APPENDIX A

Public Participation and Outreach Process Summary

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1.0 PUBLIC PARTICIPATION AND OUTREACH PROCESS

The public participation and outreach process includes the following: stakeholder interviews, public meetings, an on-line survey, Web site postings and emails, distribution of fact sheets and newsletters, and publications in local newspapers.

1.1 OUTREACH MATERIALS

A mailing list of interested parties was compiled at the onset of the planning process and is continually being updated to add members of the public interested in the project. Fact sheets, flyers and newsletter are used to provide information about the planning process, solicit interest, and inform stakeholders about upcoming events, opportunities to participate, and the overall progress of the planning process. Materials produced to date include an initial factsheet, a newsletter about the planning process, and an informational flyer announcing upcoming meetings (Attachment A). Flyers were distributed on-site, at regional OHV events, at the Northern Buttes District Office of State Parks, at the Twin Cities District office of the OHVMR Division, at local business related to vehicular recreation, at the Oroville Wildlife Area adjacent to Clay City SVRA and other select locations.

A Clay Pit General Plan Web page (http://ohv.parks.ca.gov/?page_id=26300) provides information about the General Plan process including copies of all outreach materials and meeting presentations.

A press release was sent to the Chico Enterprise-Record and the Oroville Mercury Register and an article was published on September 12, 2010, describing the project and providing information about public meeting #3.

1.2 ONLINE SURVEY

An online survey was created to gather information about visitors' use patterns, concerns, desires, and needs. Information was collected on visitor demographics, visitor use patterns, valued places and activities at the Clay Pit SVRA, opportunities for improvement, and safety concerns. The survey was not designed to be statistically representative of all visitors to the Clay Pit SVRA; nevertheless, the results provide valuable insight for the planning process.

AECOM conducted the survey on behalf of the OHMVR Division. The survey was created using Survey Monkey, an online survey tool, and invitations to participate in the survey were sent to e-mail addresses on the General Plan mailing list. Survey information was also included on the first fact sheet distributed onsite and at local businesses, and on the first Newsletter mailed out to all interested parties identified. A link to the survey was provided on the General Plan Web page. The survey was provided in English and Spanish and was open to public input from May 26, 2010, to October 29, 2010. The survey was also provided in paper form to participants at the public meetings. The results from the paper surveys were included into the online results. A total of 107

persons responded to the survey. A copy of the survey questions and tabulations of the survey responses are provided in Attachment B.

1.3 STAKEHOLDER INTERVIEWS

The purpose of the stakeholder interviews was to understand stakeholders' ideas, concerns, and common goals regarding the Clay Pit SVRA. Phone interviews with dirt bike and 4x4 users were conducted in July and August 2010 by the AECOM project manager. The interview participants—representing the Feather River Rock Crawlers and Feather River 4 Wheel Drive, Cycleland Speedway, the Chico State Dirt Riders Club, and the Quarter Midget Association—shared their perspectives on long-range planning issues, ideas, concerns, and opportunities.

Key planning issues identified during stakeholder interviews include the following:

- Different uses, ages, and abilities at the Clay Pit SVRA are not compatible.
- Free-for-all riding at Clay Pit is dangerous.
- No public places exist to practice 4x4 driving in the region.
- No public places exist to practice on a motocross track in the vicinity. Commercially owned tracks in the region are too expensive and are used primarily to host events.
- Only one dirt track for quarter midgets exists in all of California, and only two exist on the west coast. Having a track at the Clay Pit SVRA would provide a great recreational opportunity.

1.4 PUBLIC WORKSHOP #1

The General Plan team held a public workshop on June 7, 2010, to introduce the planning process and solicit input. The workshop was held at the Lake Oroville State Recreation Area Visitor Center in Oroville, CA. Notes from the public workshop are included in Attachment C. Key planning issues discussed at this meeting included:

- possible uses, including picnic areas, play areas, model air plane facilities, mountain biking, disc golf, and additional off-highway vehicle (OHV) uses;
- how to plan new tracks and other uses to make Clay Pit a smaller version of Prairie City; and
- how to publicize the Clay Pit SVRA General Plan process to solicit wider public and stakeholder participation.

1.5 PUBLIC WORKSHOP #2

On August 28, 2010, the General Plan team conducted an on-site workshop at Clay Pit SVRA to collect input on the draft conceptual diagram presented in the Newsletter and to raise awareness of the General Plan process among SVRA users. During this three-hour period, the team talked to over 15 visitors, invited them to comment, and provided them with the Newsletter. Thirteen persons provided their contact information to be added to the mailing list; a subset of this group also provided immediate feedback on the draft diagram. Notes from the public workshop are included in Attachment D. Key topics from this input included:

- Tracks are a desirable addition to Clay Pit SVRA.
- There is a need for more picnic tables and shade structures at Clay pit; these should be designed and placed to be more useful than the existing structures.
- The dirt in the southwest corner of the SVRA is most appropriate for dirt bikes because it contains the least number of rocks.
- This site is very appropriate for beginning and learning riders; this target group should be a focus for some of the future development.

1.6 PUBLIC WORKSHOP #3

The General Plan team hosted an Alternatives Workshop and Scoping Meeting on September 14, 2010 at the Eagles Hall in Oroville (Attachment E). Project staff presented a project update to attendees and asked for comments. After the presentation, attendees were given a chance to talk to staff one-on-one and provide their comments on three development alternatives as well as potential environmental impacts. Key themes from these discussions included:

- Maximizing OHV development opportunities. Most people were in favor of the alternative which would allow the most potential for future tracks, trails, and other built OHV facilities.
- Importing soil and track materials. Many attendees had suggestions on how to improve the soil conditions or where to find appropriate material.
- Improving safety at the site. Attendees suggested emergency response facilities, mentioned questionable activities, or asked that ground materials be amended to decrease the hazards presented by rocks on-site.
- Providing facilities for the various user groups; 4x4, motocross; ATV; and trials. There were suggestions for obstacle courses, mud play areas, tracks, and other OHV improvements.

2.0 MAJOR THEMES OF INITIAL COMMUNITY OUTREACH

The major themes presented in this section represent a synthesis of input on ideas, concerns, and common goals related to the Clay Pit SVRA. The major themes encapsulate the topics that were raised most through the online survey, stakeholder interviews, and first public meeting.

2.1 IMPORTANT LOCAL RECREATIONAL DESTINATION

Stakeholders frequently raised the observation that Clay Pit SVRA fulfills an important local recreational need. It was frequently mentioned as a location where beginning and intermediate riders can practice.

2.2 SAFETY FOR ALL SVRA VISITORS

There was widespread acknowledgement that safety conditions at Clay Pit are generally good. At the same time, visitors and other stakeholders would like to see safety enhanced as part of the General Plan process.

When visitors were asked if "they generally feel safe" at Clay Pit nearly all visitors surveyed responded positively. Respondents that addressed safety concerns at Clay Pit felt that improving the facilities by dividing user groups and directing traffic would be important. Conflicts between different types of OHV users was the most frequently mentioned safety consideration.

2.3 AWARENESS OF THE CLAY PIT SVRA IN THE REGION

As stated previously, the Clay Pit SVRA is known locally as a place to ride, but some respondents feel that raising awareness of the Clay Pit SVRA as a recreational destination would be beneficial to local and regional user groups. Stakeholders suggested placing signs at other nearby OHV related locations to send visitors to the Clay Pit SVRA for recreation opportunities. One specific place suggested is the adjacent wildlife area managed by the California Department of Fish and Game. Posting signs there may help redirect visitors illegally using the wildlife area for OHV use.

2.4 NEW USES AND FACILITIES

Because the Clay Pit SVRA has few developed facilities and allows open terrain riding, many respondents described the SVRA as a "free-for-all" and made suggestions for additional uses or facilities. Suggestions included developing the site as a much smaller version of the Prairie City SVRA in Sacramento County. Specific facilities and uses suggested include race tracks and trails for motorcycles, ATVs, and other off-highway vehicles; a rock crawl for 4x4 users and trial riders; and additional picnic tables and ramadas. Allowing mountain bike use under a special event permit was also suggested.

2.5 ENVIRONMENTAL CONCERNS

Some respondents expressed concern that environmental protection at the SVRA may come at the expense of OHV recreation. One specific suggestion made was that any conservation or mitigation required should occur off-site to preserve the site for maximum use for OHV.

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Attachment A

Outreach Materials

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CLAY PIT

STATE VEHICULAR RECREATION AREA

General Plan

FACT SHEET • May 2010

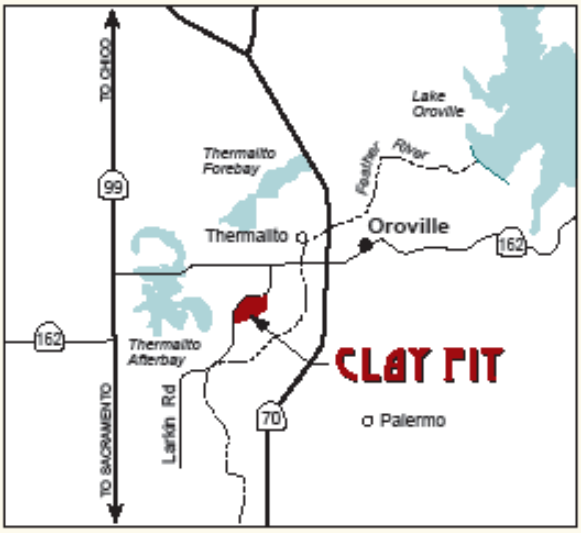
Project Purpose

The California State Parks Off-Highway Motor Vehicle Recreation Division recently launched a process to develop a General Plan for the Clay Pit State Vehicular Recreation Area (SVRA). The General Plan will serve as a guidebook for future development and enhancements to the Clay Pit SVRA. It will establish a long-term vision for the park, identify potential recreation and facility improvements, and direct future park management, resource stewardship, and appropriate public use. An Environmental Impact Report (EIR) will be prepared concurrent with the General Plan.

Public Involvement

Public input will play an essential role in the formulation of alternatives, programs, and management priorities for the Clay Pit SVRA General Plan. California State Parks has initiated a stakeholder-driven process whereby issues and ideas voiced by community members will help guide project research, alternatives analysis, and recommendations.

Three public workshops will be conducted during the planning process. During first workshop, scheduled for June 7, 2010 **(location and map on back)**, California State Parks will introduce the planning process and solicit input. At the second workshop (to be scheduled), the public will be invited to view alternative SVRA concepts and provide comments on the alternatives and the scope of the environmental review.



El Objetivo del Proyecto

El División de Esparcimiento de Vehículos Todos Terrenos del Departamento de Parques Estatales de California (California State Parks Off-Highway Motor Vehicle Recreation Division) lanzó recientemente un proceso para desarrollar un Plan General para Clay Pit State Vehicular Recreation Area (SVRA). El Plan General funcionará como una guía para el desarrollo de Clay Pit SVRA. Creará una visión a largo plazo para el parque. El Plan General identificará mejoramientos potenciales de servicios y instalaciones de esparcimiento. Además, el Plan General dirigirá la administración futura del parque, la administración de los recursos, y el uso público apropiado. Un reporte de impactos ambientales (Environmental Impact Report, o EIR) hará preparado al mismo tiempo al Plan General.

Participación Pública

Participación de la pública será muy importante en la formulación de recomendaciones, programas, y prioridades administrativas para el Plan General de Clay Pit SVRA. El departamento de Parques Estatales ha iniciado un proceso dirigido por miembros interesados de la comunidad en que asuntos e ideas aportadas por la comunidad guiarán investigaciones del proyecto, el análisis de las alternativas, y las recomendaciones.

Se llevará a cabo dos talleres públicos durante el proceso de planificación. Durante el taller primero, programado para el 7 de junio de 2010 (ubicación y mapa en el otro lado), el departamento de Parques Estatales explicará el proceso de planificación y solicitará ideas de los participantes. Durante el taller segundo (no hay fecha específica en este momento), se invitará al público a ver conceptos alternativos de SVRA y formular comentarios sobre las alternativas y el alcance de la revisión ambiental.

Get Involved!

- LEARN more about the planning process by attending a public workshop (information on back)
- Share your INPUT at a public workshop or by completing our online survey at ohv.parks.ca.gov (ends ~~June~~ July 30)

¡Partícipe!

- *Aprender más sobre el proyecto por asistir un taller público (La información está en el lado de atrás)*
- *Compartir sus opiniones y participar en un taller/congreso público o llenar nuestra encuesta en ohv.park.ca.gov (hasta el 30 de ~~junio~~ Julio)*

OFF-HIGHWAY MOTOR VEHICLE RECREATION CALIFORNIA STATE PARKS

Step-by-Step Process | El Proceso Paso a Paso

Step 1: Conduct visitor survey and seek public input

Step 2: Perform resource evaluations

Step 3: Develop and evaluate SVRA management alternatives

Step 4: Select preferred alternative

Step 5: Prepare Clay Pit vision and policies

Step 6: Prepare Draft General Plan and EIR

Step 7: Public review of Draft General Plan and EIR

Step 8: Adopt General Plan and certify EIR

Public Workshop #1 *Taller Público*

Public Workshop #2 *Taller Público*

Paso 1: *Evaluar las necesidades de los visitantes y pedir las opiniones del público.*

Paso 2: *Realizar evaluaciones de los recursos*

Paso 3: *Desarrolla y evaluar alternativas de SVRA para administración de la tierra*

Paso 4: *Escoger alternativo perfenido*

Paso 5: *Preparar el plan de visión y políticas de Clay Pit*

Paso 6: *Preparar el borrador del Plan General e Informe de impacto ambiental (EIR)*

Paso 7: *Revisión pública*

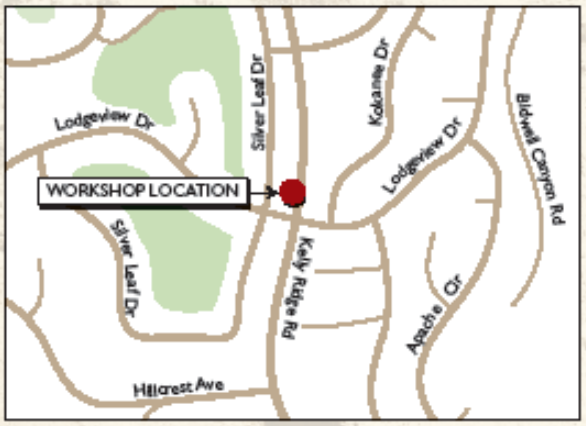
Paso 8: Adopción del plan y informe de impacto ambiental (EIR) final.

Project Introduction Meeting

Reunión Público Inicial de Proyecto

June 7, 2010 • 6:30–8:30 p.m.

Lake Oroville Visitor Center
917 Kelly Ridge Road • Oroville, CA 95966



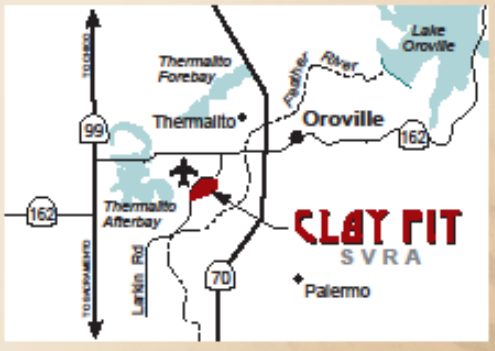
For more information, contact:
Para más información favor de contactar:

Jennifer Buckingham
Project Manager
(916) 985-1096
jbuck@parks.ca.gov
ohv.parks.ca.gov

OFF-HIGHWAY MOTOR VEHICLE RECREATION CALIFORNIA STATE PARKS

Do you ride?

Participate in planning the future of Clay Pit State Vehicular Recreation Area.



Upcoming Public Workshops

On-Site Visioning Workshop

Saturday • August 28, 2010
8:00–11:00 a.m.

Clay Pit SVRA
Located on Larkin Road across from the Oroville Municipal Airport

- Drop in anytime between 8:00–11:00 a.m to provide your input
- View a conceptual draft diagram
- Brainstorm additional ideas
- Offer your suggestions

Alternatives Workshop and Scoping Meeting

Tuesday • September 14, 2010
6:00–8:00 p.m.

Eagles Hall
2010 Montgomery Street
Oroville, CA 95965

- Provide feedback on possible development concepts
- Discuss conceptual alternatives
- Provide input for environmental impact analyses

For more information on the project, to participate in our online survey, or to contact project staff, please go to the website at: ohv.parks.ca.gov/claypit or call Jennifer Buckingham at (916) 985-1096.

CALIFORNIA STATE PARKS OHV

CLAY PIT
STATE VEHICULAR RECREATION AREA
General Plan

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Jennifer Buckingham
California State Parks
Off-Highway Motor Vehicle Recreation Division
c/o Twin Cities District
13300 White Rock Road
Rancho Cordova CA 95742

Did we forget something?

So far, we have heard from interest groups, private citizens, and local motocross facility owners. Comments received from these stakeholders were used to help develop the first draft conceptual diagram included in this newsletter. We would like to know if we've captured your ideas for site use and development. The following are some representative comments that we have received to date:

"Provide a dedicated motocross track for dirt bikes and/or ATVs."

"Provide for OHV education."

"Any improvements should encompass all riding abilities, from novice to expert."

"More tables and ramadas would be nice near the parking area."

"Provide more signs and trail markers."

"Seperate uses to improve safety."

Good opportunities exist for natural resource education on-site.

If you would like to add your own comments, please contact:

Jennifer Buckingham
Project Manager
(916) 985-1096
jbuck@parks.ca.gov
ohv.parks.ca.gov

Or take our online survey:
www.surveymonkey.com/s/ClayPitGP_EIR

Thank you for your interest in the planning process!

CLAY PIT

STATE VEHICULAR RECREATION AREA
General Plan

NEWSLETTER • AUGUST 2010

Project Purpose

The California State Parks Off-Highway Motor Vehicle Recreation (OHMVR) Division recently launched a process to develop a General Plan for the Clay Pit State Vehicular Recreation Area (SVRA). The General Plan will serve as a guidebook for future development and enhancements to the Clay Pit SVRA. It will establish a long-term vision for the park, identify potential recreation and facility improvements, and direct future park management, resource stewardship, and appropriate public use. An Environmental Impact Report (EIR) will be prepared concurrent with the General Plan.

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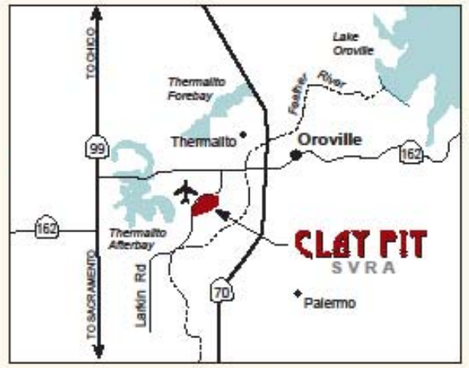
Three public workshops will be conducted during the planning process. During the first workshop, which occurred on June 7, 2010, the planning team introduced the planning process and solicited input. A copy of the presentation given at this meeting is available on the project Web site (ohv.parks.ca.gov/claypit). The second meeting is an on-site workshop on August 28. The third workshop, on September 14, will serve as a scoping meeting to review and gather comments on alternative concepts and environmental topics.



On-Site Visioning Workshop
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Clay Pit SVRA
Located on Larkin Road across from the Oroville Municipal Airport

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Tuesday • September 14, 2010 • 6:00–8:00 p.m.

Eagles Hall
2010 Montgomery Street • Oroville, CA 95965

Step-by-Step Process

OFF-HIGHWAY MOTOR VEHICLE RECREATION DIVISION CALIFORNIA STATE PARKS

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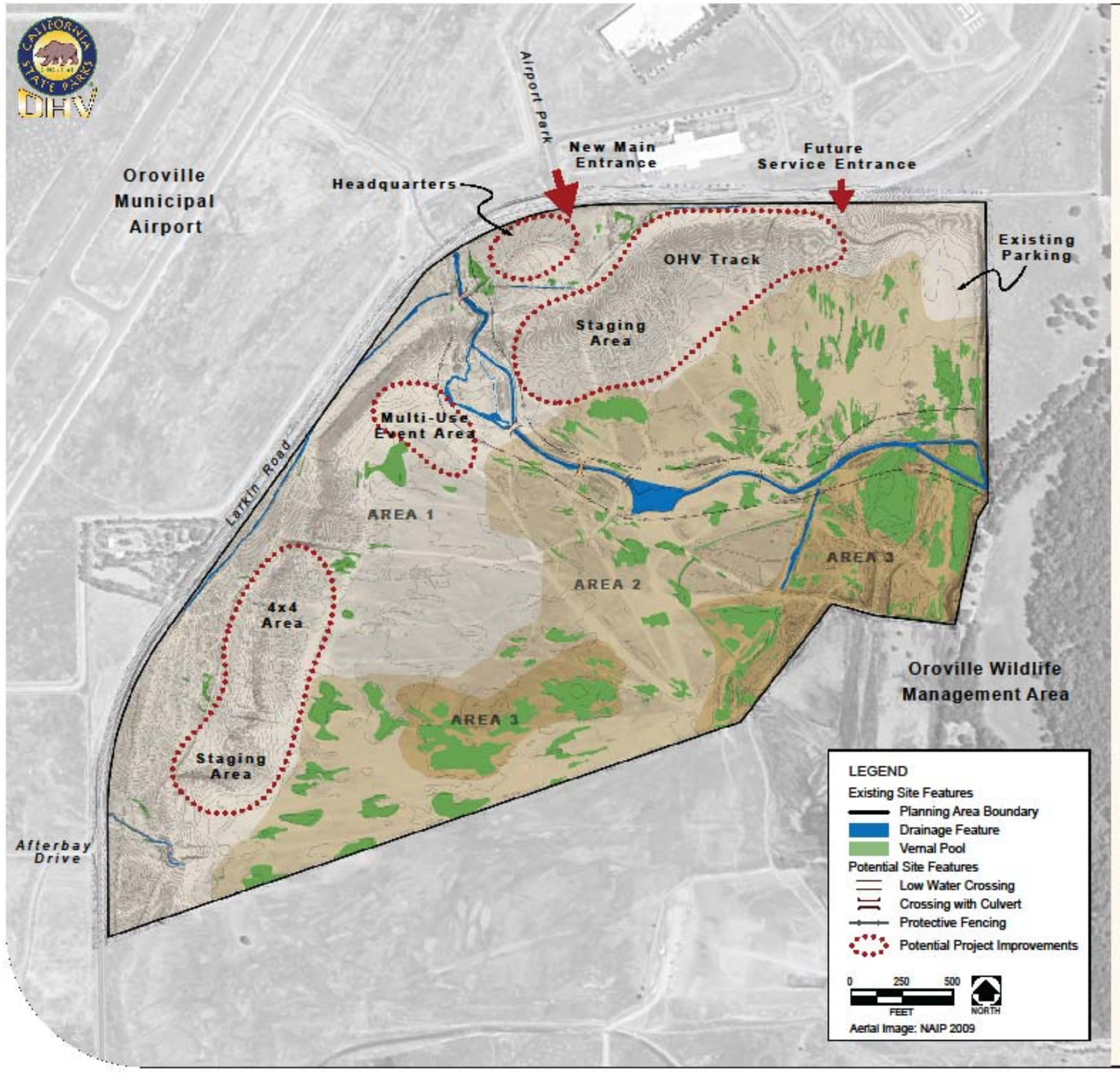

Draft Conceptual Diagram

To the left is a draft conceptual diagram showing some of the different uses that could be accommodated at Clay Pit SVRA. This diagram was developed based on known site constraints, public comments received during General Plan outreach, and discussions with user groups. It does not represent a final plan. Comments received through the General Plan outreach effort will guide the planning team in developing alternatives for SVRA use. The planning team is determining potential use areas (described below) to guide where uses should be focused and where facilities should be located. A description of the facilities depicted on this diagram is provided below. If you have additional suggestions regarding the types of facilities that you feel would enhance visitor experience of the SVRA or regarding the placement of facilities, please send us comments (address on back page). Feel free to draw on the map!

We will also bring maps to the Clay Pit SVRA Visioning Workshop on August 28, 2010, (see first page) for further review and comment.

Use Areas

Area 1 (Developed Use Area)

Because of desirable topographic features and fewer natural resources, this area is most appropriate for built facilities like tracks, parking lots, staging areas, and obstacle courses. The OHMVR Division also has plans to add a building for on-site rangers and maintenance facilities.

Area 2 (Riding Area)

This area has fewer desirable topographic features and a higher density of natural resources, which may preclude or limit placement of developed facilities. This area may be left in its current state and may continue to be used for multi-purpose OHV use.

Area 3 (Conservation Area)

Denser, or more sensitive, natural resources in this area may provide opportunites for on-site conservation, mitigation, and resource management.

Potential Facilities and Included Features

Headquarters
- Ranger kiosk
- Maintenance facilities
- Equipment storage

4 x 4 Area
- Sand drag
- Mud pit
- Hill climb
- Rock crawl
- Obstacle course

Staging Areas
- Shade ramadas
- Picnic tables
- Parking
- Restrooms
- Interpretive Information

OHV Track(s)
- All-terrain Vehicle
- Motorcycle
- Youth

Stormwater Management Facilities

Multi-Use Event Area

OFF-HIGHWAY MOTOR VEHICLE RECREATION DIVISION CALIFORNIA STATE PARKS

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Attachment B

Online Survey

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In which language would you like to take this survey? ¿Cuál idioma prefiere?

Language	Response Percent	Response Count
English/Ingles	99.1%	106
Spanish/Español	0.9%	1

Please enter your zip code.

Zip Code	Frequency	Miles from SVRA
95965	10	9
95966	14	17
95938	1	19
95928	6	24
95969	4	25
95926	3	27
95982	1	32
95973	3	34
95916	2	36
95932	1	37
95954	1	37
95991	1	37
95993	2	39
95930	1	41
95946	2	48
95963	1	61
95678	1	62
95712	1	65
95747	1	67
95833	1	69
95605	1	71
95838	1	73
95608	1	75
95630	1	75
95822	1	75
95841	2	76
95616	1	77

Zip Code	Frequency	Miles from SVRA
95603	1	77
95826	1	79
95831	1	80
95670	1	84
95864	1	84
95624	1	87
95742	1	94
95693	1	100
95464	1	105
94534	1	109
95240	1	118
94515	1	126
94521	1	141
94501	1	153
94568	1	159
94550	1	163
95127	1	188
95118	1	192
91360	1	463
90623	1	474
92606	1	492
92506	1	515
97864	1	522
92058	1	533
92115	1	574
Total	**90**	

How often did you visit Clay Pit SVRA in the last 12 months?

Answer Options	Response Percent	Response Count
I've never visited Clay Pit SVRA	29.0%	27
0, but I've visited Clay Pit SVRA before	10.8%	10
1–5	36.6%	34
6–10	9.7%	9
More than 10	14.0%	13

How long have you been visiting Clay Pit SVRA?

Answer Options	Response Percent	Response Count
1 year or less	12.1%	8
1–5 years	34.8%	23
5–10 years	13.6%	9
10+ years	39.4%	26

Do you generally visit Clay Pit SVRA with your…

Answer Options	Response Percent	Response Count
Family	15.2%	10
Friends	21.2%	14
Family and Friends	42.4%	28
I enjoy visiting Clay Pit alone	21.2%	14

Which of the following statements best reflects your opinion about the park?

Answer Options	Response Percent	Response Count
The park has a sufficient amount of facilities	8.8%	7
Park facilities need to be improved	73.8%	59
I do not use any of the park facilities	17.5%	14

Overall, how satisfied are you with the quality of facilities available at Clay Pit SVRA?

