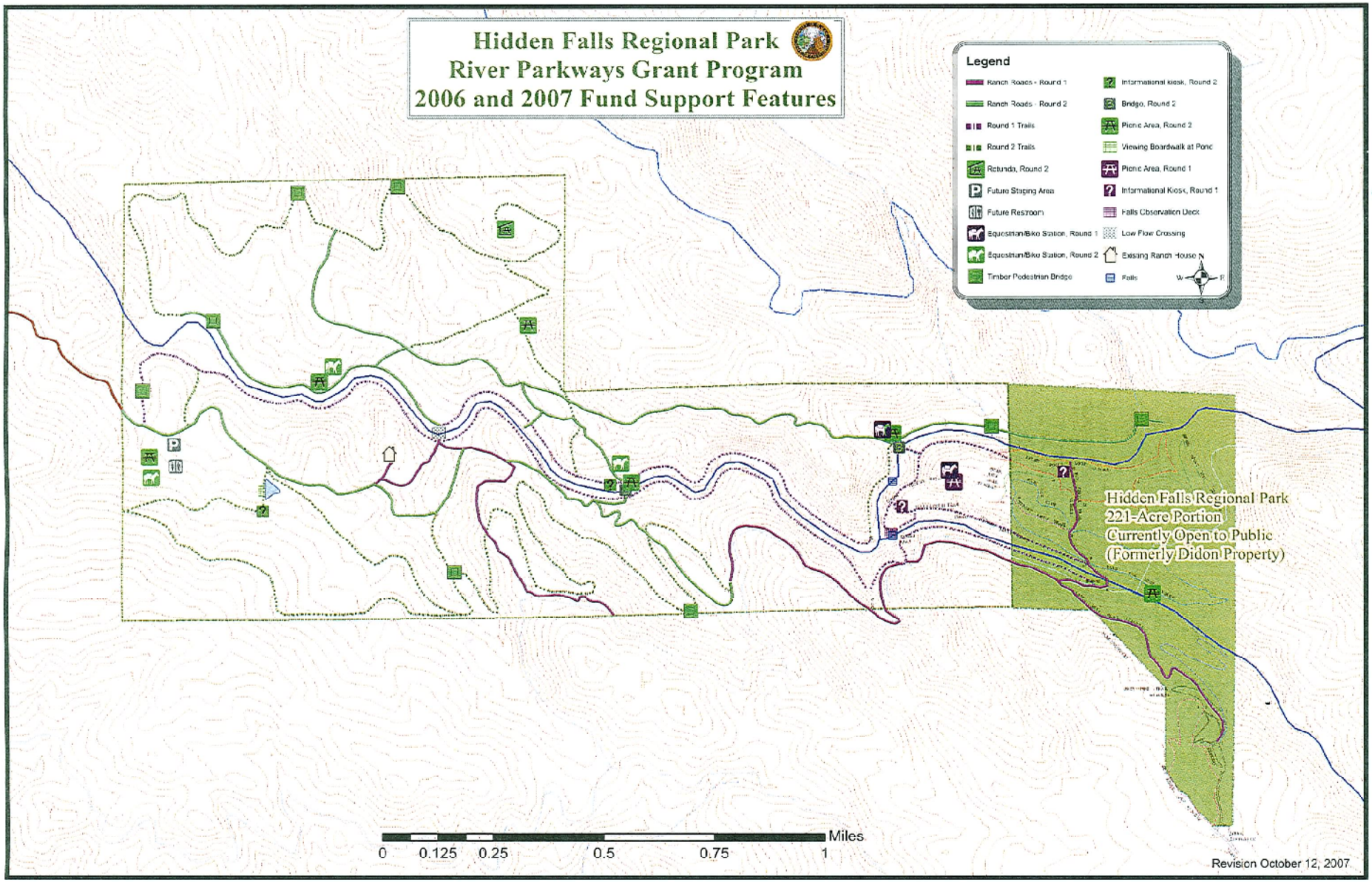
YEAR 2027 PLUS PROJECT
TRAFFIC VOLUMES
AND LANE CONFIGURATIONS

2630-26.VSD 12/29/2008

figure 7



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SITE PLAN

2630-26 .VSD 4/22/2008

figure 2

EXISTING SETTING

Regionally, the project site is served primarily by a series of rural Placer County roads which link the park with Lincoln to the west, Loomis and the Penryn – Horseshoe Bar area to the south and the Auburn area to the east. Regional roads such as Mt Pleasant Road, Garden Bar Road and Mt Vernon Road, Big Ben Road, Wise Road, Riosa Road, McCourtney Road, Fowler Road, Fruitvale Road, and Gold Hill Road will link the site with SR 65 to the west, SR 193 to the south and SR 49 to the east. Locally, the traffic using the site will use Mt Vernon Road and Mears Drive to reach the existing parking facilities that serve the existing portion of the park. The new park access off of Garden Bar Road can be reached via Mt Pleasant Road and Garden Bar Road.

Study Area Circulation System - Roads

Classification. Under the Placer County General Plan the roads in the study area range in functional class from Rural Arterials to Rural Collectors to local roads.

Rural Arterials

Wise Road from Mt Vernon Road to SR 65
McCourtney Road from the Lincoln city limits to Camp Far West Road

Rural Collectors

Fruitvale Road from McCourtney Road to Hungry Hollow Road
Mt Vernon Road from Joerger Road to Wise Road
Riosa Road from the Sutter County line to McCourtney Road
Fowler Road from SR 193 to Fruitvale Road

Local Roads

Mt Pleasant Road
Mears Drive
Garden Bar Road
Big Ben Road

Mt Pleasant Road is a local east-west road that extends for approximately three miles linking Big Ben Road and Mt Vernon Road. The alignment Mt Pleasant Road follows the rolling terrain of the foothills west of Auburn. The road itself is 20 to 22 feet wide with graveled shoulders of varying width. Placer County's adopted design standard for Mt Pleasant Road calls for 32 feet of pavement (traveled way and shoulders) within a 60 foot right of way with a design speed of 35 mph.

Mt Vernon Road is a Rural Collector road that extends easterly from an intersection on Wise Road for about 7 miles into the City of Auburn. Placer County's design standard for Mt.Vernon Road from Wise Road to Joerger Road calls for 32 feet of pavement (traveled way and shoulders) within a 60 foot right of way with a design speed of 35 mph.

Mears Drive is a local street that connects the existing portion of Hidden Falls Park with Mt. Vernon Road. This two lane road features 20 feet of pavement and limited shoulders. Placer County's adopted design standard for Mears Drive north of Mt Vernon Road calls for 32 feet of pavement (traveled way and shoulders) within a 60 foot right of way with a design speed of 30 mph.

Garden Bar Road is a local road that extends north from an intersection on Fruitvale Road across Mt Pleasant Road along the west side of the proposed project and for approximately three miles to the Nevada County line. The alignment and width of Garden Bar Road varies greatly along its length. In the area of the proposed project the road varies from approximately 15 to 20 feet in width. Shoulders are most often non-existent and horizontal curves with radii as short as 80 feet exist at various locations. Placer County's adopted design standard for Garden Bar Road for 32 feet of pavement (traveled way and shoulders) within a 60 foot right of way with a design speed of 35 mph.

Study Area Circulation System - Intersections

The quality of traffic flow is often governed by the operation of key intersections. The following intersections have been identified for evaluation in this study in consultation with Placer County staff.

The **Garden Bar Road (North) / Mt. Pleasant Road** intersection is a "tee" intersection controlled by a stop sign on the southbound Garden Bar Road approach. The intersection is located on a horizontal curve along Mt Pleasant Road. There are no turn lanes on Mt Pleasant Road at the northern Garden Bar Road intersection.

The **Garden Bar Road (South) / Mt Pleasant Road** intersection is a "tee" intersection controlled by a stop sign on the northbound Garden Bar Road approach. The intersection is located on a horizontal curve along Mt Pleasant Road. There are no turn lanes on Mt Pleasant Road at the southern Garden Bar Road intersection.

Standards of Significance: Levels of Service - Methodology

To assess the quality of existing traffic conditions and provide a basis for analyzing project impacts, Levels of Service were calculated at study area intersections and project driveways. "Level of Service" is a qualitative measure of traffic operating conditions whereby a letter grade "A" through "F", corresponding to progressively worsening operating conditions, is assigned to an intersection or roadway segment.

The Placer County General Plan governs development in this area of Placer County, and the Community Plan includes Level of Service goals. Policies 3.A.1. thru 3.A.16 under General Plan Goal 3.A are applicable.

According to the General Plan, the minimum level of service (LOS) on rural roadways and at intersections shall be shall be Level of Service C.

Table 1 presents general characteristics associated with each LOS grade.

TABLE 1
LEVEL OF SERVICE DEFINITIONS

Level of Service	Signalized Intersection	Unsignalized Intersection	Roadway (Daily)
"A"	Uncongested operations, all queues clear in a single-signal cycle. Volume / capacity (V/C) < 0.60	Little or no delay. Delay ≤ 10 sec/veh	Completely free flow.
"B"	Uncongested operations, all queues clear in a single cycle. 0.60 ≤ v/c < 0.70	Short traffic delays. Delay > 10 sec/veh and ≤ 15 sec/veh	Free flow, presence of other vehicles noticeable.
"C"	Light congestion, occasional backups on critical approaches. 0.70 ≤ V/C < 0.80	Average traffic delays. Delay > 15 sec/veh and ≤ 25 sec/veh	Ability to maneuver and select operating speed affected.
"D"	Significant congestions of critical approaches but intersection functional. Cars required to wait through more than one cycle during short peaks. No long queues formed.).80 ≤ V.C < 0.90	Long traffic delays. Delay > 25 sec/veh and ≤ 35 sec/veh	Unstable flow, speeds and ability to maneuver restricted.
"E"	Severe congestion with some long standing queues on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements. Traffic queue may block nearby intersection(s) upstream of critical approach(es). 0.90 ≤ V/C < 1.00	Very long traffic delays, failure, extreme congestion. Delay > 35 sec/veh and ≤ 50 sec/veh	At or near capacity, flow quite unstable.
"F"	Total breakdown, stop-and-go operation. V/C > 1.00	Intersection often blocked by external causes. Delay > 50 sec/veh	Forced flow, breakdown.
Sources: 2000 Highway Capacity Manual, Transportation Research Board (TRB) Special Report 209.			

Methodology for LOS at Unsignalized Intersections. At unsignalized intersections the number of gaps in through traffic, gap acceptance time and corresponding delays for motorists waiting to turn are used for Level of Service analysis. Procedures used for calculating unsignalized intersection Level of Service are as presented the *Highway Capacity Manual, 2000 edition.*

Daily Traffic Volumes

The quality of traffic flow on Placer County roads can also be determined based on the daily traffic volumes and generalized Level of Service thresholds. The Placer County General Plan EIR presents generalized "planning level" daily volume thresholds that can be used to identify operating Levels of Service on streets and highways. These thresholds are re-printed in Table 2.

General Plan threshold do not specifically account for the condition of roads in terms of width and the availability of shoulders. For this analysis is has been assumed that in areas of Rolling and Mountainous terrain Level of Service thresholds could be influenced by these factors. To determine

applicable adjustments, LOS threshold tables employed by other counties were reviewed. The most applicable data is available from the Tuolumne County Transportation Commission (TCTC), and the thresholds employed by that agency specifically address the width of less than standard roads. Applying the adjustments made by TCTC, roads that are 18' wide would have thresholds that were 80% of standard, while the thresholds on roads with pavement width less than 18' would be 66% of standard. The effects of these adjustments are also noted in Table 2.

TABLE 2
EVALUATION CRITERIA FOR ROADWAY SEGMENT LEVEL OF SERVICE

Roadway Capacity Class	Maximum Daily Traffic Volume Per Lane Level of Service				
	A	**B**	**C**	**D**	**E**
1. Freeway – Level Terrain	6,300	10,620	13,680	17,740	18,000
2. Freeway – Rolling terrain	5,290	8,920	11,650	14,070	15,120
3. Freeway – Mountainous Terrain	3,400	5,740	7,490	9,040	9,720
4. Arterial – High Access Control	6,000	7,000	8,000	9,000	10,000
5. Arterial – Moderate Access Control	5,400	6,300	7,200	8,100	9,000
6. Arterial – Low Access Control	4,500	5,250	6,000	6,870	7,500
7. Rural 2-lane Highway – Level terrain	1,500	2,950	4,800	7,750	12,500
8. Rural 2-lane highway – Rolling terrain	800	2,100	3,800	5,700	10,500
Rural 2-lane - Rolling (≥18' of pavement)	*640*	*1,680*	*3,040*	*4,560*	*8,400*
9. Rural 2-lane highway – Mountainous Terrain	400	1,200	2,100	3,400	7,000
Rural 2 lane road - Mountainous (≥18 ' of pavement)	*320*	*960*	*1,680*	*2,720*	*5,600*
Rural 2 lane road – Mountainous (<18 feet of pavement)	*265*	*795*	*1,390*	*2,250*	*4,635*
Source: Placer County General Plan FEIR and *KDA from TCTC guidelines*					

Existing Traffic Volumes and Intersection Levels of Service

This analysis addresses traffic conditions occurring during peak weekday hours. Peak hour traffic counts were conducted in April 2007 during the morning (i.e., 7:00 to 9:00 a.m.) and evening (4:00 to 6:00 p.m.) peak hours. The highest one-hour volume observed during each two hour period was employed for this analysis. The results of these traffic counts are presented in Figure 3.

Table 3 presents current peak hour Level of Service at the study area intersections. As shown, all study intersections currently operate at LOS C or better.

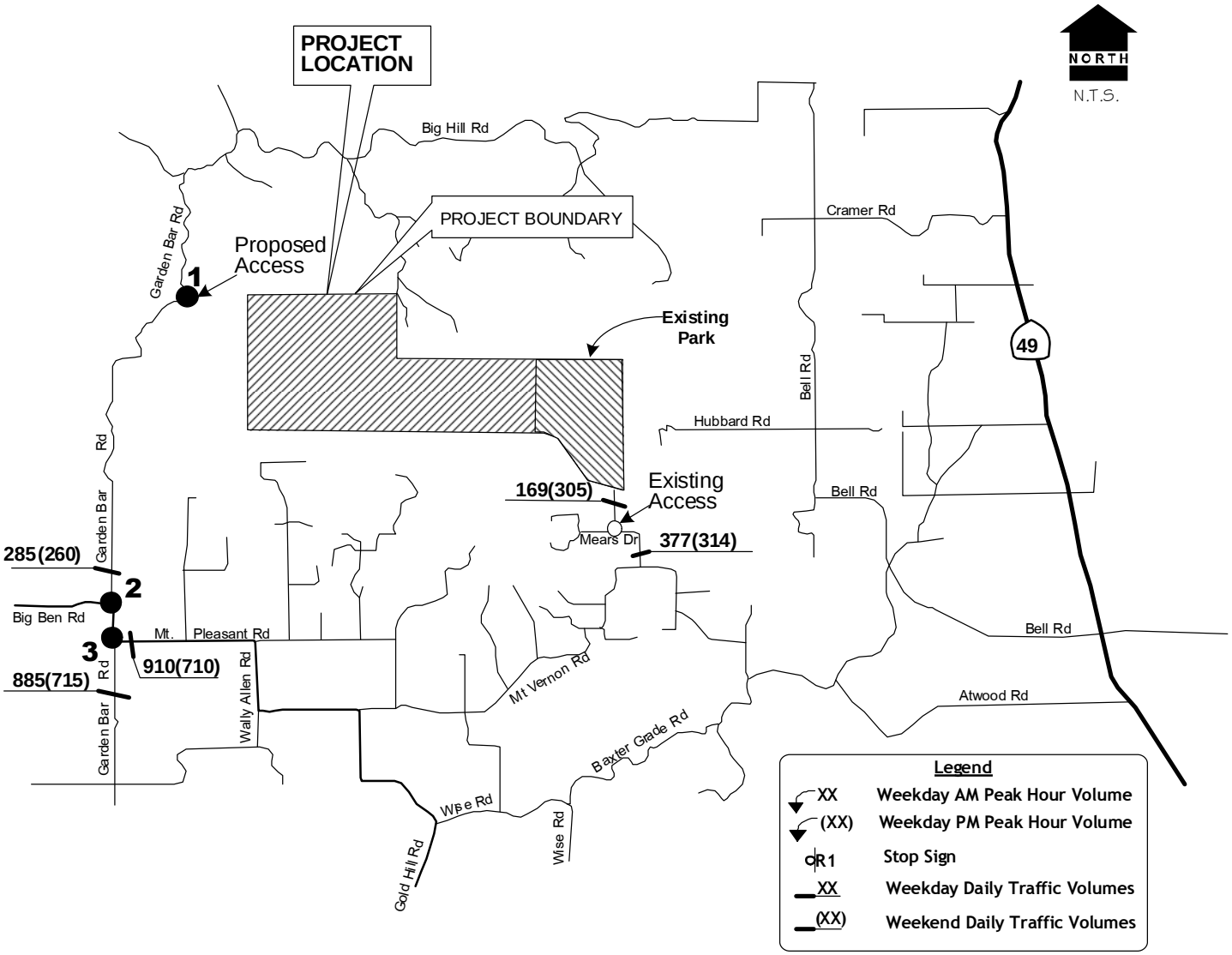
An additional measure of the quality of traffic flow is the extent to which the traffic volumes at these intersections meet warrants for signalization. None of the unsignalized study intersections carry volumes satisfying warrants during either the a.m. or p.m. peak hour. Based on this information, traffic signals are not judged to be needed at this time.

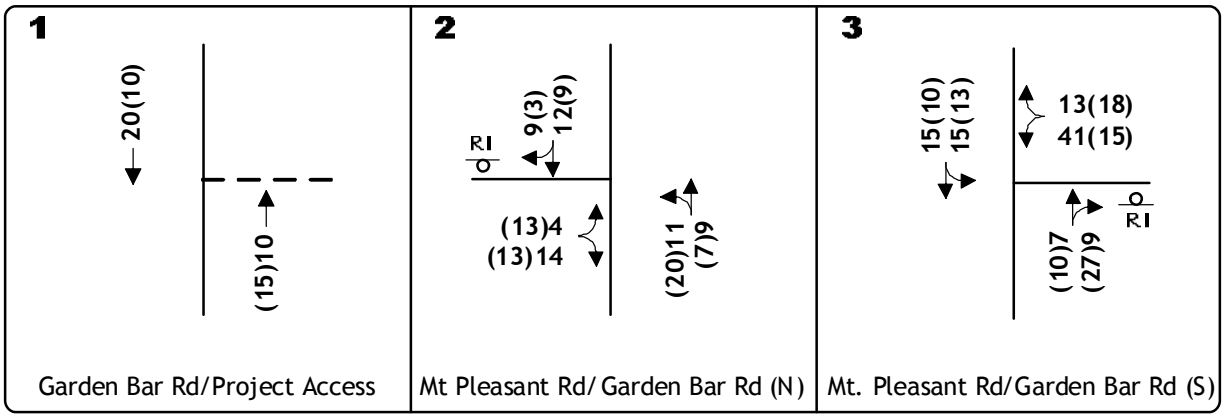
TABLE 3
EXISTING INTERSECTION LEVEL OF SERVICE

Intersection	Control	Weekday				Traffic Signal Warrants Met?	
		A.M. Peak Hour (7:00 to 9:00 a.m.)		P.M. Peak Hour (4:00 to 6:00 p.m.)			
		LOS	Average Delay (sec's per vehicle)	LOS	Average Delay (sec's per vehicle)	a.m. peak hour	p.m. peak hour
Mt Pleasant Road / Garden Bar Road (N)	SB Stop					No	No
EB left turn		A	7.3 sec	A	7.3 sec		
SB left+right turn		A	8.7 sec	A	8.8 sec		
Mt Pleasant Road / Garden Bar Road (S)	NB Stop						
EB left turn		A	7.4 sec	A	7.3 sec	No	No
NB left+right turn		A	8.9 sec	A	8.7 sec		

Existing Daily Traffic Volumes and Levels of Service

Current daily traffic volumes were counted on roads near the project in April 2007. Traffic counts were conducted over a seven day period and included both weekday and weekend volumes. The average volume for the five weekdays and the average of the two weekend days are reported in Table 4.





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EXISTING TRAFFIC VOLUMES
AND LANE CONFIGURATIONS

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figure 3

TABLE 4
EXISTING DAILY TRAFFIC VOLUMES AND LEVELS OF SERVICE

Road	From	To	Class	Pavement	Weekday		Weekend	
					Daily Volume	Level of Service	Daily Volume	Level of Service
Garden Bar Rd (N)	Mt Pleasant Rd	access	Mountainous Rural	<18’	285	B	260	A
Mt Pleasant Rd	Big Bend Rd	Garden Bar Rd (N)	Rolling Rural	>18’	375	A	310	A
Mt Pleasant Road	Garden Bar Rd (S)	Wally Allen Rd	Rolling Rural	>18’	910	B	710	B
Garden Bar Rd (S)	Mt Pleasant Road	Wise Rd	Rolling Rural	>18’	885	B	715	B
Mears Road	Mt Pleasant Road	Mears Place	Rolling Rural	>18’	377	A	314	A

Under the thresholds suggested by the Placer County General Plan with adjustments for roadway width as noted, the Level of Service on study area roads would range from LOS A to LOS B. This evaluation assumes the winding alignment of Garden Bar Road north of Mt. Pleasant Road should be classified as "mountainous", while other area roads are in "rolling" terrain.

Other Evaluation Criteria

Left Turn Channelization. The American Association of State Transportation and Highway Officials (AASHTO) has identified guidelines for the installation of left turn lanes in their publication *A Policy on Geometric Design of Highways and Streets*. These guidelines, which are presented in their Exhibit 9-75 bases the need for a left turn lane on the volume of traffic on the mainline road and the relative percentage of that traffic that turns.

Left turn lanes rarely exist on local roads at intersections near the project. Current volumes at the Mt Pleasant Road / Garden Bar Road intersections fall below guidelines for left turn channelization.

Analysis of the need for left turn lanes at the project's access on Garden Bar Road is a part of the impact evaluation. That evaluation will also consider the relationship between left turn access and sight distance along Garden Bar Road.

Minimum Sight Distance. Placer County has established minimum sight distance standards for intersections onto County roads. These standards generally conform to Caltrans requirements for corner sight distance and are summarized in Plate R-17 of the Placer County Design Standards. The minimum sight distance required for a 25 mph design is 250 feet and for a 35 mph design is 385 feet, while the required distance for 55 mph is 605 feet. The adopted Placer County design speed for Mt Pleasant Road is 35 mph. This suggests that sight distance of 385 feet (35 mph) should be provided. Development of a new access without adequate sight distance would constitute a potential safety impact.

Available sight distance was reviewed at key locations along the roads that will provide access to the project site. The sight distance at the two Garden Bar Road intersections on Mt Pleasant Road satisfies a 35 mph design.

Garden Bar Road Design Speed. Because much of Placer County's rural circulation system has evolved over the years, there are many locations where roadways fail to meet current design standards for horizontal or vertical alignment, shoulder width, etc. On Garden Bar Road, the primary existing design deficiencies are pavement width and the length of the radius of various horizontal and vertical curves. Technically, bringing local roads up to current design standards would require consistently lengthening curve radii to 35 mph design. There are many locations on the current alignment of Garden Bar Road that do not meet this design speed, as acknowledged in the Psomas Engineering evaluation of the road.

Pedestrian / Bicycle / Equestrian Facilities

Dedicated pedestrian and bicycle facilities are limited in this area of Placer County. The Placer County Regional Bikeway Plan (2002) notes the location of existing and planned bicycle facilities in the incorporated and unincorporated areas of Placer County. There are no designated facilities in the immediate area of the proposed project.

The existing portion of Hidden Falls Regional Park provides trails that are used by equestrians, recreational bicyclists and pedestrians. However these users typically haul their horses or mountain bicycles to the site.

Transit Facilities

Placer County Transit provides bus service in Placer County but not to the immediate area of this project. The nearest local service is the Taylor Road shuttle which has a stop in Penryn and provides connections to other local and regional transit services. Dial-a-Ride service is available to residents in the area of the proposed project.

PROJECT IMPACTS

The impacts associated with the proposed project have been evaluated based on the amount of traffic generated and added to study area roads

Project Traffic Characteristics

The proposed project is expected to effect the local environment in two ways. First, use of the park will generate users who are expected to drive to the site, and automobile, truck and bus traffic will be added to the rural roads that provide access to the site. The amount and direction of project traffic is expressed in terms of the projects potential *Trip Generation and Distribution.* Secondly, the project will be accompanied by improvements to Garden Bar Road between the project access and Mt Pleasant Road.

Trip Generation. The amount of new traffic associated with development projects is typically forecasted using information developed from recognized national sources. The Institute of Transportation Engineers (ITE) publication *Trip Generation, 7th Edition* is a source recognized by Placer County and Caltrans.

ITE data for the category of Regional Parks was reviewed. The reference notes that a wide variety of facilities and activities can be found in regional parks, and as a result, trip generation rates vary greatly and statistical correlation is poor. Table 5 identifies the average daily trip generation rates reported by ITE, as well as the range of rates reported for the sample data. Review of this data suggests that the ITE sample was drawn for observation of active parks, such as Elk Grove Regional Park and Maidu Park in Roseville which provide facilities for organized active events (i.e., sports fields). These rates are not judged to be applicable to the proposed project.

TABLE 5
TRIP GENERATION RATES

Land Use	Quantity	Trip Generation						
		Weekday Daily				Saturday		
		Average	Low	High		Average	Low	High
Regional Park	Acre	4.57	0.92	39.07		5.65	1.88	43.04

To provide a greater understanding of probable park use traffic counts were conducted at the existing park access off of Mears Drive. These counts were made during January through March and represent varying conditions in terms of weather. The counts conducted in January reflect colder weather and intermittent rain. The counts made in March represent clear weather conditions. Because these mechanical counts are based on the number of axels across pneumatic hoses, trailers towed to the site would be registered as part of an additional vehicle. Thus these counts may overstate the actual vehicle count slightly.

