

Airbase Relocation Evaluation



California Department of Forestry and Fire Protection

Riverside Operational Unit

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**DEPARTMENT OF FORESTRY AND FIRE PROTECTION**

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October 14, 2005

Riverside County Board of Supervisors
County Administrative Center
4080 Lemon Street, Fifth Floor
Riverside, California, 92501

Dear Chairman and Members of the Board of Supervisors:

First, I wish to thank you for your patience while we, the California Department of Forestry and Fire Protection (CDF), conducted a detailed and in-depth research, review and analysis of two possible CDF Air Attack Base locations. As you know, a decision to locate, build and staff an Air Attack Base requires the best available and most accurate information. Also, selecting such a location requires a determination of needs and a commitment to fire services support from that Air Attack Base for 50 years or more. Fifty years of experience gives us insight as to the advances in aircraft, air base construction, facilities and fire mission support needs which CDF must address as selection requirements for our future base sites.

Over the last 60 days my staff has conducted a contrast-and-comparison examination of Hemet-Ryan Airport and March Air Reserve Base as the two available locations for a CDF Air Attack Base. These locations were juxtaposed against the same criteria, each location was examined utilizing only factual data for comparison and the examination was conducted objectively and without prejudice.

Given the above, I am providing the final report to you for your comments. It is my intention to make a final location determination only after you and the county staff have had a reasonable period of time to thoroughly review the report. To assist your review of the report, I have directed my technical and professional staff to be available to discuss any and all issues. Following your comments, I will meet with my staff to discuss any outstanding issues. I will need your final comments by the end of November so that I can make my decision in December.

In conclusion, I again wish to thank you for your patience, concern and assistance with this very important decision. You and I take the responsibility of leadership seriously, and we all strive to provide the very best fire protection services to the public we serve. I am confident that by working together in the final review process we will fulfill our agencies' public safety responsibilities.

Very truly yours,

A handwritten signature in black ink, appearing to read "Dale T. Geldert", with a long horizontal line extending to the right.