Answer Options	Response Percent	Response Count
Extremely Satisfied	5.1%	4
Somewhat Satisfied	20.3%	16
Neutral	36.7%	29
Somewhat Dissatisfied	27.8%	22
Extremely Dissatisfied	10.1%	8

What makes you choose to visit this recreation area instead of other areas?

Answer Options	Response Percent	Response Count
Location.	70.7%	53
Cost.	36.0%	27
Park facilities.	10.7%	8
I do not use it.	1.3%	1
Usually not crowded. Good place to practice moto skills.	1.3%	1
I never ride in SVRA, great squid pits.	1.3%	1
nothing else is available at the time or for teaching a new rider the basic fundamentals.	1.3%	1
No one is watching, I can play as I want. I also usually go shooting at the range next door if I have time.	1.3%	1
It is unique and has tremendous potential for Public Multi-recreation Use.	1.3%	1
I don’t use the facilities, except the rest rooms, we just stop a couple times per year to watch others use the area.	1.3%	1
no cost an location.	1.3%	1
Located close to relatives.	1.3%	1
Freedom.	1.3%	1
The Forest Service will be severely limiting the OHV opportunities in our local mountains, therefore the Clay Pit area will likely see greater use.	1.3%	1
Snow or rained out of other locations.	1.3%	1
Don't. Lacks appeal.	1.3%	1
THIS LOCATION IS CLOSE TO MY HOME AND EASY TO LOCATE.	1.3%	1
Also the variety of obstacles there.	1.3%	1
Haven’t visited it because I didn't know it existed.	1.3%	1
I enjoy the varied terrain that is available. I like the moderate hills, and the more open, but bumpy and rocky, interior.	1.3%	1

When you go to Clay Pit SVRA, what activities do you like to take part in?
List as many activities as you like.

Answer Options	Response Percent	Response Count
Ride ATV, motorcycle or other motorized vehicle	78.7%	59
Ride non-motorized vehicle	5.3%	4
Watch others ride	21.3%	16
Picnic	18.7%	14
Socialize with friends	28.0%	21
I do not use it	1.3%	1
Ride my Honda ATC three wheelers	1.3%	1
Would like to see a dirt track for Quarter Midgets.	1.3%	1
Use of the Shooting Range (Rabe Road Rifle Range is only facility of its kind)	8.0%	6
ATV and 4 wheel drive rock crawl	1.3%	1
Enjoyment and practice for motorcycle trials competitions with family and friends.	1.3%	1
I don't care for OHV'ing on bare open land. However, track or areas for OHV's would make the Clay Pit more appealing. I request a motorcycle track, a bermed circle or TT track, quad track, kids (under 100cc) fenced track, a trials motorcycle area possibly combined with the 4x4 skill area.	1.3%	1
Survey	1.3%	1
Ride motorcycle or other motorized vehicle	1.3%	1
I would ride motorcycle if I went there	1.3%	1

Do you generally feel safe at Clay Pit SVRA?

Answer Options	Response Percent	Response Count
Yes	84.5%	60
No	15.5%	11

If no, what would make you feel safer? List as many things as you wish.
More official presence
more trail markers.
A more dedicated course layout and directional signs to keep flow of traffic in same direction. Maybe allow sing to be reversible so it can be run backwards upon date.
There is a need for organized tracks. The fact is there is not enough educated people on the proper protocol to safely ride with people doing dumb things such as riding head on toward others including children.
Never seen staff there.
There needs to be one direction of traffic flow, not just a free for all.
Have never seen a Ranger or staff present...however rarely go there because it doesn't suit well for trials riding. When I have been there, there have been some hot rod motocross types, but we just stayed out of their way.
On-site staff.
Just build it like mammoth bar or Prairie City SVRA
no groomed prepped tracks it could have a full on moto cross track
Separate areas and flags on ATVs. Also no gun fire rules enforced.

What do you like about Clay Pit SVRA?

Answer Options	Response Percent	Response Count
Terrain	41.7%	30
Facilities	12.5%	9
Distance from residences and businesses	52.8%	38
Convenience from Chico	1.6%	1
Close to Home	4.4%	3
Not much. It's close by but there is nothing there that is of any challenge or even that fun.	1.4%	1

What do you like about Clay Pit SVRA?

Answer Options	Response Percent	Response Count
Open ride.	1.4%	1
Guess it's nice for the users to have a place to play, better than them messing up the forests	1.4%	1
220 acres in a hole in the ground stoneyford has miles of trails hill climbs the pit is a waste.	1.4%	1
Able to shoot at various distances	1.4%	1
Accessibility during winter months. terrain & facilities are poor to non-existent	1.4%	1
Potential, primarily Potential to make it appealable to multiple OHV interests It has vast possibilities to meet everyone needs, ATV, motorcycle, 4 wheel drives	4.2%	3
THIS IS A CLOSE BUT STILL REMOTE AREA THAT IS NOT BOTHERED BY NOISE FROM GUNFIRE OR ATV / OFF-ROAD VEHICLE EXHAUST.	1.4%	1
The history of the site.	1.4%	1
The place would be perfect for a large MX track	1.4%	1
Nothing	1.4%	1
Variety	1.4%	1
Don't know haven't been there.	1.4%	1
I did not like much. Not enough varying terrain.	1.4%	1

What concerns do you have about Clay Pit SVRA, if any?

Answer Options	Response Percent	Response Count
Maintenance	51.6%	32
Safety	25.8%	16
Availability of rangers	9.7%	6
Habitat	3.2%	2
Lack of terrain	1.6%	1
Potential to be shut down “I would be concerned if the area were too close to riding due to low use.” “my only concern is like any OHV area that it will be shut down someday by eco Nazis who have a agenda fed by false facts and emotion” “that conservation plans will take away OHV opportunity at this site”	4.8%	3
It needs improvement to a dedicated course layout of some sort something like a hares ramble track.	1.6%	1
Underutilized, due to lack of variety in trails	1.6%	1
Rocks. The rocky terrain is rough on a motorcycle. Chews up tires and isn't much fun.	3.2%	2
None “None really. In the years I have been using Clay Pit I have always enjoyed myself. I just want to be involved in improvements at Clay Pit for the other users. There is room for All to play. I personally own a Jeep and use the 4x4 facilities but improvements need to be made for All users.”	4.8%	3
Improvement and maintenance costs will result in entrance fees.	1.6%	1
Lack of good riding.	1.6%	1
Can’t hurt anything basically, guess it would be nice to have more facilities for folks to enjoy, dust can be a problem there too,	1.6%	1
The first kid that gets killed hows going to pay when you are sued.	1.6%	1
All of the above listed, volunteer groups could help out a lot	1.6%	1
Potential of a makeover to limit accessibility.	1.6%	1
Riding area not being too muddy or too dusty	1.6%	1
Does not suit any use, as I perceived it. My suggestion is to put temporary materials into CP that might attract users. Then, see who comes. Only make a long-term plan thereafter.	1.6%	1
SOME USERS DO NOT PICK-UP THEIR GARBAGE AFTER THEY USE THE FACILITIES.	1.6%	1
The lack of facilities and services.	1.6%	1
No much there build some tracks	1.6%	1
Development!	1.6%	1
I'm concerned it will never improve and we will lose another riding area due to the fact that nobody uses the facility.	1.6%	1
Access	1.6%	1
I have no concerns when I visit Clay Pit.	1.6%	1

What would you improve about Clay Pit SVRA?

Answer Options	Response Percent	Response Count
Signage	26.2%	16
Shade	62.3%	38
Facilities	67.2%	41

Please explain
I think some more tables and ramadas would be nice near the paved parking area.
I would like to see a Motocross Track built there. I would be willing to volunteer to help run it. I would also be willing to pay for the use of the track. A complete beginner level track would benefit Oroville and butte county.
Riding Area
Keep flow of traffic in same direction so no head on crashes.
Add more space
Solicit landscapers or have the state clean up or "farm" the river rock, as much as possible from the area. Very difficult to ride a dirt bike with all of the baby head size rocks and very dangerous for novice riders. Develop a specific practice track area with jumps and berms for dirt bikes and ATVs, similar to Mammoth Bar in Auburn. The area is small, but still big enough to designate and develop specific trails with signage. The area now is too open and leads to a free for all mentality, especially from ATV riders and some off road trucks / SUV's. I would like to see actual narrow single track trails laid out through the area with grassy areas in between that are off limits or "out of bounds" to OHV use. This would improve habitat and make the area more interesting to ride.
Improve trails/terrain 1st. If you had more variety in trails you would have greater usage. ▸ There are a few hills that could be made larger "climbing" hills by removing dirt at their base. ▸ Create a "closed" moto-cross type track and indicate the direction of travel. ▸ Create other, different terrain for practice. I would like to see some jumps in a wide open area so I can become more proficient while feeling safe, by being able to see where I'm landing, and if there is other traffic. ▸ Any improvements should encompass all riding abilities. From novice to expert.
Moto cross tracks, flat tracks, TT tracks with lights, organized races and practices with some open days for anything goes.
1) Restrooms – Claypit has no restrooms 2) Developed Parking – Parking at Claypit lacks organized parking. A loading/unloading ramp would be nice to back up to. 3) Terrain – Most importantly, Claypit lacks challenging riding. It could use some artificial obstacles such as a Endurocross or motocross track. There are no Endurocross tracks operated in Northern California so it's unlikely impact local track owners. Specifically, Endurocross is a designated track with artificial obstacles (rocks, tractor tires, logs, jumps) to challenge riders. For more information see this quick youtube video of a track: http://www.youtube.com/watch?v=FkJTkHWFQ8Y&feature=player_embedded

Please explain
Challenges/obstacles for dirt bikes. A course of some sort, whether it be MX type with a nice track and some good jumps or maybe an enduro course (this would be easier to do in the area and be of lower maintenance) with log obstacles and such.
need more obstacles and trails. Either a track or more difficult trails.
The facilities there are great, but there could be more of them down by the flat parking area.
Warning signs for known hazards, plant trees/ build structures for shade, Anchor points for Wenches. K-rails and dirt for permanent "launch ramps" to drive ATVs/motorcycles into pickup beds to reduce chance for injury by use of ramps or lifting OHVs.
Shade structures and day use public picnic areas. Public Bathrooms for day use Camping facilities for day use and trailer with sanitation hook-ups with group event centers. Multi-use special events for OHV hillclimb, track race and associated events. Perimeter bicycle path/trail for day use and potential special events. Ambulance staging location for special events. Helicopter landing spot for medical emergencies within the Clay Pit recreation area.
General use language for safe usage, like all vehicles travel in a particular direction, like clock wise, dust control, use of alcohol guidelines, trash bins, you know all the stuff that will probably goof the fun factor up for many users, but if it's going to be "fixed up" I guess it needs to be safe for all to use and that will require guides lines and laws, and restrictions as well !!
The area should be divided into 3 areas, 4wd, ATV, and MX. I would love to see a maintained M.X track there it would save my family and I from driving to Marysville and beyond to ride. There are a lot of people from north of Yuba-Sutter that travel to Marysville, Sacramento, and the Bay-Area to enjoy the sport of motocross.
Areas for the different riding groups
I'm a member of Sacramento PITS Trials Club and live in Chico. As a rider, the area could easy be used for trials by placing small and large rocks, logs if available, at different areas throughout the park. Prairie City OHV has been helpful at their park. If we could get a series of sections throughout the park, the local trials community would come with family and friends. If done right, local vintage trial events could occur if approved. There is a growing trials group that seems to be getting larger in the Chico/Paradise area. The Park is very close and would be a good place to come with some work. Myself and others would glad to help with planning, with on-site involvement if desirable to park staff. Additionally, picnic tables with pads with water like Prairie City would be desirable. Specific area parking for riders and toy haulers would also be very desirable...separate from ATV and motocross style hot rods. Out of town trials people would come if they could park overnight with approval for either an event or for an occasional practice fun day or weekend. The trials community is a very low key family oriented group with many senior riders. It not about fast, it's about riding over obstacles, balance, going slow, not putting your feet down. Our club ranges from children, seniors, teens, working guys...oh yes, also has the #1 US National rider in the club. Looking forward to speaking with you. Mike Weber (530)893-1241
None
needs more shade/shelter and much better toilets picnic tables etc.
I would gladly support grant proposals and volunteer to make improvements at this site
Picnic tables and rest rooms need to be added/expanded. In more than one location if possible. Plant fast growing shade trees to improve picnic & staging areas. Create mono directional trail system that

Please explain
circumnavigates recreation area. Install a Hollister type set of motocross tracks.
get rid of alot of the rocks
Signage, shade (as in trees & ramadas), and then we get to the facilities improvement for All users.
Obstacles. Shade inadequate, even under current structures
THERE ARE VERY FEW FACILITIES OFFERED AT THE CLAY PIT. IT IS JUST THAT ... A PIT IN THE GROUND. HOWEVER, IF THERE WERE MORE TOILETS AND MAYBE SOME MORE SHADED AREAS AND DEDICATED OVERNIGHT RV PARKING (WITH HOOK-UPS)THAT WOULD HELP. I COULD SEE PEOPLE TRAVELING TO OROVILLE INSTEAD OF MARYSVILLE OR EVEN OREGON FOR THEIR OFF-ROAD PLAY THE AIR FORCE HAS A SIMILAR FACILITY CALLED FAMCAMP. FULL HOOK-UPS FOR RVS AND IT IS MINIMALLY MANNED TO SAVE COSTS. IF A MOTORCROSS AND SEPARATE ATV TRACKS WERE DEVELOPED THAT WOULD BE HIGHLY ADVISABLE. THEY SHOULD BE BUILT WITH A SEASONAL CIRUIT SPORTING EVENT IN MIND - TO BRING IN RESOURCES TO MANAGE THE RESPECTIVE PARKS. I'M TALKING ABOUT DAY OR NIGHT SPORT RACING EVENTS! AN OUTSIDE PROMOTER WOULD HAVE TO MAKE IT HAPPEN, BUT THE FACILITY WOULD HAVE TO BE CONSTRUCTED WITH THAT IN MIND. OROVILLE USE TO HAVE A QUARTER-MILE DRAGSTRIP, BUT SOMEONE WAS CARELESS WITH SAFETY AND WITH A THREAT OF A LAWSUIT THE FACILITY WAS SHUT DOWN BY THE CITY. THIS ACTION AFFECTED NOT ONLY THE LOCAL POPULATION, BUT IT WAS PART OF A LARGER NHRA RACING CIRCUIT IN CALIFORNIA. LOCAL BUSINESSES CONNECTED TO RACING SUFFERED BECAUSE THERE WAS NO PLACE TO RACE, AND MANY PEOPLE WENT ELSEWARE (REDDING, SACARAMENTO) IF THE CLAY PIT REC AREA IS TOO WELL DEVELOPED IT WOULD INCUR USE FEES WHICH IS NOT VERY POPULAR IN TIGHT ECONOMIC TIMES. IT COULD BE "SHUT DOWN" DUE TO BUDGET DEFICITS. IN MY YOUTH WE USED TO VISIT SADDLEBACK AT THE END OF IMPERIAL HWY IN SOUTHERN CALIFORNIA. IT WAS NOT WELL DEVELOPED THEN, BUT WE STILL HAD FUN.
MX Track
Needs a MX track ATV track and a 4x4 area
The clay pit is just a old pit. Nothing there is natural. Just needs improvement as soon as possible.
Beginner Track Motocross track Cross country course Trials sections Water Camping
More rocks and rock courses Also mud drag pits
Plant more Trees. Provide basic motocross outdoor type track. Gravel in staging are. Provide minibike track.
I would like to see more "clusters" of trees, and some manmade shade as well. The only other item I would like to see is a loading ramp, but that would be a low priority for me, and doesn't sway my choice of visiting or not.

In your opinion, what are the most important priorities over the next 5 years at Clay Pit SVRA? (You may choose as many as you would like)

Answer Options	Response Percent	Response Count
Improve existing recreational facilities	62.3%	43
Acquire and/or build additional recreational facilities	71.0%	49
Promote conservation efforts	8.7%	6
ATV Safety Classes	1.4%	1
like to see dedicated Motocross track for dirtbikes	1.4%	1
Special Event Headquarters building and Camping facilities for overnight camping/trailers.	1.4%	1
probably best left to regular users to decide what they need/want the most out there..	1.4%	1
Directional tracks for motorcycles and ATV	1.4%	1
Keep it open	1.4%	1
make it easier for users to picture how it can be used.	1.4%	1
Hire staff for visitor services.	1.4%	1
Build and MX track on Most of the Facility	1.4%	1
use OHV money for OHV	1.4%	1
Increase riding area and trails	1.4%	1

Use this box to provide additional comments and ideas related to Clay Pit SRVA.

This is a great opportunity to build a facility catered to youth and educating the future of OHV Recreation.
I would like to see perhaps a motocross track be built on the property. I think it may generate more use from us motocross riders. Even an motocross practice track, such as the one at Prairie City in Rancho Cordova, could be built without taking up a lot of open riding space currently out there. The area east of the paved parking lot comes to mind as a good location. It is out of the way and does not take up much open riding. A track like Hangtown probably wouldn't work due to the size but I like to use the MX Practice track at Prairie City as an example. It is not very large but large enough to get some decent practice time on. The north valley lacks a good off road park like Prairie City or Carnegie Hills, but perhaps by adding some more ramadas, tables or even a smaller motocross practice track would go a long way to draw more visitors, along with more motocross riders. I know the park is set up for ATV's and trail bikes and Quads but I think some room could be set aside for motocross riders. The track could even be turned over to a private company who could run it similar to what is done with Hangtown. Just some ideas that I would like to pass on. I am unable to attend the meeting on June 7th but please keep me posted on further developments.
Like said in earlier statement I would really love to see a motocross track built and maintained.. I would be willing to help maintain.. I would also be willing to pay for my daily use.. Up keep of a motocross track

Use this box to provide additional comments and ideas related to Clay Pit SRVA.

is ultra important and most motocrossers have no issues with a reasonable fee to use the track
Develop into a real off road park, not just an open free for all. Clear out the rocks and fill in some of the massive puddles that form in the winter time. Designate a trail system and a dirt bike / ATV practice track.
Please add me to any mailing list that you may have. I would like to b a part of this process.
Would like to see a Dirt track for Quarter Midgets so the kids would have a place to race their cars. there are only 2 Quarter Midget dirt tracks on the whole west coast.
There is no need for any on site conservation that is why I buy a hunting license. Off site mitigation of any conservation needs should be pursued.
Improvements in motorcycle obstacles (endurocross) incorporated into the terrain with some better parking and facility's (i.e., restrooms) would improve use of the park by OHV riders. A small beginner track for kids would be cool - there aren't any locations for kids to learn how to ride a dirt bike without getting on a big motocross track which can be extremely intimidating for kids.
Is the Shooting Range Part of the Clay Pit area?
Everyone who I know who has ridden here gets extremely bored relatively quickly. Clay pit needs some kind of track or just more things people can ride on and have some fun. It's close to a lot of us and it doesn't get used as much as it could. The potential is there, but the terrain definitely needs to be improved to bring more people out.
Leave well enough alone. Also, open it up at night like the old days. It was fun to ride at night with DayLighters and other off-road lights.
Coordination with City of Oroville, Chico State Associated Students, Feather River Recreation and Park District, County of Butte, Oroville Chamber of Commerce, Supplemental Benefits Committee and other Oroville area recreation organizations.
a general information stand for users to see how the area is to be used and the doe's and don't's about the area usage.. why is there a survey in Spanish?? if they can't read English, perhaps they need a Spanish , park to ride..or they will be a hazard!! if they don't know the rules. what about the Hmong's, they need a park too !! sure is going to require some large signs to put all those language, rules and safety guides, English is our language!! so keep it that way !!!!
Stoneyford has people come from Mexico to ride Marysville has hundreds of people short distance to ride how many people will come to ride in a hole would be a wasted trip they would get tired of it in hours.
add a rock crawl area and a rock climb area
my email address is lbgasgas@yahoo.com If you have a notice group regarding park meetings, pls email me if possible. I learned today you were starting planning for the park from a trials member who lives just south of Oroville
OHV use is increasing, I believe a site this small does not support the need for areas closed solely for conservation (area 3 on your Aug 2010 newsletter). Efforts should first be made to mitigate the impact to vernal pools without closing off any area. Such as a trail path made through these areas. Have studies been made regarding OHV and vernal pools?
Use the center of the Pit area for a multi-use parking & staging location that radials out to (4X4 Area to include "Rock Garden" "Mud Pit" "Sand Drags" etc.), (OHV area to include "Motocross Tracks" "Quad

Use this box to provide additional comments and ideas related to Clay Pit SRVA.

Track" & circumnavigating "Motorcycle Trails"), Add picnic areas and restrooms. Low daily use fees! ($5.00) per adult 16 & over, with children 15 & under free. No camping as area is to small & it would negatively impact riding space.
I WOULD BUILD THE ATV TRACK(S) FIRST, THEN THE MOTORCROSS TRACKS. THEY SHOULD BE BUILT WITH SPONSORED EVENTS IN MIND, THE TRACK WOULD HAVE TO MEET A CERTAIN PROFESSIONAL CRITERIA OR STANDARD.
Maybe a kids track and separate ATV TRACKS AS WELL
hope to see some improvements over the upcoming years. We need a legal riding area in the North State.
I enjoy riding my dirt bike at Clay Pit. It is an easy place to ride but still offers moderate challenges. I am certainly not opposed to adding amenities, but I don't find the park lacking for my needs. I do appreciate the thought put into how to get the most out of the area.

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Attachment C

Notes from Public Meeting #1

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Attendees included:

Team members

Michael Page (AECOM)
Jason DeWall (OHMVRD)
Petra Unger (AECOM)
Kim Fettke (AECOM)
Elizabeth Boyd (AECOM)
Jennifer Buckingham (OHMVRD)

Visitors

Dave Van Baren (DFG)
Kevin Dossey (DWR)
Michael Fehling (California State Parks)
Marilyn Linken (California State Parks)
Laura Westrup (California State Parks)

Jason DeWall and Jennifer Buckingham welcomed attendees and introduced the Clay Pit GP/EIR team.

Kim Fettke led a discussion around a PowerPoint presentation on the general plan and environmental review process. Attendees had the following comments, suggestion, and discussion points.

- There was a question as to whether a play area would be considered for the site. The answer to this was that any improvements needed to have a substantial nexus to the primary off-highway vehicle uses.
- A picnic area would be a compatible use.
- Camping was suggested as a possible use. Considerations brought up by the attendees included the lack of trees on site to shade campsites and the enforcement issues that could occur due to long-term camping by the homeless.
- It was discussed that mountain biking is not a common use at the site but was allowed at Prairie City under a special event permit.
- Attendees discussed the compatibility of model airplanes. The site may be too close to the Oroville Municipal Airport. In addition, a successful model airplane site is in use in the local area.
- There is a leash law requiring owners to keep their dogs on a 6-foot leash while on the site.
- Disc golf was suggested as a potential use.
- There was a question about the relevance of FERC to Clay Pit. The response was that the new license does not include anything in the project area.
- It could be a good idea to place signs at other nearby locations to send visitors to Clay Pit

for recreation opportunities. One place this could be effective is at the adjacent wildlife area to help direct visitors illegally using the wildlife area for OHV use.

- Look into the recreation uses at Riverbend Park (DWR) to see what other uses are in this area.
- This site serves mostly beginning to intermediate riders.
- If a track is built, materials would consist of sand and rice hulls.
- A maintenance lot will likely be created near the entrance and electricity would be readily available to serve it.
- It was suggested that this could be a mini-mini Prairie City, with many of the same uses on a smaller scale.
- Add link to the Clay Pit website on the Buttes District website.
- Send mailing list to Laura Westrup for review and to see if she has further suggestions.
- It may be a good idea to present the project to the Oroville Recreation Advisory Committee.
- It may be a good idea to present the project to the Board of Supervisors on August 18.
- This is a great "after work" location and a great place to teach people how to ride.
- Food concessions have been removed from other parks because they weren't worth it. There could still be event-based concessions.
- Consider adding a left-turn lane.
- Utilities are readily available, allowing for easy connection and development.