TABLE 6
TRAFFIC COUNTS AT EXISTING HIDDEN FALLS PARK ACCESS

Date	Day of week	Daily Volume (in + out)	Peak Hour Volume (in+out)			
			AM		PM	
			(7:00 to 9:00)	Highest Hour	(4:00 to 6:00)	Highest Hour
1/17	Thursday	-			11	11
1/18	Friday	97	4	8	18	18
1/19	Saturday	206	-	14	-	47
1/20	Sunday	171	-	22	-	32
1/21	Monday	96	1	17	7	21
1/22	Tuesday	65	3	9	6	14
1/23	Wednesday	43	2	5	5	10
1/24	Thursday	38	3	3	1	10
1/25	Friday	38	1	6	3	10
1/26	Saturday	91	-	15	-	19
1/27	Sunday	48	-	8	-	8
1/28	Monday	77	2	19	4	11
1/29	Tuesday	32	3	4	1	9
1/30	Wednesday	68	6	9	7	9
2/28	Thursday	92	3	9	13	16
2/29	Friday	169	5	24	15	29
3/1	Saturday	193	-	22	-	31
3/2	Sunday	305	-	39	-	51
3/3	Monday	95	1	14	15	16
3/4	Tuesday	148	18	23	17	18
3/5	Wednesday	124	7	18	13	24
3/6	Thursday	76	7	11	8	13
Highest Observation	***Weekday***	***169***	***18 (11 in 7 out)***	***24***	***18 (6 in 12 out)***	***29***
Highest Observation	***Weekend***	***305***	***-***	***39***	***-***	***51***

As shown in Table 6, the highest daily volume observed on a weekday was a count of 169 vehicles in and out. The highest daily volume on a weekend totaled 305 vehicles. The highest volume observed during weekday peak hours was 18 vehicles during both the a.m. and p.m. peak hour.

Trips Associated with Regular Use. The potential increase in activity at the site due to

the new project will be based on factors such as the length of new trails available and the configuration of the trail system. It is expected that longer trails will result in participants spending more time on the trail. Park staff suggests that with the implementation of the project, overall park use could increase to 2 to 2½ times the existing usage.

For this analysis it has been assumed that the project will result in additional traffic that is equal to 1½ times the highest current observation. Thus, as noted in Table 7 the project will add 255 weekday and 460 weekend trips to the study area street system. During the weekday commute hours the project could add 28 trips in the a.m. peak hour and 27 trips in the p.m. peak hour. During the highest hour on a weekend the project could add 77 trips to the area street system

TABLE 7
TRIP GENERATION FORECAST

	Trip Generation							
	Weekday					Weekend		
		AM		PM			Peak Hour	
Land Use	**Daily**	**In**	**Out**	**In**	**Out**	**Daily**	**In**	**Out**
Hidden Falls Regional Park	255	17	11	9	18	460	35	42

Special Events. It is recognized that the park could host organized special events that would attract guests in numbers beyond those expected for regular public use. Such events could include equestrian groups, high school cross country, etc. Project proponents suggest that up to 200 persons could be at the site at one time for these events.

The amount of vehicular traffic associated with special events and the distribution of that traffic would vary based on the nature of the event. For example, local high school cross country meets could bring together several teams, with participants and spectators totaling up to 200 persons. However, high school students would likely be bussed to the site. As a result, a 200 person event of this type would likely be served by 6 to 8 busses and perhaps 12 to 20 automobiles. The trip generation for this event would be less than that forecast for regular use of the site.

Trip Distribution. Having determined the number of trips that are expected to be generated by the project, it is necessary to identify the directional distribution of project-generated traffic. Based on discussions with park staff we understand that today the park caters primarily to western Placer County residents living in an area bounded by SR 49 on the east, SR 65 on the west and Rocklin –Roseville urban area to the south.

2000 Census tract population information for the districts surrounding the park site were reviewed for use as a basis for suggesting the regional distribution of project trips. Excluding urbanized Roseville and Rocklin, the study area would include Lincoln-Sheridan, Loomis. Penryn-Horseshoe Bar, Newcastle-Ophir, Auburn and north Auburn.

TABLE 8
TRIP DISTRIBUTION ASSUMPTIONS

Direction	Destination	Routes	Percentage of total
Northwest	Sheridan	Big Ben Road to McCourtney Road	15%
West	Lincoln	Garden Bar Road to Wise Road	17%
Northeast	North Auburn	Mt Pleasant Road, Mt Vernon Road to Joerger Road	22%
East	Auburn	Mt Pleasant Road to Mt Vernon Road	13%
Southeast	Newcastle / Penryn	Mt Pleasant Road to Wise Road and Gold Hill Road	9%
Southwest	Loomis , Rocklin	Garden Bar Road, Fowler Road to SR 193	24%
Total			100%

Project Trip Assignment. The assignment of project trips to the study area street system will reflect the location of planned parking facilities and the travel time between those facilities and regional trips destinations. Because planned trails can be accessed from both the existing parking facilities off of Mears Drive and via the new parking off of Garden Bar Road, the trips attracted to the facilities may make use of both entrances. To present a "worst case" evaluation of the impacts of this project to Garden Bar Road, 100% of the new traffic has been assumed to use the new entrance under the "existing plus project" conditions. Figure 4 identifies the assignment of project traffic to the local street system via the Garden Bar Road access.

However, if the project proceeds in phases as anticipated, initial use of the new park may occur before Garden Bar Road access is developed. Under those conditions a portion of the trip generation would occur and all of the traffic increase would use Mears Drive.

Planned Roadway Improvements

Development of Hidden Falls Regional Park will be accompanied by phased improvements to Garden bar Road in the area north of Mt Pleasant Road to the proposed access. The extent of these improvements is described in the *Hidden Fall Regional Park Traffic Safety Study (2007).*

Phased Improvements. Under the phased improvements program, public access via Garden Bar Road would initially be prohibited as no improvements to that road would have been made under Phase 1. Under Phase 2 Garden Bar Road would be improved to accommodate private automobiles and the access would be opened to the public. However, access for horse trailers would be prohibited, and vehicles with trailers would continue to use the Mears Drive access. Under Phase 3 vehicles with trailers would be permitted to use the Garden Bar Road staging area.

Phase 2 Work. The following improvements are part of Phase 2 work:

- An access road would be constructed between Garden Bar Road and the park property
- Garden Bar Road would be widened to an all weather 18 foot wide paved section
- Substandard vertical curves would be lengthened at five locations
- Warning signs would be installed at locations along Garden Bar Road to warn of tight radius curves that are not to be improved
- Guide signs directing the public to the park would be installed

Phase 3 Work. Under this phase Garden Bar Road would be subject to additional improvements:

- The road would be further widened to provide a minimum width of 20'all weather surface
- The horizontal alignment of the northern portion of the road would be improved to correct current deficiencies

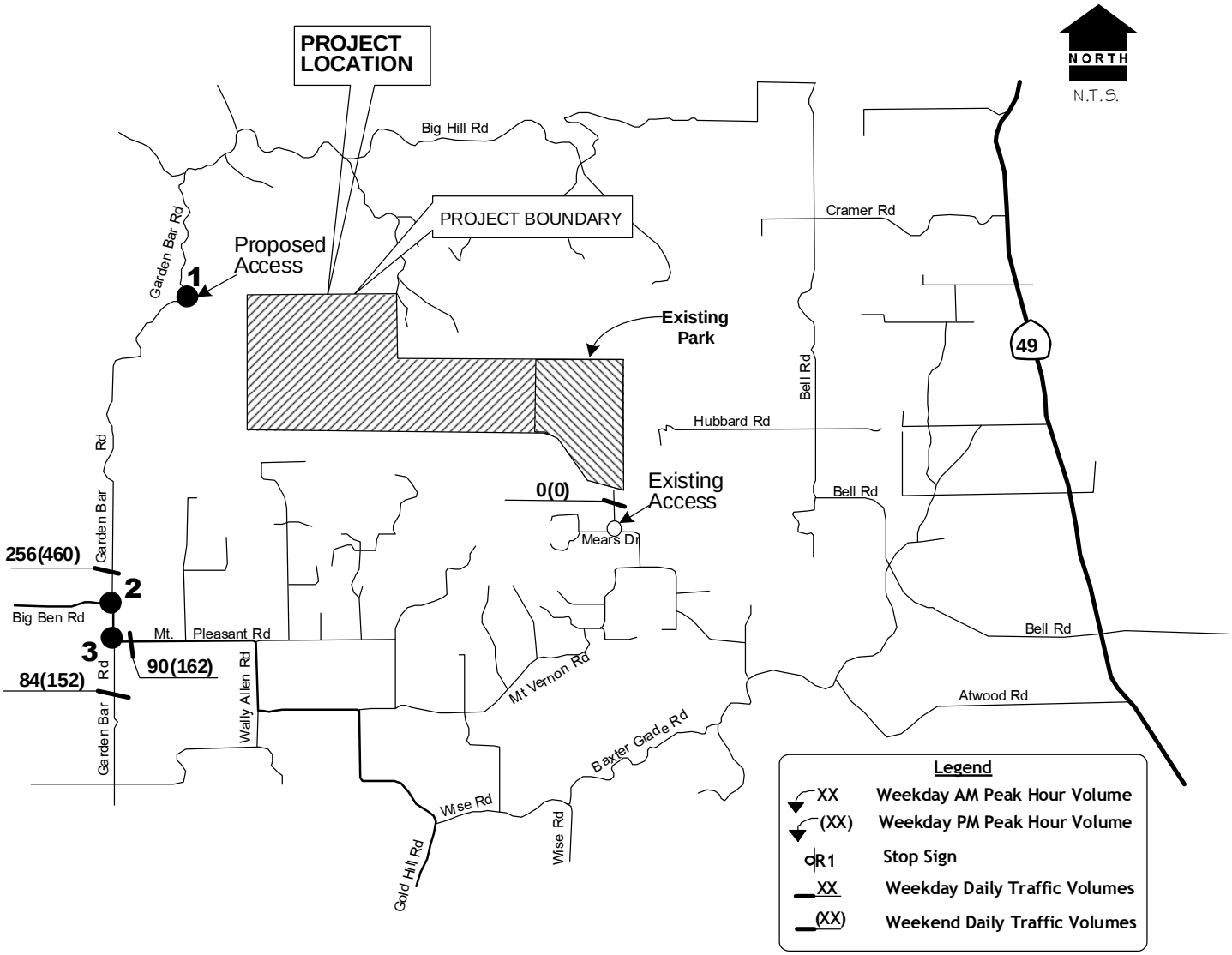
Existing Plus Project Traffic Conditions and Levels of Service

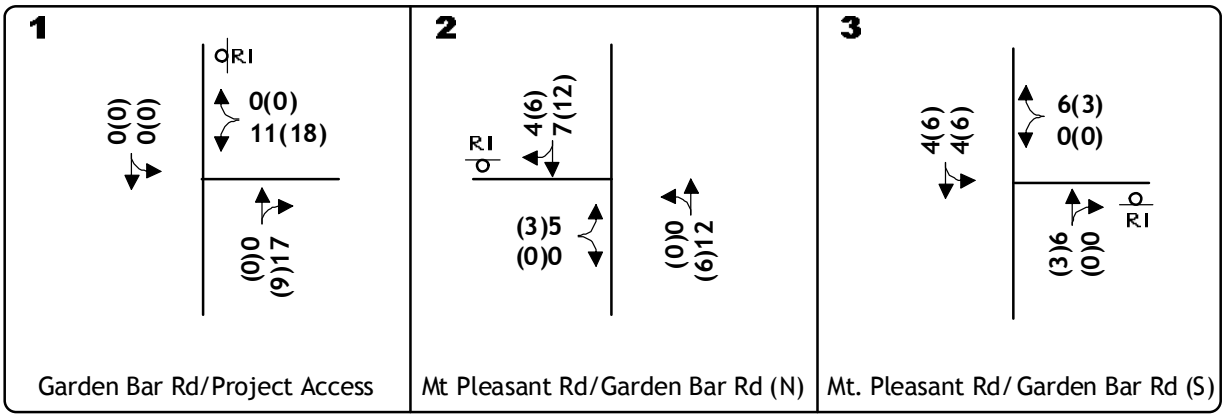
Figure 5 superimposes project trips onto the current background traffic volumes to create the "Existing plus Project" condition assuming all project traffic uses the Garden Bar Road access.

Intersection Level of Service. Table 9 identifies the Level of Service projected at the project's access onto Garden Bar Road and compares the existing and "plus project" Levels of Service at the other study intersections. As shown, the while the average length of delays may increase slightly, the addition of project traffic will have a negligible effect on Levels of Service occurring during peak hours at study intersections. LOS "A" conditions will remain. Review of projected volumes reveals that the addition of project traffic does not result in any change to previous conclusions regarding the need for traffic signals.

To provide a "worst case" assessment of Level of Service impacts, conditions accompanying the weekend peak hour of the facility were evaluated. This assessment was conducted by superimposing weekend peak hour traffic onto observed weekday a.m. traffic volumes. As summarized in the Appendix, study intersection Levels of Service remain at LOS A at this higher traffic volume level.

Existing Daily Traffic Volumes and Levels of Service. Table 10 identifies the daily traffic volumes added to study area roads if all the new traffic associated with the project chose to use Garden Bar Road access. As indicated, while "worse case" assumptions yield increases in traffic volumes that are similar in magnitude to current volume counts, resulting total volumes do not result in Levels of Service in excess of minimum Placer County standards (i.e., LOS C).





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PROJECT ONLY TRAFFIC VOLUMES
AND LANE CONFIGURATIONS

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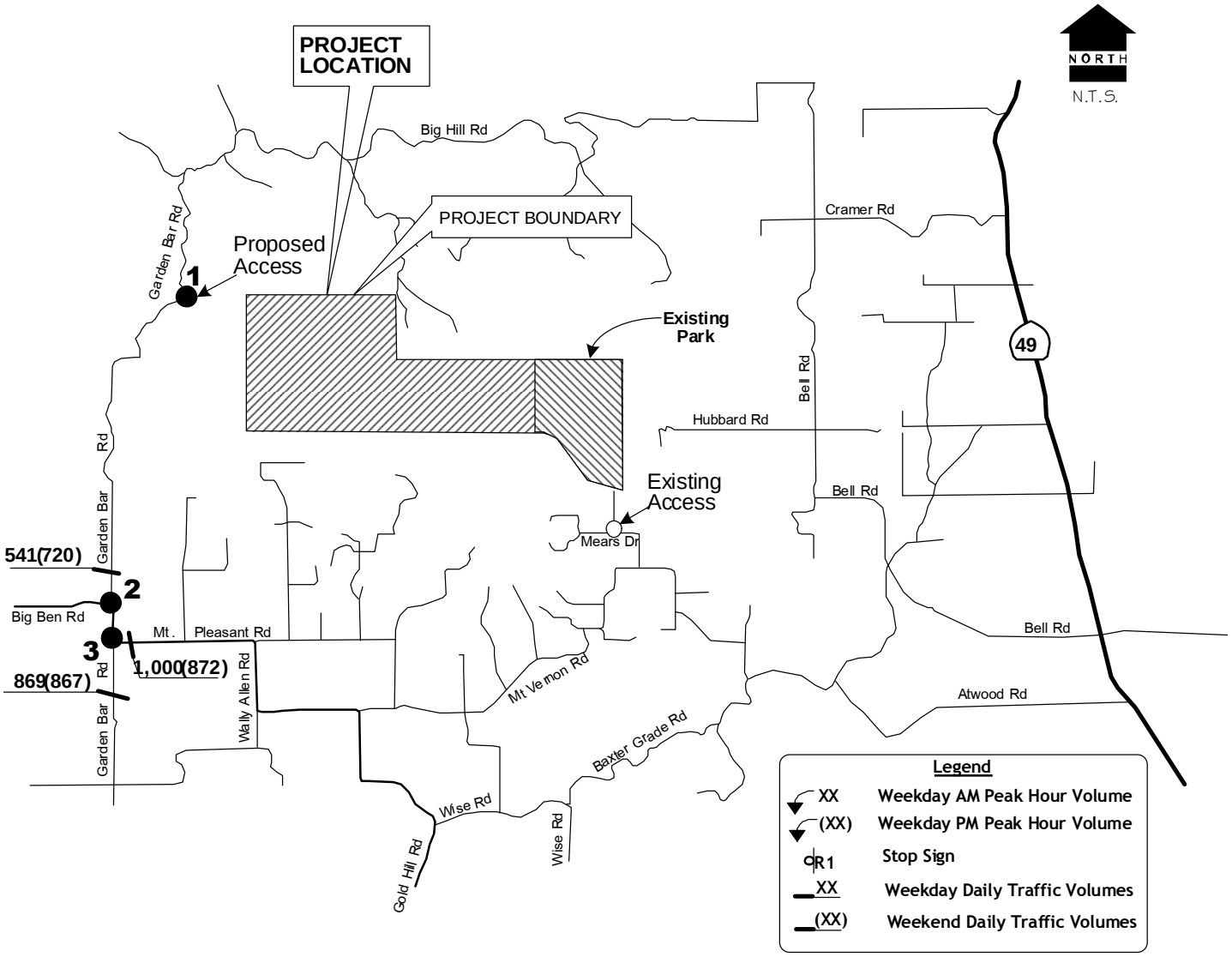
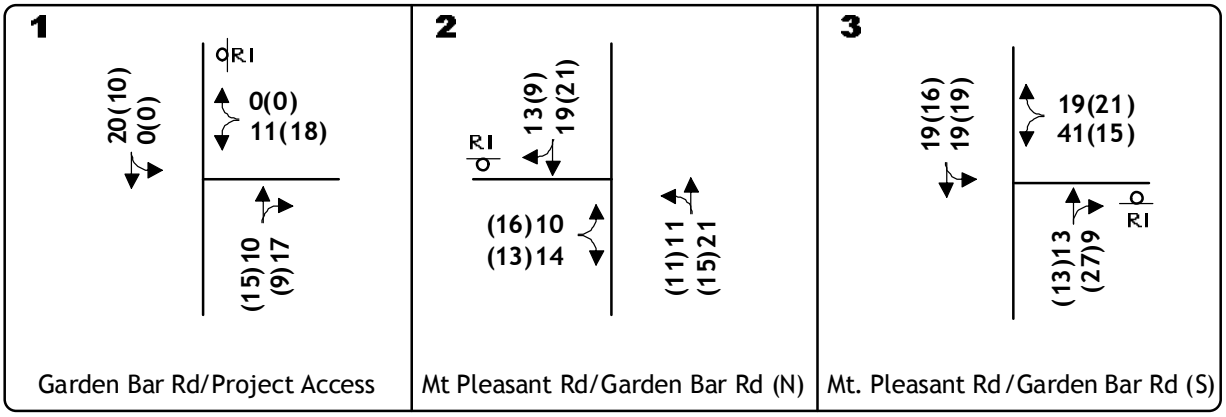
figure 4





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EXISTING PLUS PROJECT
TRAFFIC VOLUMES
AND LANE CONFIGURATIONS

2630-26.VSD 4/22/2008

figure 5

TABLE 9
EXISTING PLUS PROJECT INTERSECTION LEVEL OF SERVICE

		Weekday								Traffic Signal Warrants Met?	
		AM Peak Hour (7:00 to 9:00 a.m.)				PM Peak Hour (4:00 to 6:00 p.m.)					
		Existing		Existing Plus Project		Existing		Existing Plus Project			
Intersection	**Control**	**LOS**	**Average Delay (sec's per vehicle)**	**LOS**	**Average Delay (sec's per vehicle)**	**LOS**	**Average Delay (sec's per vehicle)**	**LOS**	**Average Delay (sec's per vehicle)**	**AM Peak Hour**	**PM Peak Hour**
Garden Bar Rd / Access	WB Stop	-	-			-	-				
SB left turn				-	-			-	-	No	No
WB left+right turn				A	8.8 sec			A	8.8 sec		
Mt Pleasant Road / Garden Bar Road (N)	SB Stop									No*	No
EB left turn		A	7.3 sec	A	7.3 sec	A	7.3 sec	A	7.3 sec		
SB left+right turn		A	8.7 sec	A	8.8 sec	A	8.8 sec	A	8.9 sec		
Mt Pleasant Road / Garden Bar Road (S)	NB Stop									No*	No
EB left turn		A	7.4 sec	A	7.4 sec	A	7.3 sec	A	7.3 sec		
NB left+right turn		A	8.9 sec	A	9.1 sec	A	8.7 sec	A	8.8 sec		

TABLE 10
EXISTING PLUS PROJECT DAILY TRAFFIC VOLUMES AND LEVELS OF SERVICE

Road	From	To	Class	Weekday					Weekend				
				Existing		Existing Plus Project			Existing		Existing Plus Project		
				Daily Volume	LOS	Daily Volume		LOS	Daily Volume	LOS	Daily Volume		LOS
						Project	Total				Project	Total	
Project Access via Garden Bar Road													
Garden Bar Rd (N)	Mt Pleasant Rd	access	Mountainous Rural	285	A	256	541	B	260	A	460	720	B
Mt Pleasant Rd	Big Bend Rd	Garden Bar Rd (N)	Mountainous Rural	375	A	82	457	B	310	A	148	458	B
Mt Pleasant Road	Garden Bar Rd (S)	Wally Allen Rd	Mountainous Rural	910	B	90	1,000	C	710	B	162	872	B
Garden Bar Rd (S)	Mt Pleasant Road	Wise Rd	Mountainous Rural	885	B	84	869	B	715	B	152	867	B
Interim Access via Mears Drive Only													
Mears Road	Mears Place	Mt. Vernon Road	Mountainous Rolling	377	A	255	632	A	314	A	460	774	B

Safety / Access Evaluation

Sight Distance at Project Access. The available sight distance at the proposed project access was determined through a field review and compared to applicable Placer County standards.

As noted earlier, the adopted design speed on Garden Bar Road is 35 mph. Under Placer County guidelines this speed requires sight distance of 385 feet (Plate 17). This requirement exceeds the minimum safe stopping sight distance established by Caltrans for 35 mph (250 feet).

The planned north access is located along a tight curve on Garden Bar Road. The existing curve (80' radius) is to be replaced by a longer curve (200' radius).

Design Standards for balance of Garden Bar Road. The planned improvements to Garden Bar Road are presented in the *Traffic Safety Study for Garden Bar Road*. The improvements are intended to provide a minimum 18' traveled way along with and horizontal and vertical curve radii that are applicable to 35 mph and 25 mph are planned in the areas south and north of station 46+00, respectively. While recognizing that the 25 mph design does not meet the County's requirements for a Rural Secondary Road, the Safety Study notes:

Due to the nature of the existing roadway the standard for a rural secondary roadway is not considered appropriate for this setting and would result in unnecessary widening of the existing road and change in character of the roadway given the existing and future use levels. The County Fire Department's requirement is an 18 ft wide all-weather surface (see Figure 4) and is considered appropriate for Phase 3.

The key safety issue to be considered in this situation is consistency with the conditions on the overall circulations system. Hypothetically, a safety problem would exit if portions of a street are designed to a substantially lower design speed that others and motorists are surprised to encounter reduced conditions. In this case, the results of the overall improvement program envisioned in the Safety Study will be consistent with the quality of traffic flow on the balance of Garden Bar Road north of Mt Pleasant Road.

Thus, while many features of the improvement project do not conform to adopted County standards for minimum horizontal and vertical curves, with proper signage development of the planned improvements would improve safety and not exacerbate existing hazards.

One location that is of concern is the site access onto Garden Bar Road itself. Even with improvements, the access is located on a tight curve and sight distance could be limited. Advance signing in both directions noting the presence of the park access should be part of the final improvements project, and the need for an all-way stop should be reviewed as construction plans are prepared.

Need for Left Turn Lane into the Project Site. With development of the project a limited number of left turns will be made into the site from Garden Bar Road, and the number of left turns at other study intersections will increase slightly. However, resulting traffic volume would fall below the

thresholds presented in AASHTO guidelines. Based on forecast volumes left turn lanes would not be required at either intersection.

Impacts to Alternative Transportation Modes

Development of the project could have a minor incremental impact on the demand for transit services in this area of Placer County. However, the demands associated with this project would not be sufficient to require creating fixed route service. While fixed route service is not available, available Dial-a-Ride service is available. Based on the relative demand and available services, the project's impacts to transit are not judged to be significant.

Development of the project may incrementally increase the number of pedestrians and bicyclists using rural Placer County roads. Due to the distances involved most bicycle and pedestrian travel in this area is recreational in nature, and these modes are not regular commute options. While the project will provide on-site opportunities for cyclists, the trails are suitable for mountain bikes, rather than road cycles. Thus, it is unlikely that cyclists wishing to use the project's trails would choose to ride to the site.

Mitigations for "Existing Plus Project" Impacts

With implementation of planned improvements, development of the project alone does not result in traffic conditions in excess of adopted Level of Service standards. Thus, no mitigation measures are immediately required to maintain County Level of Service standards.

Installation of the planned improvements will result in a local circulation system which is better than that which exists today and is commensurate with the overall flow of traffic on Garden Bar Road. Elements of the plan do not meet minimum Placer County standards for 35 mph design. Modifications to the plan to achieve 35 mph design could be considered, but development of larger radius horizontal and vertical curves would result in considerable disruption to the areas along the roadway and would require substantial right of way acquisition. At the traffic volume levels anticipated public safety will not be compromised by the project and additional improvements to mitigate safety issues are not needed.

CUMULATIVE IMPACTS

The impacts of developing the proposed project have also been considered within the context of long-term future traffic conditions in this area of Placer County. The cumulative analysis accounts for future regional traffic growth as projected from review of historic traffic count records on study area roads.

Year 2025 Cumulative Traffic Conditions

Traffic Volume Forecasts. Long term traffic volume forecasts developed from Placer County's recently updated Year 2025 regional travel demand forecasting model and the SACOG regional traffic model were considered as possible bases for the cumulative analysis. However, review of the configuration of each traffic model revealed that each lacked the detail necessary to develop forecasts for roads such as Garden Bar Road and Mt Pleasant Road.

Historic Traffic Volume Records. Placer County Department of Public Works has intermittently collected daily traffic volume counts for rural roads. These counts go back as far as 1971 and provide a general indication of changes in traffic volumes over that time period. This data, along with the new traffic counts made for this study have been used through regression analysis to estimate the volume of traffic likely to occur on study area roads in the year 2027.