Dale T. Geldert
Director

cc: Riverside County Executive Officer

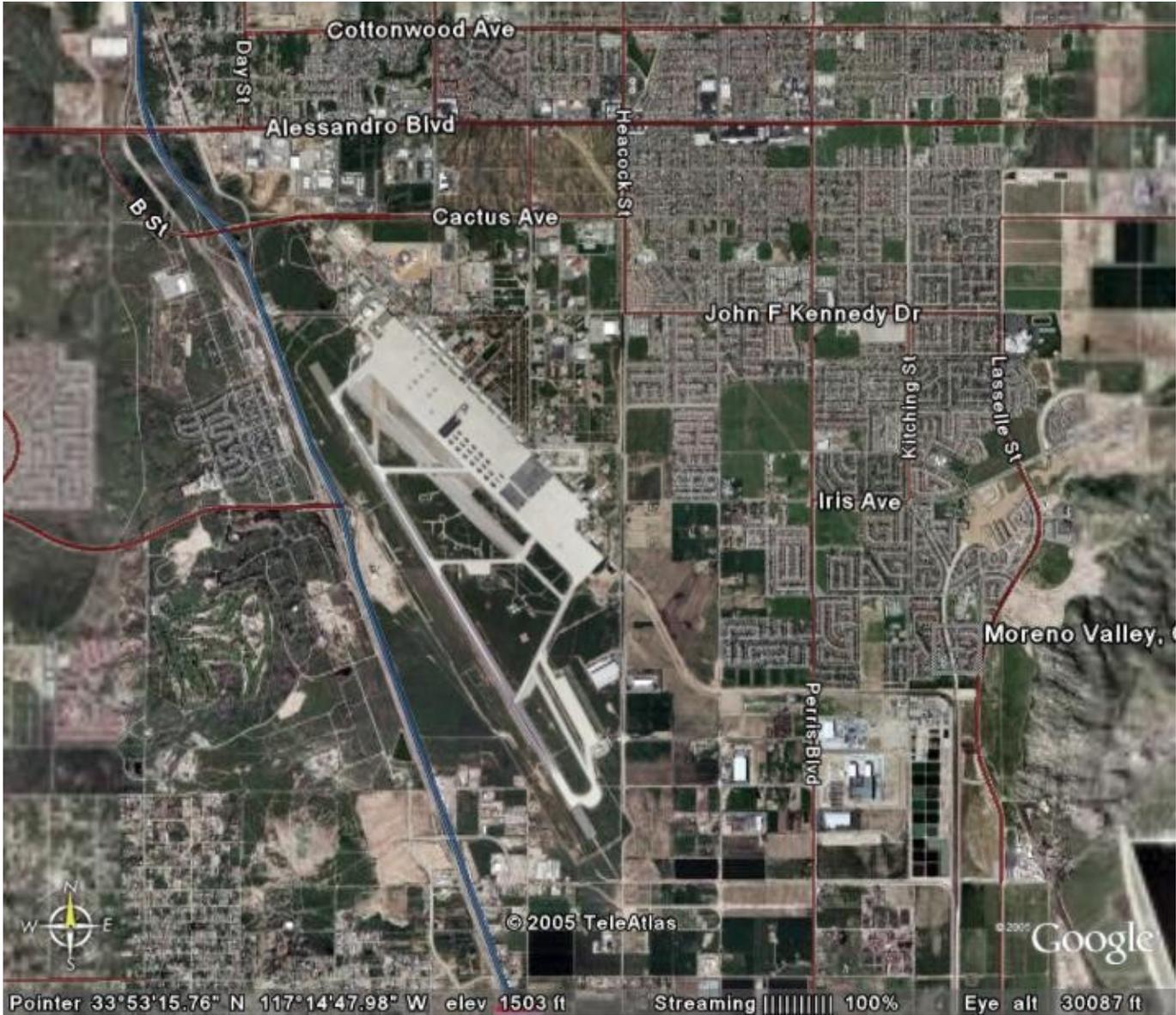
Airbase Relocation Evaluation – Sections

- March Air Reserve Base from 30,000 feet
- Hemet-Ryan Air Base from 30,000 feet
- Comparison of March Air Reserve Base and Hemet-Ryan Airbase
- Hemet/March Relocation Review: Aviation Safety and Technical Analysis
- Assessing current fire protection capability of two different air base locations
- Hemet-Ryan AAB Capital Outlay Project: Relocation or Replacement Analysis
- Potential Multi-Species Habitat Conservation Plan issues at the two air bases

Appendices

- Riverside Unit Fire Management Plan 2005 (posted June 16, 2005)
- July 18, 2005 letter introducing draft air base report
- Air Attack Base Location Analysis, Riverside County July 18, 2005. Draft report submitted by Craig Anthony
- E-mail of Hemet-Ryan air base questions from Mike Jarvis to Rob Field
- Response by Rob Field to questions

March Air Reserve Base from 30,000 feet



Hemet-Ryan Air Base from 30,000 feet



Comparison of March Air Reserve Base and Hemet-Ryan Airbase, CDF Sacramento

Issue	March	Hemet-Ryan
Pilot and Aircraft Safety Issues		
Current Runway length	13,300 feet	4,315 feet
Class D controlled airspace	Yes	No
Have staffed control tower	Yes	No
Fully staffed Level A on site fire crash unit	Yes	No
Percent time under Visual Flight Rules (VFR)	Equal in 2004	Equal in 2004
Special Visual Flight Rules available	Yes	No
Runway width minimum of 100'	Yes	Yes
Runway suitable for S2T with safety over-run distance - 5,000'	Yes	No, only design drawing done
Runway suitable for all current Federal air tankers - 6,000'	Yes	No
Runway suitable for jet based fire fighting aircraft - possibly greater than 6,000'	Yes	No
Own land for 5,000' runway	Yes	Yes
Own land for 6,000' runway	Yes	Yes
Taxi ways capable of supporting single tire 60,000 lbs. and dual 130,000 lbs.	Yes	Yes
Probability of 2-3 minute delay due turbulence from non CDF large planes	Possibility with USAF non-training flights.	None
Co-located with current and future state-of-the-art federal communications links	Yes	No
Airport and Aircraft Security		
Parking and visitor access control	Yes	No
Dedicated full time airport security force	Yes	No
Fencing- 6' minimum, 8' new with barbed wire or razor wire	Yes	No
Minimum 3-foot candle power on ramp	Yes	No
Gated with electronic protection	Yes	No
Current Fire Protection Capability		
Can support continuation of 91-96% initial wildland fire attack success rate (Unit Fire Plan and CFES2 fire suppression simulations)	Yes	Yes