Attachment D

Notes from Public Meeting #2

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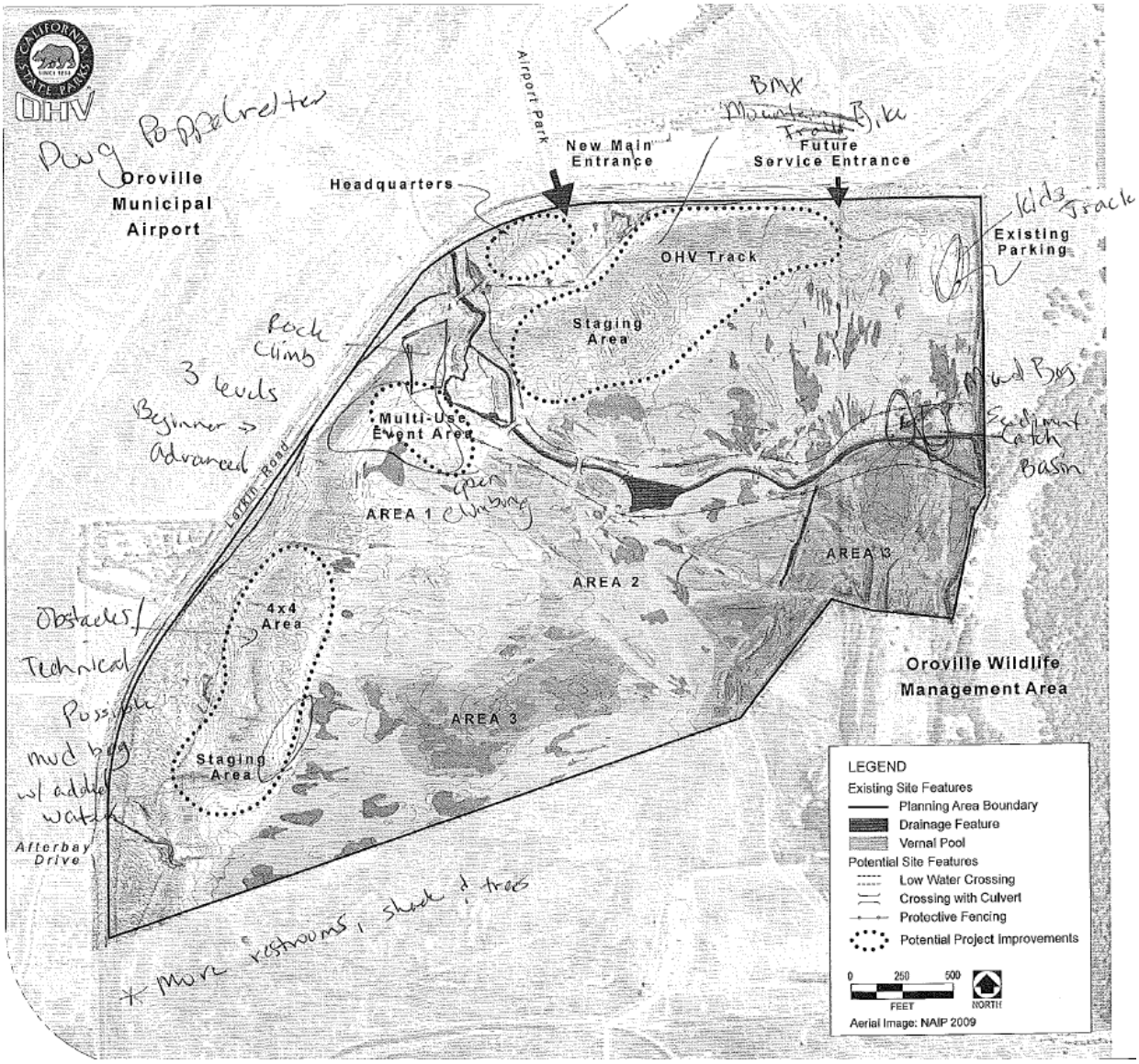
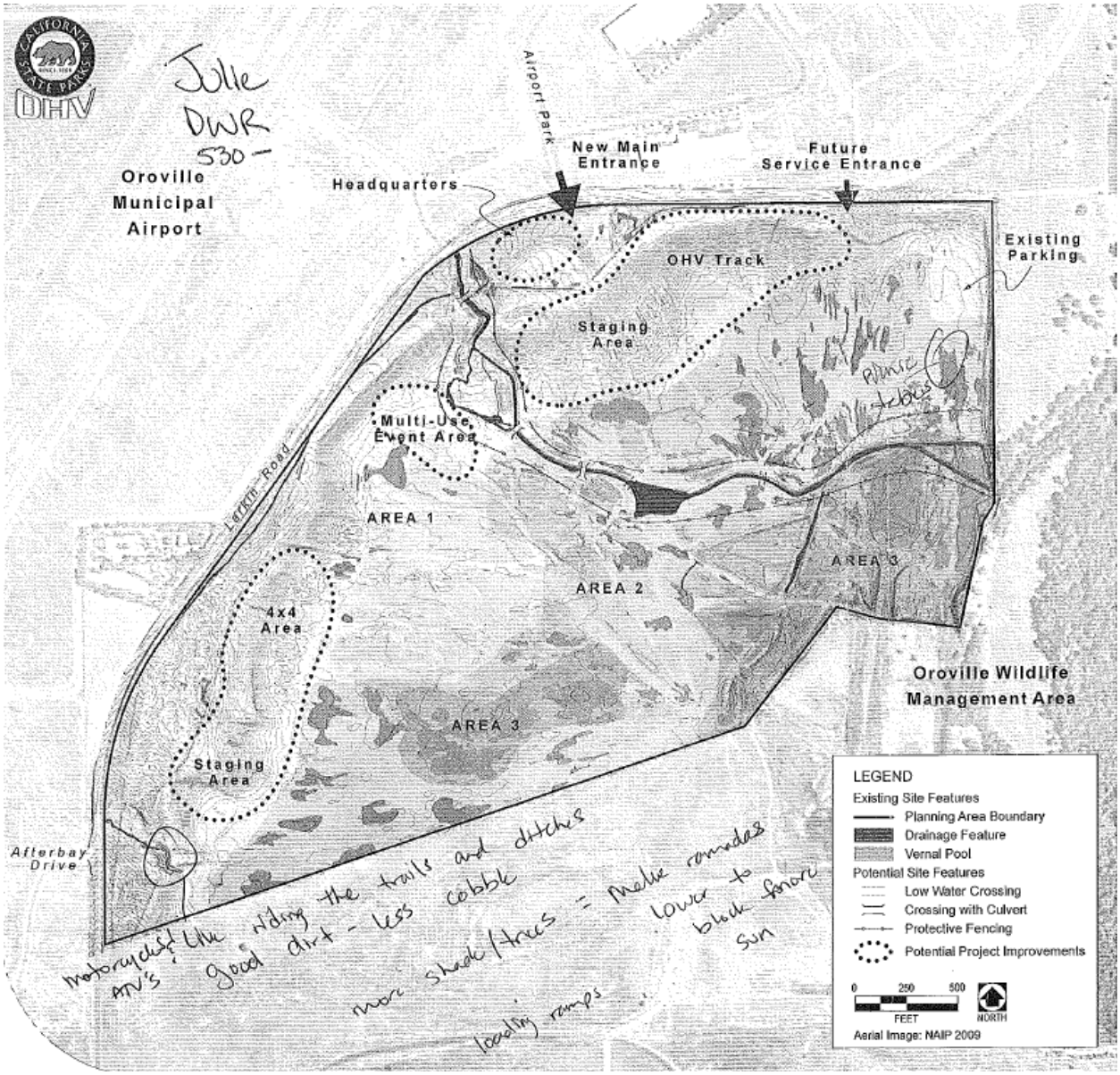
On-site Visioning Workshop Notes

- In general, there is a need for more restrooms, shade, and trees at the SVRA.
- The area in the southwest corner of the map that is currently marked for 4x4 vehicles - I think would be the best for a dirt bike track. The dirt and the topography in that area seem best to incorporate into a track. I know dirt can be brought in but from what already exists, that seems to be the best spot. Us dirt bike riders like soft loamy soil and elevation changes in tracks.
- This site is very appropriate for beginning and learning riders. This should be a focus for some of the future development.
- I like the Clay Pits just the way they are – especially fun in the winter.
- I like the Plan so far. The people in this area need an area such as this to play in. Reading over the information that was received, I generally like the Plan that I saw.
- Would like to see more picnic tables and shade structures.
- Like the idea of having formalized tracks. That's what is missing on this site.
- I would love a track to practice on. We don't need a $20 track. We just need something we can use inexpensively.
- Would like to have a youth track.
- Place picnic tables on the flat area. It's hard for kids to start on the hill which makes the existing picnic tables difficult.
- The shade above the picnic tables is not designed well. If new ramadas are installed, the shade structure needs to be designed to provide shade over the tables.
- More tracks and jumping areas.
- Put in loading ramps in the staging areas.
- The following comments relate to the image shown below:
    - Within the "Multi-Use Event Area", include a rock climb to the north, and allow for three levels of riders from beginner to advanced. This area could include open climbing.
    - In the area labeled for "OHV Track", BMX bikes have been seen here and this could be a good use here.
    - In the area marked as "4x4 Area", include obstacles and technical riding. The area near the southern "Staging Area" label could be a possible mud bog with added water.
    - Near the cottonwood trees on the east central portion of the site, there should be a sediment catch basin and a possible mud bog.
    - There should be a kid's track near the existing parking area.


Oroville Municipal Airport
Airport Park
New Main Entrance
Future Service Entrance
Headquarters
OHV Track
Staging Area
Existing Parking
Multi-Use Event Area
Larkin Road
AREA 1
AREA 2
AREA 3
4x4 Area
Staging Area
Afterbay Drive
Oroville Wildlife Management Area
LEGEND
Existing Site Features
Planning Area Boundary
Drainage Feature
Vernal Pool
Potential Site Features
Low Water Crossing
Crossing with Culvert
Protective Fencing
Potential Project Improvements
0 250 500
FEET
NORTH
Aerial Image: NAIP 2009


Julie
DWR
530 –
Oroville
Municipal
Airport
Headquarters
Airport Park
New Main
Entrance
Future
Service Entrance
Existing
Parking
OHV Track
Staging
Area
Multi-Use
Event Area
Larkin Road
AREA 1
AREA 2
AREA 3
4x4
Area
Staging
Area
Afterbay
Drive
Oroville Wildlife
Management Area
motorcycles like riding the trails and ditches
ATV's good dirt - less cobble
more shade/trees = make remades lower to block more sun
loading ramps
LEGEND
Existing Site Features
Planning Area Boundary
Drainage Feature
Vernal Pool
Potential Site Features
Low Water Crossing
Crossing with Culvert
Protective Fencing
Potential Project Improvements
0 250 500
FEET
NORTH
Aerial Image: NAIP 2009

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Attachment E

Notes from Public Meeting #3

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Scoping Meeting Notes September 14, 2010

***Organized by topic**

Alternatives/Facilities siting

- Alternative 3 would be the best. We should maximize the use of the land.
- Although some intermingling of uses would be good, it would be best to keep the different uses in identified areas. For example, keep the 4x4 area as depicted in the southwest corner, and put the cycle and ATV tracks elsewhere, rather than putting a 4x4 rock crawl next to a cycle track. Different types of users could still recreate around these areas, and a mix of users could even use the various facilities, as appropriate. For example, the trials bikes could use the rock crawl in the 4x4 area, but it would be best to designate a 4x4 area in one part of the park.
- Alt. 1 has nothing for the public, just for rangers
- One centralized staging area would be good so that less recreating land would be used up.
- Would like to see other/additional access from Larkin Road.
- Need a formal road to 4x4 area; when bikes go by need to be able to know where they are.
- Prairie City is a good model of how to separate uses and coexist side by side.
- The attendee expressed concern that the training track shouldn't have steep edges. Right now, the location of the training track looks too close to the steep sides of the park, presenting a problem if beginning riders accidently get caught up there and don't know how to ride safely down.
- The training track would be good and the location depicted in the exhibits would be good.
- There are lots of slopes along the edges of the SVRA; any "climb" features here for trail riding would help; put trials sections in steep areas where erosion has started.
- Move training track off of elevation area, make sure it's flat.
- Leave the area above the training track open for trials climbing.
- Move training track to avoid distractions to drivers on Larkin Road (worried about accidents).
- If we are planning on bringing in sandy soil, there is no real preference for where a motocross track is located. It could be anywhere.

- The training track is maybe too isolated from other "parent" uses. They should be more side-by-side.
- The area identified for training track may not be large enough to put in two tracks (e.g., one for MX and one for ATV, or one for 80cc and one for 50cc).
- The southeast corner identified as Area 3 has too much cobble to use it. If material was brought in you could make tracks with hills.
- The area identified for 4x4 use should include a mud area and a hill climb.
- The area to the east of the 4x4 area is a good mud area that should be left alone.
- The area in the far southwest corner is less rocky and therefore good for all uses. It should be left alone.
- The area on the slope just south of the headquarters has vertical rows of rock and cobble which preclude use.

Substrate

- Import motorcycle-friendly soil.
- Area 3 has a lot of cobble. 4x4s stay on the roads in this area, and the cobble generally precludes the use of smaller vehicles in Area 3.
- The biggest worries are 1) rocks in the soil and 2) users being too crazy on the site.
- There is loam available from Feather River dredging. Use that to modify the dirt here.
- Some users have been discussing using leftover materials from nearby rock quarries. The attendee said he would send his contact information to SVRA staff regarding this.
- There is too much cobble in the park. It makes 4x4 riding too rough. It could be covered up with silt. Local quarries are eager to donate the silt that they collect when they wash their quarried sand.
- Rocks in trails will keep erosion down.
- Does state accept outside help to place rocks etc.? Would like to offer help.
- Because there is so much cobble around the park, one would have to bring in material to build tracks.

- There used to be a firing range in the northeast corner (so there could be lead contamination).
- Mud/rock tracking onto Larkin Rd.
- Lift rocks out and do "wash ramp" with recycled water.
- Could use a "Cattle guard" type construction grate at the exit to help shake off mud from 4x4s.
- Possible wash station to avoid muddying Larkin Road.

Safety

- Visitors who move rocks and dig in their vehicles are a concern.
- The biggest worries are 1) rocks in the soil and 2) users being too crazy on the site.
- I work for the fire department – the SVRA needs a main loop road for emergency response with year-round access.
- Make a space for a heliport for a medical helicopter. If injuries occur here, it's hard to get someone back and forth from the airport. It would be better to have a safe space to land on site.
- We would like to see a berm between the SVRA and the shooting range to capture potential stray shots. Safety at the range is a concern and a berm would be safer than a fence. There is also a concern that off -road vehicles could come through the fence if it were broken and they would end up on the shooting range.

Fencing

- There was some concern regarding having the fencing along the drainage swale. The attendee said that this would be intrusive and unnecessary.
- Don't use fencing within the site.
- Fencing around the drainage swale is needed for safety so that people don't accidentally crash into the water and so that they don't muck around in it in the winter.
- There is a concern that off road vehicles could come through the fence if it were broken and end up on the shooting range.

User Groups

4x4

- Provide a difficult and large rock crawl for extreme users. Provide three graduated levels of rock crawls.
- Create 3 mud pits (beginning, intermediate, hard core); if you develop it, it will get lots of users.
- Side by side mud drag would be great.
- May need some fencing at 4x4 area but please allow trial bikes.
- When it's wet there are not as many dirt bikes, but more rock crawlers. Lots of local people have 4x4s. I like where the 4x4 area is depicted- I do "donuts" there. A rock crawl would be a good thing. I would like the rocks relocated and more brought in. The OHV division should put rocks by the existing informal trails and put mud tracks like at "Surplus City".
- Could use logs to delineate areas in mud.
- Would like to see logs for obstacles. DWR or City or City of Chico could donate.

MX

- If we are planning on bringing in sandy soil, there is no real preference for where a motocross track would be located. It could be anywhere.
- There needs to be a motocross track that could be used for racing, but not professional quality.
- There should be a beginner area, modeled after the Riverfront track.
- The training track would be good and the location depicted in the exhibits would be good.
- A training track is a great idea but there really should be two; one for vehicles 50 cc and below and one for vehicles 80 cc and above.
- Oval tracks are boring. A better idea would be to use a star shape.
- Oval flat track would be good.
- MX "youth" or "beginner" tracks shouldn't be called this because others use them too. They should be segregated by motor size: 50cc and 80 cc.

ATV

- Building an oval track and/or a drag strip would be good for ATV users.

Trials

- Would like to see trials sections on the slopes like those on the bank at Mammoth Bar.
- May need some fencing at 4x4 area but please allow trial bikes
- Leave a trial section in the slope above the training track.
- There are lots of slopes along the edges of the SVRA; any "climb" features here for trail riding would help; put trials sections in steep areas where erosion has started.

Staging/Picnic areas

- Would like to see more permanent covered structures with seating / picnic tables like at Prairie City. The area needs to have power. There should be shade ramadas next to a parking area like the "overlook" at Prairie City. It should be 50-100 feet long by 30 feet wide for group BBQs, etc.
- Need adequate parking to accommodate large toy-haulers; 30- and 40-foot vehicles are not unusual at Prairie City.
- Would like to see more shade structures at each staging area.
- Shade from trees is preferred.
- Could have a water truck at ranger station to water trees; trees would be nice.
- Water spigots like Prairie City would be nice.
- Non OHV Facilities
- Provide an interpretive training center for historical, environmental, and other education.
- Allow RVs to camp on site.
- Provide walking and bicycle trails along the perimeter.
- A small BMX track for kids would be good. It would be good for little kids who can't/don't drive motorized vehicles to have something to do while their parents are recreating.
- Provide a BMX track.

Neighboring Facilities

- The Surplus City 4x4 recreation area is not open in the winter for 4x4 use.
- How will development of Clay Pit affect the adjacent shooting range? Would events at Clay Pit require closures of the range?
- When the range was created it was supposed to have one of the only 1,000-yrd ranges in the U.S. but that range was never developed.
- We would like to see a berm between the SVRA and the shooting range to capture potential stray shots. Safety at the range is a concern and a berm would be safer than a fence. There is also a concern that off road vehicles could come through the fence if it were broken and end up on the shooting range.

Natural resources

- Vernal pools were created by a state agency and should not be regulated by another.
- OHV could protect the areas of better habitat (i.e. cottonwood stands) on site and then put picnic tables there so people can enjoy the resources.
- The only conservation facility needed is to put a sediment trap on the lower end of the site to keep pollutants from entering the river.
- Some users like to use the large pond in the drainage to "play".

Utilities

- Water and sewer lines are available at the airport.
- Bring running water to the site to use for potential RV camping, drinking water, or cleaning road rash.
- Provide a reception center with offices, restrooms, special events facilities, and utilities. Power, telephone, and fiber optic lines are all available at the airport site and could be brought across the road.
- Separate water district (water, sewer, etc) at air.

Miscellaneous

- I go to Clay Pit for the terrain. I would like to get an opportunity to revisit the site and provide input afterwards.
- Will there be fees?

- I would like to bring in a (vintage) competition.
- OHV should seek financing from Oroville Supplemental Benefits Fund (grant funding committee for economic development). Some of these projects could be funded because events bring money to the City of Oroville.
- Please send all the comments that people gave at this meeting to the mailing list and post to the web site. The attendee was interested to see what other people said.
- Wood on site may get burned, but having rangers on site may help.
- Think about whether tracks should be rented out and how to manage crowds if there are many.
- The variety at Hollister is great.

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APPENDIX B

Traffic Report

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EXISTING TRAFFIC CONDITIONS REPORT FOR THE CLAY PIT SVRA, BUTTE COUNTY CA

Prepared For:

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April 30, 2010

2630-39
Clay Pit SVRA.rpt

KD Anderson & Associates, Inc.
Transportation Engineers

EXISTING TRAFFIC CONDITIONS REPORT FOR THE CLAY PIT SVRA, BUTTE COUNTY CA

INTRODUCTION

This report presents KD Anderson & Associates evaluation of existing traffic conditions in the vicinity of the Clay Pit State Vehicular Recreation Area (SVRA). The report has been prepared as an initial step towards preparation of the Circulation Element for the General Plan and EIR being prepared for the Clay Pit SVRA. Existing roadway and intersection operations in the vicinity of the site have been evaluated relative to both weekday and Saturday peak hour traffic conditions. Daily and peak hour traffic counts have been performed by the consultant together with a field review of existing circulation conditions.

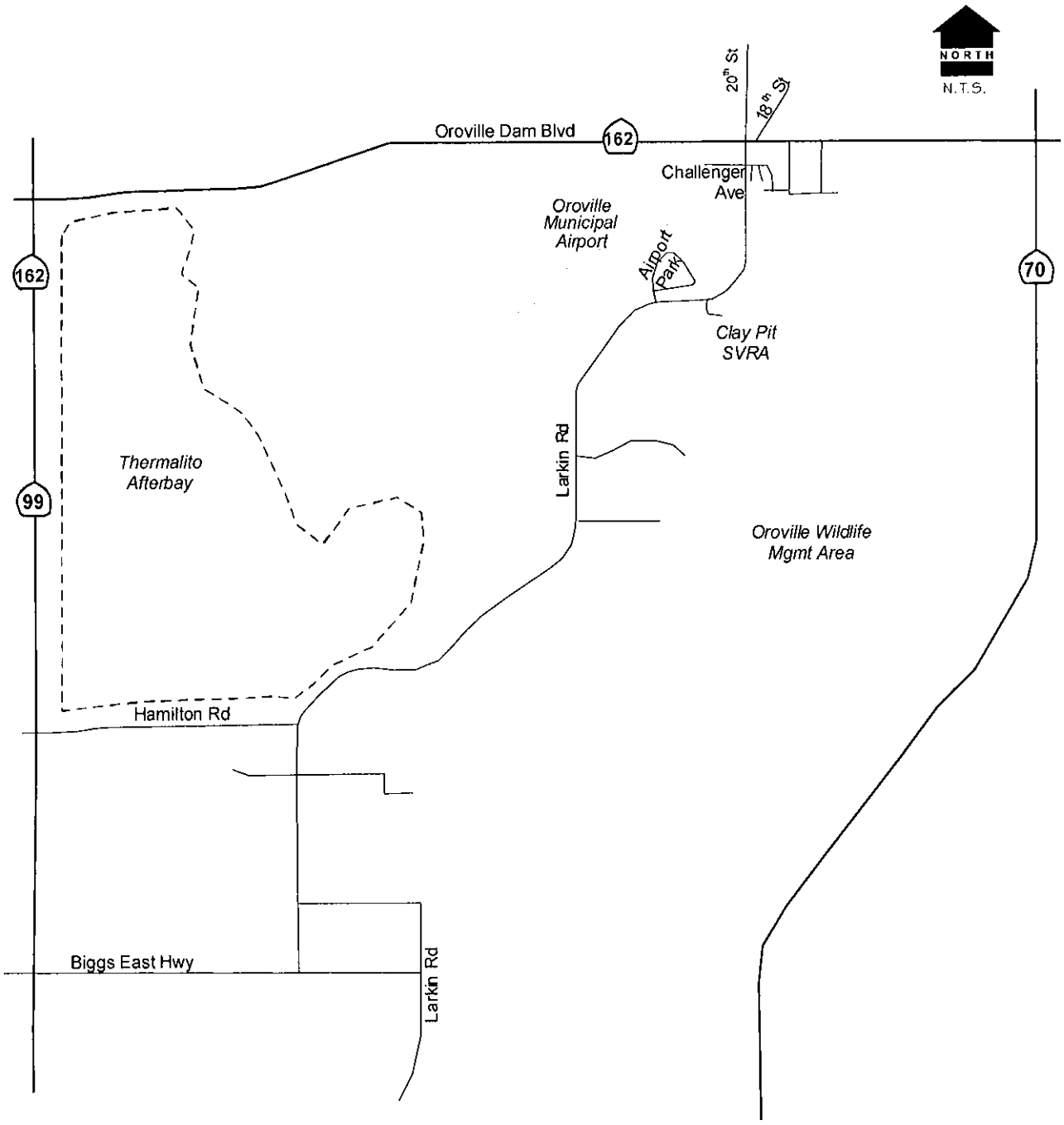
The Clay Pit SVRA is located approximately two miles west of SR 70 and one mile south of SR 162 in the Oroville area adjacent to the east side of the Oroville Municipal Airport. The 220+ acre site provides an open riding area for motorcycle, ATV and 4WD recreationists. The facility is open from 8:00 a.m. till dusk, seven days a week. Access to the site is provided via one roadway connection to Larkin Road approximately one mile south of SR 162. Figure 1 displays the location of the Clay Pit SVRA and surrounding circulation system.

EXISTING SETTING

The study area limits include intersections and roadway segments in the vicinity of the Clay Pit SVRA as well as access to the park site. The traffic analysis investigates the operational characteristics of the following intersections and roadway segments:

1. SR 99 / SR 162 (Oroville Dam Blvd) intersection
2. SR 162 / Larkin Road intersection
3. Larkin Road / Challenger Avenue intersection
4. Larkin Road / Clay Pit SVRA access
5. Larkin Road / Airport Park intersection
6. Larkin Road / Hamilton Road intersection
7. SR 162 east and west of Larkin Road
8. Larkin Road north and south of the Clay Pit SVRA access and south of Hamilton Road

KDA



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VICINITY MAP

2630-39.VSD 4/30/2010

figure 1

The following provides a description of roadway facilities which provide circulation to the Clay Pit SVRA site.

State Route 162 extends across Glenn and Butte Counties and provides east-west circulation between I-5, SR 99 and SR 70. East of SR 99, SR 162 provides access to the greater Oroville area and the recreational areas surrounding Lake Oroville. The Highway is designated as Oroville Dam Blvd in the Oroville area. The highway carries regional traffic as well as local traffic associated with commercial uses that have developed along the corridor in the Oroville area. Within the study area, SR 162 is a conventional 2-lane highway which carries approximately 3,000 daily vehicles west of Larkin Road, with volumes increasing to approximately 8,500 daily vehicles from Larkin Road east to SR 70. East of Larkin Road, a continuous two-way center turn lane is provided along the highway to the Feather River Bridge just west of the SR 70 interchange.

The Highway provides 12 foot travel lanes and 6-8 foot shoulders. The posted speed limit through the study area is 45 mph, decreasing to 35 mph to the east near SR 70. No sidewalks are provided along the roadway within the study area. SR 162 is controlled by traffic signals at the SR 99 intersection and at the SR 70 interchange.

Larkin Road is generally a 2-lane rural roadway extending from SR 162 in the north to Eager Road in the south, just to the north of the City of Yuba City. Within the study area, Larkin Road is classified as a 2-lane arterial and has a 55 mph speed limit. Immediately south of SR 162, Larkin Road has been widened to a 3-lane facility along a portion of the Oroville Municipal Airport property. Larkin Road is stop sign controlled at SR 162 and continues to the north of the highway as 20th Street. Existing traffic volumes on Larkin Road range from 2,700 daily vehicles south of Hamilton Road to 4,500 daily vehicles south of SR 162.

The north end of Larkin Road, to the north and south of the Challenger Avenue intersection, has been improved with curb, gutter and sidewalk. To the south through the study area, the balance of the facility is primarily a 2-lane rural road with 12 foot travel lanes and 2 – 4 foot graded shoulders. A portion of the facility has been improved to provide 6 – 8 foot paved shoulders adjacent to the Thermalito Afterbay. Pavement condition on Larkin Road through the study area is judged to be "good".

Larkin Road provides direct access to the Clay Pit SVRA facility. The SVRA Park is served by one access located approximately one mile south of SR 162 and 1,000 feet to the east of the Airport Park / Larkin Road intersection. Paved approach tapers are provided on Larkin Road at the SVRA access. No left turn channelization is provided on Larkin Road at the entrance to the park.

Challenger Avenue intersects Larkin Road approximately 600 feet south of SR 162 and provides access to the Oroville Municipal Airport. The roadway is stop sign controlled at Larkin Road.

Airport Park provides access to industrial development at the Oroville Municipal Airport. The roadway is stop sign controlled at Larkin Road. Left and right turn channelization is provided on Larkin Road at the Airport Park intersection.

Hamilton Road extends from Larkin Road in the east to the west past SR 99. The roadway is stop sign controlled at Larkin Road and at SR 99. The roadway provides 10 – 11 foot travel lanes and no shoulders. Pavement condition is judged to be "poor" and in need of resurfacing.

Existing Traffic Volumes

Figures 2 and 3 display existing peak hour intersection and roadway volumes used for this analysis. Traffic counts were conducted in April 2010 and consist of 24 hour roadway counts and peak hour intersection counts. Intersection traffic counts were conducted for a 2-hour interval to isolate the weekday p.m. peak hour and Saturday afternoon peak hour volumes. Counts were conducted during clear weather days.

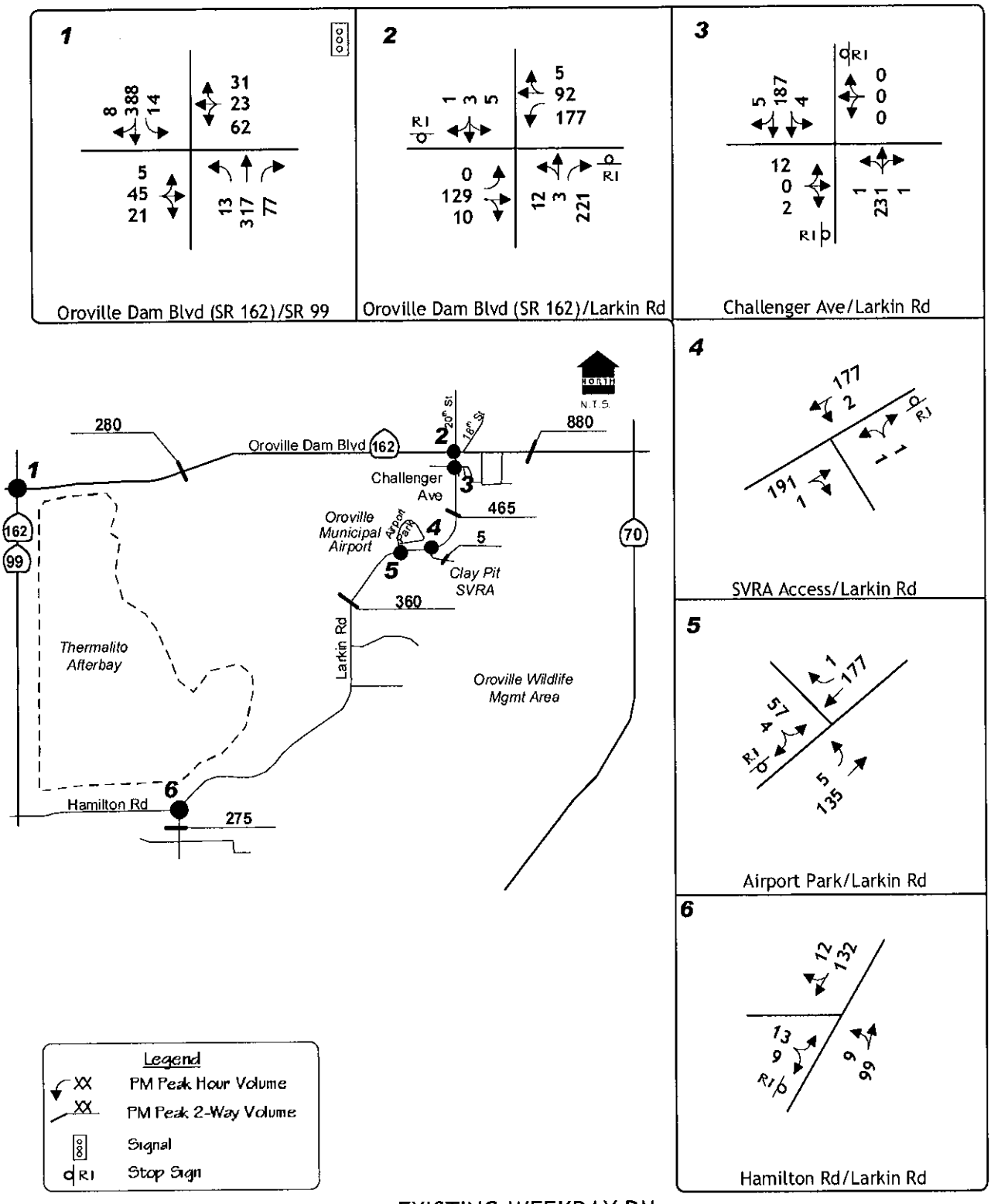
Evaluation Methodology

The methodology used to analyze existing intersection and roadway operations follows an approach that is recognized by members of the traffic engineering profession, is consistent with CEQA guidelines and conforms to Butte County and City of Oroville guidelines for traffic studies.