TABLE 11
BACKGROUND TRAFFIC GROWTH

Road	Post Mile	Location	Weekday Daily Volume			
			1971	1978	2007	2027
Garden Bar Rd	2.42	North of Mt. Pleasant Road	191	-	285	500
	1.14	South of Mt Pleasant Road	-	632	885	1,110
Mt Pleasant Rd	0.002	West of Garden Bar Road	-	266	385	540
	2.10	East of Garden Bar Road	-	361	910	1,125

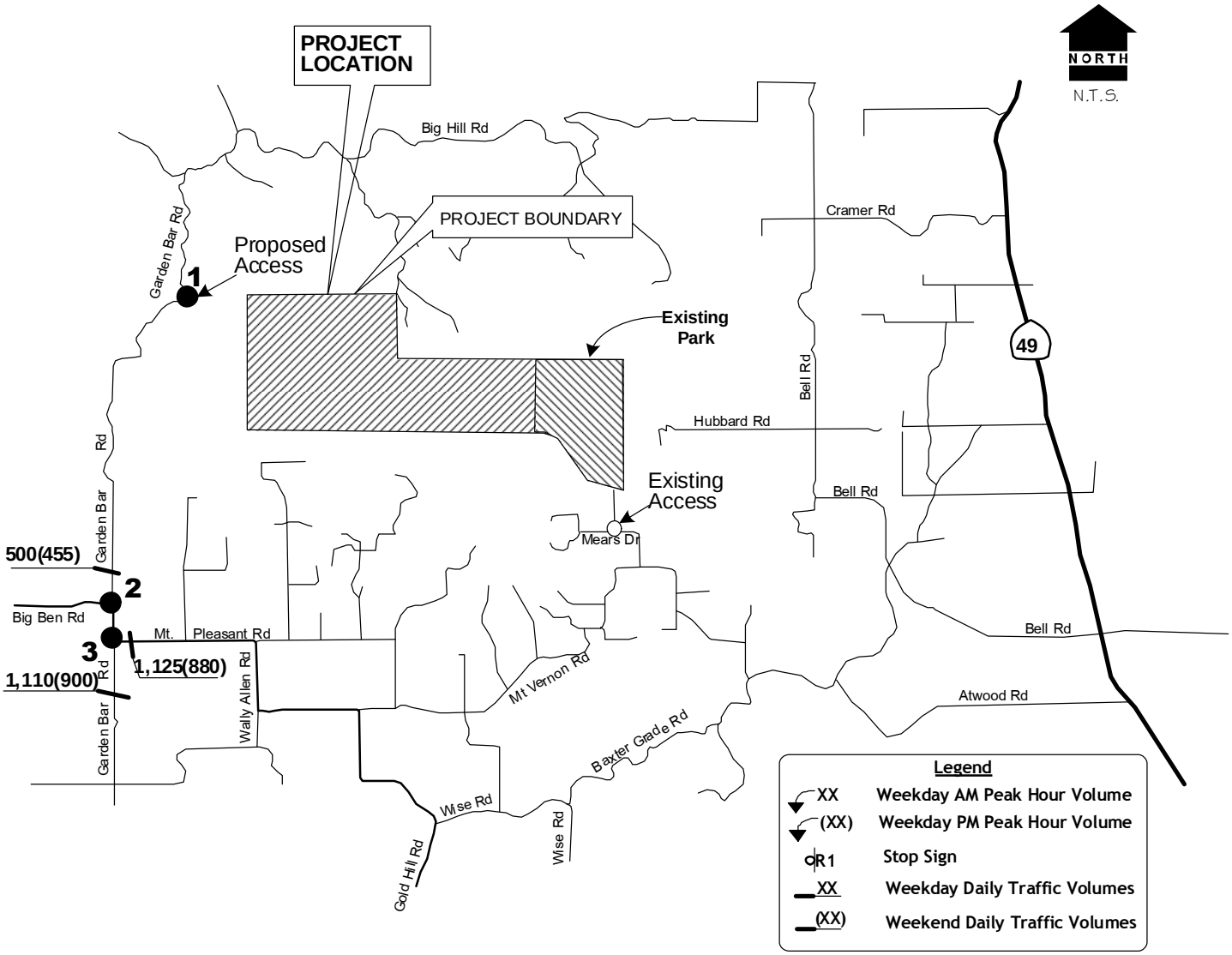
These daily traffic volumes have been employed to interpolate weekend traffic volumes and weekday peak hour intersection turning volumes, as noted in Figure 6.

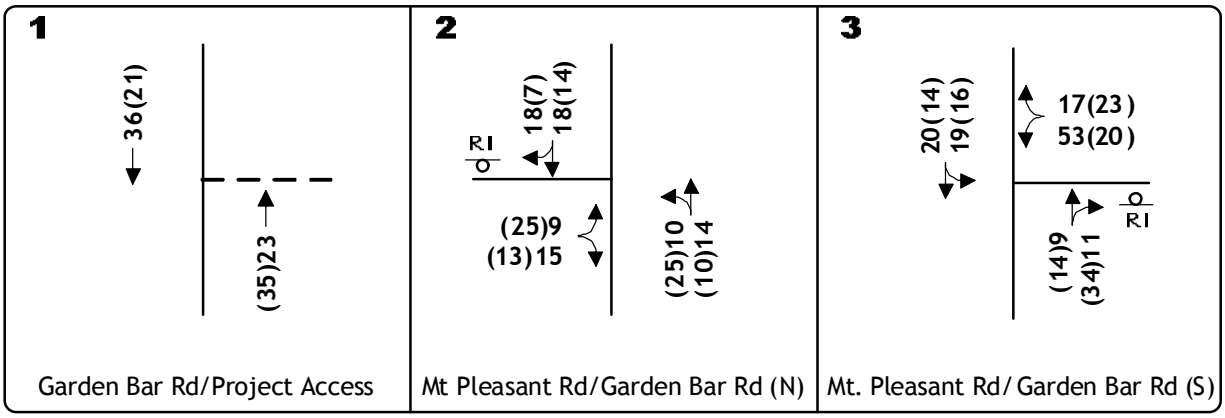
Future Improvements. There are no roadway improvements contemplated in the immediate vicinity of Hidden Falls Park.

Cumulative Impacts to County Roads. As noted in Table 12, with and without the proposed project the volume of traffic on most County roads will remain within the LOS C threshold identified in the General Plan. Mitigations to address the capacity of these roads are not needed.

Peak Hour Intersection Levels of Service. Current peak hour volumes were adjusted to future intersection turning movement volumes based on the relative growth rates implied by daily traffic volumes using methods described in the Transportation Research Board's (TRB's) NCHRP Report 255, *Highway Traffic Data for Urbanized Area Project Planning and Design* (refer to Appendix). Figure 6 presents baseline year 2027 cumulative traffic volume forecasts, while Figure 7 presents "Year 2027 Plus Project" traffic volumes that were developed by superimposing project trip onto the background condition. As noted in Table 13 all intersections will continue to operate at a Level of Service that meets Placer County's minimum standards (i.e. LOS C or better).

Table 13 presents peak hour Levels of Service at study intersections. As shown, all study intersections will meet adopted Level of Service standards.



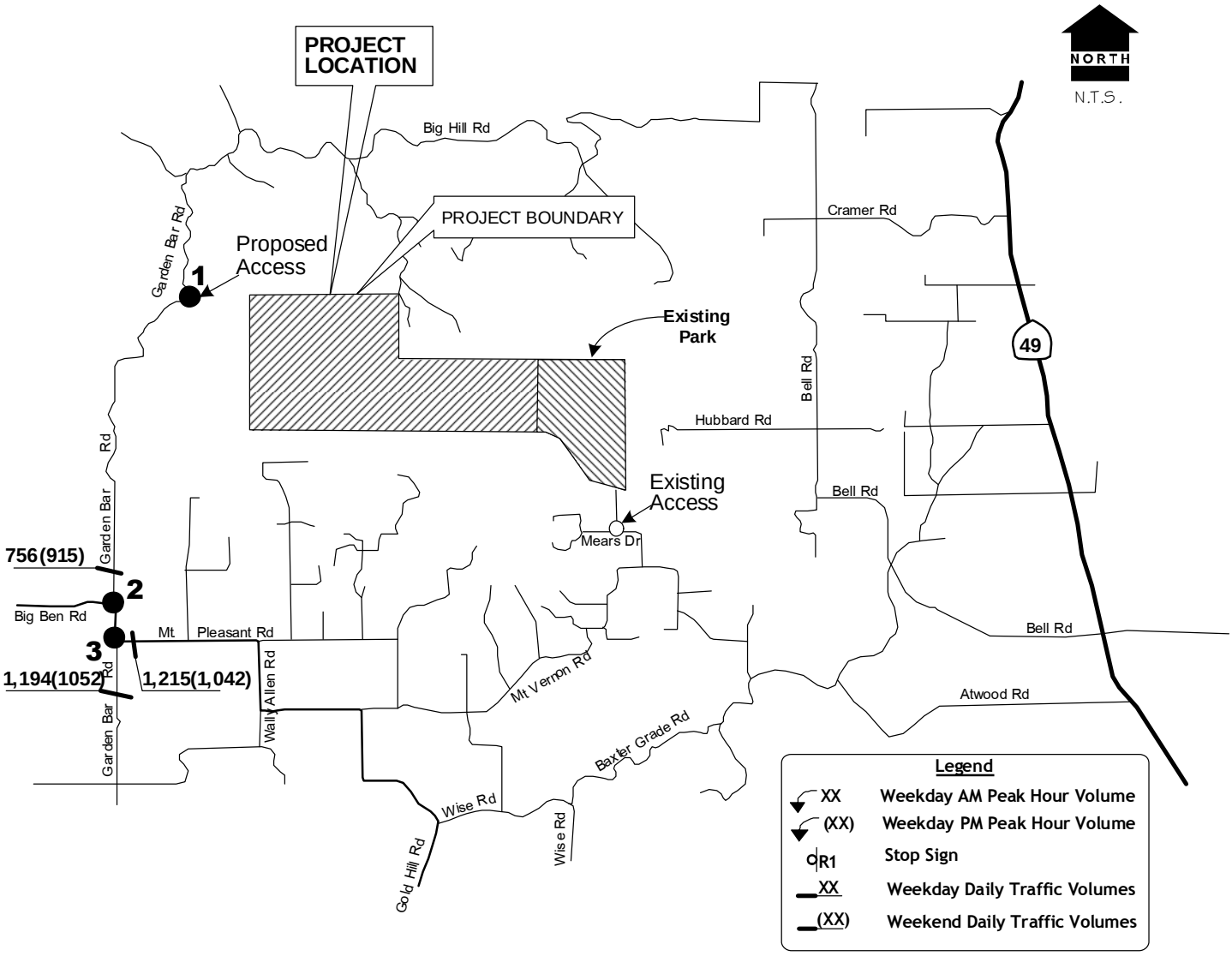


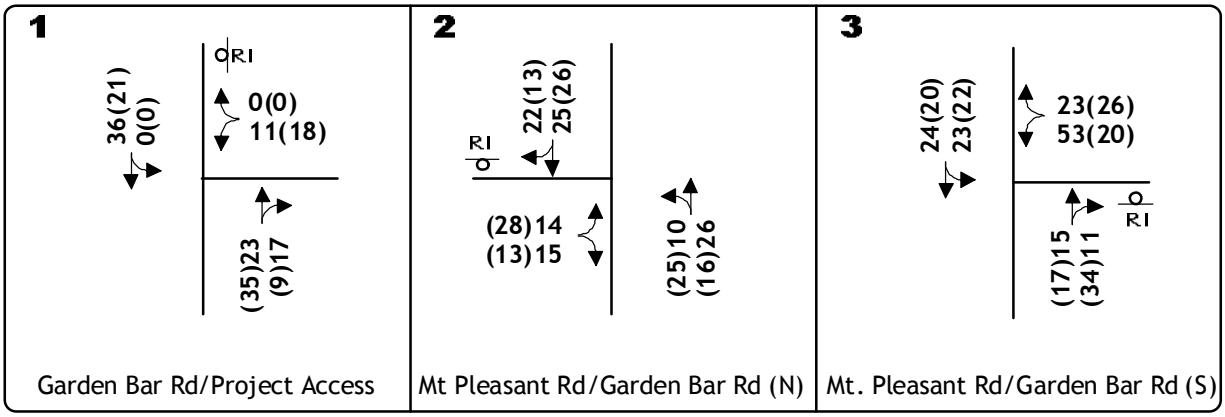
YEAR 2027 NO PROPJECT
TRAFFIC VOLUMES
AND LANE CONFIGURATIONS

KD Anderson & Associates, Inc.
Transportation Engineers

2630-26 .VSD 4/22/2008

figure 6





KD Anderson & Associates, Inc.
Transportation Engineers

YEAR 2027 PLUS PROJECT
TRAFFIC VOLUMES
AND LANE CONFIGURATIONS

2630-26.VSD 4/22/2008

figure 7

TABLE 12
YEAR 2027 CUMULATIVE DAILY TRAFFIC VOLUMES AND LEVELS OF SERVICE

				Weekday					Weekend				
				2027		2027 Plus Project			2027		2027 Plus Project		
				Daily	Level of	Daily Volume		Level of	Daily	Level of	Daily Volume		Level of
Road	**From**	**To**	**Class**	**Volume**	**Service**	**Project**	**Total**	**Service**	**Volume**	**Service**	**Project**	**Total**	**Service**
Garden Bar Rd (N)	Mt Pleasant Rd	access	Mountainous Rural	500	A	256	756	B	455	A	460	915	B
Mt Pleasant Rd	Big Bend Rd	Garden Bar Rd (N)	Mountainous Rural	540	A	82	622	B	435	A	148	583	B
Mt Pleasant Road	Garden Bar Rd (S)	Wally Allen Rd	Mountainous Rural	1,125	B	90	1,215	C	880	B	162	1,042	B
Garden Bar Rd (S)	Mt Pleasant Road	Wise Rd	Mountainous Rural	1,110	B	84	1,194	B-C	900	B	152	1,052	B

TABLE 13
CUMULATIVE YEAR 2027 INTERSECTION LEVELS OF SERVICE

		Weekday								Traffic Signal Warrants Met?	
		AM Peak Hour (7:00 to 9:00 a.m.)				PM Peak Hour (4:00 to 6:00 p.m.)					
		Existing		Existing Plus Project		Existing		Existing Plus Project			
Intersection	**Control**	**LOS**	**Average Delay (sec's per vehicle)**	**LOS**	**Average Delay (sec's per vehicle)**	**LOS**	**Average Delay (sec's per vehicle)**	**LOS**	**Average Delay (sec's per vehicle)**	**AM Peak Hour**	**PM Peak Hour**
Garden Bar Rd / Access	WB Stop	-				-					
SB left turn				-	-			-	-	No	No
WB left+right turn				A	9.0 sec			A	8.9 sec		
Mt Pleasant Road / Garden Bar Road (N)	SB Stop							A	7.4 sec	No*	No
EB left turn		A	7.3 sec	A	7.3 sec	A	7.4 sec	A	9.1 sec		
SB left+right turn		A	8.8 sec	A	8.9 sec	A	9.0 sec				
Mt Pleasant Road / Garden Bar Road (S)	NB Stop							A	7.4 sec		
EB left turn		A	7.4 sec	A	7.4 sec	A	7.3 sec	A	8.9 sec	No*	No
NB left+right turn		A	9.1 sec	A	9.3 sec	A	8.8 sec				

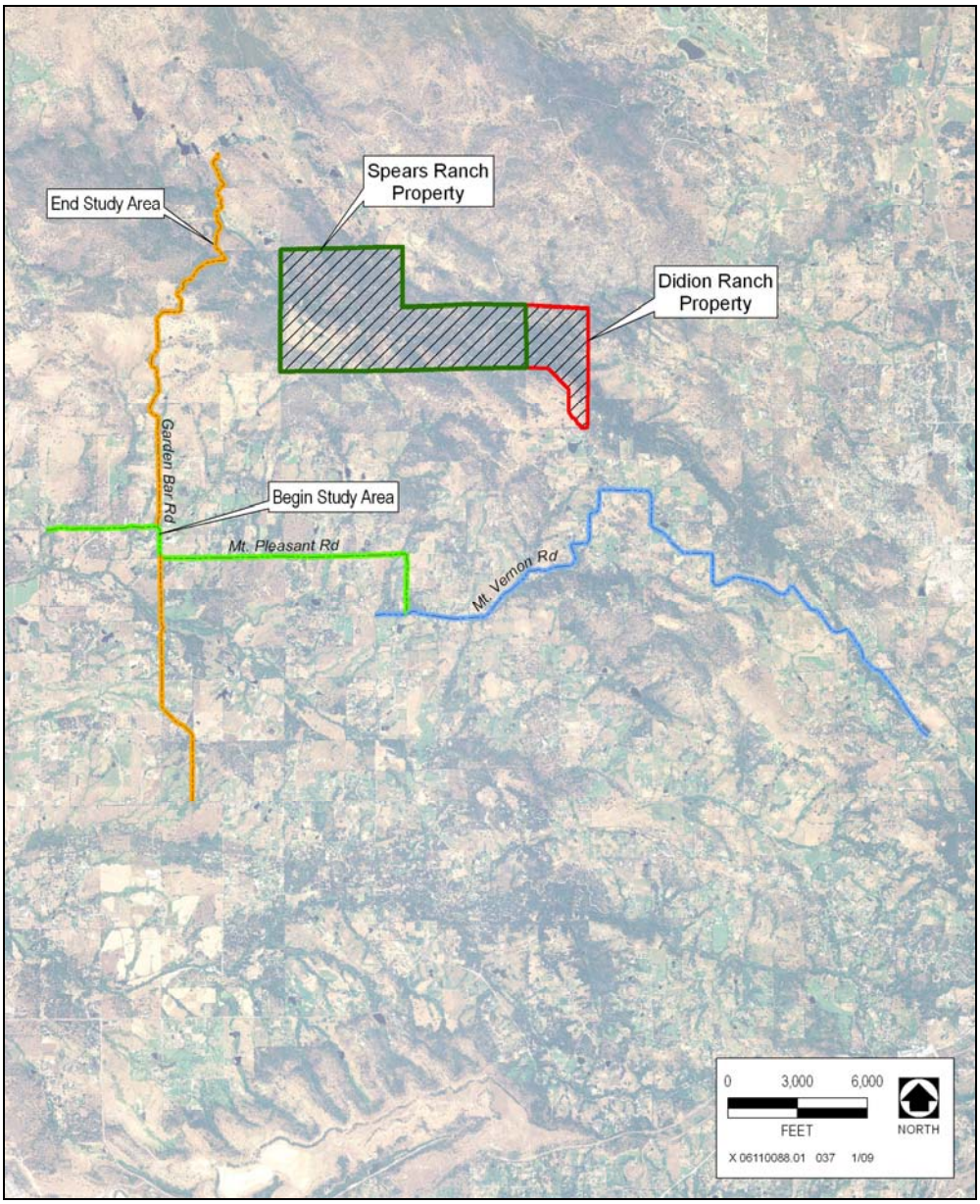
APPENDIX

APPENDIX C

Traffic Safety Report

HIDDEN FALLS REGIONAL PARK PROJECT

TRAFFIC SAFETY STUDY FOR GARDEN BAR ROAD



Prepared for: **EDAW**

Prepared by: PSOMAS

Date: August 7, 2008

REGISTERED CIVIL ENGINEER STAMP

This Traffic Safety Study has been prepared by Psomas under the direction of the following registered civil engineer. The registered civil engineer attests to the accuracy of the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.

_____

BRIAN G WRIGHT, P.E.
Project Engineer
PSOMAS

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EXECUTIVE SUMMARY

Psomas was contracted by Placer County through EDAW to complete a Traffic Safety Study for Garden Bar Road in northern Placer County. This study forms part of the Environmental Impact Report currently being prepared by EDAW for the development of the Spears Ranch portion of the Hidden Falls Regional Park.

The purpose of this study is to determine the feasibility of Garden Bar Road north of Mount Pleasant Road, currently a County maintained two-lane rural road, as a public vehicle access route into the western side (Spears Ranch portion) of the Hidden Falls Regional Park.

The analysis considers the development of Hidden Falls Regional Park vehicle access in four potential phases, namely:

- *Phase 1* –No general public vehicle access via Garden Bar Road – The general public would continue to access the entirety of the park from the existing entrance on Mears Place. Garden Bar entrance would continue to be used by County employees, tenants, contractors, consultants, utility providers, fire, and law enforcement personnel without additional improvements. Emergency, construction, and film production vehicles as well as occasional busses or shuttles would enter the site via the existing Garden Bar Road entrance. Occasional classroom sized groups would be permitted to access the site through Garden Bar Entrance on appointment basis (gates would opened and closed behind groups).
- *Phase 2* – In addition to Phase 1 Access daily public automobile access would be allowed to the new staging area at western end of property via Garden Bar Road. Equestrian trailers would be excluded from the staging area via Garden Bar Road and would continue to enter the site via Mears Road staging area. Events consistent with passive recreation and education with 200 attendees or less at one time would be allowed by County Parks Division reservation. Use of ranch house for educational and/or meeting purposes would remain regulated by County Parks Division reservation system and/or use agreements. The Mears Place entrance would continue to function as a staging/parking area.
- *Phase 3* – In addition to Phase 1 and 2 Access daily public access for equestrian trailers would be allowed to the new staging area at western end of property via Garden Bar Road

The traffic safety study includes an analysis of the existing roadway width, horizontal alignment and vertical profile, and an assessment of drainage and pavement condition, and signing and striping.

The results of the study can be summarized as follows:

- For Phase 1:
    - Prior to allowance of classroom sized groups, a new public access gate, two cattle guards and approximately 200 feet of connecting road to existing access road would be constructed at the intersection of Garden Bar Road near the

existing access road and fencing would be constructed along both sides of access road between Garden Bar Road and site.
    - Up to 25 additional paved parking stalls and up to 12 additional equestrian parking stalls may be developed at the existing Mears Road entrance.
- For Phase 2 (in addition to Phase 1 improvements):
    - New staging area would be constructed at west end of property to include 50 stall paved parking lot and gravel overflow area
    - Widen Garden Bar Road from Mount Pleasant Road to Hidden Falls access road to 18 feet of hard surface with 2 foot shoulders and vertical curves along Garden Bar Road would be improved as recommended in this report.
    - Signing and striping improvements along Garden Bar Road.
    - Improve the access road from Garden Bar Road to the staging area to 24 feet wide with 2 foot shoulders.
    - A gate would be installed between the Garden Bar Road access staging area and the ranch house to prevent unrestricted vehicle access beyond staging area into remainder of property.
- For Phase 3 (in addition to Phase 1 and 2 improvements):
    - A gravel equestrian staging area would be constructed adjacent to the new paved parking lot sized to allow parking for up to 20 horse trailers
    - Widen Garden Bar Road from Mount Pleasant Road to Hidden Falls access road to 20 feet of hard surfacing with 2 foot shoulders subject to County review and approval
    - Horizontal curves along Garden Bar Road would be improved as recommended in this report.

A summary matrix of findings and recommendations for each Phase (Use Category) is included in Table 5.

1. INTRODUCTION

Psomas was contracted by Placer County through EDAW to complete a Traffic Safety Study for Garden Bar Road in northern Placer County. This study forms part of the Environmental Impact Report currently being prepared by EDAW for the development of the Spears Ranch portion of the Hidden Falls Regional Park.

In September 2004, a mitigated negative declaration was adopted for the Didion Ranch portion of the park. Therefore the environmental review process has been completed for the Didion Ranch site. In 2006 improvements were completed to the access road and new parking lot constructed for the Didion Ranch portion of the Hidden Falls Regional Park.

The purpose of this study is to determine the feasibility of Garden Bar Road as a public vehicle access route into the western side (Spears Ranch portion) of the Hidden Falls Regional Park (see Figure 1). Constraints and limitations for various users and vehicle types have been identified and recommendations regarding improvements to this facility are included in this report.

The study was based on discussions with County staff, review of the project site, and implementation of design standards appropriate to the unique proposed uses of the project site. No topographical mapping was available at the time of this study and all recommendations should be confirmed and refined during the preliminary engineering phase of the project.

2. PROJECT COMPONENTS

The proposed Hidden Falls Regional Park Project would include construction of a variety of features for the various uses proposed for the park. Specific features and uses that are being considered include:

- An extensive trail system consisting of approximately 12 miles of new unpaved trails in addition to 10 miles of existing ranch roads for hikers, bikers, and equestrians
    - including bridge crossings over Coon Creek, Deadman Creek, and ephemerals to support the trail network
    - connections to the existing trail system within the Didion Ranch portion of the park and other properties;
- picnic, restroom facilities;
- fire suppression amenities;
- equestrian facilities;
- miscellaneous recreational and educational facilities.

3. PROJECT LOCATION AND EXISTING CONDITIONS

Hidden Falls Regional Park is approximately 1,182 acres in the Sierra Nevada Foothills, which consists of the properties formerly known as Spears Ranch (961 acres) and Didion Ranch (221 acres). Garden Bar Road is located to the west of the park; Mt. Vernon and Mt. Pleasant Roads are to the south; Big Hill Road is to the north, and Bell and Hubbard Roads are to the east (see Figure 2).

This portion of **Garden Bar Road** is a County maintained rural road that extends approximately 2.7 miles from the intersection with Mount Pleasant Road on the south to the proposed park entrance on the north. The roadway varies in width between 15 ft and 20 ft, has limited signage and does not have any centerline or edge line striping. Stormwater runoff is generally captured in roadside ditches and carried across the roadway through pipe culverts ranging in size from 12 inches to 36 inches. The roadway could be described as rolling and winding, with grades up to 9% and several tight radius curves (75'-300').

PLATE 1 – GARDEN BAR ROAD (SEGMENT A - STA 20+00 : LOOKING NORTH)

The roadway is lined with property fences and trees. Utility poles carrying electricity and telephone/communication lines are located alongside the roadway. No underground utilities were observed within the roadway. The southern end of the road has more driveway access points and is fairly straight with flatter grades.

The north end of the road is narrower, has more vegetation adjacent to the roadway, steeper grades and several tight radius curves. Currently, Garden Bar Road is used primarily by residents and maintenance vehicles. The road is a designated school bus route. Truck usage is restricted to times when school buses are not present.

PLATE 2 – GARDEN BAR ROAD (SEGMENT B - STA 125+00)

Mount Pleasant Road is a County maintained rural roadway that extends primarily east-west from Crosby Herold Road to Mount Vernon Road and ties into Big Ben Road in the west and Wise Road to the east. The roadway is a two lane facility with nominal shoulders and has a posted speed of 40 mph.