Issue	March	Hemet-Ryan
Can co-host CDF and USFS air tanker refueling for large joint missions	Yes	No
Provide full coverage of existing SRA lands not also within Ramona Air Base circle (Unit Fire Plan and fire history show that most big fires are to east of both sites)	Yes	Yes
Location vis a vis growing population in Wildland Urban Interface (WUI)	Closer	Farther to southeast
Location vis a vis areas with greatest burn frequency (Times burned graphic)	Equal	Equal
Location vis a vis Ignitions (Riverside 2005 Fire Plan)	Closer	Farther to southeast
Location vis a vis 2004 Initial attack success density (Riverside 2005 Fire Plan)	Closer	Farther to southeast
Location vis a vis 2004 Initial attack failure density (Riverside 2005 Fire Plan)	Farther	Closer. Failures are typically farther from engines, stations, roads, and houses
Future Fire Protection Capability		
Completed engineering plans for upgrade to at least a 6,000' runway (CDF and USFS air base standards to handle all air tankers used in the Western US)	Yes	No
Additional cost to complete full engineering plans (estimate)	\$0	\$1,429,000
Additional time to complete full engineering drawings (Hemet replacement schedule)	Exist, 2 months	48 months
State General Funds for airbase upgrade in current State budget - \$8,296,000	Yes	No
Agreement for FAA funds to construct expanded runway	Not necessary	No
ESA habitat issues fully addressed under Riverside County Integrated Plan (RCIP) and Multi Species Habitat Conservation Plan (MSHCP) completed for loss of habitat due to longer runway facility, any adjacent local roads, and any new buildings	Yes	No

Issue	March	Hemet-Ryan
Airport upgrade free of links to other state and local road infrastructure projects and possible habitat mitigation issues	Yes	No
Estimated time to complete ESA/RCIP/MSCHCP EIS necessary for new construction in MSHCP Conservation Area	None	SR 79 relocation EIS scheduled to be complete by 2009 (RCTC)
Have any required funding necessary for realigning any local roads (Warren and Stetson are slated for upgrade, realignment and improvement in Hemet City General Plan circulation element)	Yes	No
Provide full coverage of existing SRA lands not also covered by the Ramona Air Base 15 minute flight circle	Yes	Yes
Best case estimate of when construction could start after required environmental documents (ex. FAA and FWS compliant EIS/EIRs)	January 2006	2011 at the earliest
Other potential conflicts in use of air space or adjacent lands		
Absence of sailplanes and other small aircraft	Yes	No
Lack of expansion potential of recreation oriented aircraft use due to proximity to recreational areas	Yes	No
Lack of current residential areas immediately adjacent to runway	Yes	No
Lack of potential for new residential subdivisions within ½ mile of runways	Yes	No
Land use policies ensure existing air space and open space	Yes	No

Hemet/March Relocation Review Aviation Safety and Technical Analysis

The primary concern of any comparative analysis of the aviation issues surrounding the decision to move the CDF air base operations from Hemet-Ryan Airport to the March Airfield must consider the safety and security of the pilots, airbase personnel, aircraft and the public.