Level of Service. The quality of traffic flow through intersections and on individual roadway segments is described in terms of operating Level of Service. "Level of Service (LOS)" 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. Table 1 presents the characteristics associated with each LOS grade.

The *2000 Highway Capacity Manual* presents methodologies for calculating practical capacity and Level of Service on roadways and at intersections. At signalized intersections and intersections controlled by all-way stop signs, traffic conditions are described in terms of the average length of the delays experienced by all motorists. Intersection configuration, traffic volumes and traffic signal timing are all factors that enter into determination of the length of average delay and the resulting Level of Service. The delays experienced at intersection controlled by side street stop signs are different. Motorists waiting to turn must yield the right of way to through traffic, and the length of delays can vary on each approach to the intersection. For this analysis the length of delays experienced by motorists on each approach has been calculated. Intersection operations have been quantified based upon Highway Capacity Manual procedures, consistent with Butte County, City of Oroville and Caltrans requirements.

Table 2 further quantifies roadway segment capacity thresholds as presented in the Circulation Element of the *Butte County General Plan 2030 Update*. These thresholds have been used to identify roadway segment operating levels of service.



EXISTING WEEKDAY PM PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS

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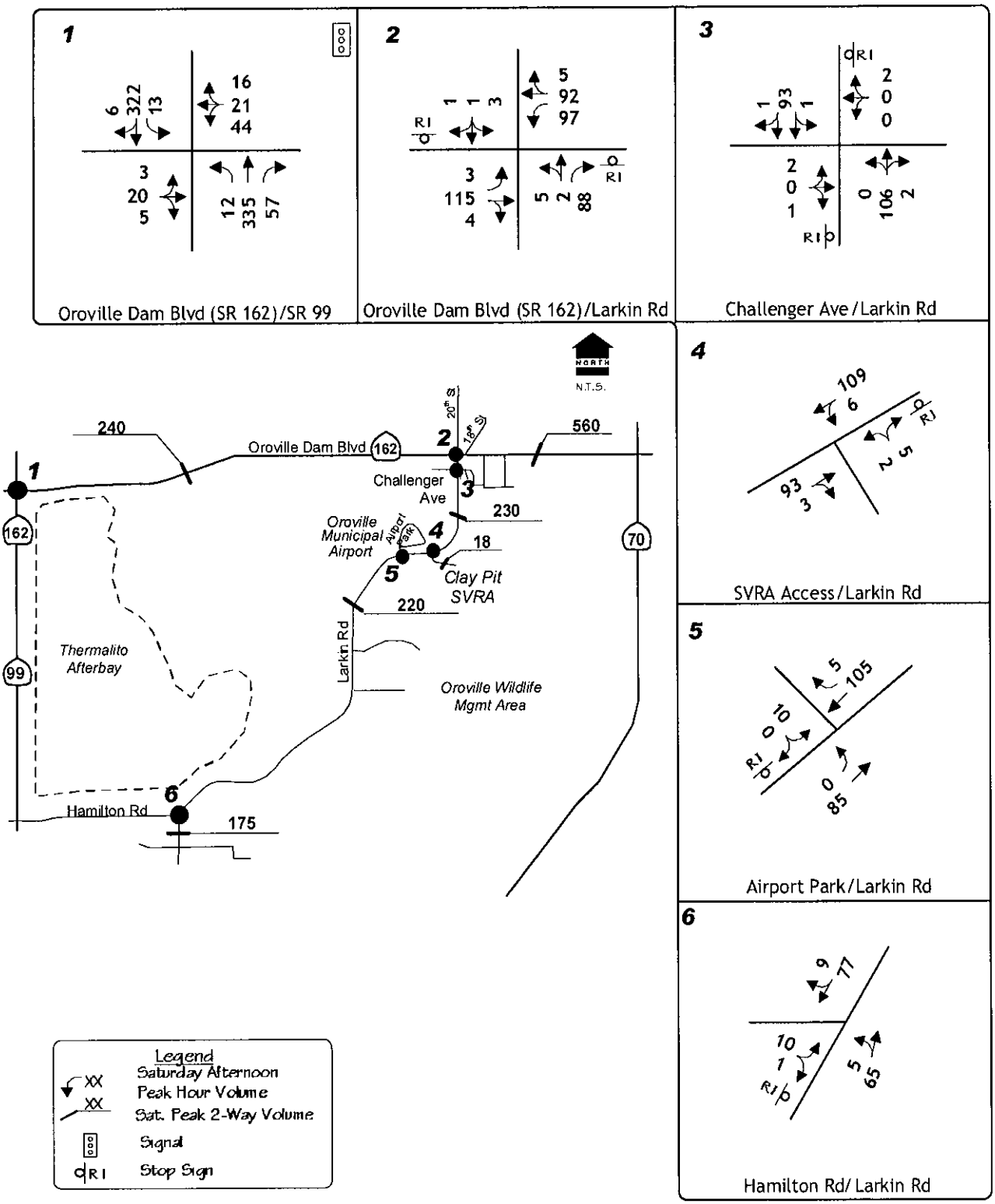
figure 2



EXISTING SATURDAY AFTERNOON PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS

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figure 3

TABLE 1
LEVEL OF SERVICE DEFINITION

Level of Service	Signalized Intersection	Unsignalized Intersection	Roadway (Daily)
"A"	Uncongested operations, all queues clear in a single-signal cycle. Delay ≤ 10.0 sec	Little or no delay. Delay ≤ 10 sec/veh	Completely free flow.
"B"	Uncongested operations, all queues clear in a single cycle. Delay > 10.0 sec and ≤ 20.0 sec	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. Delay > 20.0 sec and ≤ 35.0 sec	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. Delay > 35.0 sec and ≤ 55.0 sec	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). Delay > 55.0 sec and ≤ 80.0 sec	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. Delay > 80.0 sec	Intersection blocked by external causes. Delay > 50 sec/veh	Forced flow, breakdown.

Source: 2000 Highway Capacity Manual.

TABLE 2
PEAK-HOUR LOS VOLUME THRESHOLDS BY FACILITY TYPE

Facility Type	Peak Hour Level of Service Capacity Threshold					
	A	B	C	D	E	F
2-Lane Arterial	-	-	0-970	971-1,760	1,761-1,870	>1,870
4-Lane Arterial, Undivided	-	-	0-1,750	1,751-2,740	2,741-2,890	>2,890
Major 2-Lane Collector	-	-	0-550	551-1,180	1,181-1,520	>1,520

Source: Butte County General Plan 2030, Highway Capacity Manual 2000.

Significance Thresholds. A traffic impact is considered significant if it renders an unacceptable Level of Service on a street segment, at a signalized intersection, or stop sign controlled intersection, or if it worsens already unacceptable conditions. Local jurisdictions and Caltrans adopt minimum Level of Service standards for use in traffic studies and environmental impact reports. The following sources have been reviewed.

1. City of Oroville. The proposed *City of Oroville 2030 General Plan, Policy P2.1*, states that the City will allow a minimum operating standard of LOS "D" throughout the City.
2. Butte County. The proposed *Butte County 2030 General Plan, Policy CIR-P6.1*, states that the level of service for County maintained roads within unincorporated areas of the County but outside municipalities sphere of influence (SIOs) shall be LOS "C" or better during the p.m. peak hour. Within a municipalities SOI, the level of service shall meet the municipalities level of service policy.
3. Caltrans *State Route 162 Transportation Concept Report*. The 20-year concept for SR 162 is a 2-lane conventional highway from the Glen County line to Wilbur Road, east of SR 99. East of Wilbur Road, the 20-year concept is a 4-lane conventional highway. The identified concept level of service in this area is LOS "D".

Based upon the above, this analysis uses a LOS "D" operating threshold for SR 162 and the majority of Larkin Road within the study area. Larkin Road is within the Oroville City limits adjacent to the airport and the Oroville sphere of influence extends further south on Larkin Road to the Thermalito Afterbay. Beyond this point, Larkin Road and the Larkin Road / Hamilton Road intersection are within Butte County jurisdiction and County LOS "C" standard policy would apply.

At intersections controlled by side street stop signs, a supplemental signal warrant analysis is also typically used in determining the adequacy of operations and/or the need for improvements. As minor street traffic can experience significant delays when accessing a major street, side street delays at any single approach are typically not considered significant unless side street volumes are large enough to meet peak hour warrants for installation of a traffic signal. Peak hour traffic signal warrants as presented in the California *Manual of Uniform Traffic Control Devices (MUTCD)* have been used for this analysis.

Existing Levels of Service

Tables 3 and 4 summarize existing peak hour intersection and roadway levels of service in the study area. As shown in Table 3, satisfactory levels of service "A" to "C" are experienced at all approaches to each of the stop sign controlled intersections during both the weekday and Saturday peak hours. Existing volumes do not meet peak hour volume thresholds for installation of a traffic signal at any of the un-signalized intersections. Similarly, satisfactory level of service "B" operations are currently provided at the signalized SR 99 / SR 162 intersection during both the weekday and Saturday peak traffic hours.

The Larkin Road access to the Clay Pit SVRA currently experiences satisfactory level of service "A" to "B" operations. The relatively low volume of existing traffic turning left into the site does not currently warrant left turn channelization on Larkin Road.

Table 4 summarizes existing peak hour roadway operations. As shown, satisfactory level of service "A" to "C" operations are experienced on all study area roadways during the weekday and on Saturday.

TABLE 3
EXISTING INTERSECTION LEVELS OF SERVICE

Location	Control	Weekday PM Peak Hour		Saturday Afternoon	
		LOS	Average Delay	LOS	Average Delay
SR 99 / SR 162	Signal	B	17.6	B	15.0
SR 162 / Larkin Road	NB, SB Stop				
WB Left Turn		A	8.1	A	7.7
EB Left Turn		A	7.5	A	7.5
SB Approach		C	23.0	B	13.1
NB Approach		B	11.5	A	9.7
Larkin Road / Challenger Ave	EB, WB				
NB Left Turn	Stop	A	7.7	A	7.4
SB Left Turn		A	7.9	A	7.5
Eastbound Approach		B	12.6	A	9.5
Westbound Approach		B	11.6	A	9.1
Larkin Road / OHV Access	WB Stop				
SB Left Turn		A	7.7	A	7.5
WB Approach		B	10.5	A	9.1
Larkin Road / Airport Park	EB Stop				
NB Left Turn		A	7.7	A	7.5
EB Approach		B	11.7	A	9.7
Larkin Road / Hamilton Road	EB Stop				
NB Left Turn		A	7.6	A	7.4
EB Approach		B	10.0	A	9.4

TABLE 4
EXISTING ROADWAY LEVELS OF SERVICE

Location	Number of Lanes	LOS Standard	Weekday			Saturday		
			Peak Hour Volume	V/C	LOS	Peak Hour Volume	V/C	LOS
SR 162								
West of Larkin Road	2	D	280	0.15	A-C	240	0.13	A-C
East of Larkin Road	2	D	880	0.47	A-C	560	0.30	A-C
Larkin Road								
South of Challenger Ave	3	D	465	0.25	A-C	230	0.12	A-C
South of Airport Park	2	D	360	0.19	A-C	220	0.12	A-C
South of Hamilton Road	2	C	275	0.15	A-C	175	0.09	A-C

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Existing Trip Generation

Traffic counts conducted at the access road to the Clay Pit SVRA indicate a weekday peak hour traffic volume of five (5) vehicles, with a daily 2-way volume of 36 vehicles. On Saturday, counts indicate a peak hour volume of 18 vehicles, with a daily 2-way volume of 124 vehicles. The existing number of trips currently generated by the site is summarized in Table 5 along with the peak hour directional split into and out of the site. Daily traffic counts indicate that 18 vehicles accessed the site on a weekday, with 62 vehicles accessing the site on a Saturday.

TABLE 5
EXISTING TRIP GENERATION

	Weekday				Saturday			
		PM Peak Hour				Peak Hour		
Location	Daily	In	Out	Total	Daily	In	Out	Total
Clay Pit SVRA	36	60%	40%	5	124	55%	45%	18

Existing Directional Distribution

Peak hour counts conducted at the Clay Pit SVRA access intersection with Larkin Road have also been used to identify the directional distribution of traffic. This information is summarized in Table 6. As shown, 65% of the traffic generated by the site was observed to be oriented to the north on Larkin Road, with 35% oriented to the south.

TABLE 6
EXISTING DIRECTIONAL DISTRIBUTION

	Percent
North on Larkin Road	65%
South on Larkin Road	35%
	100%

Table 7 also summarizes the estimated regional distribution of traffic generated by the site based upon random observations at study intersections of motorists transporting recreational vehicles such as motorcycles and ATV's.

TABLE 7
ESTIMATED REGIONAL DIRECTIONAL DISTRIBUTION

North on SR 99 via SR 162	25%
East on SR 162	40%
West on Hamilton Road	5%
South on Larkin Road to Biggs East Hwy	30%
Total	**100%**

SUMMARY OF EXISTING TRAFFIC CONDITIONS

Roadways and intersections in the vicinity of the Clay Pit SVRA currently operate satisfactorily and within identified operating standards. No improvement needs have been identified. The quantity of traffic currently generated by the site is very minor during the weekday and is also relatively minor on Saturday. Satisfactory operations are currently experienced at the Larkin Road access to the site.

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REFERENCES

Transportation Concept Report, State Route 162. March 2004. CA Dept. of Transportation, District 3.

Butte County General Plan 2030 Draft EIR. April 8, 2010.

Butte County General Plan 2030, Public Review Draft. September 2, 2009.

Oroville 2030 General Plan. June 2, 2009. By Design, Community & Environment.

Oroville 2030 General Plan EIR. March 31, 2008. By Design, Community & Environment.

APPENDIX

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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 sr 99 & sr 162 [ex weekday pm]

Cycle (sec):	100	Critical Vol./Cap.(X):	0.381
Loss Time (sec):	9 (Y+R=5.0 sec)	Average Delay (sec/veh):	17.6
Optimal Cycle:	60	Level Of Service:	B

Street Name:	sr 99						sr 162					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	8	8	8	8	8	8	8	8	8	8	8	8
Lanes:	1 0	1 0	1	1 0	0 1	0	0 0	1! 0	0	0 0	1! 0	0
Volume Module:												
Base Vol:	13	317	77	14	388	8	5	45	21	62	23	31
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	13	317	77	14	388	8	5	45	21	62	23	31
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	13	317	77	14	388	8	5	45	21	62	23	31
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	14	352	86	16	431	9	6	50	23	69	26	34
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	14	352	86	16	431	9	6	50	23	69	26	34
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	14	352	86	16	431	9	6	50	23	69	26	34
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.89	0.94	0.79	0.89	0.93	0.93	0.90	0.90	0.90	0.75	0.75	0.75
Lanes:	1.00	1.00	1.00	1.00	0.98	0.02	0.07	0.63	0.30	0.53	0.20	0.27
Final Sat.:	1688	1777	1510	1688	1735	36	120	1082	505	766	284	383
Capacity Analysis Module:												
Vol/Sat:	0.01	0.20	0.06	0.01	0.25	0.25	0.05	0.05	0.05	0.09	0.09	0.09
Crit Moves:	****				****						****	
Green/Cycle:	0.08	0.49	0.49	0.20	0.61	0.61	0.22	0.22	0.22	0.22	0.22	0.22
Volume/Cap:	0.11	0.40	0.12	0.05	0.41	0.41	0.21	0.21	0.21	0.41	0.41	0.41
Uniform Del:	42.7	16.1	13.7	32.4	10.1	10.1	31.8	31.8	31.8	33.4	33.4	33.4
IncremntDel:	0.4	0.3	0.1	0.1	0.3	0.3	0.3	0.3	0.3	0.9	0.9	0.9
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	43.0	16.5	13.8	32.5	10.4	10.4	32.1	32.1	32.1	34.2	34.2	34.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	43.0	16.5	13.8	32.5	10.4	10.4	32.1	32.1	32.1	34.2	34.2	34.2
LOS by Move:	D	B	B	C	B	B	C	C	C	C	C	C
HCM2kAvgQ:	0	7	1	0	7	7	2	2	2	4	4	4

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #2 sr 162 & larkin [ex weekday pm]

Average Delay (sec/veh): 6.6 Worst Case Level Of Service: C[23.0]

Street Name:	larkin						sr 162					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 1	0	0 1	0 0	1! 0	0	1 0	0	1 0	1 0	0	1 0
Volume Module:												
Base Vol:	12	3	221	5	3	1	1	129	10	177	92	5
Growth Adj:	1.00 1.00	1.00		1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00
Initial Bse:	12	3	221	5	3	1	1	129	10	177	92	5
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	12	3	221	5	3	1	1	129	10	177	92	5
User Adj:	1.00 1.00	1.00		1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00
PHF Adj:	0.80 0.80	0.80		0.80 0.80	0.80	0.80	0.80 0.80	0.80	0.80	0.80 0.80	0.80	0.80
PHF Volume:	15	4	276	6	4	1	1	161	13	221	115	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	15	4	276	6	4	1	1	161	13	221	115	6
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	733	734	168	871	737	118	121	xxxx	xxxxx	174	xxxx	xxxxx
Potent Cap.:	335	346	874	271	345	931	1448	xxxx	xxxxx	1385	xxxx	xxxxx
Move Cap.:	290	291	874	161	289	931	1448	xxxx	xxxxx	1385	xxxx	xxxxx
Volume/Cap:	0.05 0.01	0.32		0.04 0.01	0.00		0.00	xxxx	xxxx	0.16	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	1.4	xxxx	xxxx	xxxxx	0.0	xxxx	xxxxx	0.6	xxxx	xxxxx
Control Del:	xxxxx	xxxx	11.0	xxxxx	xxxx	xxxxx	7.5	xxxx	xxxxx	8.1	xxxx	xxxxx
LOS by Move:	*	*	B	*	*	*	A	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	291	xxxx	xxxxx	xxxx	211	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	0.2	xxxx	xxxxx	xxxxx	0.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	18.2	xxxx	xxxxx	xxxxx	23.0	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	C	*	*	*	C	*	*	*	*	*	*	*
ApproachDel:		11.5			23.0			xxxxxx			xxxxxx	
ApproachLOS:		B			C			*			*	

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #3 larkin & challenger [ex weekday pm]

Average Delay (sec/veh): 0.5 Worst Case Level Of Service: B[12.6]

Street Name:	larkin						challenger					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 1	0	1 0	0 0 1!	0	0	1 0	0	0 0
Volume Module:												
Base Vol:	1	231	1	4	187	5	12	0	2	1	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	1	231	1	4	187	5	12	0	2	1	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	1	231	1	4	187	5	12	0	2	1	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Volume:	1	289	1	5	234	6	15	0	3	1	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	1	289	1	5	234	6	15	0	3	1	0	0
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	7.1	6.5	6.2	7.1	xxxx	xxxxx
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	3.5	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	240	xxxx	xxxxx	290	xxxx	xxxxx	539	539	120	419	xxxx	xxxxx
Potent Cap.:	1321	xxxx	xxxxx	1266	xxxx	xxxxx	457	452	937	548	xxxx	xxxxx
Move Cap.:	1321	xxxx	xxxxx	1266	xxxx	xxxxx	455	450	937	545	xxxx	xxxxx
Volume/Cap:	0.00	xxxx	xxxx	0.00	xxxx	xxxx	0.03	0.00	0.00	0.00	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	0.0	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.0	xxxx	xxxxx
Control Del:	7.7	xxxx	xxxxx	7.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx	11.6	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	B	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	491	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxxx	0.1	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	7.9	xxxx	xxxxx	xxxxx	12.6	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	A	*	*	*	B	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			12.6			11.6		
ApproachLOS:	*			*			B			B		

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

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Intersection #4 larkin & ohv access [ex weekday pm]

****

Average Delay (sec/veh): 0.1 Worst Case Level Of Service: B[10.5]

****

Street Name:	larkin						ohv access					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 1 0			0 1 0 0 0			0 0 0 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	0	191	1	2	177	0	0	0	0	1	0	1
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	191	1	2	177	0	0	0	0	1	0	1
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	191	1	2	177	0	0	0	0	1	0	1
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Volume:	0	239	1	3	221	0	0	0	0	1	0	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	239	1	3	221	0	0	0	0	1	0	1
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	6.5	6.2
FollowUpTim:	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	240	xxxx	xxxxx	xxxx	xxxx	xxxxx	466	466	239
Potent Cap.:	xxxx	xxxx	xxxxx	1321	xxxx	xxxxx	xxxx	xxxx	xxxxx	559	497	804
Move Cap.:	xxxx	xxxx	xxxxx	1321	xxxx	xxxxx	xxxx	xxxx	xxxxx	558	496	804
Volume/Cap:	xxxx	xxxx	xxxx	0.00	xxxx	xxxx	xxxx	xxxx	xxxx	0.00	0.00	0.00
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	7.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	659	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.0	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	7.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	10.5	xxxxx
Shared LOS:	*	*	*	A	*	*	*	*	*	*	B	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			10.5		
ApproachLOS:	*			*			*			B		

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Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #5 larkin & airport park [ex weekday pm]

Average Delay (sec/veh): 2.0 Worst Case Level Of Service: B[11.7]

Street Name:	larkin						airport park					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	1 0	1 0	0	0 0	1 0	1	0 0	1! 0	0	0 0	0 0	0
Volume Module:												
Base Vol:	5	135	0	0	177	1	57	0	4	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	5	135	0	0	177	1	57	0	4	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	5	135	0	0	177	1	57	0	4	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Volume:	6	169	0	0	221	1	71	0	5	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	6	169	0	0	221	1	71	0	5	0	0	0
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	xxxxx	xxxx	xxxxx
FollowUpTim:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	223	xxxx	xxxxx	xxxx	xxxx	xxxxx	403	403	221	xxxx	xxxx	xxxxx
Potent Cap.:	1341	xxxx	xxxxx	xxxx	xxxx	xxxxx	608	540	823	xxxx	xxxx	xxxxx
Move Cap.:	1341	xxxx	xxxxx	xxxx	xxxx	xxxxx	606	537	823	xxxx	xxxx	xxxxx
Volume/Cap:	0.00	xxxx	xxxx	xxxx	xxxx	xxxx	0.12	0.00	0.01	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	0.0	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	7.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	*	*	*	*	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	616	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.4	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	11.7	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	B	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			11.7			xxxxxx		
ApproachLOS:	*			*			B			*		

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #6 larkin & hamilton [ex weekday pm]

Average Delay (sec/veh): 1.1 Worst Case Level Of Service: B[10.0]

Street Name:	larkin						hamilton					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 1	0	0 0	0	0 0	1 0	0	0	1! 0 0	0	0	0 0 0
Volume Module:												
Base Vol:	9	99	0	0	132	12	13	0	9	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	9	99	0	0	132	12	13	0	9	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	9	99	0	0	132	12	13	0	9	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Volume:	11	124	0	0	165	15	16	0	11	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	11	124	0	0	165	15	16	0	11	0	0	0
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	xxxxx	xxxx	xxxxx
FollowUpTim:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	180	xxxx	xxxxx	xxxx	xxxx	xxxxx	319	319	173	xxxx	xxxx	xxxxx
Potent Cap.:	1389	xxxx	xxxxx	xxxx	xxxx	xxxxx	679	601	876	xxxx	xxxx	xxxxx
Move Cap.:	1389	xxxx	xxxxx	xxxx	xxxx	xxxxx	675	596	876	xxxx	xxxx	xxxxx
Volume/Cap:	0.01	xxxx	xxxx	xxxx	xxxx	xxxx	0.02	0.00	0.01	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	0.0	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	7.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	*	*	*	*	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	745	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.1	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	7.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	10.0	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	A	*	*	*	*	*	*	B	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			10.0			xxxxxx		
ApproachLOS:	*			*			B			*		

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 sr 99 & sr 162 [ex saturday]

Cycle (sec):	100	Critical Vol./Cap.(X):	0.318
Loss Time (sec):	9 (Y+R=5.0 sec)	Average Delay (sec/veh):	15.0
Optimal Cycle:	60	Level Of Service:	B

Street Name:	sr 99						sr 162					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	8	8	8	8	8	8	8	8	8	8	8	8
Lanes:	1 0	1 0	1	1 0	0 1	0	0 0	1! 0	0	0 0	1! 0	0
Volume Module:												
Base Vol:	12	335	57	13	322	6	3	20	5	44	21	16
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	12	335	57	13	322	6	3	20	5	44	21	16
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	12	335	57	13	322	6	3	20	5	44	21	16
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
PHF Volume:	14	385	66	15	370	7	3	23	6	51	24	18
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	14	385	66	15	370	7	3	23	6	51	24	18
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	14	385	66	15	370	7	3	23	6	51	24	18
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.89	0.94	0.79	0.89	0.93	0.93	0.91	0.91	0.91	0.77	0.77	0.77
Lanes:	1.00	1.00	1.00	1.00	0.98	0.02	0.11	0.71	0.18	0.54	0.26	0.20
Final Sat.:	1688	1777	1510	1688	1739	32	185	1232	308	796	380	290
Capacity Analysis Module:												
Vol/Sat:	0.01	0.22	0.04	0.01	0.21	0.21	0.02	0.02	0.02	0.06	0.06	0.06
Crit Moves:		****		****							****	
Green/Cycle:	0.20	0.64	0.64	0.08	0.52	0.52	0.19	0.19	0.19	0.19	0.19	0.19
Volume/Cap:	0.04	0.34	0.07	0.11	0.41	0.41	0.10	0.10	0.10	0.34	0.34	0.34
Uniform Del:	32.5	8.2	6.7	42.7	14.3	14.3	33.6	33.6	33.6	35.2	35.2	35.2
IncremntDel:	0.1	0.2	0.0	0.4	0.3	0.3	0.1	0.1	0.1	0.7	0.7	0.7
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	32.5	8.4	6.7	43.1	14.6	14.6	33.7	33.7	33.7	35.9	35.9	35.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	32.5	8.4	6.7	43.1	14.6	14.6	33.7	33.7	33.7	35.9	35.9	35.9
LOS by Move:	C	A	A	D	B	B	C	C	C	D	D	D
HCM2kAvgQ:	0	5	1	1	7	7	1	1	1	3	3	3