4. TRAFFIC ANALYSIS

A traffic analysis is currently being completed for this project to determine existing and projected future traffic volumes. Current traffic counts indicate that existing traffic volumes on Garden Bar Road are fairly low, averaging 275-325 vehicles per day (vpd) during weekdays and 225-275 vpd on weekends.

Based on experience gained from the Didion Ranch Portion of the Park, it is anticipated that the Hidden Falls Regional Park will initially generate approximately 200-300 vpd on weekends and public holidays. This number is likely to reduce after a flux in use following the initial opening of the western end of the site to public use. It should be noted that traffic volume data from the Mears Road entrance area shows that traffic

associated with the use of Hidden Falls Regional Park peaks during mid-day hours outside of typical AM and PM commute hour peaks. Peak traffic trends would likely be similar on a Garden Bar entrance.

Existing usage of Garden Bar Road is primarily limited to local residents and service vehicles. The road will continue to be a designated school bus route. It is anticipated that the park may generate a variety of traffic from bicycles, passenger vehicles and horse trailers and emergency/maintenance vehicles.

If Phase 2 usage is determined, a surfaced parking lot is proposed and will be sized to accommodate anticipated uses. In addition, a gravel overflow parking area and a secondary parking lot to accommodate a nature/conference center are being considered.

During Phase 3, a gravel equestrian staging area will be installed in addition to the amenities for Phase 2.

5. DESIGN CONSIDERATIONS

5.1 Design Vehicle/Use Category

Four phases of proposed design vehicle and use categories have been identified and are considered in this analysis:

- *Phase 1* –No general public vehicle access via Garden Bar Road – The general public would continue to access the entirety of the park from the existing entrance on Mears Place. Garden Bar entrance would continue to be used by County employees, tenants, contractors, consultants, utility providers, fire, and law enforcement personnel without additional improvements. Emergency, construction, and film production vehicles as well as occasional busses or shuttles would enter the site via the existing Garden Bar Road entrance. Occasional classroom sized groups would be permitted to access the site through Garden Bar Entrance on appointment basis (gates would opened and closed behind groups).
- *Phase 2* – In addition to Phase 1 Access daily public automobile access would be allowed to the new staging area at western end of property via Garden Bar Road. Equestrian trailers would be excluded from the staging area via Garden Bar Road and would continue to enter the site via Mears Road staging area. Events consistent with passive recreation and education with 200 attendees or less at one time would be allowed by County Parks Division reservation. Use of ranch house for educational and/or meeting purposes would remain regulated by County Parks Division reservation system and/or use agreements. The Mears Place entrance would continue to function as a staging/parking area.
- *Phase 3* – In addition to Phase 1 and 2 Access daily public access for equestrian trailers would be allowed to the new staging area at western end of property via Garden Bar Road

The roadway width requirements for Phase 3, where horse-trailers are present and may be required to pass one another, will be greater than Phase 2 where the likelihood of two buses passing one another is small. Turning radii and tracking requirements (width from outside to inside wheel paths) for buses are slightly greater than those for standard horse-trailers or autos with trailers.

5.2 Design Speed

There is currently no posted speed along Garden Bar Road. For the purposes of this study, the design speed is assumed to be 35 mph for the lower portion of the roadway (Sta 1+00 to 46+00), from now on referred to as Segment A, and 25 mph for the remainder of the road, up to the Entrance at Sta 146+00 (Segment B). Figure 3 shows the layouts of Garden Bar Road. This was based on observations of existing travel speeds and discussions with County staff.

The minimum criteria used in this analysis are shown in Table 1 below.

TABLE 1: DESIGN CRITERIA

Criteria	Design Speed	
	25 mph	**35 mph**
Stopping Sight Distance	150 ft	250 ft
Horizontal Radius	200 ft	400 ft

Source: Caltrans Highway Design Manual

5.3 Typical Section (Roadway Width):

The standard for a rural secondary roadway is 32 feet of paved surface. Due to the nature of the existing roadway the standard for a rural secondary roadway is not considered appropriate for this setting and would result in unnecessary widening of the existing road and change in character of the roadway given the existing and future use levels. The County Fire Department's requirement is an 18 ft wide all-weather surface (see Figure 4) and is considered appropriate for Phase 2.

6. ANALYSIS

6.1 Roadway Width

In order to determine the minimum width, measurements were taken of the existing roadway at various intervals. Segment A was generally found to be between 16 ft and 20 ft wide, while Segment B was narrower measuring between 15 ft and 17 ft. Roadway widening is shown to occur on one side of the roadway only to make construction more practical and cost effective. Roadway widening is proposed on the side which has the least impact on properties, trees, environmentally sensitive areas and utility poles.

Roadway widening would be required through several areas where potential wetlands were noted. These include Sta 7+20 (left), Sta 17+00 (left), Sta 37+50 (right) and Sta

67+00 (right). Roadway widening would also impact a significant number of trees along the roadway.

Existing roadside ditches would be perpetuated where widening is to take place. Based on observations of the existing cut slopes and soil type, cut slopes are likely to be 2:1 or steeper as recommended by a geotechnical engineer.

The minimum County Fire Department requirement of 18 ft with 2 ft unpaved shoulders considered reasonable for Phase 3 traffic would require widening the existing roadway for a length of 7,600 feet as shown in Figure 3.

Phase 1 usage would not be considered to be significantly greater than baseline usage, so roadway widening and realignment would not be considered necessary.

6.2 Horizontal Alignment

Segment A is generally a straight alignment with a minimum curve radius of 400 ft. No realignments are recommended.

Segment B has several tight radius curves that do not meet the minimum design standards of 200 ft to 400 ft.

Several options were considered to improve the sight distance at these locations as shown in Table 2 below.

TABLE 2: HORIZONTAL SIGHT DISTANCE IMPROVEMENT OPTIONS

Option	Pros	Cons
Realign Road	Improves sight distance Improves safety	Impacts on property, vegetation, utilities would be greater Increased cost May increase traveled speed
Earthwork to push back cut slopes	Improves sight distance	Impacts on property, vegetation, utilities. Does not satisfy design speed criteria.
Roadway Widening	Assists in improving safety Impacts would be fairly minor	Does not satisfy design speed criteria
Vegetation Removal	Assists in improving sight distance Impacts to property would be minor	Impacts to trees and vegetation would remain. Does not satisfy design speed criteria

PLATE 3 – GARDEN BAR ROAD (SEGMENT B - STA 75+00)

After review of the project site the following recommendations have been made for each of the substandard horizontal curves identified in Figure 3 (see Table 3 below). During Phase 1 and 2 additional warning signs are recommended along Garden Bar Road to notify motorists of tight radius curves.

TABLE 3: RECOMMENDED IMPROVEMENT OPTION

Curve Number	Curve Location	Recommended Improvement	Justification
HC-1	Sta 47+00 (Radius 90 ft)	Realignment – Increase radius to 200 ft. Widen to inside.	This is the first curve at the end of Segment A and is below the minimum standard. Widening would impact property on the west side of the roadway. 4-5 trees would be impacted and a utility pole.
HC-2	Sta 55+00 (Radius 175 ft)	Earthwork - push back existing cut slope as part of widening	This short length of roadway could be corrected by pushing back the 10 ft high cut slope on the right side. Widening on the left side is not feasible due to the steep drop off and large number of trees.

TABLE 3: RECOMMENDED IMPROVEMENT OPTION (CONTINUED)

Curve Number	Curve Location	Recommended Improvement	Justification
HC-3	Sta 72+00 (Radius 110 ft) to Sta 75+00 (Radius 110 ft)	Realignment – Increase radius to 200 ft minimum.	This section presents a number of safety concerns with very poor sight distance, steep grades and a driveway at Sta 75+50 (see Plate 3). Widening is recommended to the southwest away from the steep cut slope on the north east side of the road.
HC-4	Sta 83+50 (Radius 110 ft)	Removal of vegetation and widening right.	Removal of the vegetation on the west side of the roadway and widening out to the east are recommended. The existing pipe culvert would need to be replaced or extended if feasible.
HC-5	Sta 96+00 (Radius 150 ft)	Realignment and lowering of the profile are recommended at this location	This curve does not meet the minimum standards for horizontal or vertical curves although the roadway width is adequate. Recommend realignment to the east where a small cut slope of 2-3 ft exists. No trees would be affected.
HC-6	Sta 100+00 (Radius 100 ft)	Realignment –increase radius to 200 ft	Realign to the east where a small cut slope of 3-5 ft exists. One tree may be affected.
HC-7	Sta 108+00 (Radius 75 ft)	Realignment to increase the radius to 200 ft or modify this tee-intersection into a three- way stop.	Realignment would result in a number of large trees being removed. To avoid this, an option would be to install a three way stop controlled intersection.
HC-8	Sta 116+00 (Radius 100 ft)	Realignment between rock outcroppings may be possible along with earthwork and vegetation removal.	Realignment would require excavation of rock which is evident on both sides of the road.
HC-9	Sat 120+00 (Radius 125 ft)	Realignment to increase the radius to 200 ft.	Realignment to the west is recommended creating a small fill slope. Several trees would be impacted. Removal of vegetation only would improve sight distance during daylight.

HC-#: For Horizontal Curve Number see Layout Plans in Figure 3

TABLE 3: RECOMMENDED IMPROVEMENT OPTION (CONTINUED)

Curve Number	Curve Location	Recommended Improvement	Justification
HC-10	Sta 122+50 (Radius 80 ft)	Widening – to improve sight distance at this location.	Realignment to achieve a 200 ft radius would require significant rock excavation and probably blasting. Existing rock outcropping is probably 50 ft above the roadway. Widening out on the west side is more feasible although achieving a 200 ft radius would be difficult without significant earthwork.
HC-11	Sat 126+50 (Radius 100 ft)	Realignment to increase the radius to 200 ft.	Realignment to the west is recommended creating a small fill slope. Several trees would be impacted. Removal of vegetation only would improve sight distance during daylight.
HC-12	Sta 144+00 (Radius 80 ft)	Realignment – Increase radius to 200 ft. Widen to inside and realign the entrance roadway into the park to the apex of the curve. Consideration should be given to making this a tee intersection with a 3-way stop.	This is the proposed location of the Park entrance. Sight distance at this curve would be desirable. Realignment would be relatively easy.

HC-#: For Horizontal Curve Number see Layout Plans in Figure 3

At each curve where the radius is 200 ft or less, it is recommended that the roadway be widened to satisfy the off-tracking requirements for buses, autos with trailers and horse trailers. The recommended widening shall be as follows:

- 100 ft radius – 12 ft minimum lane width
- 150 ft radius – 11 ft minimum lane width
- 200 ft radius – 10 ft minimum lane width

6.3 Vertical Profile:

Several locations along Segment A were identified as having inadequate sight distance due to the length of the vertical curve and approach and exit grades. In addition, at most of these locations, private access driveways are located at the crests of these curves resulting in limited sight distance for motorists entering the roadway. This was confirmed from discussions with several local residents who expressed their concerns with the limited sight distance of the existing roadway.

PLATE 3 – GARDEN BAR ROAD (SEGMENT A - STA 30+00)

After review of the project site, the following recommendations have been made for each of the substandard vertical curves identified in Figure 3 (see Table 4 below). These recommendations are applicable to all vehicle type/use categories. It is recommended that priority be given to those areas identified in Segment A.

TABLE 4: RECOMMENDED VERTICAL CURVE IMPROVEMENTS

Curve Number	Curve Location	Recommended Improvement	Impacts
VC-1	Sta 30+00 (Sight distance 140 ft, approach grades 7% and -9%)	Lower vertical curve by up to 5 ft to achieve 250 ft required sight distance.	Lowering the vertical curve would result in increasing cut slopes by 5 ft, reconstructing fences, tree removal and reconstructing portions of the driveway approaches.
VC-2	Sta 35+00 (Sight distance 120 ft, approach grades 7% and -2%)	Lower vertical curve by up to 5 ft to achieve 250 ft required sight distance.	Lowering the vertical curve would result in increasing cut slopes by 5 ft, reconstructing fences, tree removal and reconstructing portions of the driveway approaches.

TABLE 4: RECOMMENDED VERTICAL CURVE IMPROVEMENTS (CONTINUED)

Curve Number	Curve Location	Recommended Improvement	Impacts
VC-3	Sta 96+00 (Sight distance 130 ft, approach grades 5% and -5%)	Lower vertical curve by 2-3 ft to achieve 150 ft required sight distance.	Lowering the vertical curve would result in increasing cut slopes by 2-3 ft, to 3-5 ft reconstructing fences and reconstructing portions of the driveway approach to the west.
VC-4	Sta 104+00 (Sight distance 130 ft, approach grades 7% and -4%)	Lower vertical curve by 2-3 ft to achieve 150 ft required sight distance.	Lowering the vertical curve would result in increasing cut slopes by 2 ft to 3-5 ft.
VC-5	Sta 111+00 (Sight distance 120 ft, approach grades 6% and -8%)	Lower vertical curve by 2-3 ft to achieve 150 ft required sight distance.	Lowering the vertical curve would result in increasing cut slopes by 2 ft to 3-5 ft, reconstructing fences, tree removal and reconstructing portions of the driveway approaches.

VC-#: For Vertical Curve Number see Layout Plans in Figure 3

Consideration should be given to reducing the design speed on the entire roadway to 25 mph. This will reduce the extent of the profile adjustments required to meet the minimum sight distance standard.

6.4 Drainage

Existing drainage appears to be working adequately with the use of roadside ditches and cross culverts. Discussion with County maintenance staff confirmed there is no known existing flooding or major erosion concerns along this portion of Garden Bar Road. The majority of stormwater runoff is conveyed in roadside ditches and cross pipe culverts varying in size from 12 inches to 36 inches. It is proposed to maintain existing drainage patterns with the improvements. Where new roadside ditches are constructed, rock slope protection (RSP) or other Best Management Practices (BMP's) are recommended where grades result in velocities that exceed the permissible velocities in Table 862.2 of the Highway Design Manual. Flared end sections and rip-rap or RSP is recommended at the outlets of cross culverts.

PLATE 4 – GARDEN BAR ROAD (SEGMENT B - STA 66+00)

6.5 Signing and Striping

Garden Bar Road is not currently striped. It is recommended that the intersections of Garden Bar Road and Mt Pleasant Road be striped and a "STOP" pavement marking, stop limit line and a Stop sign (R1-1) be installed. The same would apply to the tee-intersection at Sta 108+00. These improvements are recommended for all proposed vehicle type/use categories. As discussed previously, consideration should be given to making the entrance road off of Garden Bar a tee-intersection and a 3-way stop.

For proposed vehicle type/use categories 2 and 3 it is recommended that at all tight radius horizontal curves (200 ft or less) directional warning signs (W1-8) be installed. Where driveways occur in the apex of the horizontal and vertical curves additional warning signs should be installed. Warning signs alerting motorists of winding roads (W1-5) and bicycles (W11-1) and speed limit signs (R2-1) shall be posted at several locations along the roadway. The specific types and number of signs should be confirmed during the schematic design (preliminary engineering) phase. The entrance road to the park at Sta 144+00 should be realigned and located at the apex of the curve to provide maximum sight distance. The entrance road should be paved due to the steep grades and would also require installation of a "STOP" pavement marking, stop limit line and Stop sign (R1-1).

Directional guidance signs would be placed along primary public access routes from both Auburn and Lincoln. For Phase 3 broader signage may be required due to the type of motorist associated with this use category. In addition, the higher traffic influx associated with a Phase 3 scenario (as opposed to the relatively metered and incremental increase in traffic associated with Phase 2) may provide nexus to evaluate roadway deficiencies on additional key ingress/egress routes beyond the limits of this study, such as Garden Bar Road south of Mount Pleasant and the Garden Bar/Wise Road intersection.

It is anticipated that a parking lot will be included with this project similar to what was recently constructed at the Mears Road Entrance. Directional and informational signs located at specific locations throughout Hidden Falls Regional Park and a kiosk would be placed at the parking/staging area in addition to interpretive and directional signage and/or audio-visual displays at key points throughout the property.

6.6 Summary Matrix of Proposed Improvements

TABLE 5: SUMMARY OF PROPOSED IMPROVEMENTS

Proposed Improvement	**Phase 1** (Category 1)	**Phase 2** (Category 2)	**Phase 3** (Category 3)
Roadway Widening to 18 ft minimum	None	7,600 ft	N/A
Roadway Widening to 20 ft minimum	None	N/A	10,400 ft
Realignment of roadway – Increase minimum radius to 200 ft.	None	Additional warning signs are recommended along Garden Bar Road to notify motorists of tight radius curves.	Curves HC-1, HC-2 HC-3, HC-4 HC-5, HC-6 HC-7, HC-8 HC-9, HC-10 HC-11, HC-12
Profile Adjustment	None	Curves VC-1, VC-2 VC-3, VC-4 VC-5	Curves VC-1, VC-2 VC-3, VC-4 VC-5
Drainage Improvements	None	Yes	Yes

TABLE 5: SUMMARY OF PROPOSED IMPROVEMENTS (Continued)

Proposed Improvement	**Phase 1** (Category 1)	**Phase 2** (Category 2)	**Phase 3** (Category 3)
Signing and Striping	Several warning signs are recommended	Several warning signs are recommended	Several warning signs are recommended with additional Guidance Signs
Intersection Improvements	Minor entrance road improvements including gate, cattle guards and fencing Mt Pleasant/ Garden Bar Rd Signing & Striping Improvements	Improve the access road from Garden Bar Road to the staging area to 24 feet wide with 2 foot shoulders Mt Pleasant/ Garden Bar Rd Signing & Striping Improvements	Mt Pleasant/ Garden Bar Rd Signing & Striping Improvements

7. PHASING

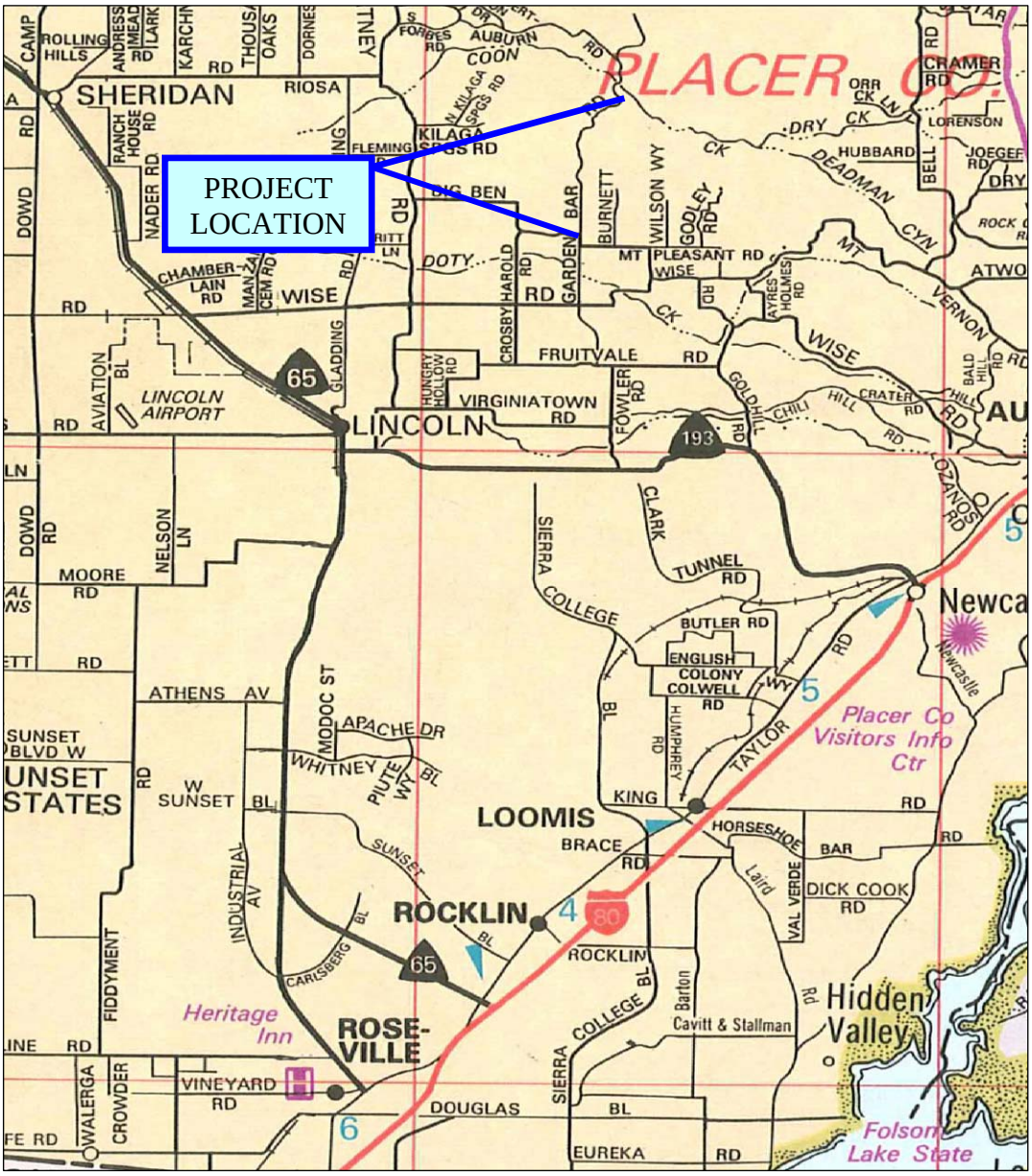
In consideration of the phasing alternatives for public vehicle access along Garden Bar Road The following is a priority ranking of recommended improvements:

1. Signing and striping at identified intersections
2. Vertical sight distance deficiencies along Segment A of Garden Bar Road.
3. Horizontal/vertical sight distance issues along Segment B of Garden Bar Road.
4. Roadway widening at tight radius curves.
5. General roadway widening and drainage improvements.

Phasing of the project would be scheduled based on funding availability, user demand, and other factors.

8. COSTS

Development of construction costs associated with these improvements is beyond the scope of the Traffic Safety Study and would be performed during the Schematic Design (Preliminary Engineering) Phase.



NOT TO SCALE

FIGURE 1:
VICINITY MAP

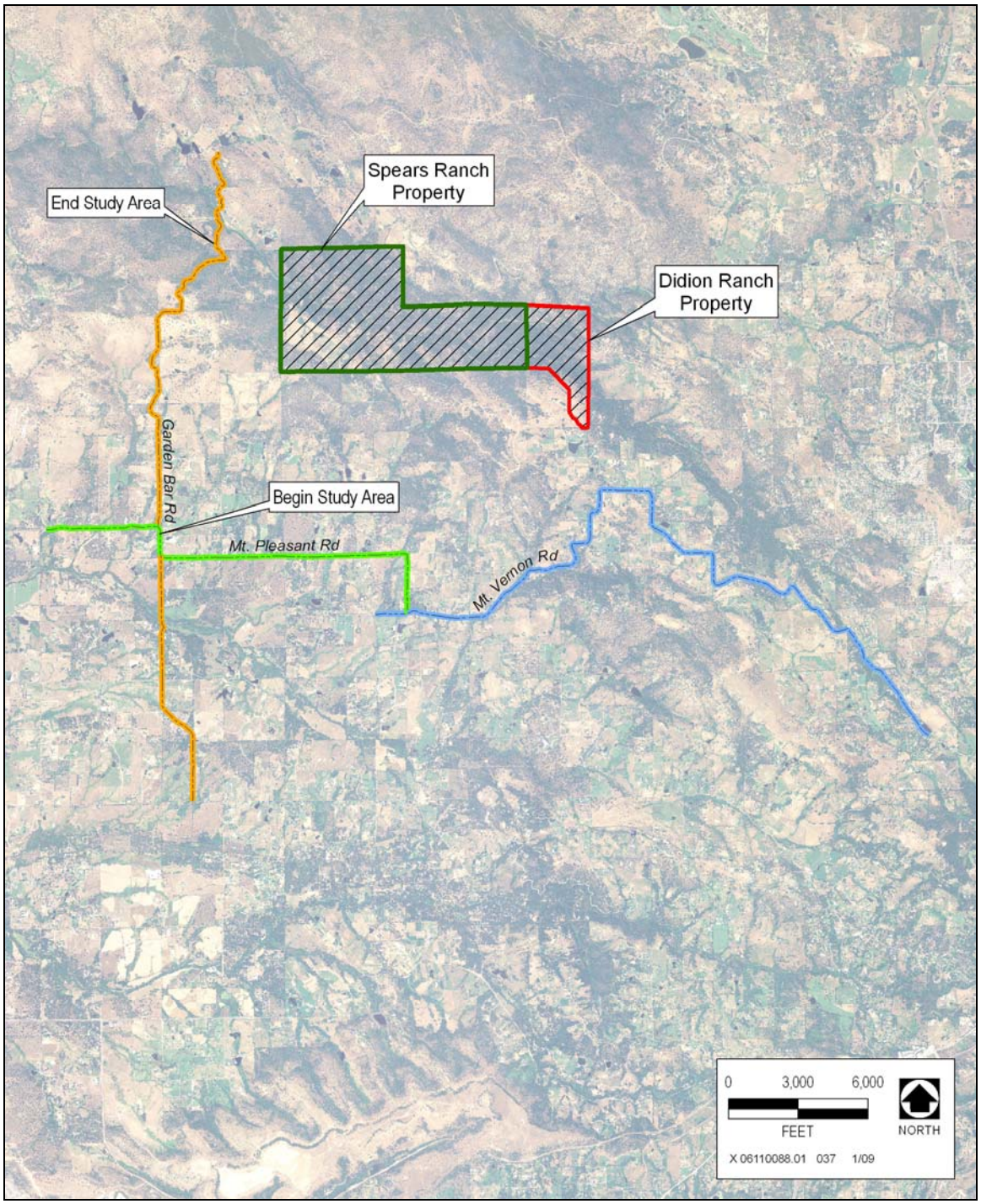
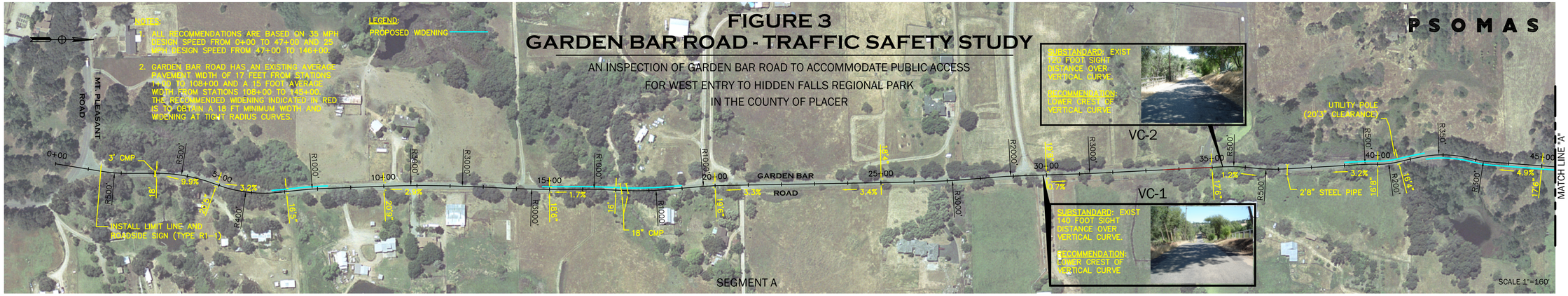