With safety as the primary consideration, the CDF Aviation Management Unit (AMU) has reviewed the quantitative data available regarding airspace, weather, airfield infrastructure, and security at both locations and has concluded that March has numerous advantages as a CDF air attack base. This decision is based upon current conditions as they exist today, not on anticipated approvals, funding or construction by government entities. An assessment cannot be made based upon anticipated improvements. Problems with either base could be mitigated given more time and a secure, committed funding source. At this point, the existing infrastructure favors March.

Airspace

One determinant factor favoring March is that it is a Class-C controlled airspace and has a control tower with Airport Surveillance Radar (ASR) that surrounds the March airfield. In contrast Hemet-Ryan is an uncontrolled airport which is overlaid by Class-E controlled airspace that begins at 700 feet above the airport. Operations in a controlled airspace, especially at an airport with a tower are considered much safer (attachment). The majority of mid-air accidents occur within five miles of an airport and generally during take-off and landing. Ramona airport, an uncontrolled airport, experienced a fatal mid-air collision several years ago which involved two federal fire fighting aircraft operating on the same radio frequencies. Ramona added a tower to the field which has been in operation since December 2003.

Although CDF has received anecdotal information that aerial fire fighting operations at controlled airfields have the potential to slow the pace of response and thus contribute to escapes, AMU staff could not quantify this information. The staff asserts that the added protection of controlled airspace area is essential to safe operations, especially considering the increased level of general and commercial air traffic in the Southern California planned for the future. Currently there are over 80,000 flight operations (takeoffs, landings, low approaches) at Hemet-Ryan compared to 33,500 at March in 2004.

Because March is in a controlled airspace with ASR it has the ability to allow landings and departures under Special Visual Flight Rules (VFR). This allows fire fighting aircraft to safely depart and land when visibility is less than the three miles required for VFR but greater than one mile. Maintaining visibility in and around high traffic areas such as an airport is a significant safety factor and ASR -- even on VFR days -- reduces the risks of airspace incursions and mid-air accidents.

The Aviation Management Unit staff also is concerned about the glider port operations that continue on the parallel runway at Hemet-Ryan. Glider operations often are conducted without radio communication with other traffic at the airport. Frequently glider takeoffs and landings go unannounced on the radio by aircraft flying on this runway. Glider traffic also uses the hills just northwest of the airport for convection lift and conflicts with the aircraft traffic arriving and departing to the north. Officials with the

Economic Development Agency of Riverside County have said this situation will continue until 2010. The Aviation Management staff asserts that this is an unsafe situation which has been ignored at Hemet-Ryan for sometime.

Airfield Infrastructure and Support

Runway length and width are important factors in determining the risk associated with a particular airport, especially when operating aircraft at maximum gross weights on hot days, which CDF does routinely during fire season. It is obvious that March has the longer and wider of the two runways at 13,300 feet in length and 200 feet width versus Hemet-Ryan at 4,314 long and 100 feet wide. In fact of all the aviation facilities that CDF utilizes, Hemet-Ryan has the second shortest runway. March is one of the longest runways on the West Coast and the longest in Southern California. In planning for future operations, the Aviation Management Unit staff -- using USFS standards -- has established a minimum safe runway length of 6,000 feet for tanker operations. This minimum length will also open the airfield to larger air tankers from the USFS and provide closer air support to fires in the local area. While it is possible to lengthen Hemet, the time period for project approval, construction and completion will restrict use and access

Taxiways and ramp space, although not major issues at either airfield, can be significant safety problems if overcrowding occurs. It should be noted that March has wider taxiways and larger usable ramp space. Hemet-Ryan is limited on ramp space and narrower taxiways. Maneuvering into and out of the loading pits at Hemet-Ryan is tight especially during large fire operations with multiple air tankers loading and taxiing at the same time.

On site airport crash and rescue equipment with trained personnel is available currently at March; none is available at Hemet-Ryan. Because CDF aircraft are not immune to emergencies, the department desires the availability of on-site crash and rescue equipment -- with appropriately trained personnel -- during operations to meet all aircraft emergencies. In the past CDF pilots have opted to use March for emergency landings because of the limited crash rescue services and runway length at Hemet-Ryan. This was the case circa 1980 when Shelly Knuteson had a gear-up landing at March Air Base in an ST-A tanker because Hemet's runway was too short and lacked crash rescue equipment and personnel. An on-site crash rescue unit at Hemet is not planned at this time.