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #2 sr 162 & larkin [ex saturday]

Average Delay (sec/veh): 4.2 Worst Case Level Of Service: B[13.1]

Street Name:	larkin						sr 162					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 1	0	0 1	0 0	1! 0	0	1	0 0	1 0	1	0 0	1 0
Volume Module:												
Base Vol:	5	2	88	3	1	1	3	115	4	97	92	5
Growth Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
Initial Bse:	5	2	88	3	1	1	3	115	4	97	92	5
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	5	2	88	3	1	1	3	115	4	97	92	5
User Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
PHF Adj:	0.87 0.87	0.87		0.87 0.87	0.87		0.87 0.87	0.87		0.87 0.87	0.87	
PHF Volume:	6	2	101	3	1	1	3	132	5	111	106	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	6	2	101	3	1	1	3	132	5	111	106	6
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	474	476	134	525	475	109	111	xxxx	xxxxx	137	xxxx	xxxxx
Potent Cap.:	499	486	912	462	487	942	1460	xxxx	xxxxx	1429	xxxx	xxxxx
Move Cap.:	467	447	912	384	448	942	1460	xxxx	xxxxx	1429	xxxx	xxxxx
Volume/Cap:	0.01 0.01	0.11		0.01 0.00	0.00		0.00	xxxx	xxxx	0.08	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx xxxx	0.4		xxxx xxxx	xxxxx		0.0	xxxx	xxxxx	0.3	xxxx	xxxxx
Control Del:	xxxxx xxxx	9.4		xxxxx xxxx	xxxxx		7.5	xxxx	xxxxx	7.7	xxxx	xxxxx
LOS by Move:	* *	A		* *	*		A	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	461 xxxx	xxxxx		xxxx 450	xxxxx		xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	0.1 xxxx	xxxxx		xxxxx 0.0	xxxxx		xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	12.9 xxxx	xxxxx		xxxxx 13.1	xxxxx		xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	B *	*		* B	*		*	*	*	*	*	*
ApproachDel:	9.7			13.1			xxxxxx			xxxxxx		
ApproachLOS:	A			B			*			*		

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #3 larkin & challenger [ex saturday]

Average Delay (sec/veh): 0.3 Worst Case Level Of Service: A[9.5]

Street Name:	larkin						challenger					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 1 0 1 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	1	106	2	1	93	1	2	0	1	1	0	2
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	1	106	2	1	93	1	2	0	1	1	0	2
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	1	106	2	1	93	1	2	0	1	1	0	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
PHF Volume:	1	122	2	1	107	1	2	0	1	1	0	2
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	1	122	2	1	107	1	2	0	1	1	0	2
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	7.1	6.5	6.2	7.1	6.5	6.2
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	108	xxxx	xxxxx	124	xxxx	xxxxx	236	236	54	181	236	123
Potent Cap.:	1476	xxxx	xxxxx	1456	xxxx	xxxxx	722	668	1019	785	668	933
Move Cap.:	1476	xxxx	xxxxx	1456	xxxx	xxxxx	720	667	1019	783	667	933
Volume/Cap:	0.00	xxxx	xxxx	0.00	xxxx	xxxx	0.00	0.00	0.00	0.00	0.00	0.00
Level Of Service Module:												
2Way95thQ:	0.0	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	7.4	xxxx	xxxxx	7.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	798	xxxxx	xxxx	877	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxxx	0.0	xxxxx	xxxxx	0.0	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	7.5	xxxx	xxxxx	xxxxx	9.5	xxxxx	xxxxx	9.1	xxxxx
Shared LOS:	*	*	*	A	*	*	*	A	*	*	A	*
ApproachDel:	xxxxxx			xxxxxx			9.5			9.1		
ApproachLOS:	*			*			A			A		

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #4 larkin & ohv access [ex satuday]

Average Delay (sec/veh): 0.5 Worst Case Level Of Service: A[9.1]

Street Name:	larkin						ohv access					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	1	0	0 1 0	0	0	0 0 0	0	0	0 0	1! 0	0
Volume Module:												
Base Vol:	0	93	3	6	109	0	0	0	0	2	0	5
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	93	3	6	109	0	0	0	0	2	0	5
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	93	3	6	109	0	0	0	0	2	0	5
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
PHF Volume:	0	107	3	7	125	0	0	0	0	2	0	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	107	3	7	125	0	0	0	0	2	0	6
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	6.5	6.2
FollowUpTim:	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	110	xxxx	xxxxx	xxxx	xxxx	xxxxx	248	248	109
Potent Cap.:	xxxx	xxxx	xxxxx	1473	xxxx	xxxxx	xxxx	xxxx	xxxxx	745	658	951
Move Cap.:	xxxx	xxxx	xxxxx	1473	xxxx	xxxxx	xxxx	xxxx	xxxxx	742	655	951
Volume/Cap:	xxxx	xxxx	xxxx	0.00	xxxx	xxxx	xxxx	xxxx	xxxx	0.00	0.00	0.01
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	7.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT	- LTR	- RT	LT	- LTR	- RT	LT	- LTR	- RT	LT	- LTR	- RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	880	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.0	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	7.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	9.1	xxxxx
Shared LOS:	*	*	*	A	*	*	*	*	*	*	A	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			9.1		
ApproachLOS:	*			*			*			A		

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

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Intersection #5 larkin & airport park [ex saturday]

****

Average Delay (sec/veh): 0.5 Worst Case Level Of Service: A[9.7]

****

Street Name:	larkin						airport park					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	1 0 1 0 0			0 0 1 0 1			1 0 0 0 0			0 0 0 0 0		
Volume Module:												
Base Vol:	1	85	0	0	105	5	10	0	0	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	1	85	0	0	105	5	10	0	0	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	1	85	0	0	105	5	10	0	0	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
PHF Volume:	1	98	0	0	121	6	11	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	1	98	0	0	121	6	11	0	0	0	0	0
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	126	xxxx	xxxxx	xxxx	xxxx	xxxxx	221	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	1454	xxxx	xxxxx	xxxx	xxxx	xxxxx	772	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	1454	xxxx	xxxxx	xxxx	xxxx	xxxxx	772	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	0.00	xxxx	xxxx	xxxx	xxxx	xxxx	0.01	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	0.0	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	7.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx	9.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			9.7			xxxxxx		
ApproachLOS:	*			*			A			*		

****

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

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Intersection #6 larkin & hamilton [ex saturday]

****

Average Delay (sec/veh): 0.8 Worst Case Level Of Service: A[9.4]

****

Street Name:	larkin						hamilton					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 1 0	0 0	0	0 0	0 1	0	0 0	1! 0	0	0 0	0 0	0
Volume Module:												
Base Vol:	5	65	0	0	77	9	10	0	1	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	5	65	0	0	77	9	10	0	1	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	5	65	0	0	77	9	10	0	1	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
PHF Volume:	6	75	0	0	89	10	11	0	1	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	6	75	0	0	89	10	11	0	1	0	0	0
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	xxxxx	xxxx	xxxxx
FollowUpTim:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	99	xxxx	xxxxx	xxxx	xxxx	xxxxx	180	180	94	xxxx	xxxx	xxxxx
Potent Cap.:	1488	xxxx	xxxxx	xxxx	xxxx	xxxxx	814	718	969	xxxx	xxxx	xxxxx
Move Cap.:	1488	xxxx	xxxxx	xxxx	xxxx	xxxxx	812	715	969	xxxx	xxxx	xxxxx
Volume/Cap:	0.00	xxxx	xxxx	xxxx	xxxx	xxxx	0.01	0.00	0.00	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	0.0	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	7.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	*	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	824	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.0	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	7.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	9.4	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	A	*	*	*	*	*	*	A	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			9.4			xxxxxx		
ApproachLOS:	*			*			A			*		

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Note: Queue reported is the number of cars per lane.

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Volumes for: Saturday, April 24, 2010 City: Oroville Project #: 10-7129-001

Location: Larkin Road south of Oroville Dam Road

Start	Northbound		Hour Totals		Southbound		Hour Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	2	27			9	26				
12:15	5	36			8	25				
12:30	4	29			8	26				
12:45	5	29	16	121	1	21	26	98	42	219
1:00	3	28			6	20				
1:15	2	27			5	14				
1:30	2	26			5	32				
1:45	4	32	11	113	2	26	18	92	29	205
2:00	1	21			6	25				
2:15	3	29			3	30				
2:30	0	20			1	28				
2:45	1	24	5	94	1	40	11	123	16	217
3:00	1	30			1	25				
3:15	1	20			0	27				
3:30	1	33			1	18				
3:45	1	31	4	114	0	28	2	98	6	212
4:00	3	28			2	26				
4:15	3	31			0	33				
4:30	2	23			2	22				
4:45	2	28	10	110	3	23	7	104	17	214
5:00	5	19			2	22				
5:15	1	17			3	24				
5:30	3	20			19	42				
5:45	4	28	13	84	16	39	40	127	53	211
6:00	6	31			10	33				
6:15	37	42			7	18				
6:30	12	33			8	15				
6:45	11	16	66	122	12	29	37	95	103	217
7:00	6	24			10	23				
7:15	11	20			17	14				
7:30	5	19			14	12				
7:45	13	20	35	83	9	12	50	61	85	144
8:00	18	25			9	15				
8:15	19	14			23	12				
8:30	18	23			17	6				
8:45	10	19	65	81	20	13	69	46	134	127
9:00	8	16			19	8				
9:15	20	19			19	3				
9:30	16	10			23	3	0			
9:45	14	10	58	55	31	15	92	29	150	84
10:00	20	13			23	9				
10:15	27	10			25	12				
10:30	20	12			25	6				
10:45	18	14	85	49	31	7	104	34	189	83
11:00	22	6			25	4				
11:15	17	5			28	14				
11:30	27	2			22	3				
11:45	13	6	79	19	22	6	97	27	176	46
Total	447	1045	447	1045	553	934	553	934	1000	1979
Combined Total	1492		1492		1487		1487		2979	
AM Peak	11:45 AM				10:30 AM					
Vol.	105				109					
P.H.F.	0.729				0.879					
PM Peak		5:45 PM				5:15 PM				
Vol.		134				138				
P.H.F.		0.851				0.821				
Percentage	30.0%	70.0%			37.2%	62.8%				

Volumes for: Saturday, April 24, 2010 City: Oroville Project #: 10-7129-002

Location: OHV Access Road south of Larkin Road

Start	Northbound		Hour Totals		Southbound		Hour Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	0	1			0	0				
12:15	0	1			0	0				
12:30	0	0			0	2				
12:45	0	4	0	6	0	2	0	4	0	10
1:00	0	5			0	1				
1:15	0	1			0	4				
1:30	0	1			0	3				
1:45	0	1	0	8	0	1	0	9	0	17
2:00	0	2			0	3				
2:15	0	1			0	2				
2:30	0	3			0	2				
2:45	0	2	0	8	0	2	0	9	0	17
3:00	0	2			0	1				
3:15	0	0			0	0				
3:30	0	0			0	2				
3:45	0	1	0	3	0	2	0	5	0	8
4:00	0	0			0	0				
4:15	0	0			0	2				
4:30	0	1			0	1				
4:45	0	0	0	1	0	3	0	6	0	7
5:00	0	4			0	1				
5:15	0	3			0	3				
5:30	0	0			0	0				
5:45	0	2	0	9	0	5	0	9	0	18
6:00	0	1			0	3				
6:15	0	1			0	0				
6:30	0	2			0	1				
6:45	0	2	0	6	0	1	0	5	0	11
7:00	0	2			0	0				
7:15	0	2			0	1				
7:30	0	0			0	1				
7:45	0	2	0	6	0	1	0	3	0	9
8:00	0	0			0	0				
8:15	0	1			0	1				
8:30	0	3			0	0				
8:45	0	0	0	4	0	0	0	1	0	5
9:00	0	0			1	0				
9:15	2	0			1	0				
9:30	0	0			0	0	0			
9:45	0	0	2	0	8	0	10	0	12	0
10:00	1	0			0	0				
10:15	0	0			0	0				
10:30	0	0			0	0				
10:45	1	0	2	0	1	0	1	0	3	0
11:00	0	0			1	0				
11:15	2	0			0	0				
11:30	0	0			0	0				
11:45	0	0	2	0	3	0	4	0	6	0
Total	6	51	6	51	15	51	15	51	21	102
Combined Total	57		57		66		66		123	
AM Peak	9:15 AM				9:00 AM					
Vol.	3				10					
P.H.F.	0.375				0.313					
PM Peak		12:45 PM				1:15 PM				
Vol.		11				11				
P.H.F.		0.550				0.688				
Percentage	10.5%	89.5%			22.7%	77.3%				

Volumes for: Wednesday, April 14, 2010 City: Oroville Project #: 10-7129-001

Location: Larkin Road south of Oroville Dam Boulevard

Start	Northbound		Hour Totals		Southbound		Hour Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	4	42			2	21				
12:15	4	32			1	32				
12:30	2	26			5	45				
12:45	1	36	11	136	4	38	12	136	23	272
1:00	3	42			2	32				
1:15	2	38			4	41				
1:30	6	32			3	31				
1:45	0	29	11	141	2	32	11	136	22	277
2:00	1	28			1	34				
2:15	3	27			1	25				
2:30	2	43			1	27				
2:45	1	35	7	133	1	40	4	126	11	259
3:00	0	34			0	33				
3:15	0	22			0	45				
3:30	1	36			0	26				
3:45	2	33	3	125	3	37	3	141	6	266
4:00	2	38			2	33				
4:15	1	42			0	38				
4:30	1	51			3	33				
4:45	4	87	8	218	2	33	7	137	15	355
5:00	5	57			6	47				
5:15	4	86			12	48				
5:30	6	44			33	39				
5:45	16	22	31	209	29	51	80	185	111	394
6:00	19	35			26	32				
6:15	43	42			11	24				
6:30	20	24			14	29				
6:45	22	27	104	128	21	27	72	112	176	240
7:00	25	18			17	17				
7:15	26	13			30	15				
7:30	29	9			40	16				
7:45	38	13	118	53	86	15	173	63	291	116
8:00	40	17			72	11				
8:15	32	15			34	14				
8:30	32	12			27	11				
8:45	37	11	141	55	22	9	155	45	296	100
9:00	26	15			28	10				
9:15	27	9			30	13				
9:30	33	10			20	12	0			
9:45	33	14	119	48	28	12	106	47	225	95
10:00	19	9			34	8				
10:15	31	7			34	9				
10:30	29	6			34	12				
10:45	37	5	116	27	30	8	132	37	248	64
11:00	32	3			25	4				
11:15	29	5			25	4				
11:30	21	0			22	6				
11:45	28	3	110	11	28	3	100	17	210	28
Total	779	1284	779	1284	855	1182	855	1182	1634	2466
Combined Total	2063		2063		2037		2037		4100	
AM Peak	7:45 AM				7:30 AM					
Vol.	142				232					
P.H.F.	0.888				0.674					
PM Peak		4:30 PM				5:00 PM				
Vol.		281				185				
P.H.F.		0.724				0.907				
Percentage	37.8%	62.2%			42.0%	58.0%				

Volumes for: Wednesday, April 14, 2010 City: Oroville Project #: 10-7129-002
Location: OHV Access Road south of Larkin Road

Start	Northbound		Hour Totals		Southbound		Hour Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	0	0			0	0				
12:15	0	0			0	0				
12:30	0	1			0	1				
12:45	0	0	0	1	0	0	0	1	0	2
1:00	0	0			0	0				
1:15	0	0			0	0				
1:30	0	0			0	0				
1:45	0	1	0	1	0	0	0	0	0	1
2:00	0	0			0	1				
2:15	0	0			0	0				
2:30	0	0			0	0				
2:45	0	1	0	1	0	1	0	2	0	3
3:00	0	0			0	0				
3:15	0	0			0	0				
3:30	0	0			0	0				
3:45	0	0	0	0	0	1	0	1	0	1
4:00	0	1			0	0				
4:15	0	0			0	0				
4:30	0	0			0	0				
4:45	0	0	0	1	0	1	0	1	0	2
5:00	0	1			0	1				
5:15	0	0			0	1				
5:30	0	2			0	0				
5:45	0	0	0	3	0	0	0	2	0	5
6:00	0	1			0	2				
6:15	0	1			0	1				
6:30	0	0			0	0				
6:45	0	0	0	2	0	0	0	3	0	5
7:00	0	1			0	0				
7:15	0	1			0	1				
7:30	0	1			0	0				
7:45	0	0	0	3	1	0	1	1	1	4
8:00	1	0			0	1				
8:15	0	1			0	0				
8:30	1	2			1	2				
8:45	0	0	2	3	0	0	1	3	3	6
9:00	0	0			0	0				
9:15	0	0			0	0				
9:30	0	0			0	0	0			
9:45	0	0	0	0	0	0	0	0	0	0
10:00	0	0			0	0				
10:15	0	0			0	0				
10:30	0	0			1	0				
10:45	0	0	0	0	0	0	1	0	1	0
11:00	1	0			1	0				
11:15	0	0			0	0				
11:30	0	0			0	0				
11:45	0	0	1	0	0	0	1	0	2	0
Total	3	15	3	15	4	14	4	14	7	29
Combined Total	18		18		18		18		36	
AM Peak	7:45 AM				7:45 AM					
Vol.	2				2					
P.H.F.	0.500				0.500					
PM Peak		5:30 PM				4:30 PM				
Vol.		4				3				
P.H.F.		0.500				0.750				
Percentage	16.7%	83.3%			22.2%	77.8%				

Volumes for: Wednesday, April 14, 2010 City: Oroville Project #: 10-7129-003

Location: Larkin Road south of Farrar Road

Start	Northbound		Hour Totals		Southbound		Hour Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	4	23			1	17				
12:15	1	21			2	23				
12:30	0	13			3	19				
12:45	2	15	7	72	3	23	9	82	16	154
1:00	0	26			1	21				
1:15	0	25			4	21				
1:30	1	26			2	21				
1:45	2	24	3	101	3	24	10	87	13	188
2:00	1	22			1	26				
2:15	0	20			2	13				
2:30	1	22			0	22				
2:45	0	23	2	87	0	28	3	89	5	176
3:00	1	20			1	22				
3:15	1	12			0	27				
3:30	1	21			0	28				
3:45	1	30	4	83	1	23	2	100	6	183
4:00	0	23			2	29				
4:15	0	30			0	27				
4:30	1	21			1	32				
4:45	4	27	5	101	5	33	8	121	13	222
5:00	5	24			1	39				
5:15	2	27			1	38				
5:30	7	31			5	27				
5:45	16	18	30	100	7	30	14	134	44	234
6:00	9	15			3	21				
6:15	12	29			8	25				
6:30	10	18			14	24				
6:45	14	15	45	77	15	29	40	99	85	176
7:00	20	18			12	10				
7:15	15	16			15	8				
7:30	24	9			17	15				
7:45	42	9	101	52	14	8	58	41	159	93
8:00	29	16			23	16				
8:15	12	14			16	6				
8:30	15	14			12	15				
8:45	21	11	77	55	12	9	63	46	140	101
9:00	17	4			22	7				
9:15	19	7			23	13				
9:30	15	5			15	6	0			
9:45	21	8	72	24	23	9	83	35	155	59
10:00	16	1			13	3				
10:15	20	1			23	7				
10:30	19	0			22	10				
10:45	19	1	74	3	30	8	88	28	162	31
11:00	14	4			19	2				
11:15	15	3			15	5				
11:30	23	0			17	5				
11:45	13	0	65	7	20	5	71	17	136	24
Total	485	762	485	762	449	879	449	879	934	1641
Combined Total	1247		1247		1328		1328		2575	
AM Peak	7:15 AM				10:15 AM					
Vol.	110				94					
P.H.F.	0.655				0.783					
PM Peak		4:45 PM				4:30 PM				
Vol.		109				142				
P.H.F.		0.972				0.910				
Percentage	38.9%	61.1%			33.8%	66.2%				

Volumes for: Wednesday, April 14, 2010 City: Oroville Project #: 10-7129-004

Location: Larkin Road north of Vance Road

Start	Northbound		Hour Totals		Southbound		Hour Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	0	20			1	13				
12:15	0	19			1	19				
12:30	0	19			1	19				
12:45	0	15	0	73	4	21	7	72	7	145
1:00	1	26			0	19				
1:15	1	25			4	17				
1:30	3	18			1	23				
1:45	1	18	6	87	3	25	8	84	14	171
2:00	0	17			0	21				
2:15	2	25			1	10				
2:30	0	23			1	26				
2:45	0	20	2	85	0	21	2	78	4	163
3:00	1	26			1	25				
3:15	0	20			0	28				
3:30	0	17			0	25				
3:45	5	20	6	83	1	25	2	103	8	186
4:00	0	26			2	28				
4:15	0	22			0	26				
4:30	0	27			1	31				
4:45	5	31	5	106	2	31	5	116	10	222
5:00	2	23			3	35				
5:15	2	19			1	40				
5:30	8	24			3	33				
5:45	15	21	27	87	5	26	12	134	39	221
6:00	8	13			2	19				
6:15	11	15			7	22				
6:30	13	7			10	24				
6:45	14	19	46	54	14	24	33	89	79	143
7:00	23	14			10	11				
7:15	20	9			15	10				
7:30	26	13			17	9				
7:45	41	8	110	44	8	10	50	40	160	84
8:00	25	13			22	14				
8:15	27	9			11	6				
8:30	20	8			14	12				
8:45	16	8	88	38	11	7	58	39	146	77
9:00	20	7			19	7				
9:15	19	5			18	9				
9:30	25	8			14	8	0			
9:45	17	10	81	30	20	5	71	29	152	59
10:00	18	5			17	4				
10:15	20	2			25	9				
10:30	24	5			18	7				
10:45	29	4	91	16	26	8	86	28	177	44
11:00	20	1			18	4				
11:15	15	3			11	3				
11:30	9	1			14	5				
11:45	18	1	62	6	23	6	66	18	128	24
Total	524	709	524	709	400	830	400	830	924	1539
Combined Total	1233		1233		1230		1230		2463	
AM Peak	7:30 AM				10:15 AM					
Vol.	119				87					
P.H.F.	0.726				0.837					
PM Peak		4:00 PM				4:45 PM				
Vol.		106				139				
P.H.F.		0.944				0.869				
Percentage	42.5%	57.5%			32.5%	67.5%				

APPENDIX C

Visitor Projections

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Memorandum

To	Jennifer Buckingham	Page	1
CC	Rick LeFlore, Jason DeWall		
Subject	Clay Pit SVRA Visitor Projections		
From	Kim Fettke		
Date	January 3, 2010		

The purpose of this memorandum is to describe the methodology used for projecting future visitor use at Clay Pit State Vehicular Recreation Area (SVRA), and to solicit concurrence or edits from OHMVR Division staff. These projections are necessary inputs for developing an estimate of reasonably foreseeable annual and future peak daily use at the SVRA once the improvements suggested in the General Plan have been implemented. These projections will be used in the environmental impact report (EIR) for the General Plan to help evaluate potential impacts resulting from General Plan implementation in topic areas such as traffic, noise, and climate change. The annual-visitation projections and estimates of peak daily use have been developed for the year 2030, which is consistent with the General Plan planning horizon. In calculating potential impacts, it is assumed that the Headquarters area will be constructed in 2012–2013, with full buildout of the SVRA occurring in 2016–2017.

Background and Data Sources

The attached memo from KD Anderson and Associates, Inc. transportation engineers (KDA), dated December 29, 2010, summarizes most of the supporting information that was used to project visitation estimates. In addition, Jennifer Buckingham, Planner for the Twin Cities District, provided the following average attendance numbers for special events held at Prairie City SVRA (e.g., MX or ATV races, exhibitions, 4x4 rock crawls).

Motocross Event (five to 10 per year)

Total attendance = approximately 500 people (250 riders/250 spectators)

4x4 Obstacle Course Events/Races (approximately six per year)

Total attendance = approximately 375 people (25 participants/350 spectators)

Jennifer also estimates that there may be five or six motocross and ATV events per year, and approximately ten 4x4 events per year at Clay Pit SVRA, following construction of the built facilities envisioned in the General Plan.

Finally, recognizing that future annual visitation may be influenced by regional demographic trends, population growth projections for the Clay Pit SVRA region were assessed. The Butte County Association of Governments (BCAG) projects that Butte County's population will increase from 217,209 in 2006 to 321,315 in 2030, representing an approximate average annual growth rate of 2.0% (BCAG 2010).

Existing Annual Visitation Estimates

Two sources of information were used to estimate the number of people now visiting the SVRA (the baseline): traffic counts gathered by KDA at the Clay Pit SVRA in spring 2010, and estimates compiled in the *California State Park System Statistical Report 2008/09 Fiscal Year* (statistical report) (State Parks 2010). These two sources, which provide baselines that are similar in magnitude, were used to establish a range of estimated visitation. Estimates based on data gathered by KDA are assumed to be more accurate because they were based on recent onsite data, and therefore were used as a conservative low baseline. Attendance figures in the statistical report for various park units are usually the result of estimates and various other techniques, and produce results of different levels of accuracy. Although the accuracy of these figures is limited, these estimates can be used with some validity as a high baseline for estimated visitation.

As described in the attached memorandum, extrapolating from the KDA traffic counts provides an annual visitation estimate of 11,125 vehicles. Because these traffic counts were considered to be average daily counts for the busy season, subtracting 20% generates an average annual estimate of 8,900 vehicles. Averaging the data in the statistical report as described in the attached KDA memo provides an estimated vehicle count of 13,800 vehicles per year. Therefore, estimates of visitation provided by both methods applied range from 8,900 to 13,800 vehicles per year. Using a ratio of 2.5 people per vehicle (also described in the attached KDA memo) generates an estimated range of 22,250–34,500 visitors per year.

Projected Annual Visitation for 2030

Based on research summarized in the attached memorandum, constructing the recreation facilities envisioned in the General Plan would result in an estimated increase of visitors ranging from 40% to 60%. Combining this increase with an estimated population increase of 2% per year provides a projected range of 46,288–82,024 visitors per year in 2030.

Low Estimate (using the KDA-estimated baseline of 8,900 vehicles per year)

- 8,900 vehicles per year + 40% for facility improvements = 12,460
- 12,460 + 2% per year population growth over 20 years = 18,515 vehicles
- 18,515 vehicles x 2.5 people per vehicle = **46,288 visitors per year**

High Estimate (using the statistical report–estimated baseline of 13,800 vehicles per year)

- 13,800 vehicles per year + 60% for facility improvements = 22,080
- 22,080 + 2% per year population growth over 20 years = 32,810 vehicles
- 32,810 vehicles x 2.5 people per vehicle= **82,024 visitors per year**

Although the above figures provide a valid range of projected visitation, the number of visitors per year is actually expected to fall between the two extremes. Because the baseline estimate from the

statistical report is thought to be somewhat inflated, a third estimate was developed using the baseline estimated from KDA traffic data. This intermediate estimate incorporates a median visitor increase of 50%. This estimate will be used in the EIR for analysis of potential impacts on traffic, noise, air quality, and climate change.

Expected Estimate (using the KDA–estimated baseline of 8,900 vehicles per year)

- 8,900 vehicles per year + 50% for facility improvements = 13,350
- 13,350 + 2% per year population growth over 20 years = 19,837 vehicles
- 19,837 vehicles x 2.5 people per vehicle = **49,593 visitors per year**

Visitation Estimates—Normal Operations

Using the KDA baseline data and the methodology described above, average-day and peak-hour visitation estimates were developed for normal operations, as summarized in Table 1. These estimates also will be used in the EIR for analysis of potential impacts on traffic, noise, air quality, and climate change.