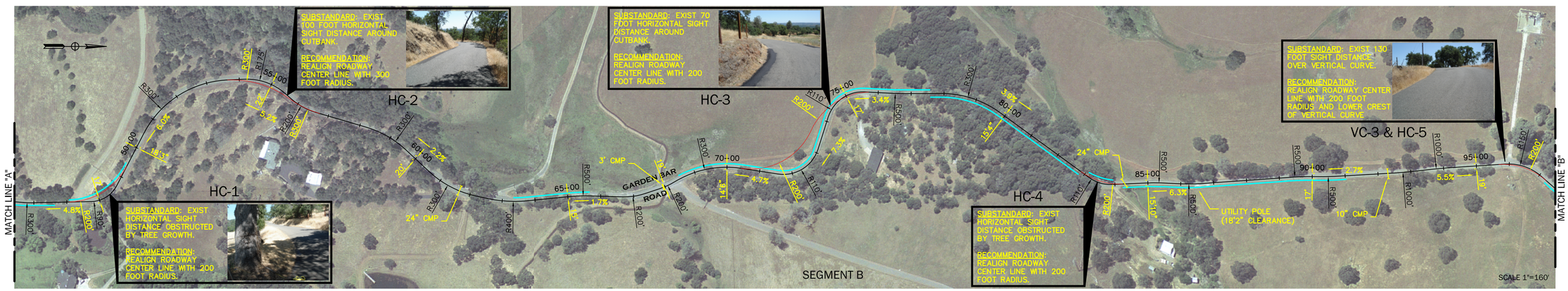
FIGURE 2:
LOCATION MAP AND STUDY LIMITS

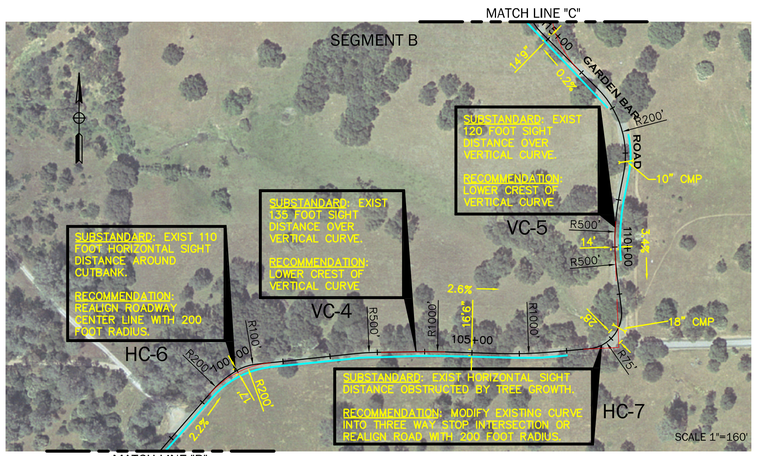
FIGURE 3
GARDEN BAR ROAD - TRAFFIC SAFETY STUDY

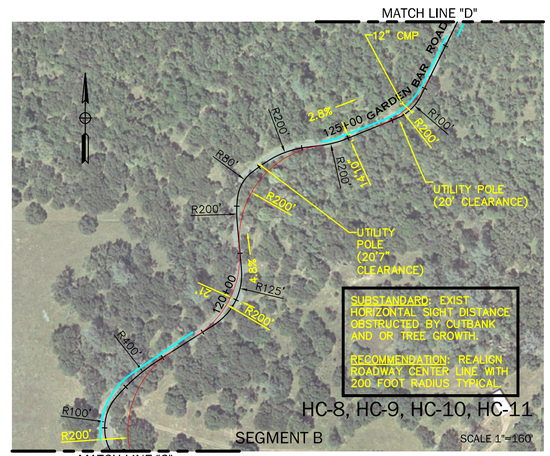
AN INSPECTION OF GARDEN BAR ROAD TO ACCOMMODATE PUBLIC ACCESS
FOR WEST ENTRY TO HIDDEN FALLS REGIONAL PARK
IN THE COUNTY OF PLACER

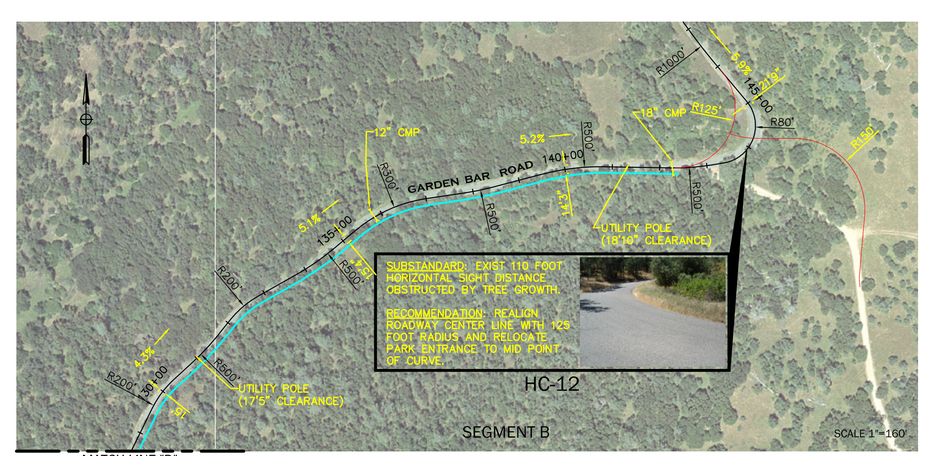
PSOMAS











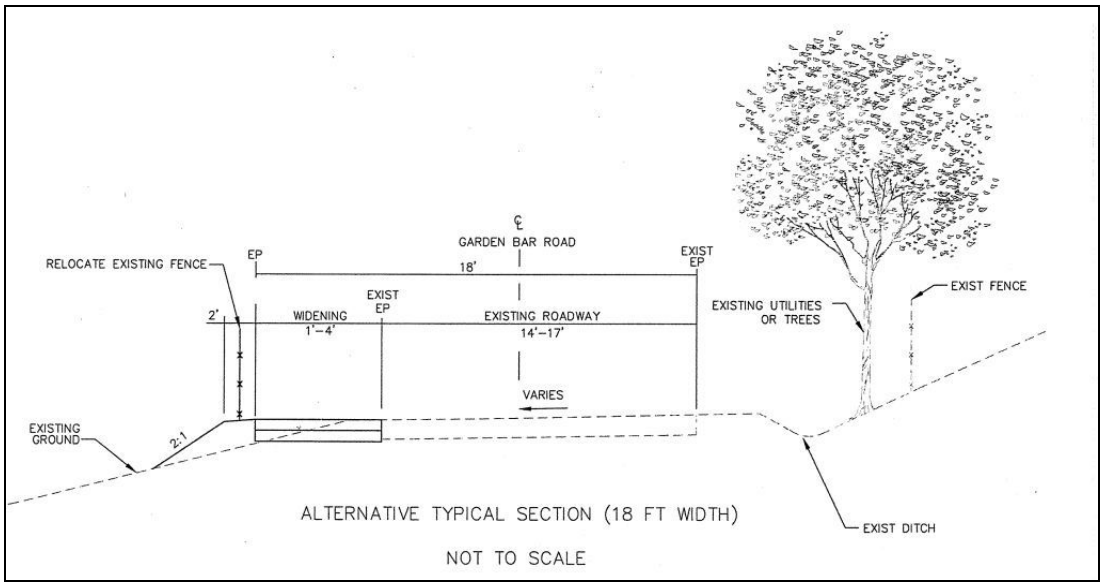


FIGURE 4:
TYPICAL ROADWAY CROSS SECTION
(18 FT WIDTH)

APPENDIX D

Air Quality

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Urbemis 2007 Version 9.2.4

Detail Report for Annual Construction Unmitigated Emissions (Tons/Year)

File Name: C:\Documents and Settings\boparaip\Desktop\Work\Hidden Falls Regional Park\Urbemis\Facilities Construction.urb924

Project Name: Construction of maintenance buildings

Project Location: Placer County APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Annual Tons Per Year, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
2008	0.39	1.04	0.62	0.00	0.01	0.06	0.08	0.00	0.06	0.06	98.40
Fine Grading 05/01/2008-	0.04	0.31	0.16	0.00	0.01	0.02	0.03	0.00	0.01	0.02	25.84
Fine Grading Dust	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.04	0.31	0.15	0.00	0.00	0.02	0.02	0.00	0.01	0.01	24.72
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.12
Asphalt 06/02/2008-06/11/2008	0.02	0.10	0.05	0.00	0.00	0.01	0.01	0.00	0.01	0.01	9.22
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.01	0.07	0.03	0.00	0.00	0.01	0.01	0.00	0.01	0.01	4.53
Paving On Road Diesel	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.88
Paving Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.82
Building 06/12/2008-11/21/2008	0.09	0.63	0.40	0.00	0.00	0.04	0.04	0.00	0.04	0.04	63.04
Building Off Road Diesel	0.08	0.61	0.30	0.00	0.00	0.04	0.04	0.00	0.04	0.04	52.26
Building Vendor Trips	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.17
Building Worker Trips	0.00	0.01	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.61
Coating 11/22/2008-12/11/2008	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29
Architectural Coating	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29

Phase Assumptions

Phase: Fine Grading 5/1/2008 - 6/1/2008 - Default Fine Site Grading Description

Total Acres Disturbed: 0.12

Maximum Daily Acreage Disturbed: 0.12

Fugitive Dust Level of Detail: Default

10 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

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Phase: Paving 6/2/2008 - 6/11/2008 - Default Paving Description
Acres to be Paved: 6.5
Off-Road Equipment:
4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day
1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day
2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day
1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

Phase: Building Construction 6/12/2008 - 11/21/2008 - Default Building Construction Description
Off-Road Equipment:
1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day
2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Architectural Coating 11/22/2008 - 12/11/2008 - Default Architectural Coating Description
Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Detail Report for Annual Construction Unmitigated Emissions (Tons/Year)

File Name: C:\Documents and Settings\boparaip\Desktop\Work\Hidden Falls Regional Park\Urbemis\Trail Construction.urb924

Project Name: Trail Construction

Project Location: Placer County APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Annual Tons Per Year, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
2008	0.08	0.58	0.30	0.00	1.87	0.03	1.90	0.39	0.03	0.42	60.57
Mass Grading 09/01/2008-	0.08	0.58	0.30	0.00	1.87	0.03	1.90	0.39	0.03	0.42	60.57
Mass Grading Dust	0.00	0.00	0.00	0.00	1.87	0.00	1.87	0.39	0.00	0.39	0.00
Mass Grading Off Road Diesel	0.08	0.50	0.24	0.00	0.00	0.03	0.03	0.00	0.02	0.02	47.90
Mass Grading On Road Diesel	0.00	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.30
Mass Grading Worker Trips	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.37
2009	0.06	0.45	0.23	0.00	1.53	0.02	1.55	0.32	0.02	0.34	49.56
Mass Grading 09/01/2008-	0.06	0.45	0.23	0.00	1.53	0.02	1.55	0.32	0.02	0.34	49.56
Mass Grading Dust	0.00	0.00	0.00	0.00	1.53	0.00	1.53	0.32	0.00	0.32	0.00
Mass Grading Off Road Diesel	0.06	0.39	0.19	0.00	0.00	0.02	0.02	0.00	0.02	0.02	39.19
Mass Grading On Road Diesel	0.00	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.61
Mass Grading Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.76

Phase Assumptions

Phase: Mass Grading 9/1/2008 - 4/11/2009 - Trail Excavation

Total Acres Disturbed: 17

Maximum Daily Acreage Disturbed: 4.25

Fugitive Dust Level of Detail: Default

10 lbs per acre-day

On Road Truck Travel (VMT): 52.5

Off-Road Equipment:

1 Excavators (42 hp) operating at a 0.57 load factor for 8 hours per day

1 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day

1 Rubber Tired Dozers (84 hp) operating at a 0.59 load factor for 6 hours per day

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Unmitigated Emissions (Pounds/Day)

File Name: C:\Documents and Settings\boparaip\Desktop\Work\Hidden Falls Regional Park\Urbemis\Facilities Construction.urb924

Project Name: Construction of maintenance buildings

Project Location: Placer County APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
Time Slice 5/1/2008-5/30/2008 Active	3.35	**28.06**	**14.68**	0.00	**1.20**	1.41	**2.62**	**0.25**	1.30	1.55	**2,349.48**
Fine Grading 05/01/2008-	3.35	28.06	14.68	0.00	1.20	1.41	2.62	0.25	1.30	1.55	2,349.48
Fine Grading Dust	0.00	0.00	0.00	0.00	1.20	0.00	1.20	0.25	0.00	0.25	0.00
Fine Grading Off Road Diesel	3.31	28.00	13.56	0.00	0.00	1.41	1.41	0.00	1.30	1.30	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.04	0.06	1.12	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.17
Time Slice 6/2/2008-6/11/2008 Active	5.48	24.61	13.35	**0.01**	0.04	**1.72**	1.76	0.01	**1.58**	**1.60**	2,305.98
Asphalt 06/02/2008-06/11/2008	5.48	24.61	13.35	0.01	0.04	1.72	1.76	0.01	1.58	1.60	2,305.98
Paving Off-Gas	2.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.78	16.39	8.47	0.00	0.00	1.40	1.40	0.00	1.29	1.29	1,131.92
Paving On Road Diesel	0.50	8.09	2.65	0.01	0.03	0.32	0.35	0.01	0.29	0.30	969.73
Paving Worker Trips	0.07	0.12	2.23	0.00	0.01	0.00	0.01	0.00	0.00	0.01	204.33
Time Slice 6/12/2008-11/21/2008	1.46	10.78	6.85	0.00	0.01	0.68	0.69	0.00	0.62	0.63	1,077.58
Building 06/12/2008-11/21/2008	1.46	10.78	6.85	0.00	0.01	0.68	0.69	0.00	0.62	0.63	1,077.58
Building Off Road Diesel	1.39	10.47	5.09	0.00	0.00	0.67	0.67	0.00	0.61	0.61	893.39
Building Vendor Trips	0.02	0.23	0.15	0.00	0.00	0.01	0.01	0.00	0.01	0.01	37.07
Building Worker Trips	0.05	0.09	1.61	0.00	0.01	0.00	0.01	0.00	0.00	0.01	147.12
Time Slice 11/24/2008-12/11/2008	**34.72**	0.03	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.38
Coating 11/22/2008-12/11/2008	34.72	0.03	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.38
Architectural Coating	34.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.03	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.38

Phase Assumptions

Phase: Fine Grading 5/1/2008 - 6/1/2008 - Default Fine Site Grading Description

Total Acres Disturbed: 0.12

Maximum Daily Acreage Disturbed: 0.12

Fugitive Dust Level of Detail: Default

10 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

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1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 6/2/2008 - 6/11/2008 - Default Paving Description
Acres to be Paved: 6.5
Off-Road Equipment:
4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day
1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day
2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day
1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

Phase: Building Construction 6/12/2008 - 11/21/2008 - Default Building Construction Description
Off-Road Equipment:
1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day
2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Architectural Coating 11/22/2008 - 12/11/2008 - Default Architectural Coating Description
Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Unmitigated Emissions (Pounds/Day)

File Name: C:\Documents and Settings\boparaip\Desktop\Work\Hidden Falls Regional Park\Urbemis\Trail Construction.urb924

Project Name: Trail Construction

Project Location: Placer County APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
Time Slice 9/1/2008-12/31/2008 Active	**1.89**	**13.18**	**6.81**	**0.00**	**42.51**	**0.66**	**43.17**	**8.88**	**0.61**	**9.49**	1,376.62
Mass Grading 09/01/2008-	1.89	13.18	6.81	0.00	42.51	0.66	43.17	8.88	0.61	9.49	1,376.62
Mass Grading Dust	0.00	0.00	0.00	0.00	42.50	0.00	42.50	8.88	0.00	8.88	0.00
Mass Grading Off Road Diesel	1.75	11.37	5.40	0.00	0.00	0.59	0.59	0.00	0.54	0.54	1,088.62
Mass Grading On Road Diesel	0.11	1.76	0.58	0.00	0.01	0.07	0.08	0.00	0.06	0.07	211.37
Mass Grading Worker Trips	0.03	0.05	0.84	0.00	0.00	0.00	0.01	0.00	0.00	0.00	76.63
Time Slice 1/1/2009-4/10/2009 Active	1.75	12.43	6.46	**0.00**	**42.51**	0.62	43.13	**8.88**	0.57	9.45	**1,376.65**
Mass Grading 09/01/2008-	1.75	12.43	6.46	0.00	42.51	0.62	43.13	8.88	0.57	9.45	1,376.65
Mass Grading Dust	0.00	0.00	0.00	0.00	42.50	0.00	42.50	8.88	0.00	8.88	0.00
Mass Grading Off Road Diesel	1.63	10.74	5.16	0.00	0.00	0.56	0.56	0.00	0.51	0.51	1,088.62
Mass Grading On Road Diesel	0.10	1.65	0.53	0.00	0.01	0.06	0.07	0.00	0.06	0.06	211.37
Mass Grading Worker Trips	0.02	0.04	0.77	0.00	0.00	0.00	0.01	0.00	0.00	0.00	76.66

Phase Assumptions

Phase: Mass Grading 9/1/2008 - 4/11/2009 - Trail Excavation

Total Acres Disturbed: 17

Maximum Daily Acreage Disturbed: 4.25

Fugitive Dust Level of Detail: Default

10 lbs per acre-day

On Road Truck Travel (VMT): 52.5

Off-Road Equipment:

1 Excavators (42 hp) operating at a 0.57 load factor for 8 hours per day

1 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day

1 Rubber Tired Dozers (84 hp) operating at a 0.59 load factor for 6 hours per day

5/15/2008 04:40:18 PM

Urbemis 2007 Version 9.2.4

Summary Report for Annual Emissions (Tons/Year)

File Name: C:\Documents and Settings\boparaip\Desktop\Work\Hidden Falls Regional Park\Urbemis\Trail Construction.urb924

Project Name: Trail Construction

Project Location: Placer County APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2008 TOTALS (tons/year unmitigated)	0.08	0.58	0.30	0.00	1.87	0.03	1.90	0.39	0.03	0.42	60.57
2009 TOTALS (tons/year unmitigated)	0.06	0.45	0.23	0.00	1.53	0.02	1.55	0.32	0.02	0.34	49.56

5/15/2008 04:41:00 PM

Urbemis 2007 Version 9.2.4

Summary Report for Summer Emissions (Pounds/Day)

File Name: C:\Documents and Settings\boparaip\Desktop\Work\Hidden Falls Regional Park\Urbemis\Facilities Construction.urb924

Project Name: Construction of maintenance buildings

Project Location: Placer County APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2008 TOTALS (lbs/day unmitigated)	34.72	28.06	14.68	0.01	1.20	1.72	2.62	0.25	1.58	1.60	2,349.48

5/15/2008 04:42:06 PM

Urbemis 2007 Version 9.2.4

Summary Report for Summer Emissions (Pounds/Day)

File Name: C:\Documents and Settings\boparaip\Desktop\Work\Hidden Falls Regional Park\Urbemis\Weekend Traffic.urb924

Project Name: Hidden Falls Operational - Weekend

Project Location: Placer County APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	3.39	5.05	42.22	0.03	5.93	1.16	3,472.95

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	3.39	5.05	42.22	0.03	5.93	1.16	3,472.95

5/15/2008 04:39:47 PM

Urbemis 2007 Version 9.2.4

Summary Report for Summer Emissions (Pounds/Day)

File Name: C:\Documents and Settings\boparaip\Desktop\Work\Hidden Falls Regional Park\Urbemis\Trail Construction.urb924

Project Name: Trail Construction

Project Location: Placer County APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2008 TOTALS (lbs/day unmitigated)	1.89	13.18	6.81	0.00	42.51	0.66	43.17	8.88	0.61	9.49	1,376.62
2009 TOTALS (lbs/day unmitigated)	1.75	12.43	6.46	0.00	42.51	0.62	43.13	8.88	0.57	9.45	1,376.65

5/15/2008 04:44:09 PM

Urbemis 2007 Version 9.2.4

Summary Report for Winter Emissions (Pounds/Day)

File Name: C:\Documents and Settings\boparaip\Desktop\Work\Hidden Falls Regional Park\Urbemis\Weekend Traffic.urb924

Project Name: Hidden Falls Operational - Weekend

Project Location: Placer County APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	4.43	7.23	48.75	0.03	5.93	1.16	3,033.86

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	4.43	7.23	48.75	0.03	5.93	1.16	3,033.86

APPENDIX E

Noise Modeling

Appendix E

Traffic Noise Prediction Model, (FHWA RD-77-108)

Model Input Sheet

Project Name : Hidden Falls Regional Park EIR
Project Number : 6110088.01
Modeling Condition : Existing
Ground Type : Soft
K Factor :
Metric (L_{eq}, L_{dn}, CNEL) : CNEL
Traffic Desc. (Peak or ADT) : ADT

Segment	Roadway	Segment From	Segment To	Traffic Vol.	Speed (Mph)	Distance to CL	% Autos	%MT	% HT	Day %	Eve %	Night %	Offset (dB)
1	Garden Bar Rd (N)	Mt Pleasant Rd	project access	285	25	50	94	4	2	78.97	11.27	9.76	0
2	Garden Bar Rd (S)	Mt Pleasant Rd	Wise Rd	885	35	50	94	4	2	78.97	11.27	9.76	0
3	Mt Pleasant Rd	Big Bent Rd	Garden Bar Rd (N	375	45	50	94	4	2	78.97	11.27	9.76	0
4	Mt Pleasant Rd	Garden Bar Rd (S	Wally Allen Rd	910	45	50	94	4	2	78.97	11.27	9.76	0
5	Mears Dr (temporary)	Mears Place	Mt Vernon Rd	377	25	50	94	4	2	78.97	11.27	9.76	0
6	WK Garden Bar Rd (N)	Mt Pleasant Rd	project access	260	25	50	94	4	2	78.97	11.27	9.76	0
7	WK Garden Bar Rd (S)	Mt Pleasant Rd	Wise Rd	715	35	50	94	4	2	78.97	11.27	9.76	0
8	WK Mt Pleasant Rd	Big Bent Rd	Garden Bar Rd (N	310	45	50	94	4	2	78.97	11.27	9.76	0
9	WK Mt Pleasant Rd	Garden Bar Rd (S	Wally Allen Rd	710	45	50	94	4	2	78.97	11.27	9.76	0
10	WK Mears Dr (temporary)	Mears Place	Mt Vernon Rd	314	25	50	94	4	2	78.97	11.27	9.76	0

Appendix E

Traffic Noise Prediction Model, (FHWA RD-77-108)

Predicted Noise Levels

Project Name : Hidden Falls Regional Park EIR
Project Number : 6110088.01
Modeling Condition : Existing
Metric (Leq, Ldn, CNEL) : CNEL

EDAW | AECOM

		Segment		Noise Levels, dB CNEL				Distance to Traffic Noise Contours, Feet				
Segment	Roadway	From	To	Auto	MT	HT	Total	70 dB	65 dB	60 dB	55 dB	50 dB
1	Garden Bar Rd (N)	Mt Pleasant Rd	project access	42.6	40.5	45.1	47.9	2	4	8	17	36
2	Garden Bar Rd (S)	Mt Pleasant Rd	Wise Rd	51.7	47.7	49.9	54.8	5	10	23	49	105
3	Mt Pleasant Rd	Big Bent Rd	Garden Bar Rd (N	51.1	45.7	47.1	53.4	4	8	18	39	84
4	Mt Pleasant Rd	Garden Bar Rd (S	Wally Allen Rd	55.0	49.5	51.0	57.2	7	15	33	70	152
5	Mears Dr (temporary)	Mears Place	Mt Vernon Rd	43.8	41.7	46.3	49.1	2	4	9	20	44
6	WK Garden Bar Rd (N)	Mt Pleasant Rd	project access	42.2	40.1	44.7	47.5	2	3	7	16	34
7	WK Garden Bar Rd (S)	Mt Pleasant Rd	Wise Rd	50.8	46.8	48.9	53.9	4	9	20	42	91
8	WK Mt Pleasant Rd	Big Bent Rd	Garden Bar Rd (N	50.3	44.8	46.3	52.6	3	7	16	34	74
9	WK Mt Pleasant Rd	Garden Bar Rd (S	Wally Allen Rd	53.9	48.4	49.9	56.2	6	13	28	60	129
10	WK Mears Dr (temporary)	Mears Place	Mt Vernon Rd	43.0	40.9	45.5	48.3	2	4	8	18	39

Appendix E

Traffic Noise Prediction Model, (FHWA RD-77-108)

Model Input Sheet

Project Name : Hidden Falls Regional Park EIR
Project Number : 6110088.01
Modeling Condition : Existing + Project
Ground Type : Soft
K Factor :
Metric (L_{eq}, L_{dn}, CNEL) : CNEL
Traffic Desc. (Peak or ADT) : ADT