Weather

A contributing factor to safe air operations is the weather at and surrounding an airport. There has been considerable discussion regarding which airfield has the best weather for flight operations. The generally accepted contention by base personnel was that Hemet experienced less fog and better visibility because of its location farther to the east. This contention was countered by other casual observers who say the opposite was true. The Aviation Management Unit staff made every effort to quantify the weather data and in doing so relied on FAA and military recorded weather observations from both March and Hemet-Ryan. After reviewing the weather data provided by March Flight Operations and the available automated data from the Hemet-Ryan Automated Weather Observing System (AWOS-3) for 2004 (attached), it was determined that the number of

IFR weather days versus the number of VFR clear days was virtually identical with only a 2% difference favoring March.

Security

CDF operates federally owned aircraft acquired under the Federal Excess Personal Property (FEPP) program administered by the U.S. Forest Service (USFS). Under recently published Homeland Security guidelines the USFS requires operators of federal aircraft to comply with more stringent airport and aircraft security measures (attached). If CDF fails to address these security requirements, it may result in the loss of these assets.

March, because of its military and homeland security mission, currently meets or exceeds USFS airport security requirement while Hemet-Ryan does not. With regard to the minimum standards set by the USFS, of major concern is the access to the flight line by unauthorized personnel. Although Hemet-Ryan is currently addressing this issue with some limited security fencing, there will continue to be unobstructed access from multiple routes to the CDF ramp for an indefinite period. An additional cost to CDF at Hemet is to construct and maintain required security which is already available at March at no extra cost.

Department of Homeland Security guidelines favor the higher level of security provided at March. Immediately after September 11, 2001, the CDF aerial firefighting fleet for the Southern Region of the state was moved to March to safeguard it due to elevated security as dictated by the federal government. The fleet was comprised of four S2-T air tankers, two OV-10 air attack aircraft and one Super Huey helicopter. March is an approved base for use under heightened security and provides a higher level of security that Hemet cannot equal. If the CDF aircraft remains at Hemet, there is no assurance that it will remain in the county at the time of a national emergency or heightened security alert. If March was a CDF Attack Base, not only would the CDF aircraft stay in the county, but they would continue to be operational.

CDF Airbase Development Criteria

Security

Must meet Federal Guidelines for Federal Excess aircraft

Infrastructure

Runway:

Length	6,000 feet
Width	100 feet
Gradient	less than 1.0%
Crown	2%
Load	S60, 000 D 130,000

Taxi ways capable of supporting S60,000 and D 130,000

Surface must be in good condition no FOD

Retardant Pits

4 to 6 pull through concrete pits 50 feet wide x 100 feet long
Spaced at 153 feet minimum on center
90 or 45 degree orientation to taxi way

Parking

Six tankers, two Air Attack Aircraft and one administrative airplane on paved areas. (No in the dirt parking)

Facility:

Located near departure end of favored runway
Appropriate accommodations for dispatch, retardant crews, air attack personnel and pilots. Refer to design of Fresno and Porterville buildings/floor plans
Jet and Avgas fuel available

County use plan must protect flight traffic area for at least next twenty years.

Safety of Flight

Airport

Minimum of Class D airspace if facility has more than 50,000 annual operations and/or intersecting runways

Minimum level A crash rescue equipment or equivalent available

No major airline activity. (Commuter service only)

March/Hemet-Ryan Comparison

Below is an evaluation of how the two facilities currently comply with the airbase criteria.