Table 1. Clay Pit Trip Generation for Traffic Analysis

Trip Type and Condition	Weekday Trips		Saturday Trips	
	Daily	Peak Hour	Daily	Peak Hour
Trips Based on April 2010 Traffic Counts				
Vehicles counted	36	5	124	18
Existing annual average day (vehicles counted - 20%)	29	4	99	15
With developed area improvements (2017) (annual average day + 50%)	44	6	148	22
Existing plus Project (with improvements + 2% annual increase in attendance to year 2017)	50	7	170	25
Cumulative plus Project (with improvements + 2% annual increase in attendance to year 2030)	65	9	220	33
Additional Trips—Employee Trips for Headquarters (maximum of five employees on site at one time)	12	3	12	2

Special Events

Attendance numbers for special events held at Prairie City are similar in magnitude to those projected by KDA for Clay Pit SVRA, as described in the attached memorandum. Attendance numbers for anticipated special events at Clay Pit SVRA are estimated to be a little less than those at Prairie City SVRA because Prairie City SVRA is larger, has a larger local population base, and provides a wider variety of OHV recreational opportunities than Clay Pit SVRA. Likewise, both estimates are similar in magnitude to the peak-day visitation estimates summarized above. The types of activities and equipment used for special events are also expected to be similar to those seen under normal operations. Therefore, additional quantitative analyses for potential impacts resulting from special events are not necessary. A qualitative discussion of potential traffic impacts from special events will be included, and sample traffic control measures will be incorporated into General Plan guidelines.

References

Butte County Association of Governments (BCAG). 2010. Final Regional Growth Projections 2006–2030. Available: http://www.bcag.org/documents/demographics/pop_emp_projections/Final_Regional_Growth_Projections.pdf. Accessed December 16, 2010.

California Department of Parks and Recreation (State Parks). 2010. *California State Park System Statistical Report 2008/09 Fiscal Year*. Available: http://www.parks.ca.gov/?page_id=23308.

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KD Anderson & Associates, Inc.
Transportation Engineers

M E M O

To: Kim Fettke, AECOM

From: Mike Becker, KD Anderson & Associates

Date: December 29, 2010

Re: Clay Pit Trip Generation

The following summarizes relevant information considered in developing vehicle trip generation estimates for the Clay Pit GP EIR and is being provided for review and discussion by the project team. Please provide any input and comments which you might have.

The discussion focuses upon the affect that providing improved facilities at the site might have on visitor attendance. It does not consider other factors such as area population projections which may also influence attendance in future years.

KDA Traffic Counts at Clay Pit SVRA

Traffic counts conducted by KDA in April 2010 indicated that 18 vehicles entered the site on a weekday and 62 vehicles on a weekend day (Saturday). Extrapolating this information over a 365 day year would indicate 11,125 annual vehicles entering the site.

The April counts are estimated to represent a time period representative of relatively good attendance at the site. Counts were conducted during a good weather period when temperatures were relatively mild. It had rained approximately one week before the count period which resulted in some pools of water in low lying areas, but overall soil and weather conditions were conducive to OHV use.

Prairie City SVRA Comparison Data

Attendance information for the Prairie City facility for the 08/09 and 09/10 periods has been provided for comparison. This information summarizes monthly paid day use including 1) vehicle counts, 2) number of groups and 3) number of persons per Group. I

have not yet received clarification on what the number of groups and number of persons per group actually represents, but it appears to represent total attendance including typical daily park attendance and attendance at Special Events. The vehicle count information appears to represent typical park attendance throughout the year and is multiplied by a conversion factor of 2.5 to estimate paid day use attendance (i.e., average of 2.5 persons per vehicle) for the fiscal year.

Summarizing this vehicle count information results in a total sum of 24,326 annual vehicles for 08/09 and 19,877 for 09/10, or an average of 22,100 annual vehicles for the two year period. This is approximately double the annual attendance estimate discussed above for the Clay Pit site. Additionally, as the open riding area at Prairie City is only open 6 days a week, this average annual number could be increased to 25,800 to reflect a 365 day year. This resulting annual vehicle count would be approximately 130% higher than the annual attendance estimate discussed above for the Clay Pit site.

Statistical Report Visitor Information

Information compiled in the California State Park System Statistical Reports for the Clay Pit SVRA provides visitor number estimates for the fiscal years 01/02 through 08/09. Annual visitor numbers range from about 12,000 to 48,000, with an 8-year average of about 34,500. Assuming these estimates also use a conversion factor of 2.5 to estimate day use attendance (like that discussed above for Prairie City SVRA), an average annual vehicle count of 13,800 would result. This is higher, but somewhat similar in magnitude to the 11,125 annual vehicle estimate presented above using the KDA traffic count information.

Similar facilities and Factors affecting Trip Generation

The Clay Pit General Plan would permit the creation of a Developed Use area in addition to the Open OHV Recreation Area. Facilities that could be created in the developed area include MX and ATV tracks, training tracks, and a 4x4 recreation area. The Open Use area would continue to provide general riding areas like the ones that exist today. Development of any track and/or obstacle facilities is likely to increase attendance to the site, however, the magnitude of this increase will be largely dependent upon the quality and size of these facilities and the degree to which these facilities are maintained (ie., track features and surfaces prepped and watered on a regular basis). Related amenities such as staging, picnic and restroom facilities will likely also affect attendance numbers, but in themselves will likely not account for a substantial increase in attendance. Conversely, new entry fee requirements may discourage use of the site when compared to the current free entry.

Assuming development of an MX track, ATV track, youth track, a multi-use track and a 4x4 / trials area, developed facilities at the Clay Pit site would be similar to that which is available via general park admission at the Prairie City facility (i.e., without considering

additional facilities such as the Hangtown MX track which is managed and maintained under separate contract to the State). Although the open riding trail acreage is considerably larger at Prairie City, developed facilities would be similar. Prairie City currently offers one MX track, one ATV track, two youth tracks and a 4x4 area. Although factors such as the size of the open trail riding area and the size of the population base in close proximity to the site may not be directly comparable, developed facilities and climate would be comparable to the Clay Pit site.

Other Observations Affecting Trip Generation

The consultant has frequented a number of State OHV parks as well as private MX track facilities. Based upon this attendance, it is judged that development of tracks at the Clay Pit site will increase attendance, but attendance will continue to be limited by the size of the open trail riding area. The open trails as well as the tracks which might be created in the developed area will typically cater to families and beginner to novice riders. More advanced riders will typically frequent larger riding areas with more advanced terrain, as well as private riding facilities offering advanced tracks which are maintained on a daily basis. Beginning and novice riders will also typically visit a site to use both tracks and trails, and therefore, the limited size of the open riding area will likely continue to limit the number of visitors to the site.

Clay Pit Trip Generation Estimates

Based upon the above discussions and attendance data, it is estimated that a 40% - 60% increase in visitor attendance to the Clay Pit site is a reasonable estimate for purposes of projecting traffic increases associated with implementation of the General Plan. Using the traffic counts conducted by KDA as a baseline for existing average conditions, a 60% increase in visitors would result in 29 visitor vehicles entering the site on a weekday and 99 on a weekend day. This in turn would equate to 17,800 annual vehicles.

Other Comparisons

The consultant is familiar with current operations at the Riverfront Park MX track in Marysville. The facility has recently changed operators, and the new management has operated the track since October 1st of this year. The facility is open three weeknights as well as Saturday and Sunday days. During periods of good weather, the track has averaged approximately 50 riders on weeknights and 75 riders on weekend days. Using the 2.5 vehicle occupancy factor previously sited above, this would equate to 20 weekday visitor vehicles and 30 vehicles on a weekend day. Although this data is limited due to the recent change in track management, it is provided for purposes of comparison.

Special Events

Special events which could occur at the Clay Pit site have also been considered for purposes of discussion. Such events would likely consist primarily of some form of MX or ATV organized races. In addition to those held at Prairie City, the consultant has participated in organized races at the Carnegie and Hollister Hills SVRA facilities. These events were organized and conducted by Northern California race promoters. These events typically include practice on Saturday, with racing on Sunday. Camping is typically permitted on Friday and Saturday nights. Saturday practice typically occurs from 8:00 a.m. to 3:00 p.m. and is organized by motorcycle size and rider skill level. Sunday racing typically includes approximately 25 rider classes for individual races and occurs from 8:00 a.m. to 5:00 p.m.

Rider turnout is primarily dependent upon the venue and promoter. The consultant estimates that a race at Carnegie SVRA typically attracts 150 – 250 entries, with Hollister Hills attracting 250 – 350 entries. Based upon this, it is reasonable to estimate that perhaps an average of 225 entries might occur at a racing event at the Clay Pit SVRA. These numbers reflect rider entries for individual races, with many riders racing more than one class. Therefore, assuming about 50% of the riders race two classes, 225 entries would represent 150 participants. In terms of vehicle numbers, it is estimated that about 1.5 participants per vehicle is a reasonable estimate, and 150 participants would then equate to 100 vehicles.

The consultant also estimates that approximately 30% of the participants arrive on Friday night and camp for the weekend, 30% arrive on Saturday and camp and the 40% balance come and go each day on Saturday and Sunday. Additionally, spectators might account for another 20% increase in vehicle volumes on Sunday, or an additional 20 vehicles.

Using these estimates, 70 vehicles would be expected to enter the park on a Saturday and 40 vehicles would depart. On Sunday, 60 vehicles would be expected to enter the park and 120 vehicles exit the site. These vehicular volumes are similar in magnitude to those discussed above for a weekend day assuming potential improvements to the park. As previously discussed, a 60% increase in visitors associated with implementation of the General Plan is projected to result in 99 visitor vehicles entering the park on a weekend day. Therefore, analysis of weekend traffic conditions associated with implementation of the General Plan will likely also account for traffic associated with a special event, as the balance of the park would be typically closed to any open riding in conjunction with such an event.

APPENDIX D

Geotechnical Investigations

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GEOTECHNICAL INVESTIGATION

Clay Pit SVRA
Oroville, Butte County, California

PREPARED FOR:

CALIFORNIA STATE PARKS
NORTHERN SERVICE CENTER
ONE CAPITOL MALL, SUITE 500
SACRAMENTO, CALIFORNIA 95814

PREPARED BY:

GEOCON CONSULTANTS, INC.
3160 GOLD VALLEY DRIVE, SUITE 800
RANCHO CORDOVA, CALIFORNIA 95742

GEOCON

GEOCON PROJECT NO. S9030-06-22

APRIL 2010

GEOCON
CONSULTANTS, INC.
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS

Project No. S9030-06-22
April 9, 2010

DRAFT VIA ELECTRONIC MAIL

Mike Brown
California State Parks – Northern Service Center
One Capitol Mall, Suite 500
Sacramento, California 95814

Subject: CLAY PIT SVRA
OROVILLE, BUTTE COUNTY, CALIFORNIA
GEOTECHNICAL INVESTIGATION

Dear Mr. Brown:

In accordance with Work Order No. 60-014960-03 dated October 15, 2009, we have prepared this geotechnical investigation report for the subject project. The project consists of constructing a maintenance building and yard at the Clay Pit State Vehicular Recreation Area (SVRA) located about three miles southwest of Oroville in Butte County, California.

The accompanying report presents our findings, conclusions, and recommendations regarding the geotechnical aspects of developing the site as presently proposed. In our opinion, no adverse geotechnical conditions are present that would preclude development at the site provided the recommendations of this report are incorporated into the design and construction of the project.

Please contact us if you have any questions concerning the contents of this report or if we may be of further service.

Sincerely,

GEOCON CONSULTANTS, INC.

DRAFT

Jeremy J. Zorne, PE, GE
Senior Project Engineer

DRAFT

Robert G. Nixon, PE, GE
Senior Engineer

JJZ:RGN:jaj

(3) Addressee

CONTENTS

GEOTECHNICAL INVESTIGATION

GEOTECHNICAL INVESTIGATION

1.0 PURPOSE AND SCOPE

This report presents the results of our geotechnical investigation for the proposed maintenance improvements (building and yard) at the Clay Pit State Vehicular Recreation Area (SVRA) located about three miles southwest of Oroville in Butte County, California. The approximate site location is depicted on the Vicinity Map, Figure 1.

The purpose of our geotechnical investigation was to observe and sample the subsurface conditions encountered at the site and provide conclusions and recommendations relative to designing and constructing improvements as presently proposed.

To prepare this report, we performed the following scope of services:

- Performed a limited geologic literature review to aid in evaluating the geologic conditions present at the site. A list of referenced material is included in Section 9.0 of this report.
- Coordinated with California Department of Parks and Recreation (DPR) staff and performed a site reconnaissance to review project limits, determine excavation equipment access, and mark out exploratory excavation locations for subsequent underground utility clearance.
- Notified subscribing utility companies via Underground Service Alert (USA) a minimum of 48 hours (as required by law) prior to performing exploratory excavations at the site.
- Performed five exploratory trenches (T1 through T5) throughout the proposed maintenance yard area using a rubber-tire backhoe to depths ranging from approximately 8.5 to 12.5 feet.
- Obtained representative soil samples from the exploratory trenches.
- Logged the trenches in accordance with the Unified Soil Classification System (USCS).
- Performed three percolation tests adjacent to Trenches T1, T2 and T3 at depths ranging from approximately 3 to 5 feet.
- Upon completion, the exploratory trenches were backfilled with the excavated soil.
- Performed laboratory tests to determine pertinent geotechnical parameters.
- Prepared this report summarizing our findings, conclusions, and recommendations regarding the geotechnical aspects of improving the site as presently proposed.

Details of our field exploration including trench logs and percolation test worksheets are presented in Appendix A. The approximate locations of trenches and percolation tests are shown on the Site Plan, Figure 2. Details of our laboratory testing program and test results are presented in Appendix B.

2.0 SITE AND PROJECT DESCRIPTION

The site consists of an approximate 300-acre former borrow pit which reportedly served as the source for clay materials used in the construction of Oroville Dam. The pit is located on the west side of the

Feather River, southeast of the Oroville Municipal Airport. The pit was excavated to approximately 30 to 40 feet below surrounding grade, has a relatively flat bottom, and is surrounded by gently inclined side slopes. DPR operates the site as a motorcycle, all-terrain vehicle, and dune buggy use area. Based on the United States Geological Survey (USGS) topographic map (7.5-Minute Palermo Quadrangle, 1980), the pit bottom elevation is approximately 135 feet above mean sea level (MSL) and the elevation of the rim is approximately 170 feet above MSL.

DPR is planning to construct a maintenance yard and associated improvements within the northern portion of the site on the relatively flat, upper rim of the pit, on the south side of Larkin Road. Improvements may include a new entrance kiosk, maintenance yard, maintenance/ranger building, and a water storage tank. The maintenance/ranger building will likely be a 2,000-square-foot (or less) single-story concrete masonry unit (CMU) structure with an interior concrete slab-on-grade floor. The aboveground, steel, cylindrical water tank will likely have a diameter of approximately 40 feet, a height of 10 to 12 feet and an approximate storage capacity of 100,000 gallons. Other planned improvements will likely include a septic system and leachfield (if feasible), paved driveways and parking areas, and landscaping. The approximate area of proposed improvements is shown on the Site Plan, Figure 2. As of the date of this report, a specific site layout has not been determined.

Grading plans were not available as of the date of this report; however, we understand proposed grades will generally follow existing grades. Therefore, we anticipate that grading will be relatively minor with cuts and fills on the order of 3 feet or less.

3.0 SOIL AND GEOLOGIC CONDITIONS

The site is underlain by Tertiary-aged Laguna Formation (Consolidated Alluvial Deposits). Soil descriptions provided below include the USCS symbol where applicable.

3.1 Laguna Formation

The Laguna Formation generally consists of interbedded alluvial deposits comprised of poorly graded gravel with silt, clay, sand and cobbles (GP-GM, GP-GC), silty gravel (GM), clayey gravel (GC), and moderately to highly plastic, near-surface sandy lean clay (CL) and fat clay (CH) with variable amounts of gravel. Consistency and relative density of the Laguna Formation varies due to weathering, cementation, and deposition variations, but is generally stiff/dense to hard/very dense. The cemented layers are generally slightly to moderately cemented and difficult to excavate. Laboratory Plasticity Index (PI) and Expansion Index (EI) testing indicates that the near-surface clayey soils are moderately to highly expansive. Photographs of the Laguna Formation exposed and excavated during our investigation are presented as Photos 1 and 2.

Subsurface conditions described in the previous paragraph are generalized. Therefore, we advise the reader to consult the exploratory trench logs included in Appendix A. The logs include the soil type,

color, moisture, consistency, and USCS of the materials encountered at specific locations and elevations.

3.2 Percolation Conditions

We performed percolation tests to evaluate the infiltration conditions for design of a subsurface leachfield within the proposed maintenance yard. We performed percolation tests at depths ranging from approximately 3 to 5 feet in pits excavated adjacent to Trenches T1 and T3 (Tests P1 and P3) and within a borehole (excavated with a post-hole digger) adjacent to Trench T2 (Test P2). Percolation test results are summarized in Table 3.2. The percolation test procedure description and test worksheets are presented in Appendix A.

TABLE 3.2
SUMMARY OF PERCOLATION TEST RESULTS

Percolation Test Location	Test Depth (feet)	Average Percolation Rate (after 24-Hour Pre-Soak) mpi[1]	USDA Textural Classification at percolation test depth[2]
P1	5.0	No Percolation[3]	Sandy Loam
P2	3.0	35	Sandy Loam
P3	4.0	No Percolation[3]	Sandy Loam

1. *mpi = minutes per inch*
2. *USDA Textural Classification fractions normalized to 100% passing the 2 mm (No. 10) Sieve (see Figure B4 in Appendix B).*
3. *No measurable decrease in water level during the 4-hour test period*

4.0 GROUNDWATER

We did not encounter groundwater in our trenches performed on March 15, 2010 to a maximum depth of 12.5 feet. Based on our review of water well elevation data from the California Department of Water Resources, depth to groundwater for the site and vicinity seasonably varies from approximately 30 to 45 feet.

It should be noted that fluctuations in the level of groundwater may occur due to variations in precipitation, temperature, seasonal fluctuations, and other factors. Therefore, it is possible that future groundwater may be higher or lower than the levels noted during our investigation.

5.0 GEOLOGIC HAZARDS

5.1 Regional Active Faults

The numerous faults in California include active, potentially active, and inactive faults. The criteria for these major groups are based on criteria developed by the California Geological Survey (CGS) for the Alquist-Priolo Earthquake Fault Zone Program (Hart, 1999). By definition, an active fault is one that has had surface displacement within the last 11,000 years (Holocene). A potentially active fault has demonstrated surface displacement during Quaternary time (approximately the last 1.6 million years) but has had no known movement within the past 11,000 years. Faults that have not moved in the last 1.6 million years are considered inactive.

Based on our research, analyses, and observations, the site is not located on any known "active" earthquake fault trace. In addition, the site is not contained within an Alquist-Priolo Earthquake Fault Zone. Therefore, we consider the potential for ground rupture due to onsite active faulting to be low. Based on our review of local and regional geologic maps, the Foothills Fault System (Cleveland Hill Fault, source of the 1975 Oroville Earthquake) is located approximately 8.4 miles east, the Dunnigan Hills Fault is located approximately 47 miles southwest, and the Indian Valley Fault is located approximately 55 miles northeast.

5.2 Ground Shaking

We used the Internet website *Seismic Shaking Hazards in California (2003)*, provided by the California Geological Survey (CGS) to estimate the Peak Ground Acceleration (PGA) at the site. The CGS estimated PGA is 0.17g, where "g" is the acceleration due to gravity. This acceleration corresponds to an event with 10% chance of exceedence in a 50-year period (475-year return period). We also used the United States Geological Survey (USGS) computer program *2002 Interactive Deaggregations* to estimate the PGA and modal (most probable) magnitude associated with the 475-year return period. The USGS estimated PGA is 0.17g and the modal magnitude is 9.0.

While listing PGA is useful for comparison of potential effects of fault activity in a region, other considerations are important in seismic design, including frequency and duration of motion and soil conditions underlying the site. The site could be subjected to ground shaking in the event of an earthquake along the faults mentioned above or other area faults.

5.3 Liquefaction

Liquefaction is a phenomenon in which saturated cohesionless soils are subject to a temporary loss of shear strength due to pore pressure buildup under the cyclic shear stresses associated with intense

earthquakes. Based on the subsurface conditions at the site, liquefaction potential is expected to be low during seismic events.

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 General

6.1.1 No soil or geologic conditions were encountered during our investigation that would preclude construction of improvements at the site as planned, provided the recommendations contained in this report are incorporated into the design and construction of the project.

6.1.2 The primary geotechnical constraint identified during our investigation is the presence of moderate to highly expansive near-surface clay soils at the site. If not mitigated, these soils can cause differential movement (either shrink or swell) and significant damage to overlying structures and improvements. Specific recommendations for site grading, foundations, and other surface improvements are provided in this report.

6.1.3 Conclusions and recommendations provided in this report are based on our review of referenced literature, analysis of data obtained from our exploratory field exploration, laboratory testing program, and our understanding of the proposed development at this time.

6.2 Seismic Design Criteria

6.2.1 Structures should be designed in accordance with the seismic requirements contained in the 2007 CBC as summarized in Table 6.2.

TABLE 6.2
2007 CBC SEISMIC DESIGN PARAMETERS

Parameter	Value	CBC Reference
Site Class	D	Table 1613.5.2
Mapped Spectral Response Acceleration for Short Period, S_S	0.53g	Figure 1613.5(3)
Mapped Spectral Response Acceleration for 1-Second Period, S_1	0.22g	Figure 1613.5(4)
Site Coefficient, F_a	1.37	Table 1613.5.3(1)
Site Coefficient, F_v	1.97	Table 1613.5.3(2)
Seismic Coefficient, S_{MS}	0.73g	Equation 16-37
Seismic Coefficient, S_{M1}	0.43g	Equation 16-38
Design Spectral Response Acceleration for Short Period, S_{DS}	0.49g	Equation 16-39
Design Spectral Response Acceleration for 1-Second Period, S_{D1}	0.28g	Equation 16-40

6.2.2 Conformance to the criteria presented in Table 6.2 for seismic design does not constitute any kind of guarantee or assurance that significant structural damage or ground failure will not occur if a maximum level earthquake occurs. The primary goal of seismic design is to protect life and not to avoid structural damage, since such design may be economically prohibitive.

6.3 Soil Corrosion Potential

6.3.1 We performed a soil corrosion potential screening by performing laboratory testing on a representative near-surface, composite soil sample. The laboratory test results and published screening levels are presented in Appendix B.

6.4 Excavation Characteristics

6.4.1 In our opinion, grading and excavations at the site may be accomplished with moderate effort with conventional grading/excavation equipment. Excavation difficulty may be encountered within gravelly/cobbly zones or random cemented zones within the Laguna Formation. We anticipate grading/excavations will generate cobble material predominantly 8 inches and smaller. Some scattered cobble up to 12 inches and occasional boulders larger than 12 inches may also be generated.

6.4.2 Temporary excavation slopes must meet Cal-OSHA requirements as appropriate. We anticipate that the majority of excavations in undisturbed alluvial soils will be classified as Cal-OSHA "Type B" soil. Excavation sloping, benching, the use of trench shields, and the placement of trench spoils should conform to the latest applicable Cal-OSHA standards. The contractor should have a Cal-OSHA-approved "competent person" onsite during excavation to evaluate trench conditions and to make appropriate recommendations where necessary. It is the contractor's responsibility to provide sufficient and safe excavation support as well as protecting nearby utilities, structures, and other improvements which may be damaged by earth movements.

6.5 Permanent Cut and Fill Slopes

6.5.1 Permanent cut and fill slopes should be constructed no steeper than 2H:1V. To mitigate potential erosion, slopes should be vegetated as soon as possible and surface drainage should be directed away from the tops of slopes.

6.6 Materials for Fill

6.6.1 Excavated soils generated from cut operations at the site are suitable for use as engineered fill in structural areas (building pads and pavement areas) provided they do not contain deleterious matter, organic material, or rock/cementations larger than 6 inches in maximum dimension. Excavated material may require screening to remove cobble/boulders larger than 6 inches.

6.6.2 Import and low-expansive fill material should be primarily granular with a "low" expansion potential (Expansion Index less than 50), a Plasticity Index less than 15, be free of organic

material and construction debris, and not contain rock/cementations larger than 6 inches in greatest dimension.

6.6.3 Environmental characteristics and corrosion potential of import soil materials should also be considered. Proposed import materials should be sampled, tested, and approved by Geocon prior to its transportation to the site.

6.7 Leachfield Feasibility

6.7.1 We performed percolation tests to evaluate the infiltration conditions for design of a subsurface leachfield within the proposed maintenance yard. Percolation test results are summarized in Table 3.2. Percolation test results generally indicate very slow infiltration properties. This is likely due to the cementation and clay content of the Laguna Formation. Slow infiltration was also evidenced by the ponding of recent rain (Photo 3) on the ground surface. A photograph of the percolation test adjacent to Trench T3 is presented as Photo 4. We recommend that the designer use a conservative percolation rate based on the anticipated usage.

6.7.2 Geocon does not practice leachfield system engineering. Our conclusions are based on general leachfield design and familiarity with similar projects. Leachfield improvements should be constructed in accordance with approved permit requirements under proper jurisdiction.

6.8 Groundwater and Dewatering

6.8.1 We do not anticipate groundwater to significantly affect grading operations if conducted during the seasonal dry period (typically summer and fall). Significant groundwater infiltration within excavations less than 10 feet deep is not anticipated. However, groundwater and soil moisture conditions could be significantly different during the wet seasons (typically winter and spring) as perched groundwater conditions can develop.

6.8.2 The contractor should be prepared to accommodate potential “nuisance” seepage (perched groundwater) in project excavations if grading/excavation occurs during the seasonal wet period (typically winter and spring). Generally, some form of trench subgrade stabilization may be necessary where unstable soils are exposed. Since we do not know the extent of potential locally soft or unstable areas, our field representative should provide mitigation recommendations in the field at the time of construction. Typical mitigation alternatives include overexcavation and replacement with a gravel mat wrapped in geosynthetic fabric to provide a stable bottom.

6.9 Wet Weather Grading Conditions

6.9.1 If grading commences during the seasonal wet period (typically winter and spring), surface soils will likely be wet. Earthwork contractors should be aware of moisture sensitivity of clayey and fine-grained soils and potential compaction/workability difficulties.

6.9.2 Earthwork and pad preparation operations in these conditions will likely be difficult with low productivity. Often, a period of at least one month of warm and dry weather is necessary to allow the site to dry sufficiently so that heavy grading equipment can operate effectively and required compaction can be achieved. Conversely, during the seasonal dry period (typically summer and fall), dry clay soils may require additional grading effort (discing or other means) to attain proper moisture conditioning.

6.10 Grading

6.10.1 Earthwork operations should be observed and fills tested for recommended compaction and moisture content by a representative of our firm.

6.10.2 References to relative compaction and optimum moisture content in this report are based on the latest American Society for Testing and Materials (ASTM) D1557 Test Procedure. Structural building pad areas should be considered as areas extending a minimum of 5 feet horizontally beyond the outside dimensions of buildings, including footings and overhangs carrying structural loads.

6.10.3 Prior to commencing grading, a pre-construction conference with representatives of the client, grading contractor, and Geocon should be held at the site. Site preparation, soil handling and/or the grading plans should be discussed at the pre-construction conference.

6.10.4 Site preparation should begin with removal any existing surface/subsurface structures and underground utilities (if present), debris, organic-rich topsoil, and existing fill. Surface vegetation consisting of grasses and other similar vegetation should be removed by stripping to a sufficient depth to remove organic-rich topsoil. We estimate required stripping depths will range from approximately 2 to 4 inches. The actual stripping depth should be determined based on site conditions prior to grading. Material generated during stripping is not suitable for use within 5 feet of structural building pads or engineered fill areas.