Segment	Roadway	Segment From	Segment To	Traffic Vol.	Speed (Mph)	Distance to CL	% Autos	%MT	% HT	Day %	Eve %	Night %	Offset (dB)
1	WD Garden Bar Rd (N)	Mt Pleasant Rd	project access	541	25	50	94	4	2	78.97	11.27	9.76	0
2	WD Garden Bar Rd (S)	Mt Pleasant Rd	Wise Rd	969	35	50	94	4	2	78.97	11.27	9.76	0
3	WD Mt Pleasant Rd	Big Bent Rd	Garden Bar Rd (N	457	45	50	94	4	2	78.97	11.27	9.76	0
4	WD Mt Pleasant Rd	Garden Bar Rd (S	Wally Allen Rd	1000	45	50	94	4	2	78.97	11.27	9.76	0
5	WD Mears Dr (temporary)	Mears Place	Mt Vernon Rd	441	25	50	94	4	2	78.97	11.27	9.76	0
6	WK Garden Bar Rd (N)	Mt Pleasant Rd	project access	720	25	50	94	4	2	78.97	11.27	9.76	0
7	WK Garden Bar Rd (S)	Mt Pleasant Rd	Wise Rd	867	35	50	94	4	2	78.97	11.27	9.76	0
8	WK Mt Pleasant Rd	Big Bent Rd	Garden Bar Rd (N	458	45	50	94	4	2	78.97	11.27	9.76	0
9	WK Mt Pleasant Rd	Garden Bar Rd (S	Wally Allen Rd	872	45	50	94	4	2	78.97	11.27	9.76	0
10	WK Mears Dr (temporary)	Mears Place	Mt Vernon Rd	429	25	50	94	4	2	78.97	11.27	9.76	0

Appendix E

Traffic Noise Prediction Model, (FHWA RD-77-108)

Predicted Noise Levels

Project Name : Hidden Falls Regional Park EIR
Project Number : 6110088.01
Modeling Condition : Existing + Project
Metric (Leq, Ldn, CNEL) : CNEL

EDAW | AECOM

		Segment		Noise Levels, dB CNEL				Distance to Traffic Noise Contours, Feet				
Segment	Roadway	From	To	Auto	MT	HT	Total	70 dB	65 dB	60 dB	55 dB	50 dB
1	WD Garden Bar Rd (N)	Mt Pleasant Rd	project access	45.4	43.3	47.9	50.7	3	6	12	26	56
2	WD Garden Bar Rd (S)	Mt Pleasant Rd	Wise Rd	52.1	48.1	50.3	55.2	5	11	24	52	111
3	WD Mt Pleasant Rd	Big Bent Rd	Garden Bar Rd (N	52.0	46.5	48.0	54.2	4	10	21	45	96
4	WD Mt Pleasant Rd	Garden Bar Rd (S	Wally Allen Rd	55.4	49.9	51.4	57.6	8	16	35	75	162
5	WD Mears Dr (temporary)	Mears Place	Mt Vernon Rd	44.5	42.4	47.0	49.8	2	5	10	22	48
6	WK Garden Bar Rd (N)	Mt Pleasant Rd	project access	46.6	44.5	49.1	51.9	3	7	14	31	67
7	WK Garden Bar Rd (S)	Mt Pleasant Rd	Wise Rd	51.6	47.6	49.8	54.7	5	10	22	48	103
8	WK Mt Pleasant Rd	Big Bent Rd	Garden Bar Rd (N	52.0	46.5	48.0	54.3	4	10	21	45	96
9	WK Mt Pleasant Rd	Garden Bar Rd (S	Wally Allen Rd	54.8	49.3	50.8	57.0	7	15	32	68	148
10	WK Mears Dr (temporary)	Mears Place	Mt Vernon Rd	44.4	42.3	46.9	49.7	2	5	10	22	48

Appendix E

Traffic Noise Prediction Model, (FHWA RD-77-108)

Model Input Sheet

Project Name : Hidden Falls Regional Park EIR
Project Number : 6110088.01
Modeling Condition : Cumulative + Project
Ground Type : Soft
K Factor :
Metric (L_{eq}, L_{dn}, CNEL) : CNEL
Traffic Desc. (Peak or ADT) : ADT

Segment	Roadway	Segment From	Segment To	Traffic Vol.	Speed (Mph)	Distance to CL	% Autos	%MT	% HT	Day %	Eve %	Night %	Offset (dB)
1	WD Garden Bar Rd (N)	Mt Pleasant Rd	project access	500	25	50	94	4	2	78.97	11.27	9.76	0
2	WD Garden Bar Rd (S)	Mt Pleasant Rd	Wise Rd	1110	35	50	94	4	2	78.97	11.27	9.76	0
3	WD Mt Pleasant Rd	Big Bent Rd	Garden Bar Rd (N	540	45	50	94	4	2	78.97	11.27	9.76	0
4	WD Mt Pleasant Rd	Garden Bar Rd (S	Wally Allen Rd	1125	45	50	94	4	2	78.97	11.27	9.76	0
6	WK Garden Bar Rd (N)	Mt Pleasant Rd	project access	455	25	50	94	4	2	78.97	11.27	9.76	0
7	WK Garden Bar Rd (S)	Mt Pleasant Rd	Wise Rd	900	35	50	94	4	2	78.97	11.27	9.76	0
8	WK Mt Pleasant Rd	Big Bent Rd	Garden Bar Rd (N	435	45	50	94	4	2	78.97	11.27	9.76	0
9	WK Mt Pleasant Rd	Garden Bar Rd (S	Wally Allen Rd	880	45	50	94	4	2	78.97	11.27	9.76	0

Appendix E

Traffic Noise Prediction Model, (FHWA RD-77-108)

Predicted Noise Levels

Project Name : Hidden Falls Regional Park EIR
Project Number : 6110088.01
Modeling Condition : Cumulative + Project
Metric (Leq, Ldn, CNEL) : CNEL

		Segment		Noise Levels, dB CNEL				Distance to Traffic Noise Contours, Feet				
Segment	Roadway	From	To	Auto	MT	HT	Total	70 dB	65 dB	60 dB	55 dB	50 dB
1	WD Garden Bar Rd (N)	Mt Pleasant Rd	project access	45.0	42.9	47.5	50.3	2	5	11	24	53
2	WD Garden Bar Rd (S)	Mt Pleasant Rd	Wise Rd	52.7	48.7	50.9	55.8	6	12	26	57	122
3	WD Mt Pleasant Rd	Big Bent Rd	Garden Bar Rd (N	52.7	47.2	48.7	55.0	5	11	23	50	107
4	WD Mt Pleasant Rd	Garden Bar Rd (S	Wally Allen Rd	55.9	50.4	51.9	58.2	8	17	38	81	175
6	WK Garden Bar Rd (N)	Mt Pleasant Rd	project access	44.6	42.5	47.1	50.0	2	5	11	23	50
7	WK Garden Bar Rd (S)	Mt Pleasant Rd	Wise Rd	51.8	47.8	49.9	54.9	5	11	23	49	106
8	WK Mt Pleasant Rd	Big Bent Rd	Garden Bar Rd (N	51.8	46.3	47.8	54.0	4	9	20	43	93
9	WK Mt Pleasant Rd	Garden Bar Rd (S	Wally Allen Rd	54.8	49.4	50.8	57.1	7	15	32	69	148

Appendix G

Traffic Noise Prediction Model, (FHWA RD-77-108)

Model Input Sheet

Project Name : Hidden Falls Regional Park EIR
Project Number : 6110088.01
Modeling Condition : Cumulative + Project
Ground Type : Soft
K Factor :
Metric (L_{eq}, L_{dn}, CNEL) : CNEL
Traffic Desc. (Peak or ADT) : ADT

Segment	Roadway	Segment From	Segment To	Traffic Vol.	Speed (Mph)	Distance to CL	% Autos	%MT	% HT	Day %	Eve %	Night %	Offset (dB)
1	WD Garden Bar Rd (N)	Mt Pleasant Rd	project access	756	25	50	94	4	2	78.97	11.27	9.76	0
2	WD Garden Bar Rd (S)	Mt Pleasant Rd	Wise Rd	1194	35	50	94	4	2	78.97	11.27	9.76	0
3	WD Mt Pleasant Rd	Big Bent Rd	Garden Bar Rd (N	622	45	50	94	4	2	78.97	11.27	9.76	0
4	WD Mt Pleasant Rd	Garden Bar Rd (S	Wally Allen Rd	1215	45	50	94	4	2	78.97	11.27	9.76	0
6	WK Garden Bar Rd (N)	Mt Pleasant Rd	project access	915	25	50	94	4	2	78.97	11.27	9.76	0
7	WK Garden Bar Rd (S)	Mt Pleasant Rd	Wise Rd	1052	35	50	94	4	2	78.97	11.27	9.76	0
8	WK Mt Pleasant Rd	Big Bent Rd	Garden Bar Rd (N	583	45	50	94	4	2	78.97	11.27	9.76	0
9	WK Mt Pleasant Rd	Garden Bar Rd (S	Wally Allen Rd	1042	45	50	94	4	2	78.97	11.27	9.76	0

Appendix G

Traffic Noise Prediction Model, (FHWA RD-77-108)

Predicted Noise Levels

Project Name : Hidden Falls Regional Park EIR
Project Number : 6110088.01
Modeling Condition : Cumulative + Project
Metric (Leq, Ldn, CNEL) : CNEL

		Segment		Noise Levels, dB CNEL				Distance to Traffic Noise Contours, Feet				
Segment	Roadway	From	To	Auto	MT	HT	Total	70 dB	65 dB	60 dB	55 dB	50 dB
1	WD Garden Bar Rd (N)	Mt Pleasant Rd	project access	46.8	44.7	49.3	52.1	3	7	15	32	69
2	WD Garden Bar Rd (S)	Mt Pleasant Rd	Wise Rd	53.0	49.0	51.2	56.1	6	13	28	59	128
3	WD Mt Pleasant Rd	Big Bent Rd	Garden Bar Rd (N	53.3	47.9	49.3	55.6	5	12	25	55	118
4	WD Mt Pleasant Rd	Garden Bar Rd (S	Wally Allen Rd	56.2	50.8	52.2	58.5	9	18	40	85	184
6	WK Garden Bar Rd (N)	Mt Pleasant Rd	project access	47.6	45.5	50.2	53.0	4	8	17	37	79
7	WK Garden Bar Rd (S)	Mt Pleasant Rd	Wise Rd	52.5	48.4	50.6	55.6	5	12	25	55	118
8	WK Mt Pleasant Rd	Big Bent Rd	Garden Bar Rd (N	53.0	47.6	49.1	55.3	5	11	24	52	113
9	WK Mt Pleasant Rd	Garden Bar Rd (S	Wally Allen Rd	55.6	50.1	51.6	57.8	8	17	36	77	166

APPENDIX F

Water Demand Calculation Report

Water Demand Calculation

April 7, 2009

CARLTON
Engineering Inc.

For: Tim Arndt
Placer County Procurement
11476 "C" Avenue
Auburn, CA 95603

tel (530) 889-7776

From: Carl Sloan
Subject: Water Demand Calculation Report - DRAFT
Project: 6339-01-08 Hidden Falls Regional Park

Total pages: 7

1. Introduction

This water demand calculation was prepared specifically for the Hidden Falls Regional Park project. This report provides detailed information regarding the calculations of the Maximum Day Demand (MDD) and the Peak Hour Demand (PHD) for this project. The calculations were prepared using the most current information available for the project. Future information obtained for the proposed area, or from other sources may result in changes.

2. Project Description and Background

The Hidden Falls Regional Park project consists of approximately 1,200 acres; and involves access and recreational improvements. It is located in Auburn, Placer County, and consists of two properties know as the Spears Ranch (approximately 979 acres) and Didion Ranch (approximately 221 acres). The project area for this water demand calculation is located within the Spears Ranch portion of the project. Currently the project proposes the use of groundwater wells for water service.

3. Water Calculations Criteria

a. Proposed Improvements and Assumptions
   i. One (1) staging area of similar size to the Didion Ranch Staging Area.
   ii. Existing house to provide service for sixty (60) overnight campers, five (5) staff members and one (1) commercial kitchen. No shower or laundry facility.
   iii. One (1) maintenance yard.
   iv. One (1) caretaker residence.
   v. Water demand calculations based on wastewater usage.

b. References
   i. Chapter 16 of the Title 22 California Code of Regulations used to calculated MDD and PHD.
   ii. Onsite Wastewater Treatment System Manual - EPA 625/R-00/008-Chapter 3 (Appendix C).
   iii. Existing Well Reading Data from the Didion Ranch Staging Area (Appendix B).

4. Results

Water demand calculations results are included in Appendix A titled Water Demand Calculations Table attached. The results include the MDD and PHD calculations for each specific use as well as the entire project.

5. Conclusions

Based on the assumptions listed above and per results in the attached Appendix A - Water Demand Calculations Table, the groundwater source shall provide the new public water system with a minimum MDD of 4.7 gpm and PHD of 7.1 gpm; that includes a 20% contingency for the entire project. In case that the new public water system is incapable of supporting the entire project, MDD and PHD calculations are included for each specific use in Appendix A.

Per section 64554.(a)(2) of the Title 22 of the California Code of Regulations in Chapter 16 the public water system shall have storage capacity equal to or greater than the MDD of 5616 gallons, unless the system can demonstrate that it has an emergency source connection that can meet the MDD requirement.

APPENDIX A - Water Demand Calculation

Project: HIDDEN FALLS REGIONAL PARK
Job number: 6339-01-08
Date: 03/07/2009
Revised: 04/07/2009
Prepared by: MDH
Checked by: CAM

CARLTON Engineering Inc

Facility	*Type of Occupancy*	*Occupants*	*Data Source*	*Average Daily Demand*	*Total Average Daily Demand*	*MDD* [5]	*PHD* [6]
Existing House 1	Organized Camps	60 Campers	Table 3-6 Bunkhouse[1]	40 Gal/Person/Day	2400 Gal/Day	2.50 GPM	3.75 GPM
Existing House 1	Organized Camps	5 Staff	Table 3-3 Residential[1]	69.3 Gal/Person/Day	346.5 Gal/Day	0.36 GPM	0.54 GPM
Comm. Kitchen in Existing House 1		195 meals[3]	Table 3-4 Restaurant -Per Meal[1]	3 Gal/Meal/Day	585 Gal/Day	0.61 GPM	0.91 GPM
Caretaker House 2	Single Dwelling	1	Table 3-3 Residential[1]	69.3 Gal/Person/Day	69.3 Gal/Day	0.07 GPM	0.11 GPM
Staging Area	Picnic Areas	100	Hidden Falls (Didion)Well Reading	October 2008[2]	236.2 Gal/Day	0.25 GPM	0.37 GPM
Maintenace Yard	Workshop	5 Staff	Table 3-4 Industrial Building[1]	13 Gal/Person/Day	65 Gal/Day	0.07 GPM	0.10 GPM
				TOTAL (Gal/Day)	**3702 Gal/Day**	***5616 Gal/Day***	***8496 Gal/Day***
				TOTAL (GPM)	**2.6 GPM**	**3.9 GPM**	**5.8 GPM**
				TOTAL plus 20% Contigency (GPM)[7]	**3.1 GPM**	**4.7 GPM**	**7.0 GPM**

NOTES:

1. Data Source from EPA 625/R-00/008-Chapter 3
2. Maximum Month October 2008 from Hidden Falls (Didion) Well Reading
3. 195 meals based on 65 persons x 3 meals/day
4. Average Day Demand (ADD)
5. Maximum Day Demand (MDD). MDD calculations based on a peaking factor of 1.5 as delineated in section 64554.(b)(2)(C) of the Title 22 of the California Code of Regulations in Chapter 16.
6. Peak Hour Demand (PHD). PHD calculations based on a peaking factor of 1.5 from the MDD as delineated in section 64554.(b)(2)(D) of the Title 22 of the California Code of Regulations in Chapter 16.
7. 20% Contingency added to calculated water demand for unaccounted usage (i.e. hose bibs, drinking fountains, etc)

APPENDIX B
Hidden Falls (Didion) Well Reading
Average Day Demand Calculation

CARLTON
Engineering Inc

Data provided by Placer County Parks Division - Dated 2/25/2009						Calculated by Carlton Engineering
Reading No.	Date of Reading	Meter Reading at Well head (gallons)	Days Since Last Reading	Gal/Day Since Last Reading	Gal/Day Running Average	**ADD (Average Day Demand) Calculation *Interpolated value**
2	08/01/2008	429950	0	0.0		
3	08/05/2008	430310	4	90.0	90.0	
4	08/08/2008	430540	3	76.7	84.3	ADD= (432870 - 429950)gal/31days
5	08/14/2008	431060	6	86.7	85.4	ADD=94.2 gpd
6	08/15/2008	431100	1	40.0	82.1	ADD= 94.2 gpd (1/24 hr) (1/60 min)
7	08/19/2008	431370	4	67.5	78.9	ADD=0.07 gpm
8	08/22/2008	431600	3	76.7	78.6	
9	08/27/2008	432470	5	174.0	96.9	
10	08/29/2008	432550	2	40.0	92.9	08/31/2008 432870 gal*
11	09/02/2008	433190	4	160.0	101.3	09/01/2008 433030 gal*
12	09/05/2008	433360	3	56.7	97.4	
13	09/09/2008	437160	4	950.0	184.9	ADD= (438480 - 433030)gal/30days
14	09/12/2008	437450	3	96.7	178.6	ADD=181.6 gpd
15	09/16/2008	437710	4	65.0	168.7	ADD= 181.6 gpd (1/24 hr) (1/60 min)
16	09/19/2008	437840	3	43.3	161.0	ADD=0.13 gpm
17	09/24/2008	438110	5	54.0	151.1	
18	09/26/2008	438180	2	35.0	147.0	
19	09/30/2008	438480	4	75.0	142.2	
20	10/03/2008	438590	3	36.7	137.1	10/01/2008 4438517 gal*
21	10/10/2008	438920	7	47.1	128.1	
22	10/14/2008	439410	4	122.5	127.8	ADD= (445840 - 438517)gal/31days
23	10/17/2008	439800	3	130.0	127.9	ADD=236.2 gpd
24	10/21/2008	444950	4	1287.5	185.2	ADD= 236.2 gpd (1/24 hr) (1/60 min)
25	10/22/2008	445340	1	390.0	187.7	ADD=0.16 gpm
26	10/24/2008	445480	2	70.0	184.9	**MAXIMUM MONTH**
27	10/28/2008	445720	4	60.0	179.2	
28	10/31/2008	445840	3	40.0	174.6	
29	11/04/2008	445930	4	22.5	168.2	11/01/2008 445863 gal*
30	11/07/2008	446010	3	26.7	163.9	ADD= (447860 - 445863)gal/30days
31	11/12/2008	446350	5	68.0	159.2	ADD=66.6 gpd
32	11/14/2008	446490	2	70.0	157.5	ADD= 66.6 gpd (1/24 hr) (1/60 min)
33	11/18/2008	446810	4	80.0	154.7	ADD=0.05 gpm
34	11/21/2008	446960	3	50.0	151.9	11/30/2008 447860 gal*
35	12/02/2008	448060	11	100.0	147.2	12/01/2008 447960 gal*
36	12/05/2008	448140	3	26.7	144.4	ADD= (449510 - 447960)gal/31days
37	12/09/2008	448380	4	60.0	141.8	ADD=50 gpd
38	12/12/2008	448500	3	40.0	139.5	ADD= 50 gpd (1/24 hr) (1/60 min)
39	12/16/2008	448680	4	45.0	136.7	ADD=0.03 gpm
40	12/19/2008	448790	3	36.7	134.6	12/31/2008 449510 gal*
41	01/06/2009	449870	18	60.0	126.1	01/01/2009 449570 gal*
42	01/09/2009	449995	3	41.7	124.5	ADD= (451020 - 449570)gal/23days
43	01/13/2009	450290	4	73.8	123.3	ADD=63 gpd
44	01/16/2009	450400	3	36.7	121.7	ADD= 63 gpd (1/24 hr) (1/60 min)
45	01/20/2009	450960	4	140.0	122.2	ADD=0.04 gpm
46	01/23/2009	451020	3	20.0	120.4	

APPENDIX C

EPA 625/R-00/008-Chapter 3

Chapter 3:
Establishing treatment system performance requirements

Table 3-3. Residential water use by fixture or appliance[a,b]

Fixture/use	Gal/use: Average range	Uses/person/day: Average range	Gal/person/day: Average range[c]	% Total: Average range
Toilet	3.5 2.9-3.9	5.05 4.5-5.6	18.5 15.7-22.9	26.7 22.6-30.6
Shower	17.2[d] 14.9-18.6	0.75[d] 0.6-0.9	11.6 8.3-15.1	16.8 11.8-20.2
Bath	See shower	See shower	1.2 0.5-1.9	1.7 0.9-2.7
Clothes washer	40.5	0.37 0.30-0.42	15 12.0-17.1	21.7 17.8-28.0
Dishwasher	10 9.3-10.6	0.1 0.06-0.13	1 0.6-1.4	1.4 0.9-2.2
Faucets	1.4[e]	8.1[f] 6.7-9.4	10.9 8.7-12.3	15.7 12.4-18.5
Leaks	NA	NA	9.5 3.4-17.6	13.7 5.3-21.6
Other Domestic	NA	NA	1.6 0.0-6.0	2.3 0.0-8.5
Total	NA	NA	69.3 57.1-83.5	100

[a]Results from AWWARF REUWS at 1,188 homes in 12 metropolitan area. Homes surveyed were served by public water supplies, which operate at higher pressure than private water sources. Leakage rates might be lower for homes on private water supplies.

[b]Results are averages over range. Range is the lowest to highest average for 12 metropolitan areas.
[c]Gal/person/day might not equal gal/use multiplied by uses/person/day because of differences in the number of data points used to calculate means.
[d]Includes shower and bath.
[e]Gallons per minute.
[f]Minutes of use per person per day.

Source: Mayer et al., 1999.

EPA 625/R-00/008-Chapter 3

Chapter 3:
Establishing treatment system performance requirements

Table 3-4. Typical wastewater flow rates from commercial sources[a,b]

Facility	Unit	Flow, gallons/unit/day	
		Range	Typical
Airport	Passenger	2-4	3
Apartment house	Person	40-80	50
Automobile service station[c]	Vehicle served Employees	8-15 9-15	12 13
Bar	Customer Employees	1-5 10-16	3 13
Boarding house	Person	25-60	40
Department store	Toilet room Employee	400-600 8-15	500 10
Hotel	Guest Employee	40-60 8-13	50 10
Industrial building (sanitary waste only)	Employee	7-16	13
Laundry (self-service)	Machine Wash	450-650 45-55	550 50
Office	Employee	7-16	13
Public lavatory	User	3-6	5
Restaurant (with toilet)	Meal	2-4	3
Conventional	Customer	8-10	9
Short order	Customer	3-8	6
Bar/cocktail lounge	Customer	2-4	3
Shopping center	Employee Parking Space	7-13 1-3	10 2
Theater	Seat	2-4	3

aSome systems serving more than 20 people might be regulated under USEPA's Class V Underground Injection Control (UIC) Program. See http://www.epa.gov/safewater/uic.html for more information.

[b]These data incorporate the effect of fixtures complying with the U.S. Energy Policy Act (EPACT) of 1994.

cDisposal of automotive wastes via subsurface wastewater infiltration systems is banned by Class V UIC regulations to protect ground water. See http://www.epa.gov/safewater/uic.html for more information.

Source: Crites and Tchobanoglous, 1998.

EPA 625/R-00/008-Chapter 3

Chapter 3:
Establishing treatment system performance requirements

Table 3-6. Typical wastewater flow rates from recreational facilities[a]

Facility	Unit	Flow, gallons/unit/day	
		Range	Typical
Apartment, resort	Person	50-70	60
Bowling alley	Alley	150-250	200
Cabin, resort	Person	8-50	40
Cafeteria	Customer Employee	1-3 8-12	2 10
Camps:			
Pioneer type	Person	15-30	25
Children's, with central toilet/bath	Person	35-50	45
Day, with meals	Person	10-20	15
Day, without meals	Person	10-15	13
Luxury, private bath	Person	75-100	90
Trailer camp	Trailer	75-150	125
Campground-developed	Person	20-40	30
Cocktail lounge	Seat	12-25	20
Coffee Shop	Customer Employee	4-8 8-12	6 10
Country club	Guests onsite Employee	60-130 10-15	100 13
Dining hall	Meal served	4-10	7
Dormitory/bunkhouse	Person	20-50	40
Fairground	Visitor	1-2	2
Hotel, resort	Person	40-60	50
Picnic park, flush toilets	Visitor	5-10	8
Store, resort	Customer Employee	1-4 8-12	3 10
Swimming pool	Customer Employee	5-12 8-12	10 10
Theater	Seat	2-4	3
Visitor center	Visitor	4-8	5

[a]Some systems serving more than 20 people might be regulated under USEPA's Class V UIC Program.

Source: Crites and Tchobanoglous, 1998.

APPENDIX G

Rare Plant Survey

Administrative Draft

Special-Status Plant Report

Hidden Falls Regional Park Project

Prepared by:

EDAW
2022 J Street
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November 2007

EDAW | AECOM

Administrative Draft
Special-Status Plant Report

Hidden Falls Regional Park Project

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ACRONYMS AND ABBREVIATIONS

CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
DFG	California Department of Fish and Game’
EIR	Environmental Impact Report
GIS	Geographic Information System
NPPA	Native Plant Protection Act
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

INTRODUCTION

This report describes the methods and results of a focused botanical survey for special-status plant species in the 961-acre Spears Ranch portion of the proposed Hidden Falls Regional Park Project (proposed project) in unincorporated Placer County between North Auburn and the City of Lincoln (Exhibit 1). The proposed project would expand upon the existing 221-acre site (Didion Ranch) to provide facilities for passive recreation (i.e., hiking, biking, horseback riding, etc.) in the entire 1,182-acre property. The surveys covered the entire 961-acre Spears Ranch, hereafter referred to as the study area (Exhibit 2).

The purpose of the special-status plant surveys was to identify occurrences of special-status plants that could be disturbed as a result of proposed project activities including creation of a trail system connecting with existing trails in the neighboring regional park property, and associated miscellaneous passive recreation facilities, increased vehicle access and parking, creation of interpretative, educational, and maintenance facilities and infrastructure, and fish, wildlife, and habitat restoration. The special status survey, in conjunction with a wetland delineation report, was conducted as part of the background environmental documentation for preparation of an Environmental Impact Report (EIR) presently in preparation for the proposed park expansion.