1. Security

- a. Hemet currently does not meet Federal Standards for Excess Property.
- b. March was until recently an active Air Force base and is currently a Reserve Air Force Base with full security protection in place

2. Infrastructure

- a. Hemet currently meets only one of the infrastructure requirements.
 - i. The runway is only 4314 feet long
 - ii. The runway is wide enough
 - iii. There currently is no room for the required retardant pit area
 - iv. There currently is no room for extra parking
- b. March currently meets several of the criteria
 - i. The runway is 13,300 feet long.
 - ii. The runway is 200 feet wide
 - iii. The runways and taxi ways are capable of handling all CDF and US Forest service aircraft
 - iv. There is sufficient room for retardant pits
 - v. There is sufficient room for parking areas
 - vi. The proposed facility is adjacent to the active runway

3. Safety of flight

- a. Hemet is an uncontrolled airport. The class E airspace (Controlled Airspace) begins 700 feet above the ground. Aircraft can depart under visual rules when they can stay clear of clouds and have at least one mile visibility. However, once airborne, and climb above 700 feet, they must maintain Class E cloud clearance requirements. (500 below the clouds, 1000 feet above and 2000 feet horizontal clearance. Radar services are available from March Ground Control once airborne, but since the controlled airspace does not start at the surface, Special VFR operations may not be conducted. (See attachment A for Special VFR Rules)
- b. There are non-precision IFR approaches available into Hemet. (Horizontal guidance, but no vertical guidance, minimum approach altitude is 848 feet Above the ground and one mile visibility)
- c. Last year there were over 80,000 flight operations at Hemet. These operation included CDF operations, student pilot training, glider flights, helicopter flights and other general aviations activities. Being that this is an uncontrolled airport, there is no communication requirement.
- d. There is no crash rescue service available at Hemet

- e. March is in Class C airspace. There is an operational control tower and radar approach control services. Special VFR operations are authorized and radar separation is provided. Two way radio communications are required to operate in the airspace.

According to several Federal Aviation Administration and National Transportation Safety Board studies, operation at uncontrolled airports is not as safe as similar operations at airports in controlled airspace. The Aeronautical Information Manual in Section three states that; “ Increased congestion, aircraft in climb and descent attitudes and pilot preoccupation with cockpit procedures are some factors that increase the hazardous accident potential near the airport. The situation is further compounded when the weather is marginal.”

It seems obvious that a controlled environment augmented by radar coverage would provide a greater safety margin

- f. There are precision IFR approaches available into March. (Minimum altitude on approach is 200 feet Above the Ground)
- g. Last year there were 33,500 operations at March. The majority of the operations were either commercial freight operations or military flights. Passenger services are not currently offered at March.
- h. March has crash rescue service available on site.

In a recent report to CDF comparing the two facilities, there was discussion about the restriction to activity at March based on weather below basic VFR minimums. However, the actual weather data indicates that weather at March and Hemet is nearly the same. March is actually above basic VFR 2% of the time more often than Hemet. (See attachment B) This coupled with the fact that Special VFR flights are authorized at March makes it more likely a flight can be completed safely when the weather is marginal.

Considering the comparison of how the two airports meet the airbase criteria, it is apparent that currently March ARB is a better choice. Even after considerable improvements to the facilities at Hemet, the airspace issue would still favor March.

Safety is the driving factor for all of CDF aircraft operations. When the opportunity is available to improve the level of safety there is no other appropriate course of action.

Attachment A

91.157 Special VFR weather minimums.

(a) Except as provided in appendix D, section 3, of this part, special VFR operations may be conducted under the weather minimums and requirements of this section, instead of those contained in § 91.155, below 10,000 feet MSL within the airspace contained by the upward extension of the lateral boundaries of the controlled airspace designated to the surface for an airport.

(b) Special VFR operations may only be conducted -

(1) With an ATC clearance;

(2) Clear of clouds;

(3) Except for helicopters, when flight visibility is at least 1 statute mile; and

(4) Except for helicopters, between sunrise and sunset (or in Alaska, when the sun is 6° or more below the horizon) unless -

(i) The person being granted the ATC clearance meets the applicable requirements for instrument flight under part 61 of this chapter; and

(ii) The aircraft is equipped as required in § 91.205(d).