6.10.5 Excavations or depressions resulting from site clearing operations, or other existing excavations or depressions, should be restored with engineered fill in accordance with the recommendations of this report.

6.10.6 After site preparation, areas to receive fill or left at grade should be scarified at least 6 inches, uniformly moisture-conditioned at least 2% above optimum moisture content and compacted to at least 90% relative compaction. Scarification and recompaction operations should be performed in the presence of a Geocon representative to evaluate performance of soils under compaction equipment loading.

6.10.7 Engineered fill consisting of onsite or approved import sources should be compacted in horizontal lifts not exceeding 8 inches (loose thickness) and brought to final subgrade elevations. Each lift should be moisture-conditioned at least 2% above optimum and compacted to at least 90% relative compaction.

6.10.8 If conventional shallow foundations with interior slabs-on-grade are used, the top 12 inches of building pads (not including the rock section below the slab) should be comprised of low-expansive fill meeting the requirements of Paragraph 6.6.2 of this report. Low-expansive fill should be moisture-conditioned at or near optimum moisture content and compacted to at least 90% relative compaction.

6.10.9 If post-tensioned (PT) slabs are used, the 12-inch layer of low-expansive fill within building pads is not required. The upper 12 inches of final building pad subgrade, whether completed at grade, by excavation, or filling should be uniformly moisture-conditioned at least 2% above optimum moisture content and compacted to at least 90% relative compaction.

6.10.10 The upper 6 inches of final vehicular pavement subgrade should be uniformly moisture-conditioned at least 2% above optimum moisture content and compacted to at least 95% relative compaction. Final pavement subgrade should be finished to a smooth, unyielding surface. We recommend proof-rolling the subgrade with a loaded water truck (or similar equipment with high contact pressure) to verify the stability of the subgrade prior to placing AB.

6.10.11 Underground utility trenches within structural areas should be backfilled with properly compacted material. Pipe bedding, shading and backfill should conform to the requirements of the appropriate utility authority. Material excavated from trenches should be adequate for use as general backfill above shading provided it does not contain deleterious matter, vegetation or cementations larger than 6 inches in maximum dimension. Trench backfill should be placed in loose lifts not exceeding 8 inches. Lifts should be compacted to a minimum of 90% relative compaction at least 2% above optimum moisture content.

6.11 Foundations – Maintenance Building

Based on the moderately to highly expansive soil conditions at the site, the maintenance building may be supported on a conventional shallow foundation with deepened continuous perimeter footings and

interior concrete slabs-on-grade. Alternatively, the building may be supported on a post-tensioned (PT) slab. As previously discussed, if a conventional slab-on-grade foundation is used, the top 12 inches of the building pad should be comprised of low-expansive fill meeting the requirements of Paragraph 6.6.2 of this report.

6.11.1 The proposed maintenance building may be supported on a conventional shallow foundation with deepened continuous perimeter footings within a building pad prepared in accordance with the recommendations of this report. The upper 12 inches of the building pad should be comprised of low-expansive fill meeting the requirements of Paragraph 6.6.2 of this report.

6.11.2 To reduce potential for moisture variations beneath the building and associated soil expansion, foundations should consist of continuous perimeter strip footings with isolated interior spread footings. Perimeter strip footings should be continuous around the entire perimeter of the structure without breaks or discontinuities.

6.11.3 Continuous perimeter strip footings and isolated interior spread footings should be embedded at least 18 inches below pad grade. Underground utilities running parallel to footings should not be constructed in the zone of influence of footings. The zone of influence may be taken to be the area beneath the footing and within a 1:1 plane extending out and down from the bottom of the footing.

6.11.4 Continuous footings should be reinforced with at least four No. 4 reinforcement bars, two each placed near the top and bottom of the footing to minimize effects of expansive clay soils and to allow footings to span isolated soil irregularities. Consideration should be given to using slab tie reinforcing bars between the perimeter foundation and the interior slab. The reinforcement recommended above is for soil characteristics only and is not intended to replace reinforcement required for structural considerations. The project structural engineer should evaluate the need for additional reinforcement.

6.11.5 Foundations proportioned as recommended above may be designed for an allowable soil bearing capacity of 3,000 psf for combined dead plus live loads. This value may be increased by one-third to evaluate all loads, including wind or seismic forces.

6.11.6 The allowable passive pressure used to resist lateral movement of the footings may be assumed to be equal to a fluid weighing 300 pcf. The allowable coefficient of friction to resist sliding is 0.30 for concrete against soil. Combined passive resistance and friction may be utilized for design provided that the frictional resistance is reduced by 50%.

6.11.7 Alternatively, the building may be supported on a PT slab designed by a structural engineer experienced in PT slab design and design criteria of the Post-Tensioning Institute's (PTI),

Standard Requirements for Analysis of Shallow Concrete Foundations on Expansive Soils, latest edition, as required in Section 1805.8 of the 2007 CBC. PT foundation design should incorporate the geotechnical parameters presented in Table 6.11. The parameters in the table are based on the PTI 4th Edition, May 2008.

TABLE 6.11
POST-TENSIONED SLAB DESIGN PARAMETERS

Design Parameter (PTI 4th Edition)	Recommended Value
1. Thornthwaite Index	-20
2. Equilibrium Suction	3.9 pF
3. Edge Lift Moisture Variation Distance, $\mathbf{e_M}$	4.9 feet
4. Edge Lift, $\mathbf{y_M}$	1.58 inches
5. Center Lift Moisture Variation Distance, $\mathbf{e_M}$	9.0 feet
6. Center Lift, $\mathbf{y_M}$	0.66 inches

6.11.8 Allowable bearing capacity for PT slabs should not exceed 3,000 pounds per square foot (psf) for dead plus live load conditions. This value may be increased by one-third to evaluate all loads, including wind or seismic forces. The structural engineer should determine slab thickness and reinforcing based on anticipated use and loading of the slab.

6.11.9 The allowable passive pressure used to resist lateral movement of foundations may be assumed to be equal to a fluid weighing 300 pcf. The allowable coefficient of friction to resist sliding is 0.30 for concrete against soil. The upper 12 inches of soil should not be included in the design for lateral resistance; therefore, passive resistance should be neglected for PT slab foundations.

6.11.10 Isolated footings carrying structural loads that are independent of the PT slab should be connected to the PT slab with grade beams. Footings and grade beams should have a minimum embedment depth of 18 inches below pad grade.

6.11.11 Prior to placing the vapor barrier, pad subgrade soil should be moisture-conditioned to at least 2% above optimum moisture content to a depth of at least 12 inches. Geocon should confirm the moisture content of the subgrade soils at least 48 hours prior to placing the moisture barrier.

6.12 Foundations – Water Tanks

6.12.1 The proposed cylindrical water tank may be supported on a shallow ring foundation bearing entirely on firm, undisturbed native soil/rock or engineered fill. The tank pad should be

prepared in accordance with the recommendations of this report. We assume the tank will be supported on perimeter ring footings with either concrete slabs-on-grade or gravel pads. Ring footings should be at least 12 inches wide and should be embedded at least 18 inches below pad grade. The project structural engineer should determine footing reinforcement based on the structural requirements.

6.12.2 Ring footings proportioned as recommended above may be designed for an allowable soil bearing capacity of 3,000 psf for dead plus live loads. This value may be increased by one-third to account for all loads, including wind and seismic.

6.12.3 Allowable passive pressure used to resist lateral movement of footings may be assumed to be equal to a fluid weighing 300 pcf. The allowable coefficient of friction to resist sliding of footings is 0.30 for concrete against soil. Combined passive resistance and friction may be utilized for footing design provided that the frictional resistance is reduced by 50%.

6.12.4 Concrete slabs-on grade for the tank (if used) should be underlain by a 12-inch layer of low-expansive fill meeting the requirements of Paragraph 6.6.2 of this report.

6.13 Slabs-on-Grade

6.13.1 Interior concrete slab-on-grade floors in conjunction with conventional shallow foundations recommended in this report are suitable for the proposed maintenance building. The upper 12 inches of building pads should be comprised of low-expansive fill meeting the requirements of Paragraph 6.6.2 of this report. This recommendation is based on the assumption that the slab will be at least 5 inches thick and be supported on a 4-inch-thick rock section. If a thinner or thicker slab or rock section is planned, we should be consulted to provide revised recommendations.

6.13.2 Slab thickness and reinforcement should be determined by the structural engineer based on the anticipated loading. However, due to the highly expansive soil conditions, we recommend that consideration be given to using slabs that are at least 5 inches thick and reinforced with at least No. 4 reinforcing bars placed 18 inches on center, each way.

6.13.3 If the near-surface soils of building pads become dry prior to constructing concrete slabs-on-grade, building pads should be re-moistened by soaking or sprinkling such that the upper 12 inches of soil is at least 2% above optimum moisture content at least 24 hours before concrete placement.

6.14 Slab-on-Grade Moisture Protection Considerations

6.14.1 Migration of moisture through concrete slabs or moisture otherwise released from slabs is not a geotechnical issue. However, for the convenience of the owner, we are providing the following general suggestions for consideration by the owner, architect, structural engineer, and contractor. The suggested procedures may reduce the potential for moisture-related floor covering failures on concrete slabs-on-grade, but moisture problems may still occur even if the procedures are followed. If more detailed recommendations are desired, we recommend consulting a specialist in this field.

6.14.2 A minimum 10-mil-thick vapor barrier meeting ASTM E1745-97 Class C requirements may be placed directly below the slab, without a sand cushion. To reduce the potential for punctures, a higher quality vapor barrier (15 mil, Class A or B) may be used. The vapor barrier, if used, should extend to the edges of the slab, and should be sealed at all seams and penetrations.

6.14.3 At least 4 inches of ½- or ¾-inch crushed rock, with no more than 5 percent passing the No. 200 sieve, may be placed below the vapor barrier to serve as a capillary break. If desired, the crushed rock thickness may be reduced to 2 inches below conventional reinforced mat or PT mats.

6.14.4 The concrete water/cement ratio should be as low as possible. The water/cement ratio should not exceed 0.45 for concrete placed directly on the vapor barrier. Midrange plasticizers could be used to facilitate concrete placement and workability.

6.14.5 Proper finishing, curing, and moisture vapor emission testing should be performed in accordance with the latest guidelines provided by the American Concrete Institute, Portland Cement Association, and ASTM.

6.15 Concrete Flatwork

6.15.1 Due to the presence of moderately to highly expansive near-surface soils, onsite exterior concrete flatwork will likely experience seasonal movement. Therefore, some cracking and/or vertical offset should be anticipated. We are providing the following recommendations to reduce distress to concrete flatwork. Recommendations include moisture conditioning subgrade soils, using low-expansive fill underlayment, and providing adequate construction and control joints. It should be noted that even with implementation of these measures, minor slab movement or cracking could still occur.

- Concrete flatwork, sidewalks and residential driveways should be at least 4 inches thick and underlain by at least 6 inches of low-expansive fill. Low-expansive fill may consist of Class 2 AB or soil meeting the requirements of Paragraph 6.6.2 of this report. Low-expansive fill should be compacted to at least 90% relative compaction. In addition,

reinforcing steel and/or doweling could be provided to reduce the potential for cracking and/or vertical offset.

- The upper 6 inches of subgrade soil for exterior flatwork, sidewalk and residential driveway areas should be uniformly moisture-conditioned at least 2% above optimum content and compacted to at least 90% relative compaction prior to placing low-expansive fill.
- We recommend using a maximum control joint spacing of 8 feet in each direction and construction joint spacing of 10 to 12 feet. Construction joints that abut building foundations should include a felt strip, or approved equivalent, that extends the full depth of the exterior slab. Exterior slabs should structurally independent of building foundations except at doorways.

6.16 Pavement – Hot Mix Asphalt

6.16.1 We collected a bulk sample of the near-surface soils (6 inches to 3 feet) from Trench T1. We tested the bulk sample for Resistance-Value (R-Value) in accordance with California Department of Transportation (CAL) Test Method 301. The resulting R-Value was 50. To account for subgrade variability and the potential for clayey soils to be exposed at subgrade elevations, we consider an R-Value of 25 to be applicable for design.

6.16.2 We recommend the following alternative hot mix asphalt (HMA) pavement sections for design. The project civil engineer should determine the appropriate Traffic Index (TI) for pavement design. Table 6.16 provides alternative pavement sections based on various TIs. We can provide additional section designs upon request.

TABLE 6.16
FLEXIBLE PAVEMENT SECTIONS

	Traffic Index				
	4.0	4.5	5.0	5.5	6.0
HMA, inches	2.5	2.5	3.0	3.0	3.5
AB, inches	5.0	6.0	6.5	8.0	8.5
Total Section Thickness	7.5	8.5	9.5	11.0	12.0

6.16.3 The recommended alternative pavement sections are based on the following assumptions:

1. Subgrade soil has an R-Value of at least 25.
2. Class 2 AB has a minimum R-Value of 78 and meets the requirements of Section 26 of the latest *Caltrans Standard Specifications*.
3. Class 2 AB is compacted to 95% or higher relative compaction at or near optimum moisture content. Prior to placing HMA, the AB should be proof-rolled with a loaded water truck to verify stability.
4. HMA should conform to Section 39 of the latest *Caltrans Standard Specifications.*

5. Periodic maintenance of HMA pavement is performed.

6.16.4 To reduce the potential for water from landscaped areas migrating under pavement into the AB, full-depth curbs should be used in areas where pavement abuts irrigated landscaping. The full-depth curbs should be at least 4 inches wide and extend at least 4 inches or more into the soil subgrade beneath the AB. Where no curbs are present, plastic moisture cut-offs should be used. Additionally, modified drop-inlets that contain weep-holes should be used to encourage accumulated water to drain from beneath the pavement.

6.16.5 HMA pavement section recommendations for driveways and parking areas are based on the design procedures of the Caltrans *Highway Design Manual*, latest edition. It should be noted that most rational pavement design procedures are based on projected street or highway traffic conditions and, hence, may not be representative of vehicular loading that occurs in parking lots and driveways. Pavement proximity to landscape irrigation, reduced traffic speed and short turning radii increase the potential for pavement distress to occur in parking lots even though the volume of traffic is significantly less than that of an adjacent street. The *Highway Design Manual* indicates that the resulting pavement sections for parking lots are "minimized to keep initial costs down but are reasonable because additional AC surfacing can be added later if needed, and generally without incurring traffic hazards or traffic handling problems." It is generally not economically feasible to design and construct the entire parking lot and driveways for the unique loading conditions previously described. Periodic maintenance of pavement areas should be anticipated.

6.17 Pavement – Concrete

6.17.1 Rigid concrete pavement may be used in heavy traffic areas or by trash bin enclosures. Based on the soil conditions encountered at the site, and Portland Cement Association guidelines (Thickness Design for Concrete Highway and Street Pavements, 1984), concrete pavement should consist of at least 6 inches Portland Cement Concrete (PCC) overlying at least 6 inches of Class 2 AB meeting the requirements of Section 26 of the Caltrans Standard Specifications.

6.17.2 Subgrade soils should be prepared in accordance with the recommendations of this report. Class 2 AB should be compacted to 95% or higher relative compaction at or near optimum moisture content. AB should be proof-rolled with a loaded water truck to verify stability.

6.17.3 Concrete should have a minimum 28-day compressive strength of 3,500 psi. Adequate construction and crack control joints should be used to control cracking inherent in concrete construction. It would be advantageous to provide minimal reinforcement, such as No. 4 steel bars placed 18 inches on center in both horizontal directions to help control cracking.

Adequate dowels should also be used at joints to facilitate load transfer and reduce vertical offset. In addition, the recommendations above pertaining to full-depth curbs, moisture cut-offs, and subsurface drainage apply to concrete pavements as well as asphalt pavements.

6.17.4 In general, we recommend that concrete pavements be designed, constructed and maintained in accordance with industry standards such as those provided by the American Concrete Pavement Association.

6.18 Drainage

6.18.1 Adequate drainage is imperative to reduce the potential for erosion and subsurface seepage. Care should be taken to properly grade the finished surface around the building pad after the structure and other improvements are in place, so that drainage water is directed away from the building and toward appropriate drainage facilities. Final grade should slope a minimum of 2% away from the structure.

6.18.2 Experience has shown that even with these provisions, subsurface seepage may develop in areas where no such water conditions existed prior to site development. This is particularly true where a substantial increase in surface water infiltration has resulted from an increase in landscape irrigation.

7.0 FURTHER GEOTECHNICAL SERVICES

7.1 Plan and Specification Review

We should review the improvement plans and specifications prior to final design submittal to assess whether our recommendations have been properly implemented and evaluate if additional analysis and/or recommendations are required.

7.2 Testing and Observation Services

The recommendations provided in this report are based on the assumption that we will continue as Geotechnical Engineer of Record throughout the construction phase. It is important to maintain continuity of geotechnical interpretation and confirm that field conditions encountered are similar to those anticipated during design. If we are not retained for these services, we cannot assume any responsibility for other's interpretation of our recommendations or the future performance of the project.

8.0 LIMITATIONS AND UNIFORMITY OF CONDITIONS

The recommendations of this report pertain only to the site investigated and are based upon the assumption that the soil conditions do not deviate from those disclosed in the investigation. If any variations or undesirable conditions are encountered during construction, or if the proposed construction will differ from that anticipated herein, Geocon should be notified so that supplemental recommendations can be given. The evaluation or identification of the potential presence of hazardous materials or environmental contamination was not part of the scope of services provided by Geocon.

This report is issued with the understanding that it is the responsibility of the owner or their representative to ensure that the information and recommendations contained herein are brought to the attention of the design team for the project and incorporated into the plans and specifications, and the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field.

The recommendations contained in this report are preliminary until verified during construction by representatives of our firm. Changes in the conditions of a property can occur with the passage of time, whether they are due to natural processes or the works of man on this or adjacent properties. Additionally, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated partially or wholly by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of three years.

Our professional services were performed, our findings obtained, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices used in this area at this time. No warranty is provided, express or implied.

9.0 REFERENCES

1. California Department of Transportation, 2008, *Highway Design Manual*, Sixth Edition, July 1, 2008.

2. California Department of Transportation, *Standard Specifications for Construction of Local Streets and Roads*, July 2004.

3. California Department of Water Resources, *Groundwater Level Data*, (http://wdl.water.ca.gov/gw/), 2007. Well Nos. 19N03E22A001M (Oroville, CA) and 19N03E16Q001M (Oroville, CA)

4. California Geological Survey, Helley, E.J., and Harwood, D.S., *Central Sacramento Valley, Cenozoic Deposits of the Sacramento Valley and Northern Sierran Foothills, California*, 1985.

5. California Geological Survey, *Seismic Shaking Hazards in California, Based on the USGS/CGS Probabilistic Seismic Hazards Assessment (PSHA) Model, 2002 (revised April 2003)*, http://redirect.conservation.ca.gov/cgs/rghm/pshamap/pshamain.html.

6. Portland Cement Association, *Concrete Floors on Ground*, 2001.

7. Post-Tensioning Institute (PTI), *Standard Requirements for Analysis of Shallow Concrete Foundations on Expansive Soils*, May 2008

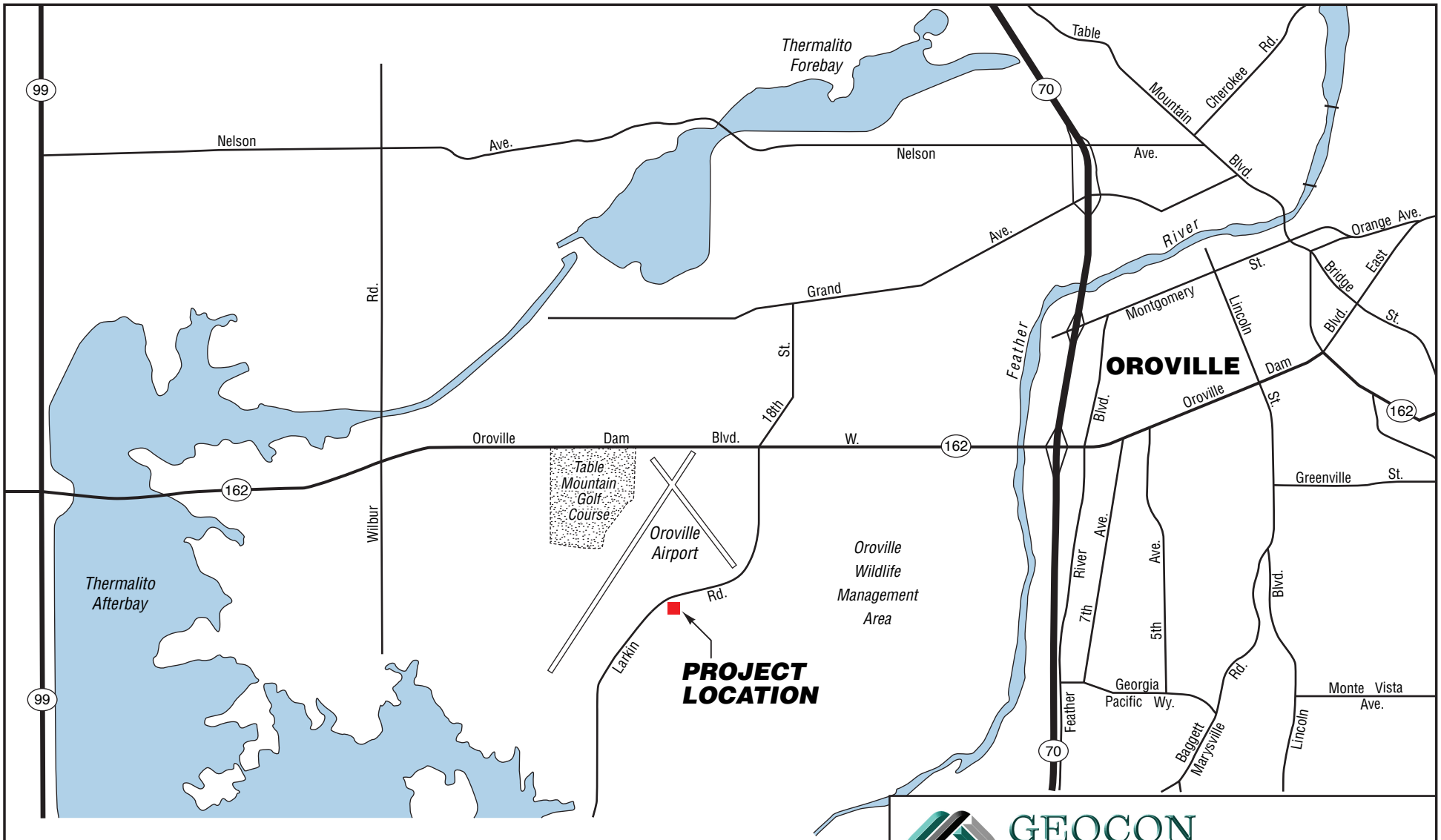
8. United States Geological Survey, 7.5-Minute Series (Topographic), *Palermo Quadrangle, California*, 1980.

9. United States Geological Survey, *2008 Interactive Deaggregations*, http://eqint.cr.usgs.gov/deaggint/2002/index.php

10. United States Geological Survey, *Seismic Hazard Curves and Uniform Response Spectra*, Version 5.0.8, November 2007.

11. Unpublished reports, aerial photographs, and maps on file with Geocon.

12. United States Geological Survey, 2002 Interactive Deaggregations, http://eqint.cr.usgs.gov/deaggint/2002/index.php.



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Clay Pit SVRA

Oroville, Butte County, California

VICINITY MAP

S9030-06-22	March 2010	Figure 1

LEGEND:

T5 Approximate Exploratory Trench Location

P2 Approximate Percolation Test Location (Test Performed in Pit)

P3 Approximate Percolation Test Location (Test Performed in Borehole)

0 80

Scale in Feet

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California

SITE PLAN

S9030-06-22	March 2010	Figure 2

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Photo No. 1 Laguna Formation Exposed in Trench

Photo No. 2 Excavated Laguna Formation

SITE PHOTOS NO. 1 & 2

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GEOCON Project No. S9030-06-22 | March 2010

Photo No. 3 Standing Water from Recent Rain

Photo No. 4 Percolation Test in Pit

SITE PHOTOS NO. 3 & 4

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Oroville, Butte County, California

GEOCON Project No. S9030-06-22 | March 2010

APPENDIX A

FIELD EXPLORATION

Our geotechnical field exploration was performed on March 15, 2010, and consisted of excavating five exploratory trenches (T1 through T5) at the approximate locations shown on the Site Plan, Figure 2.

Trenches were performed using a John Deere 310LE backhoe equipped with an 18-inch-wide bucket. Bulk soil samples were obtained from the trenches. Upon completion, the trenches were backfilled with the excavated material. The backfill was placed in loose lifts, approximately 18 to 24 inches thick, and tamped with the backhoe bucket.

Subsurface conditions encountered in the trenches were visually examined, classified and logged in general accordance with the American Society for Testing and Materials (ASTM) Practice for Description and Identification of Soils (Visual-Manual Procedure D2488-90). This system uses the Unified Soil Classification System (USCS) for soil designations. The logs depict soil and geologic conditions encountered and depths at which samples were obtained. The logs also include our interpretation of the conditions between sampling intervals. Therefore, the logs contain both observed and interpreted data. We determined the lines designating the interface between soil materials on the logs using visual observations, excavation characteristics and other factors. The transition between materials may be abrupt or gradual. Where applicable, the field logs were revised based on subsequent laboratory testing. Logs of the exploratory trenches are presented herein.

Percolation tests were performed at depths ranging from approximately 3 to 5 feet in pits excavated adjacent to Trenches T1 and T3 (Tests P1 and P3) and within a borehole (excavated with a post-hole digger) adjacent to Trench T2 (Test P2). The sidewalls and bottoms of the test holes were scarified to remove any glazing that resulted from excavation, loose soil was then removed. The excavations were filled with water and allowed to soak overnight. Percolation tests were performed by re-filling the excavations and measuring the water level at varying time intervals (typically 30 minutes) depending on observed percolation conditions. Total test time was four hours. Upon completion, the percolation test excavations were backfilled with the excavated material. Average (stabilized) percolation rates are summarized in Table 3.2. Percolation test data sheets are presented herein.