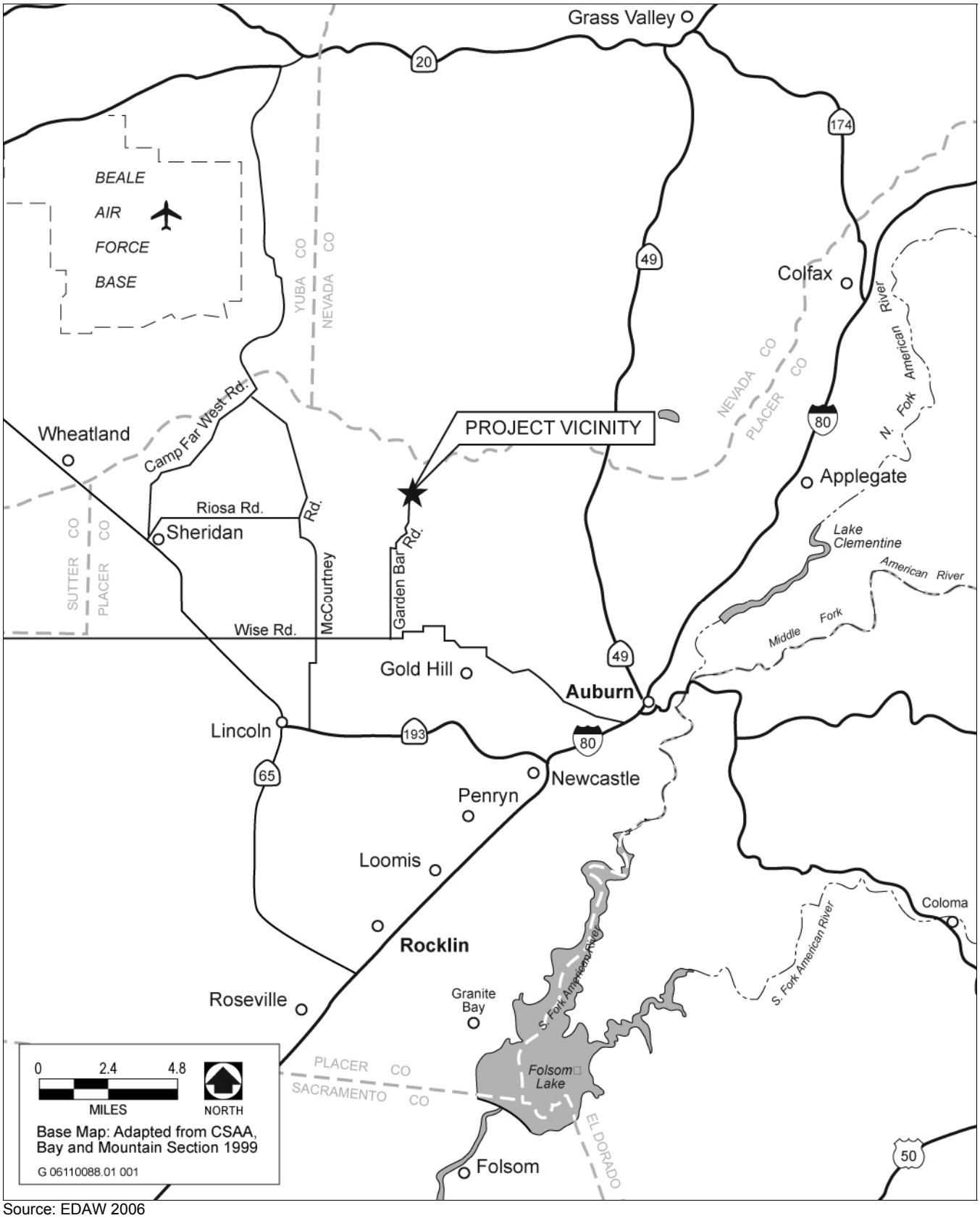
STUDY AREA DESCRIPTION

The majority of the Spears Ranch portion of Hidden Falls Regional Park consists of gently rolling to steep hills covered by a patchwork of annual grassland and oak woodlands. The areas of upland oak woodland can be divided into three types of woodland based on the dominant oak species. These three communities are interior live oak woodland, blue oak woodland, and black oak woodland. Foothill pine (*Pinus sabiniana*) occurs throughout the property in all woodland types. Other vegetation communities identified include valley foothill riparian woodland and freshwater marsh along Coon Creek and intermittent drainages flowing from the north and the south into Coon Creek.

METHODS

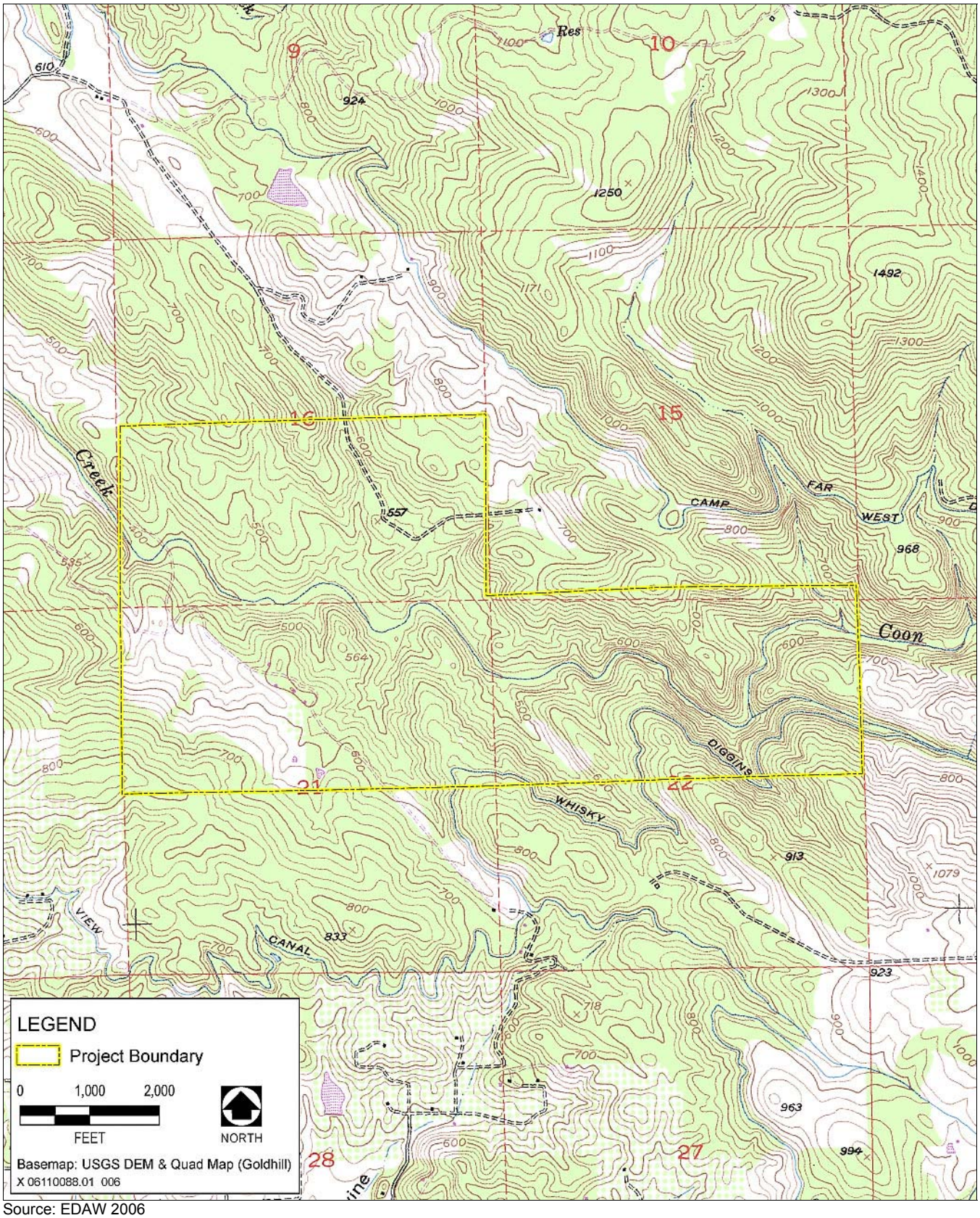
PREFIELD INVESTIGATION

A list of special-status plant species with potential to occur in the study area was compiled by performing database searches of the California Native Plant Society (CNPS) Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPS 2006) and California Department of Fish and Game's (DFG) California Natural Diversity Database (CNDDB 2006). The Gold Hill, Rocklin, Pilot Hill, Auburn, Lake Combie, Wolf, Lincoln, Roseville, and Camp Far West U.S. Geological Survey (USGS) 7.5 minute quadrangles were included in the database record searches.



Source: EDAW 2006

Vicinity Map **Exhibit 1**



Source: EDAW 2006

Study Area Boundary **Exhibit 2**

In order to evaluate the study area's potential to support special-status plant species, aerial photographs of the study area were reviewed to identify areas supporting potentially suitable habitat for special-status plant species. A survey package, including photographs of each target species and their preferred habitats, was prepared prior to the surveys to familiarize field botanists with the characteristics and blooming periods of target plant species. Plant communities present in the study area were mapped from aerial photograph interpretation and were ground truthed during preliminary field surveys. The plant community polygons were later digitized onto a Geographic Information System (GIS) overlay and used to create a map exhibit showing the location and extent of each plant community present in the study area. Plant community classification is based on the *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986).

FIELD SURVEYS

EDAW botanists Mark Bibbo and Sarah Bennett conducted focused special-status plant surveys on May 10, 25, 30, and 31. The protocol for the special-status plant surveys followed DFG's "*Guidelines for Assessing the Effects of Proposed Development on Rare, Threatened, and Endangered Plants and Plant Communities"* (DFG 2000) and U.S. Fish and Wildlife Service (USFWS) *Guidelines for conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants* (USFWS 2000), which involve using systematic field techniques in all habitats in the study area to ensure thorough coverage of potential impact areas. The botanists covered the entire Spears ranch property with special attention given to the habitats present in the study area with greater potential for containing occurrences of the target plant species. A reference population of Brandegee's clarkia present at Lake Clementine on the North Fork of the American River to the south of the study area was visited prior to the surveys on May 10th to confirm that the species was flowering and to familiarize the surveyors with the distinguishing characteristics and habitat requirements of this species and to observe typical associated species. All plants encountered during the surveys were identified to the highest taxonomic level necessary for a rare plant determination. Nomenclature used follows the Jepson Manual Higher Plants of California (Hickman 1993).

The locations of all special-status plants encountered were mapped by hand as either points or polygons onto aerial photographs of the study area (scale 1" = 400'). In addition, GIS coordinates were recorded for each location while in the field. These location points and polygons were later digitized onto a GIS overlay to produce a map of the distribution and extent of special-status plant populations in the study area. Locations that were mapped separately from one another were distinguished based on spatial distribution, as well as differences in common associated species and habitat type. Notes on habitat, topography, aspect, phenology, and associated species of the special-status plant species identified were recorded on California Native Species Field Survey Forms to be submitted to the CNDDB upon completion of the final survey report. Representative photographs of the special-status plant species encountered in the study area were taken.

RESULTS

PREFIELD INVESTIGATION RESULTS

Special-status plants are defined as plants that are legally protected or that are otherwise considered sensitive by federal, state or local resource conservation agencies and organizations. Special-status plants are species, subspecies or varieties that fall into one or more of the following categories, regardless of their legal or protection status:

- Officially listed by the state of California or the federal government as Endangered, Threatened or Rare;
- A candidate for state or federal listing as Endangered, Threatened or Rare;
- Taxa which meet the criteria for listing, even if not currently included on any list, as described in Section 15380 of the California Environmental Quality Act (CEQA) Guidelines;
- Taxa designated as a special-status, sensitive or declining species by other state or federal agencies or non-governmental organizations; and
- Taxa considered by the CNPS to be "rare, threatened or endangered in California" (Lists 1B and 2).

The CNPS Inventory includes five lists for categorizing plant species of concern, which are summarized below. The plants listed on CNPS lists 1A, 1B, and 2 meet the definitions of Section 1901, Chapter 10 of the Native Plant Protection Act (NPPA) or Sections 2062 and 2067 (California Endangered Species Act [CESA]) of the California Department of Fish and Game Code and may quality for state listing. Therefore, they are considered rare plants pursuant to Section 15380 of CEQA. DFG recommends and local government agencies may require that they be fully considered during preparation of environmental documents pursuant to CEQA. Some of the plants constituting CNPS Lists 3 and 4 meet the definitions of Section 1901, Chapter 10 or Sections 2062 and 2067 of the DFG Code and are eligible for state listing. DFG recommends, and local governments may require, that CNPS List 3 and List 4 plants be evaluated for consideration during preparation of environmental documents relating to CEQA (DFG 2000). The CNPS lists are categorized as follows:

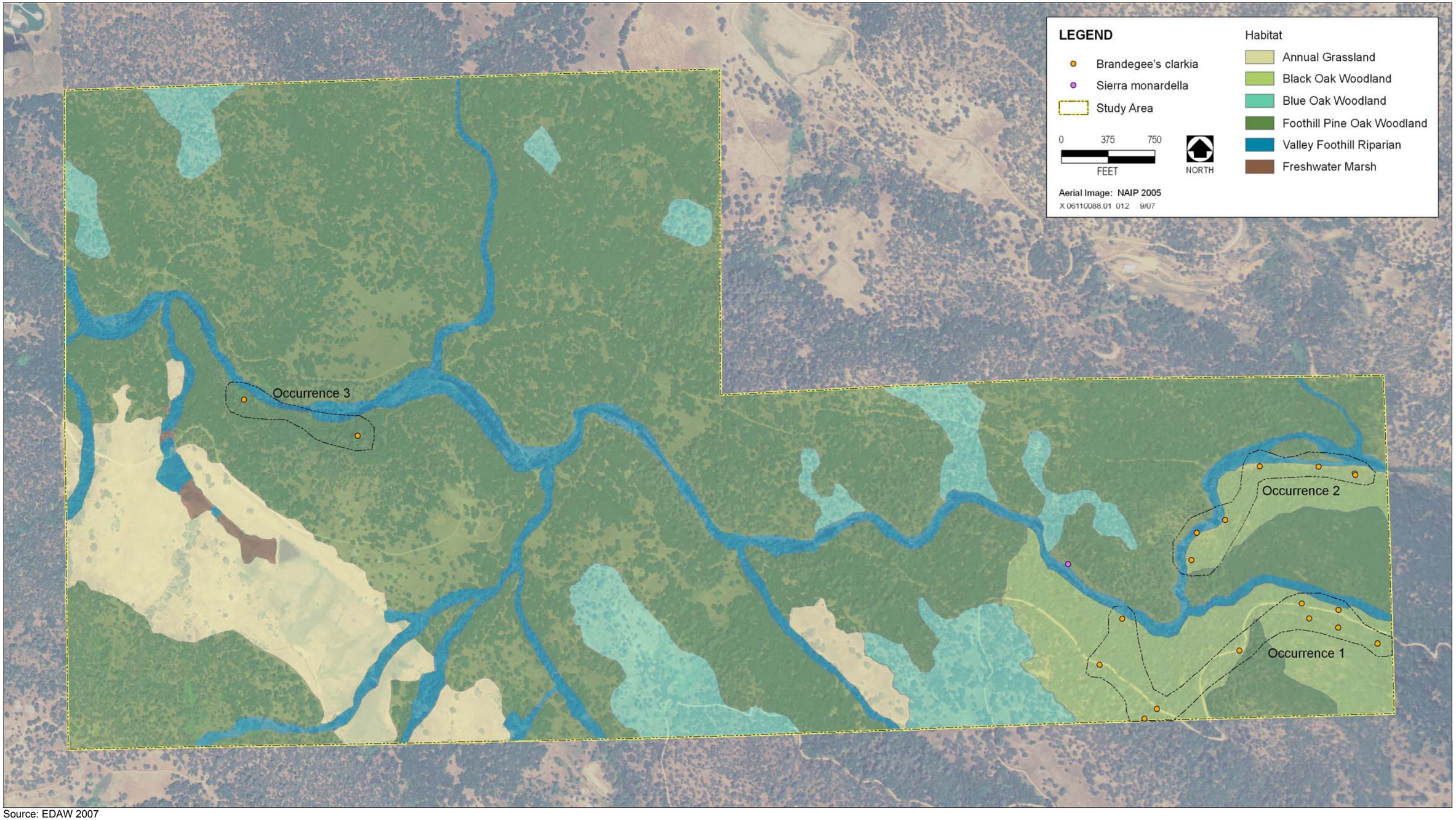
- List 1A - plants presumed extinct in California;
- List 1B - plants rare, threatened, or endangered in California and elsewhere;
- List 2 - plants rare, threatened, or endangered in California but more common elsewhere;
- List 3 - plants about which we need more information - a review list; and
- List 4 - plants of limited distribution - a watch list.

Searches of the CNPS and CNDDB databases identified 19 special-status plant species as occurring in the vicinity of the study area. Seventeen of these species were identified as having no potential to occur in the study area due to narrow substrate requirements or geographical distributions and were therefore excluded from further analysis. Stebbin's morning glory (*Calystegia stebbinsii*), Pine Hill ceanothus (*Ceanothus roderickii*), El Dorado bedstraw (*Galium californicum* ssp. *sierrae*), Red Hills soap root (*Chlorogalum grandiflorum*), and El Dorado County mule ears (*Wyethia reticulata*) are restricted to gabbro soils in El Dorado and Nevada counties. Jepson's onion (*Allium jepsonii*) and big-scale balsamroot (*Balsamorhiza macrolepis* var. *macrolepis*) are found on serpentine soils, which do not occur in the study area. Dwarf Downingia (*Downingia pusilla*), Boggs Lake hedge-hyssop (*Gratiola heterosepala*), Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*), Red Bluff dwarf rush (*Juncus leiospermus* var. *leiospermus*), legenere, (*Legenere limosa*), and pincushion navarretia (*Navarretia myersii* spp. *myersii*) occur in vernal pool habitats, which don't occur in the study area. Hispid bird's-beak (*Cordylanthus mollis* ssp. *hispidus*) in Placer County occurs in damp alkaline meadows at about 150 feet elevation. These conditions are not present in the study area. Butte county fritillary (*Fritillaria eastwoodiae*) primarily occurs in the northern foothills of the Sierra and Cascade ranges. The southernmost known occurrences are found north of the study area in Yuba County where they are occur at higher elevations in Ponderosa Pine forest.

Brandegee's clarkia (*Clarkia biloba* ssp. *brandegeeae*) and oval-leaved viburnum (*Viburnum ellipticum*) are the two special-status plant species identified during the pre-field investigation as having potential to occur in the study area. These two species were targeted during on-site surveys. In addition, Sierra monardella (*Monardella candicans*), a CNPS List 4 plant that had not been previously observed in the area, was observed during field surveys. Table 1 summarizes the regulatory status, habitat, and blooming period of Brandegee's clarkia, Sierra Monardella, and oval-leaved viburnum. Habitat and elevation range information for these species was obtained from the CNPS Electronic Inventory (2006) and *The Jepson Manual Higher Plants of California* (Hickman 1993).

FIELD SURVEY RESULTS

Plant communities mapped in the study area are described below and a comprehensive plant species list of all taxa observed is included in Appendix A. Two special-status plant species Brandegee's clarkia (*Clarkia biloba* ssp. *brandegeeae*), a CNPS List 1b plant, and Sierra monardella (*Monardella candicans*), a CNPS List 4 plant, were documented within the study area during field surveys. A total of twenty populations of Brandegee's clarkia and one population of Sierra monardella were recorded and mapped (Exhibit 3). The CNDDB and CNPS consider plants located within 0.25 mile of each other as single occurrences. CNDDB data forms for special-status plant occurrences are provided in Appendix B and are cross-referenced to the special-status plant locations shown in



Source: EDAW 2007

Plant Communities and Locations of Special-Status Plant Occurrences in the Study Area **Exhibit 3**

Table 1 Special-Status Plants With Potential to Occur in the Hidden Falls Regional Park Study Area					
Species	Status 1			Habitat and Blooming Period	Potential for Occurrence
	USFWS	DFG	CNPS		
Plants					
Brandegee's clarkia *Clarkia biloba* ssp. *brandegeeae*	__	__	1B	Chaparral, cismontane woodland; often in road cuts; 700 to 3,000 feet elevation; blooms May to July	**Known to occur**: This species was identified in the study area during the focused botanical surveys.
Sierra monardella *Monardella candicans*	__	__	4	Sandy or gravelley soils in chaparral, cismontane woodland, and lower montane coniferous forest; 450 to 2,700 feet elevation; blooms April to July	**Known to occur**: This species was identified in the study area during the focused botanical surveys.
Oval-leaved viburnum *Viburnum ellipticum*	__	__	2	Chaparral, cismontane woodland or lower montane coniferous forest; 600 to 4,000 feet elevation; blooms May to June	**Could occur**: the majority of the survey area is below the elevation range of this species where it occurs in the central foothills, but associated species and potential habitat do occur on the site; not found during focused special-status plant surveys.

1 Legal Status Definitions

U.S. Fish and Wildlife Service (USFWS):
T Federal Threatened
E Federal Endangered

California Department of Fish and Game (DFG):
R Rare
T Threatened
E Endangered

California Native Plant Society (CNPS) Listing Categories:
1B Plants rare, threatened, or endangered in California and elsewhere
2 Plants rare, threatened, or endangered in California but more common elsewhere
3 Plants for which more information is needed – a review list
4 Plants of limited distribution – a watch list

Sources: CNDDB 2006, CNPS 2006, Hickman 1993

Exhibit 3. Representative photographs of Brandegee's clarkia and the habitat in which it was encountered are provided in Appendix C. A description of the special-status plant species encountered, including their habitat and distribution in the study area, is provided below.

PLANT COMMUNITIES

BLUE OAK WOODLAND

Blue oak woodland occurs on moderate slopes near the tops of ridges in the study area. This oak woodland type is typically more savannah-like and is characterized by more evenly spaced and larger individual blue oaks. Interior live oak and foothill pine may also be present. The shrub layer is typically absent and the understory is

characterized by a dense cover of non-native grasses and forbs, such as bromes (*Bromus diandrus* and *B. hordeaceus*), wild oat (*Avena fatua*), foxtail barley (*Hordeum murinum* ssp. *murinum*), medusahead (*Taeniatherum caput-medusae*), cut-leaved geranium (*Geranium dissectum*), and Italian thistle (*Carduus pycnocephalus*).

BLACK OAK WOODLAND

Black oak woodland is found on steep north-facing slopes in the southeast portion of the property. This woodland type is characterized by a dense canopy that is at least 50 percent relative cover of black oak (*Quercus kelloggii*) with interior live oak and blue oak also present. Scattered ponderosa pine (*Pinus ponderosa*) is also present as an emergent tree. The shrub layer is usually dense and is characterized by species such as toyon (*Heteromeles arbutifolia*), hoary coffeeberry (*Rhamnus tomentella*), and poison oak. The herb layer is usually sparse and contains mix of native and non-native grasses and forbs. Native grasses and forbs found in the understory of the black oak woodland include blue wild rye (*Elymus glaucus*), woodland brome (*Bromus laevipes*), California melicgrass (*Melica californica*), yarrow (*Achillea millefolium*), and twining Brodiaea (*Dichelostemma volubile*). The populations of Brandegee's clarkia were primarily located in this oak woodland type.

ANNUAL GRASSLAND

Annual grassland occurs in a few large grazed clearings. Annual grassland is an herbaceous plant community characterized by dense cover of nonnative annual grasses with numerous species of nonnative annual forbs, as well as some native wildflowers. Typical grass species include bromes, wild oat, foxtail barley, medusahead, and Italian ryegrass (*Lolium multiflorum*). Common nonnative forbs observed include cut-leaved geranium, filaree (*Erodium botrys*), blessed milk thistle (*Silybum marianum*), lesser hawkbit (*Leontodon taraxacoides*), and rose clover (*Trifolium hirtum*). Native wildflowers such as rusty popcorn flower (*Plagiobothrys nothofulvus*), Ithuriel's spear (*Triteleia laxa*), harvest brodiaea (*Brodiaea elegans*), blow-wives (*Achyrachaena mollis*), caterpillar phacelia (*Phacelia cicutaria*), and native clovers (*Trifolium* spp.) are also present.

VALLEY FOOTHILL RIPARIAN WOODLAND

Valley foothill riparian woodland occurs along the banks of Coon creek, Deadman creek, and the intermittent drainages that have surface water for the majority of the year. These deciduous woodlands are dominated in the tree canopy by Fremont cottonwood (*Populus fremontii*), valley oak (*Quercus lobata*) and white alder (*Alnus rhombifolia*). Shining willow (*Salix lucida* var. *lasiandra*), red willow (*Salix laevigata*), and Oregon ash (*Fraxinus latifolia*) may also occur in the tree layer. Shrubs and lianas, such as California grape (*Vitis californica*), arroyo willow (*Salix lasiolepis*), and Himalayan blackberry (*Rubus discolor*) form a dense understory layer, along with wetland herbaceous species such as torrent sedge (*Carex nudata*), mugwort (*Artemisia douglasiana*), and horsetail (*Equisetum arvense*) occurring along the water's edges.

FRESHWATER MARSH

Freshwater marsh occurs in saturated soils on the fringes of the stock ponds and in spots along the intermittent drainages in the study area. The vegetation is characterized by obligate wetland herbaceous species such as spikerushes (*Eleocharis acicularis* and *Eleocharis macrostachya*), rushes (*Juncus effusus* and *Juncus bufonius*), cattails (*Typha angustifolia*) and smartweed (*Polygonum lapathifolium*). Often this vegetation is surrounded by woody riparian shrubs such as arroyo willow, Himalayan blackberry and western dogwood (*Cornus sericea*).

RESULTS BY SPECIES

BRANDEGEE'S CLARKIA (*CLARKIA BILOBA* SSP. *BRANDEGEEAE*)

Brandegee's clarkia, a member of the evening primrose family, is a CNPS List 1B plant. It was previously listed as a USFWS Species of Concern, however as of May 2006, the USFWS no longer maintains lists of Species of Concern. Brandegee's clarkia is found in the central Sierra Nevada foothills between 804 and 2,904 feet above mean sea level in chaparral and woodland habitats, often on road-cuts. It is an annual herb with rose-pink flowers that blooms from May to July. The feature that distinguishes this subspecies from the other two subspecies of Clarkia biloba is the length of the notch at the tip of the petal. In Brandegee's clarkia, the notch is less than 1/5 of the petal length.

Brandegee's clarkia was encountered during this special-status plant surveys throughout the study area on steep north-facing slopes in openings in the black oak woodlands. Populations of Brandegee's clarkia were abundantly distributed throughout the southeastern corner of the property. Information of these occurrences was summarized in three CNDDB records included in Appendix B of this report. Brandegee's clarkia was most typically found on steep north facing slopes in the shade and openings of black oak and foothill pine-oak woodland where common associated species included hedgehog dogtail (*Cynosorus echinatus*), field hedge parsley (*Torilis arvensis*), poison oak (*Toxicodendron diversilobum*), blue wild rye (*Elymus glaucus*), and white globe lily (*Calochortus albus*). Many of the populations are found on the roadcuts along Whiskey Diggins canal and the associated road. Due to the abundance of the Brandegee's clarkia population on the property as well as the fact that they occur on areas of previous disturbance, proposed project activities associated with the expansion of recreation facilities are unlikely to have an overall adverse affect on the viability of this species in the study area.

SIERRA MONARDELLA

Sierra monardella (*Monardella candicans*), a member of the mint family, is a CNPS list 4 plant. It is a small, annual plant with half inch heads of white flowers that bloom from April to July. Sierra monardella grows on sandy or gravelly soils in oak woodland, chaparral, and ponderosa pine forest throughout the Sierra Nevada foothills.

Sierra monardella was not identified in the pre-field investigation as a potential target special status plant species for the survey because no records currently exist in the CNDDB for the species. A single population of the species was located in the study area (Exhibit 3). Sierra monardella was found in the opening of Foothill Pine-Oak woodland on the north side of Coon creek. The surrounding plant community is moderately dense annual grassland on a low gradient southwest facing terrace above the creek. Associated species included species typical of the annual grassland and surrounding woodlands such as bromes (*Bromus* spp.), lupines (*Lupinus* sp.), smooth cat's ears (*Hypochaeris glabra*), four spot (*Clarkia purpurea*), Ithuriel's spear (*Triteleia laxa*), needleleaf navarretia (*Navarretia intertexta*), and brodiaea (*Brodiaea elegans*).

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APPENDIX A

Plant Species Observed in the Study Area

APPENDIX A
PLANT SPECIES OBSERVED IN THE STUDY AREA

Table 1 Plant Species Observed in the Study Area	
Scientific Name	**Common Name**
Adiantum jordanii	California maidenhair fern
Aesculus californica	California buckeye
Agoseris heterophylla	annual agoseris
Ailanthus altissima	tree-of-heaven
Alisma plantago-aquatica	American waterplantain
Allium amplectens	narrow leaved onion
Allium peninsulare	Mexicali onion
Alnus rhombifolia	white alder
Ambrosia psilostachya	western ragweed
Amsinckia menziesii var. *intermedia*	fiddleneck
Anaphalis margaritacea	pearly everlasting
Anthemis cotula	dog-fennel
Anthriscus caucalis	Bur-chervil
Aphanes occidentalis	western lady's mantle
Aristolochia californica	California pipevine
Artemisia douglasiana	mugwort
Asclepias cordifolia	purple milkweed
Asclepias eriocarpa	Indian milkweed
Baccharis pilularis	coyote brush
Baccharis salicifolia	mulefat
Bidens frondosa	beggar ticks
Brachypodium distachyon	false brome
Brickellia californica	brickelbush
Briza maxima	rattlesnake grass
Briza minor	little quaking grass
Bromus diandrus	ripgut brome
Bromus hordeaceus	soft chess
Bromus japonicus	Japanese brome
Bromus laevipes	woodland brome
Bromus madritensis var. *madritensis*	red brome
Bromus madritensis var. *rubens*	foxtail chess

Table 1 Plant Species Observed in the Study Area	
Scientific Name	**Common Name**
Calandrinia ciliata	red maids
Calochortus albus	white globelily
Calochortus luteus	yellow mariposa lily
Calystegia occidentalis	western morning-glory
Cardamine oligosperma	Idaho bittercress
Carduus pycnocephalus	Italian thistle
Carex barbarae	valley sedge
Carex nudata	torrent sedge
Carex praegracilis	slender sedge
Castilleja attenuata	valley tassels
Centaurea solstitialis	yellow star-thistle
Centaurium muehlenbergii	Muhlenberg's centaury
Cephalanthus occidentalis	buttonbush
Cerastium glomeratum	mouse-ear chickweed
Cercis occidentalis	redbud
Chondrilla juncea	skeleton weed
Cichorium intybus	chicory
Clarkia biloba ssp. *brandegeeae*	Brandegee's clarkia
Clarkia purpurea ssp. *quadrivulnera*	four-spot
Claytonia parviflora	streambank springbeauty
Claytonia perfoliata	miner's lettuce
Clematis lasianthus	virgins bower
Conium maculatum	poison hemlock
Cornus glabrata	brown dogwood
Cynodon dactylon	Bermuda grass
Cynosurus echinatus	hedgehog dogtail
Daucus pusillus	rattlesnake weed
Dichelostemma capitatum	blue dicks
Eleocharis acicularis	needle spikerush
Eleocharis macrostachya	creeping spikerush
Elymus glaucus	blue wild rye
Ericameria arborescens	goldenfleece
Erigeron foliosus var. *hartwegii*	Hartweg's fleabane
Erigeron philadelphicus	Philadelphia fleabane

Table 1 Plant Species Observed in the Study Area	
Scientific Name	**Common Name**
Eriophyllum lanatum	woolly sunflower
Erodium botrys	braodleaf filaree
Eryngium vaseyi	coyote thistle
Eschscholzia caespitosa	foothill poppy
Eschscholzia californica	California poppy
Euphorbia spathulata	warty spurge
Euthamia occidentalis	western goldenrod
Festuca arundinacea	reed fescue
Ficus carica	fig
Filago gallica	filago
Galium aparine	bedstraw
Galium murale	yellow wall bedstraw
Galium porrigens	climbing bedstraw
Gastridium ventricosum	nitgrass
Geranium dissectum	cut-leaved geranium
Geranium molle	dove’s foot geranium
Gilia capitata	blue head gilia
Githopsis specularioides	common blue-cup
Glyceria declinata	waxy mannagrass
Gnaphalium luteo-album	everlasting-album
Grindelia hirsutula	hairy gumweed
Helenium puberulum	sneezeweed
Heteromeles arbutifolia	toyon
Hoita macrostachya	leather root
Hypericum perfoliatum	St. Johnswort
Hypochaeris glabra	smooth cat’s ear
Iris pseudacorus	paleyellow iris
Juncus bufonius	common toad rush
Juncus effusus	common rush
Keckiella brevifolia	gaping keckielia
Lactuca serriola	prickly lettuce
Lemna minor	duckweed
Lepidium nitidum	common peppergrass
Linanthus bicolor	bicolor linanthus

Table 1 Plant Species Observed in the Study Area	
Scientific Name	**Common Name**
Linanthus ciliatus	whisker brush
Linum usitatissimum	common flax
Lolium multiflorum	Italian ryegrass
Lonicera hispidula	hairy honeysuckle
Lonicera interrupta	chaparral honeysuckle
Ludwigia peploides	false loosestrife
Lupinus microcarpus	chick lupine
Lupinus nanus	sky lupine
Luzula comosa	wood rush
Madia elegans ssp. *vernalis*	common tarweed
Madia gracilis	slender tarweed
Medicago polymorpha	bur-clover
Melica californica	California melicgrass
Mentha arvensis	field mint
Micropus californicus	slender cottonweed
Mimulus guttatus	seep monkeyflower
Monardella candicans	Sierra monardella
Monardella villosa	coyote mint
Nassella pulchra	purple needlegrass
Navarretia intertexta	needleleaf navarretia
Navarretia tagetina	marigold navarretia
Nemophila pedunculata	littlefoot nemophila
Odontostomum hartwegii	Hartweg's odontostomum
Panicum capillare	witchgrass
Parentucellia viscosa	yellow glandweed
Pentagramma triangularis	goldenback fern
Perideridia kelloggii	squawroot
Phacelia cicutaria	caterpillar phacelia
Phlox gracilis	slender phlox
Plagiobothrys nothofulvus	popcornflower
Plagiobothrys stipitatus var. micranthus	stalked popcorn flower
Plantago lanceolata	English plantain
Plectritis macrocera	white plectritis
Poa annua	annual blue grass

Table 1 Plant Species Observed in the Study Area	
Scientific Name	**Common Name**
Poa pratensis	Kentucky bluegrass
Polygala cornuta	milkwort
Polygonum arenastrum	common knotweed
Polygonum punctatum	water smartweed
Polypodium calirhiza	nested polypody
Populus alba	white popular
Populus fremontii	Fremont's cottonwood
Prunella vulgaris	common selfheal
Pteridium aquilinum var. *pubescens*	bracken fern
Quercus douglasii	blue oak
Quercus kelloggii	black oak
Quercus lobata	Valley Oak
Quercus wislizeni	interior live oak
Ranunculus californicus	California buttercup
Rhamnus ilicifolia	redberry
Rhamnus tomentella	hoary coffeeberry
Rorippa nasturtium-aquaticum	watercress
Rubus discolor	Himalayan blackberry
Rumex crispus	curly dock
Rumex pulcher	fiddledock
Salix exigua	sandbar willow
Salix laevigata	red willow
Salix lasiolepis	arroyo willow
Sanicula bipinnatifida	purple sanicle
Sanicula crassicaulis	Pacific sanicle
Scirpus acutus	hardstem bulrush
Selaginella hansenii	Hansen's spikemoss
Senecio vulgare	old-man-in-the-spring
Sherardia arvensis	field madder
Silene gallica	catchfly
Silybum marianum	blessed milkthistle
Solidago californica	California goldenrod
Stachys albens	White Hedge nettle
Thysanocarpus curvipes	common fringepod

Table 1 Plant Species Observed in the Study Area	
Scientific Name	**Common Name**
Torilis arvensis	field hedge parsley
Toxicodendron diversilobum	poison oak
Trifolium ciliolatum	foothill clover
Trifolium dubium	shamrock clover
Trifolium hirtum	red clover
Trifolium subterraneum	Subterranean Clover
Trifolium willdenovii	tomcat clover
Triteleia bridgesii	Bridges' Brodiaea
Triteleia laxa	Ithuriel's spear
Triticum aestivum	common wheat
Typha angustifolia	narrow-leaf cattail
Urtica dioica	stinging nettle
Verbascum blattaria	moth mullein
Verbena bonariensis	South American vervain
Vicia sativa	spring vetch
Vinca major	vinca
Vitis californica	California grape
Vulpia bromoides	brome fescue
Vulpia microstachys	small fescue
Vulpia myuros	foxtail fescue
Wyethia angustifolia	narrowleaf mule ears
Xanthium strumarium	cocklebur

APPENDIX B

California Department of Fish and Game
California Natural Diversity Data Forms

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

Date of Field Work (mm/dd/yyyy): 05/31/2007

For Office Use Only

Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Clarkia biloba var. brandeegae*

Common Name: Brandegee's clarkia

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

Total No. Individuals +/- 3000 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: yes Number Not yet deposited, likely DAV Museum / Herbarium

Reporter: Mark Bibbo
Address: 2022 J Street
Sacramento, CA
E-mail Address: mark.bibbo@edaw.com
Phone: (916) 414-5800

Plant Information

Phenology: ____% vegetative, 100 % flowering, ____% fruiting

Animal Information

adults ____ # juveniles ____ # larvae ____ # egg masses ____ # unknown ____

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

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

Hidden Falls Regional Park, On the Spears Ranch property, close to Coon Creek, about 0.25 mile due north of the large stock pond in the middle of the property.

County: Placer County Landowner / Mgr.: Placer County
Quad Name: Gold Hill Elevation: 430 ft.
T____ R____ Sec ____, ____ ¼ of ____ ¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GPS
T____ R____ Sec ____, ____ ¼ of ____ ¼, Meridian: H☐ M☐ S☐ GPS Make & Model Thales Mobile Mapper
DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☑ Horizontal Accuracy 1 m meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ *OR* Geographic (Latitude & Longitude) ☑
Coordinates: 38.9707°
-121.204° Refers to Occurrence #2 on map

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

Steep north facing slope in the shade of Black oak-Interior Live Oak-Foothill Pine woodland. Growing with Cynosorus echinatus, Torilis arvensis, Toxicodendron diversilobum, Elymus glaucus, and Calochortus albus.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: Grazing, recreation (hiking/equestrian trails)

Visible disturbances:

Threats: Grazing, non-native invasive weeds.

Comments: This occurrence consists of numerous clumps of hundreds of individuals in a similar position on the slope stretching for about a quarter mile on either side of the GPS point.

Determination: *(check one or more, and fill in blanks)*

☑ Keyed (cite reference): Jepson
☑ Compared with specimen housed at: DAV
☑ Compared with photo / drawing in: Cal Photos
☐ By another person (name): _____
☐ Other: _____

Photographs: *(check one or more)*

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

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

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

Date of Field Work (mm/dd/yyyy): 05/24/2007

For Office Use Only

Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Clarkia biloba var. brandeegae*

Common Name: Brandegee's clarkia

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

Total No. Individuals +/- 5,000 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: yes Number Not yet deposited, likely DAV Museum / Herbarium

Reporter: Mark Bibbo
Address: 2022 J Street
Sacramento, CA
E-mail Address: mark.bibbo@edaw.com
Phone: (916) 414-5800

Plant Information

Phenology: ____% vegetative, 100 % flowering, ____% fruiting

Animal Information

adults ____ # juveniles ____ # larvae ____ # egg masses ____ # unknown ____

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

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

Hidden Falls Regional Park, On the Spears Ranch property, in the southeastern portion of the property, along Whiskey Diggins canal.

County: Placer County Landowner / Mgr.: Placer County
Quad Name: Gold Hill Elevation: 707 ft.
T____ R____ Sec ____, ____ ¼ of ____¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GPS
T____ R____ Sec ____, ____ ¼ of ____¼, Meridian: H☐ M☐ S☐ GPS Make & Model Thales Mobile Mapper
DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☑ Horizontal Accuracy 1 m meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ *OR* Geographic (Latitude & Longitude) ☑
Coordinates: 38.9657°
-121.175° Refers to Occurrence No. 1 on map.

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

Steep north facing slope in the shade and openings of Black oak-Interior Live Oak-Foothill Pine woodland. Growing with Heteromeles arbutifolia, Aesculus californica, Cynosorus echinatus, Torilis arvensis, Allium peninsulare and Pentagramma triangularis.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☑ Excellent ☐ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: Grazing, recreation (hiking/equestrian trails)

Visible disturbances:

Threats: Grazing, non-native invasive weeds.

Comments: This occurrence consists of numerous clumps of hundreds of individuals on the road cuts along the irrigation canal and the road that follows it, as well as on the north facing slopes on either side of the road cuts. These sub-populations of Clarkia occur all along the road in this southeastern portion of the property.

Determination: *(check one or more, and fill in blanks)*

☑ Keyed (cite reference): Jepson
☑ Compared with specimen housed at: DAV
☑ Compared with photo / drawing in: Cal Photos
☐ By another person (name): _____
☐ Other: _____

Photographs: *(check one or more)*

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

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

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

Date of Field Work (mm/dd/yyyy): 05/31/2007

For Office Use Only

Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Clarkia biloba var. brandeegae*

Common Name: Brandegee's clarkia

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

Total No. Individuals +/- 10,000 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: yes Number Not yet deposited, likely DAV Museum / Herbarium

Reporter: Mark Bibbo
Address: 2022 J Street
Sacramento, CA
E-mail Address: mark.bibbo@edaw.com
Phone: (916) 414-5800

Plant Information

Phenology: ____% vegetative 100 % flowering ____% fruiting

Animal Information

adults ____ # juveniles ____ # larvae ____ # egg masses ____ # unknown ____

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

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

Hidden Falls Regional Park, On the Spears Ranch property, at the east end, on the south side of Coon Creek.

County: Placer County Landowner / Mgr.: Placer County
Quad Name: Gold Hill Elevation: 580 ft.
T____ R____ Sec ____, ____ ¼ of ____ ¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GPS
T____ R____ Sec ____, ____ ¼ of ____ ¼, Meridian: H☐ M☐ S☐ GPS Make & Model Thales Mobile Mapper
DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☑ Horizontal Accuracy 1 m meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ *OR* Geographic (Latitude & Longitude) ☑
Coordinates: 38.9679°
-121.177° Refers to Occurrence No 3 on Map.

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

Steep north facing slope in the shade and openings of Black oak-Interior Live Oak-Foothill Pine woodland. Growing with Heteromeles arbutifolia, Toxicodendron diversilobum, Cynosorus echinatus, Torilis arvensis, Achillea millefolium and Clarkia purpurea.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: Grazing, recreation (hiking/equestrian trails)

Visible disturbances:

Threats: Grazing, non-native invasive weeds.

Comments: This occurrence consists of numerous clumps of hundreds of individuals at the base of this slope stretching for about a half a mile on either side of the GPS point.

Determination: *(check one or more, and fill in blanks)*

☑ Keyed (cite reference): Jepson
☑ Compared with specimen housed at: DAV
☑ Compared with photo / drawing in: Cal Photos
☐ By another person (name): _____
☐ Other: _____

Photographs: *(check one or more)*

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

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

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

Date of Field Work (mm/dd/yyyy): 05/30/2007

For Office Use Only

Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Monardella candicans*

Common Name: Sierra monardella

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

Total No. Individuals +/- 2,000 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: yes Number — Not yet deposited, likely DAV Museum / Herbarium

Reporter: Mark Bibbo
Address: 2022 J Street
Sacramento, CA
E-mail Address: mark.bibbo@edaw.com
Phone: (916) 414-5800

Plant Information

Phenology: ____% vegetative, 100 % flowering, ____% fruiting

Animal Information

adults ____ # juveniles ____ # larvae ____ # egg masses ____ # unknown ____

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

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

Hidden Falls Regional Park, On the Spears Ranch property, in the southeastern portion of the property, north of Coon Creek.

County: Placer County Landowner / Mgr.: Placer County
Quad Name: Gold Hill Elevation: 496 ft.
T____ R____ Sec ____, ____ ¼ of ____¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GPS
T____ R____ Sec ____, ____ ¼ of ____¼, Meridian: H☐ M☐ S☐ GPS Make & Model Thales Mobile Mapper
DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☑ Horizontal Accuracy 1 m meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ *OR* Geographic (Latitude & Longitude) ☑
Coordinates: 38.9671°
-121.182°

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

Southwest facing slope in the opening of a Foothill Pine - Oak woodland on the north side of Coon Creek. The surrounding plant community is a moderately dense annual grassland on a gently sloping terrace above the creek. Growing with Bromus spp., Lupinus sp. (in fruit), Hypochaeris glabra, Clarkia purpurea, Triteleia laxa, Navarettia intertexta, Brodiaea elegans.

Other rare taxa seen at THIS site on THIS date:
(separate form preferred)

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: Grazing, recreation (hiking/equestrian trails)

Visible disturbances:

Threats: Grazing, non-native invasive weeds (yellow star thistle)

Comments: This occurrence consisted of several thousand individuals spread through the roughly five acre opening centered at the GPS point.

Determination: *(check one or more, and fill in blanks)*

☑ Keyed (cite reference): Jepson
☐ Compared with specimen housed at: _____
☑ Compared with photo / drawing in: CalPhoto
☐ By another person (name): _____
☐ Other: _____

Photographs: *(check one or more)*

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

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

APPENDIX C

Representative Photographs

Brandegee's Clarkia with characteristic shallowly lobed petals

Open woodland habitat along roadcuts where Brandegee's Clarkia was typically found in the study area

Representative Photographs **Appendix C**

APPENDIX H

Special-Status Wildlife Species with the Potential to Occur in the Hidden Falls Project Area and its Vicinity

Special-Status Wildlife Species With Potential to Occur in the Hidden Falls Regional Park Project Area and Vicinity				
Species	Status[1]		Habitat	Potential for Occurrence
	USFWS	DFG		
Invertebrates				
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	T	---	Elderberry shrubs, typically in riparian habitats.	None; there are no elderberry shrubs present in the project area.
Vernal pool fairy shrimp *Branchinecta lynchi*	T	---	Vernal pools in valley and foothill grasslands.	None; there are no vernal pools present in the project area.
Vernal pool tadpole shrimp *Lepidurus Packardi*	E	---	Vernal pools in valley and foothill grasslands.	None; there are no vernal pools present in the project area.
Fish				
Central Valley fall/late fall–run chinook salmon ESU *Oncorhynchus tshawytscha*	---	Species of Special Concern	Essential Fish Habitat designated; requires cold, freshwater streams with suitable gravel for spawning; rears in seasonally inundated floodplains, rivers, and tributaries, and in the Delta	Occurs in the lower Sacramento River, the ESC/NCC, and Coon Creek. Unlikely to pass waterfalls and access the project reach.
Central Valley steelhead DPS *Oncorhynchus mykiss*	T	---	Critical Habitat designated; requires cold, freshwater streams with suitable gravel for spawning; rears in seasonally inundated floodplains, rivers, and tributaries, and in the Delta	Occurs in the lower Sacramento River, the ESC/NCC, and Coon Creek
Amphibians				
California red-legged frog *Rana aurora draytonii*	T	Species of Special Concern	Riparian and slow-water rivers and lakes with emergent aquatic vegetation.	Could occur; Several cattle stock ponds and freshwater marshes in the southwest section of the project area provide suitable habitat.
Foothill yellow-legged frog *Rana boylii*	---	Species of Special Concern	Perennial rocky streams in a wide range of deciduous and coniferous habitats; rarely found far from permanent water.	Could occur; Coon Creek and other shallow, perennial drainages with cobble provide suitable habitat.
Western spadefoot *Spea hammondii*	---	Species of Special Concern	Vernal pools in upland with burrows and other below- ground refuge.	Unlikely to occur; there are no vernal pools present in the project area.
Reptiles				
Northwestern pond turtle *Emys marmorata*	---	Species of Special Concern	Ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation.	Known to occur; surveys conducted in 2005 confirm presence along Coon Creek.
Birds				
Cooper's hawk *Accipiter cooperii*	---	Species of Special Concern	Typically inhabits oak savannah, woodlands and open grassland habitats.	Likely to occur; suitable foraging and nesting habitat present in the project area in oak woodlands.

Special-Status Wildlife Species With Potential to Occur in the Hidden Falls Regional Park Project Area and Vicinity				
Species	Status [1]		Habitat	Potential for Occurrence
	USFWS	DFG		
Sharp-shinned hawk *Accipiter striatus*	---	Species of Special Concern	Nests and forages in woodlands but may occur in the more open savannah woodland type habitats such as blue oak woodland and blue oak – foothill pine.	Could occur; suitable foraging and nesting habitat present in the project area in oak woodlands.
Tricolored blackbird *Agelaius tricolor*	---	Species of Special Concern	Forage in grasslands and agricultural fields; nest in freshwater marsh, riparian scrub, and other dense shrubs and herbs.	Unlikely to occur; marginal nesting and foraging habitat present in clusters of blackberry thickets in grassland openings, however this habitat is too separated from other regional locations with preferred habitat.
Golden eagle *Aquila chrysaetos*	---	Species of Special Concern; Fully Protected	Forages over open shrub and grasslands; nests on cliffs or large rock outcrops.	Known to breed just outside of the park; suitable foraging and nesting habitat present in the project area in annual grasslands and oak woodlands.
Yellow-breasted chat *Icteria virens*	---	Species of Special Concern	Forages and nests in riparian thickets of willow, blackberry, wild grape, and other brushy tangles near watercourses.	Known to occur; foraging and nesting habitat present in the project area in patches of blackberry thickets along Coon Creek and surrounding freshwater marshes and stock ponds.
Yellow warbler *Dendroica petechia*	---	Species of Special Concern	Nests in mesic, deciduous thickets, especially riparian; preferred habitat includes moist areas with dense insect prey populations.	Could occur; no suitable breeding habitat present in the project area; possible occurrence as a migrant.
White-tailed kite *Elanus leucurus*	---	Fully Protected	Forages in grasslands and agricultural fields; nests in isolated trees or small woodland patches.	Could occur; marginally suitable foraging habitat present in the project area in grasslands with scattered oak trees.
Bald eagle *Haliaeetus leucocephalus*	---	E	Forages in open water, roosts in adjacent trees; nests in tall, sturdy trees.	Unlikely to occur; no large, open water on the project area.
California black rail *Laterallus jamaicensis cotorniculus*	---	T	Forages and nests in freshwater marshes with shallow water and little to no fluctuation that are composed of dense stands of bulrushes and/or cattails.	Known to occur; suitable foraging and nesting habitat present in marshes along Coon Creek.
Loggerhead shrike *Lanius ludovicianus*	---	Species of Special Concern	Forages in grasslands and nests in shrubs and small trees.	Could occur; suitable foraging habitat present in the project area in grasslands with scattered oak trees.

Special-Status Wildlife Species With Potential to Occur in the Hidden Falls Regional Park Project Area and Vicinity				
Species	Status[1]		Habitat	Potential for Occurrence
	USFWS	DFG		
Mammals				
Ringtail *Bassariscus astutus*	---	Fully Protected	Forages in chapparal, rocky hillsides and riparian areas. Denning habitat includes rock crevices, boulder piles, underground cavities, or hollow trees.	Known to occur; suitable foraging habitat and denning habitat present in large (> 6” dbh) trees along Coon Creek.
Townsend’s big-eared bat *Corynorhinus townsendii*	---	Species of Special Concern	Lives in a wide variety of habitats but most common in mesic sites; typically roosts in caves, mines, and similar structures	Could occur; suitable habitat present in the project area in rock crevices within foothill pine-oak woodlands.

[1] Legal Status Definitions
U.S. Fish and Wildlife Service (USFWS):
T Federal Threatened
E Federal Endangered

California Department of Fish and Game (DFG):
R Rare
T Threatened
E Endangered
SSC Species of Special Concern

Sources: CNDDB 2007; USFWS 2007; Hidden Falls Regional Park Initial Study 2006; CDFG 2004, 2005, 2006, 2007.

Valley elderberry longhorn beetle and vernal pool invertebrates and amphibians are not expected to occur in the project area because the project area lacks their required habitat. No elderberry shrub, vernal pool or other seasonal wetland exists within the project area.

Sacramento splittail and hardhead were historically present in the Cook Creek drainage, however, are unable to access the project area because of downstream natural and man-made barriers in the channel.

Some special-status bird species that occur in the region are not expected to occur within the project area due to lack of suitable habitat or habitat connectivity. These include tricolored blackbird and bald eagle. Tricolored blackbirds are not likely to occur because the marginal blackberry bramble breeding habitat is far removed from locations of other populations. Bald eagle is not likely to occur because there are no large, open water sites in the project area.