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			SYMBOL		TYPICAL NAMES
COARSE-GRAINED SOILS MORE THAN HALF IS COARSER THAN NO. 200 SIEVE	**GRAVELS** MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE SIZE	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW		WELL GRADED GRAVELS WITH OR WITHOUT SAND, LITTLE OR NO FINES
			GP		POORLY GRADED GRAVELS WITH OR WITHOUT SAND, LITTLE OR NO FINES
		GRAVELS WITH OVER 12% FINES	GM		SILTY GRAVELS, SILTY GRAVELS WITH SAND
			GC		CLAYEY GRAVELS, CLAYEY GRAVELS WITH SAND
	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE SIZE	CLEAN SANDS WITH LITTLE OR NO FINES	SW		WELL GRADED SANDS WITH OR WITHOUT GRAVEL, LITTLE OR NO FINES
			SP		POORLY GRADED SANDS WITH OR WITHOUT GRAVELS, LITTLE OR NO FINES
		SANDS WITH OVER 12% FINES	SM		SILTY SANDS WITH OR WITHOUT GRAVEL
			SC		CLAYEY SANDS WITH OR WITHOUT GRAVEL
FINE-GRAINED SOILS MORE THAN HALF IS FINER THAN NO. 200 SIEVE	**SILTS AND CLAYS** LIQUID LIMIT 50% OR LESS		ML		INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTS WITH SANDS AND GRAVELS
			CL		INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, CLAYS WITH SANDS AND GRAVELS, LEAN CLAYS
			OL		ORGANIC SILTS OR CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50%		MH		INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS, FINE SANDY OR SILTY SOILS, ELASTIC SILTS
			CH		INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH		ORGANIC CLAYS OR CLAYS OF MEDIUM TO HIGH PLASTICITY
HIGHLY ORGANIC SOILS			PT		PEAT AND OTHER HIGHLY ORGANIC SOILS

BORING/TEST PIT LOG LEGEND

pp	—	Pocket Penetrometer (tsf)
tsf	—	Tons Per Square Foot
LL	—	Liquid Limit
PI	—	Plasticity Index
	—	Shelby Tube Sample
	—	Bulk Sample
	—	SPT Sample
	—	Modified California Sample
	—	Groundwater Level (At Completion)
	—	Groundwater Level (First Encountered)

PENETRATION RESISTANCE

SAND AND GRAVEL			SILT AND CLAY			
RELATIVE DENSITY	BLOWS PER FOOT (SPT)*	BLOWS PER FOOT (MOD-CAL)*	CONSISTENCY	BLOWS PER FOOT (SPT)*	BLOWS PER FOOT (MOD-CAL)*	COMPRESSIVE STRENGTH (tsf)
VERY LOOSE	0 - 4	0 - 7	VERY SOFT	0 - 2	0 - 2	0 - 0.25
LOOSE	4-10	7 - 17	SOFT	2 - 3	2 - 4	0.25 - 0.50
MEDIUM DENSE	10-30	17 - 48	MEDIUM STIFF	3 - 8	4 - 10	0.50 - 1.0
DENSE	30-50	48 - 85	STIFF	8 - 15	10 - 20	1.0 - 2.0
VERY DENSE	OVER 50	OVER 85	VERY STIFF	15 - 30	20 - 48	2.0 - 4.0
			HARD	OVER 30	OVER 48	OVER 4.0

*NUMBER OF BLOWS OF 140 LB HAMMER FALLING 30 INCHES TO DRIVE LAST 12 INCHES OF AN 18-INCH DRIVE

GEOCON

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Key to Logs

Project: Clay Pit SVRA
Location: Oroville, CA
Number: S9030-06-22
Figure: A1

GEOCON LOG LEGEND CLAY PIT SVRA.GPJ 4/5/10

PROJECT NO. **S9030-06-22** PROJECT NAME **Clay Pit SVRA**

TRENCH T1

ELEV. (MSL.) **N/A** DATE COMPLETED **3-15-10**

ENG./GEO. **Mark Repking** DRILLER **Independent Engineering**

EQUIPMENT **Deere 310LE Backhoe** HAMMER TYPE

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	T1-0			CL	**LAGUNA FORMATION**			19.2
1	T1-0.5-3			GP-GC	Very stiff, very moist, dark reddish brown, lean CLAY with sand, trace gravel, moderate plasticity LL = 49 PI = 27 pp = 2.0 tsf			
2								
3					Very dense, slightly moist, dark yellowish brown, poorly graded GRAVEL with clay and sand, slightly cemented, difficult excavation effort			
4								
5	T1-5-8							
6					-trace cobbles up to 6 inches			
7								
8					-becomes dense, moderate to difficult excavation effort -increase in 6 inch cobbles			
9								
10					-cobble up to 1 foot			
11								
12					-becomes very dense, difficult excavation effort			
					TRENCH TERMINATED AT 12.5 FEET NO GROUNDWATER ENCOUNTERED PERC TEST IN ADJACENT TRENCH AT 5 FEET			

Figure A2, Log of Trench, page 1 of 1

IN PROGRESS CLAY PIT SVRA.GPJ 04/05/10

GEOCON

SAMPLE SYMBOLS

☐ ... SAMPLING UNSUCCESSFUL ◧ ... STANDARD PENETRATION TEST ■ ... DRIVE SAMPLE (UNDISTURBED)

▨ ... DISTURBED OR BAG SAMPLE ◥ ... CHUNK SAMPLE ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. **S9030-06-22** PROJECT NAME **Clay Pit SVRA**

TRENCH T2

ELEV. (MSL.) _____ DATE COMPLETED **3-15-10**

ENG./GEO. **Mark Repking** DRILLER **Independent Engineering**

EQUIPMENT **Deere 310LE Backhoe** HAMMER TYPE _____

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0								
1	T2-0.5			CL	**LAGUNA FORMATION** Stiff to very stiff, very moist, dark reddish brown, Sandy lean CLAY, slightly to moderately plastic, trace gravel LL = 26 PI = 15			11.5
2								
3	T2-3-6			GP-GC	Medium dense to dense, moist, yellowish brown, poorly graded GRAVEL with sand, clay, and cobble, cobble up to 8 inches, moderate excavation effort			
4								
5	T2-5							7.8
6								
7								
8								
9								
10								
11								
12					TRENCH TERMINATED AT 12 FEET NO GROUNDWATER ENCOUNTERED PERC TEST IN ADJACENT HAND AUGER AT 3 FEET			

Figure A3, Log of Trench, page 1 of 1

IN PROGRESS CLAY PIT SVRA.GPJ 04/05/10

GEOCON

SAMPLE SYMBOLS
- ☐ ... SAMPLING UNSUCCESSFUL
- ▨ ... DISTURBED OR BAG SAMPLE
- ◧ ... STANDARD PENETRATION TEST
- ◥ ... CHUNK SAMPLE
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. **S9030-06-22** PROJECT NAME **Clay Pit SVRA**

TRENCH T3

ELEV. (MSL.) _____ DATE COMPLETED **3-15-10**

ENG./GEO. **Mark Repking** DRILLER **Independent Engineering**

EQUIPMENT **Deere 310LE Backhoe** HAMMER TYPE _____

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	T3-0			ML	**LAGUNA FORMATION**			8.3
1	T3-0.5-6			GC	Hard, moist, dark yellowish brown, Sandy SILT with gravel, non plastic, gravel up to 1 inch			
2					pp > 4.5 tsf			
3					Hard, moist, yellowish brown, Clayey GRAVEL, gravel up to 3 inches, moderate excavation difficulty			
4								
5				GC	Medium dense to dense, moist, yellowish brown, Clayey GRAVEL with sand, cobbles up to 6 inches, moderate to difficult excavation			
6								
7								
8								
9					-cobbles up to 1 foot			
					TRENCH TERMINATED AT 9.25 FEET NO GROUNDWATER ENCOUNTERED PERC. TEST IN ADJACENT TRENCH AT 4 FEET			

Figure A4, Log of Trench, page 1 of 1

IN PROGRESS CLAY PIT SVRA.GPJ 04/05/10

GEOCON

SAMPLE SYMBOLS

☐ ... SAMPLING UNSUCCESSFUL ◧ ... STANDARD PENETRATION TEST ■ ... DRIVE SAMPLE (UNDISTURBED)

▨ ... DISTURBED OR BAG SAMPLE ◪ ... CHUNK SAMPLE ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. **S9030-06-22** PROJECT NAME **Clay Pit SVRA**

TRENCH T4

ELEV. (MSL.) _____ DATE COMPLETED **3-15-10**

ENG./GEO. **Mark Repking** DRILLER **Independent Engineering**

EQUIPMENT **Deere 310LE Backhoe** HAMMER TYPE _____

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	T4-0			CL	**LAGUNA FORMATION**			
1	T4-1			SC	Very stiff, moist, dark yellowish brown, lean CLAY with sand, slightly plastic			
2					Medium dense to dense, moist, strong brown, Clayey SAND with gravel, slightly plastic, gravel up to 3 inches, moderate excavation difficulty			
3					-becomes yellowish brown			
4								
5	T4-5			CL	Hard, moist, yellowish brown, Sandy Silty CLAY with gravel, slightly plastic, moderate excavation difficulty			9.7
6					-increase in sand			
7								
8					-cobbles up to 8 inches			
9								
10					TRENCH TERMINATED AT 10 FEET NO GROUNDWATER ENCOUNTERED			

Figure A5, Log of Trench, page 1 of 1

IN PROGRESS CLAY PIT SVRA.GPJ 04/05/10

GEOCON

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ▨ ... DISTURBED OR BAG SAMPLE
- ◧ ... STANDARD PENETRATION TEST
- ◥ ... CHUNK SAMPLE
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. **S9030-06-22** PROJECT NAME **Clay Pit SVRA**

TRENCH T5

ELEV. (MSL.) _____ DATE COMPLETED **3-15-10**

ENG./GEO. **Mark Repking** DRILLER **Independent Engineering**

EQUIPMENT **Deere 310LE Backhoe** HAMMER TYPE _____

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	T5-0			CH	**ALLUVIUM**			23.0
1				SC	Very stiff, moist, dark reddish brown, Fat CLAY with sand and gravel, highly plastic LL = 66 PI = 41			
2								
3	T5-3				Very dense, moist, dark yellowish brown, Clayey GRAVEL with sand, slightly plastic, slightly cemented, difficult to excavate			
4								
5				GM	Very dense, moist, yellowish brown, Silty GRAVEL with clay and sand, non plastic, slightly cemented, cobble up to 6 inches, difficult to excavate			
6	T5-6							4.2
7								
8					-very difficult to excavate			
					REFUSAL AT 8.5 FEET NO GROUNDWATER ENCOUNTERED			

Figure A6, Log of Trench, page 1 of 1

IN PROGRESS CLAY PIT SVRA.GPJ 04/05/10

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SAMPLE SYMBOLS: ☐ ... SAMPLING UNSUCCESSFUL; ◧ ... STANDARD PENETRATION TEST; ■ ... DRIVE SAMPLE (UNDISTURBED); ⊠ ... DISTURBED OR BAG SAMPLE; ◥ ... CHUNK SAMPLE; ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PERCOLATION TEST DATA

Project Name: Clay Pit SVRA

Project No.: S9030-06-22

By: MDR

Date: 3/16/10

Test Location: T1

Test Duration: 4hrs

Depth of Test: 5.0 ft

Pipe Length: N/A

Time	Reading (in)	Fall (in)	Rate (min/in)
9:22	61.75	0.0	0.0
9:52	61.75	0.0	NP*
10:22	61.75	0.0	NP*
10:52	61.75	0.0	NP*
11:22	61.75	0.0	NP*
11:52	61.75	0.0	NP*
12:22	61.75	0.0	NP*
12:52	61.75	0.0	NP*
13:22	61.75	0.0	NP*

Average Percolation Rate: NP* (min/in)

***NP = No Perolation**

PERCOLATION TEST DATA

Project Name: Clay Pit SVRA

Project No.: S9030-06-22

By: MDR

Date: 3/16/10

Test Location: T2

Test Duration: 4hrs

Depth of Test: 3.0 ft

Pipe Length: 30.5

Time	Reading (in)	Fall (in)	Rate (min/in)
9:23	7.75	0.0	0.0
9:53	10.5	2.8	10.9
10:23	12	1.5	20.0
10:53	13.5	1.5	20.0
11:23	14.5	1.0	30.0
11:53	15.25	0.8	40.0
12:23	15.75	0.5	60.0
12:53	16.5	0.8	40.0
13:23	17	0.5	60.0

Average Percolation Rate: 35 (min/in)

PERCOLATION TEST DATA

Project Name: Clay Pit SVRA

Project No.: S9030-06-22

By: MDR

Date: 3/16/10

Test Location: T3

Test Duration: 4hrs

Depth of Test: 4.0 ft

Pipe Length: N/A

Time	Reading (in)	Fall (in)	Rate (min/in)
9:24	41	0.0	0.0
9:54	41.1	0.1	300.0
10:24	41.25	0.1	200.0
10:54	41.33	0.1	375.0
11:24	41.33	0.0	NP*
11:54	41.33	0.0	NP*
12:24	41.33	0.0	NP*
12:54	41.33	0.0	NP*
13:24	41.33	0.0	NP*

Average Percolation Rate: NP* (min/in)

***NP = No Perolation**

APPENDIX B

LABORATORY TESTING PROGRAM

Laboratory tests were performed in accordance with generally accepted test methods of the American Society for Testing and Materials (ASTM) or other suggested procedures. Selected soil samples were tested for their in-situ moisture content, plasticity characteristics, expansion potential, corrosion potential, and pavement support characteristics. The results of the laboratory tests are presented on the following pages.

TABLE B1
SUMMARY OF CORROSION PARAMETERS
CALIFORNIA TESTS 643, 417 AND 422

Sample No.	Sample Depth (feet)	pH	Minimum Resistivity (ohm-cm)	Chloride (ppm)	Sulfate (ppm)
Composite – T1-0, T2-0.5, T3-0, T4-0 and T5-0	0 – 0.5	5.98	2,390	24.1	5.2

*Caltrans considers a site corrosive to foundation elements if one or more of the following conditions exist for the representative soil samples at the site:

- The pH is equal to or less than 5.5.
- The resistivity is equal to or less than 1,000 ohm-cm.
- Chloride concentration is equal to or greater than 500 parts per million (ppm).
- Sulfate concentration is equal to or greater than 2,000 ppm.

*According to the 2007 California Building Code Section 1904.3 which refers to American Concrete Institute (ACI) 318 Section 4.3, Type II cement may be used where sulfate levels are below 2,000 ppm.

TABLE B2
SUMMARY OF EXPANSION INDEX TESTS
ASTM D4829

Sample No.	Sample Depth (ft.)	Moisture Content		Dry Density		Expansion Index
		Before Test (%)	After Test (%)	Before Test (pcf)	After Test (pcf)	
T1-0	0 – 0.5	15.8	30.5	93.1	88.3	57

TABLE B3
SUMMARY OF R-VALUE TEST

Sample No.	Average Dry Density (pcf)	Average Moisture Content (%)	R-Value at 300 psi Exudation Pressure
T1-0.5-3	117.7	16.1	50

Sample ID	Depth (feet)	Liquid Limit	Plastic Limit	Plasticity Index	Maximum Size (mm)	%<#200 Sieve	Water Content (%)	Dry Density (pcf)
T1	0-0.5	49	22	27	-----		19.2	
T1-5-8	5.0-8.0				-----	12.0		
T2	0-1.0	26	15	11	-----			
T2.5	0.5				-----		11.5	
T2-3-6	3.0-6.0				-----	10.9		
T2-5	5				-----		7.8	
T3	0				-----		8.3	
T3.5-6	0.5-6				-----	18.2		
T4-5	5				-----		9.7	
T5	0-1	66	25	41	-----		23.0	
T5-6	6				-----		4.2	

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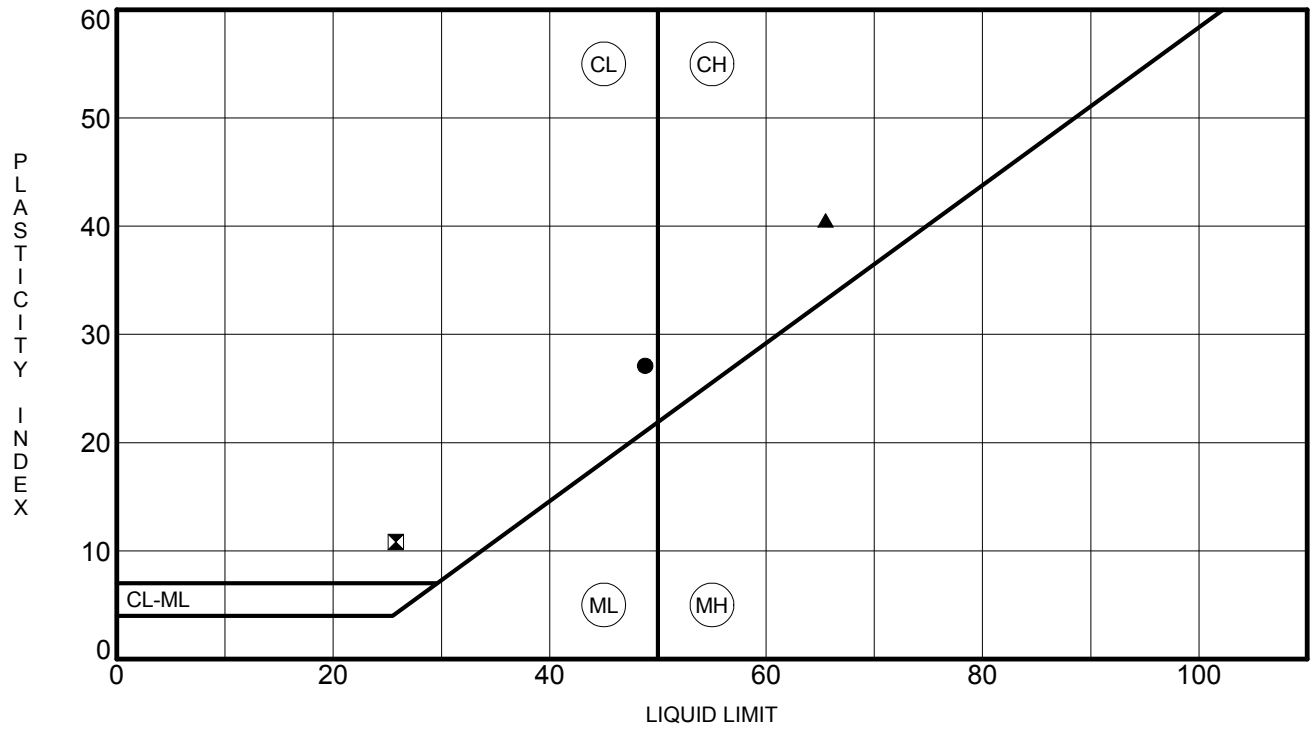
Summary of Laboratory Results

Project: Clay Pit SVRA
Location: Oroville, CA
Number: S9030-06-22
Figure: B1



	Sample No.	Liquid Limit	Plastic Limit	Plasticity Index	% Pass #200 Sieve	Unified Soil Classification Description
●	**T1-0**	**49**	**22**	**27**		**lean CLAY with sand**
⊠	**T2-0**	**26**	**15**	**11**		**Sandy lean CLAY**
▲	**T5-0**	**66**	**25**	**41**		**fat CLAY with sand**

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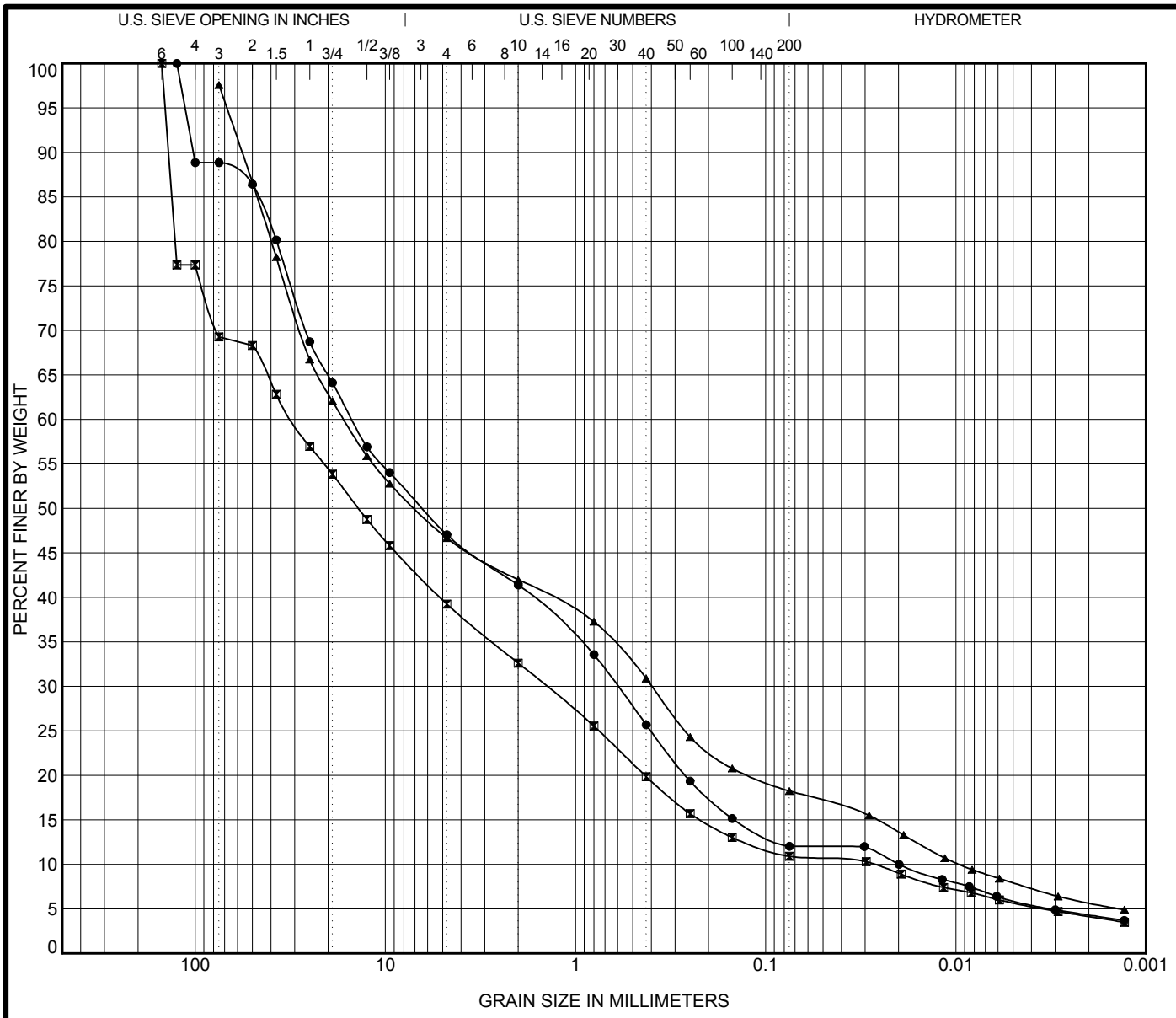
ATTERBERG LIMITS

Project: Clay Pit SVRA
Location: Oroville, CA
Number: S9030-06-22
Figure: B2



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Sample No.	Classification	LL	PL	PI	Cc	Cu
●	**T1-5-8**	**Poorly graded GRAVEL with clay and sand (GP-GC)**				**1.21**	**751.56**
⊠	**T2-3-6**	**Poorly graded GRAVEL with clay and sand (GP-GC)**				**2.44**	**1141.64**
▲	**T3-0.5-6**	**Clayey GRAVEL with sand (GC)**				**0.99**	**1732.52**

	Sample No.	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**T1-5-8**	**125**	**14.956**	**0.601**	**0.02**	**41.8**	**35.0**	**6.0**	**6.0**
⊠	**T2-3-6**	**150**	**30.868**	**1.427**	**0.027**	**30.0**	**28.3**	**5.2**	**5.7**
▲	**T3-0.5-6**	**75**	**16.54**	**0.396**	**0.01**	**50.9**	**28.4**	**10.3**	**7.9**

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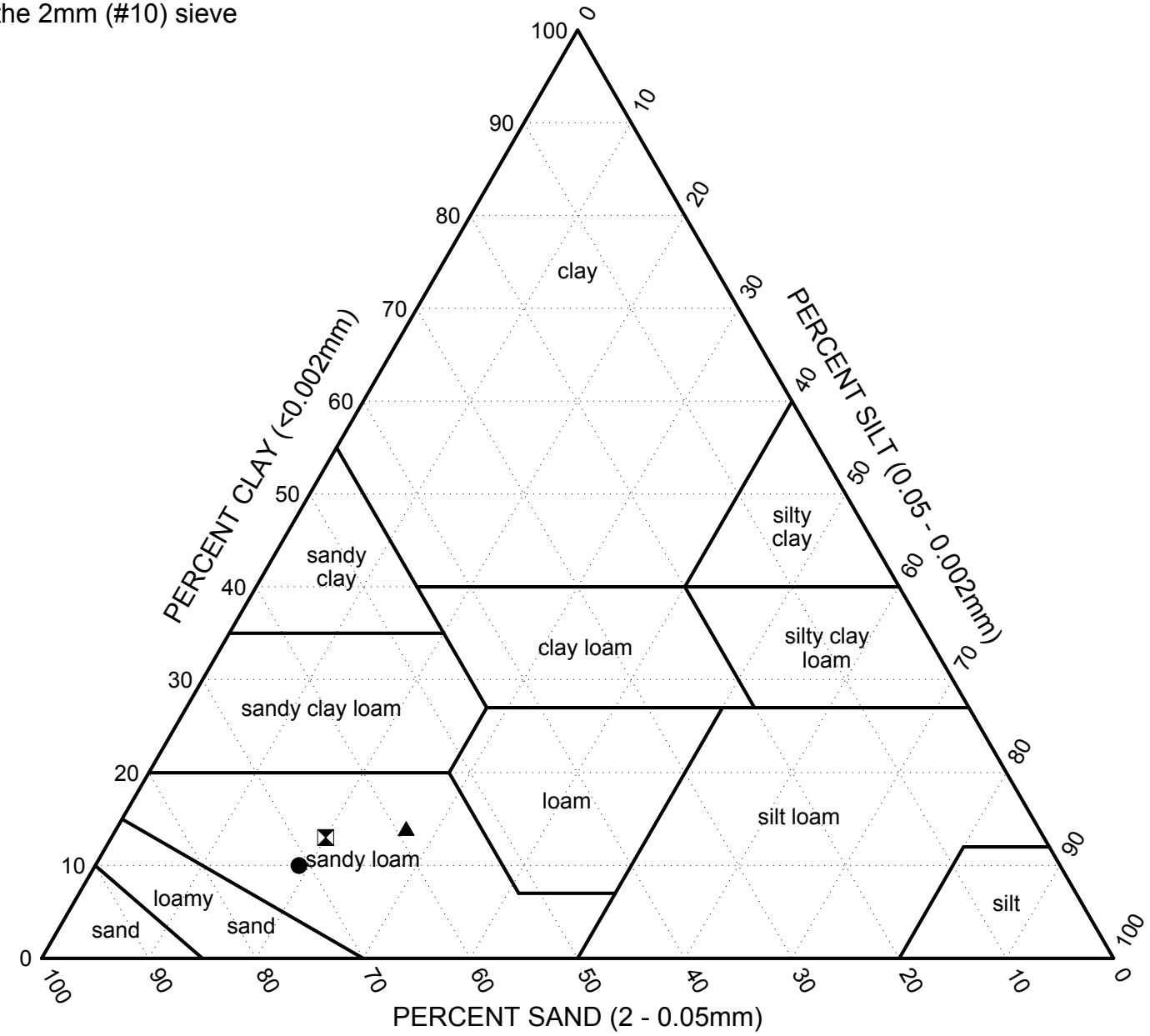
GRAIN SIZE DISTRIBUTION

Project: Clay Pit SVRA
Location: Oroville, CA
Number: S9030-06-22

Fractions normalized to 100% passing
the 2mm (#10) sieve



	Test Trench	Depth	USDA Classification	Sand (%)	Silt (%)	Clay (%)
●	**T1-5-8**	**5.0-8.0**	**Clayey GRAVEL with sand (GC)**	**71.0**	**18.6**	**10.4**
⧓	**T2-3-6**	**3.0-6.0**	**Clayey GRAVEL with sand (GC)**	**67.4**	**19.9**	**12.7**
▲	**T3-0.5-6**	**0.5-6**	**Clayey GRAVEL with sand (GC)**	**59.3**	**27.1**	**13.6**

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USDA Textural Classification Chart

Project: Clay Pit SVRA
Location: Oroville, CA
Number: S9030-06-22
Figure: B4

USDA TEXTURAL TRIANGLE COPY 2 CLAY PIT SVRA.GPJ USDA TEXTURAL CLASS.GDT 4/5/10

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