(c) No person may take off or land an aircraft (other than a helicopter) under special VFR

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(1) Unless ground visibility is at least 1 statute mile; or

(2) If ground visibility is not reported, unless flight visibility is at least 1 statute mile. For the purposes of this paragraph, the term flight visibility includes the visibility from the cockpit of an aircraft in takeoff position if:

(i) The flight is conducted under this part 91; and

(ii) The airport at which the aircraft is located is a satellite airport that does not have weather reporting capabilities.

(d) The determination of visibility by a pilot in accordance with paragraph (c)(2) of this section is not an official weather report or an official ground visibility report.

From The AIM

4-4-5. SPECIAL VFR CLEARANCES

a. An ATC clearance must be obtained prior to operating within a Class B, Class C, Class D or Class E surface area when the weather is less than that required for VFR flight. A VFR pilot may request and be given a clearance to enter, leave, or operate within most Class D and Class E surface areas and some Class B and Class C surface areas in Special VFR conditions, traffic permitting, and providing such flight will not delay IFR operations. All Special VFR flights must remain clear of clouds. The visibility requirements for Special VFR aircraft (other than helicopters) are:

1. At least 1 statute mile flight visibility for operations within Class B, Class C, Class D and Class E surface areas.

2. At least 1 statute mile ground visibility if taking off or landing. If ground visibility is not reported at that airport, the flight visibility must be at least 1 statute mile.

3. The restrictions in subparagraphs 1. and 2. do not apply to helicopters. Helicopters must remain clear of clouds and may operate in Class B, Class C, Class D and Class E surface areas with less than 1 statute mile visibility.

b. When a control tower is located within the Class B, Class C, or Class D surface area, requests for clearances should be to the tower. In a Class E surface area, a clearance may be obtained from the nearest tower, FSS, or center.

c. It is not necessary to file a complete flight plan with the request for clearance, but pilots should state their intentions in sufficient detail to permit ATC to fit their flight into the traffic flow. The clearance will not contain a specific altitude as the pilot must remain clear of clouds. The controller may require the pilot to fly at or below a certain altitude due to other traffic, but the altitude specified will permit flight at or above the minimum safe altitude. In addition, at radar locations, flights may be vectored if necessary for control purposes or on pilot request.

NOTE -

The pilot is responsible for obstacle or terrain clearance.

REFERENCE -

14 CFR Section 91.119.

d. Special VFR clearances are effective within Class B, Class C, Class D and Class E surface areas only. ATC does not provide separation after an aircraft leaves the Class B, Class C, Class D or Class E surface area on a Special VFR clearance.

e. Special VFR operations by fixed-wing aircraft are prohibited in some Class B and Class C surface areas due to the volume of IFR traffic. A list of these Class B and Class C surface areas is contained in 14 CFR Part 91, Appendix D, Section 3. They are also depicted on sectional aeronautical charts.

f. ATC provides separation between Special VFR flights and between these flights and other IFR flights.

g. Special VFR operations by fixed-wing aircraft are prohibited between sunset and sunrise unless the pilot is instrument rated and the aircraft is equipped for IFR flight.

h. Pilots arriving or departing an uncontrolled airport that has automated weather broadcast capability (ASOS/AWOS) should monitor the broadcast frequency, advise the controller that they have the "one-minute weather" and state intentions prior to operating within the Class B, Class

31 VFR	31	31 VFR	31 VFR	31	31 VFR	31
IFR 19+30	IFR 54+00	IFR 32+40	IFR 37+40	IFR 35+20	IFR 45+30	IFR 26+50

Total hours May-Nov 2004 2744

Total IFR hours 251+30

% Hours IFR 9.16%

March Weather Sunrise to Sunset

May 0600-1930	June 0540-1930	July 0545-1955	Aug 0610-1930	Sept 0630-1900	Oct 0655-1815	Nov 0615-1645
1	1 VFR	1 VFR	1 IFR 3+05	1 VFR	1 IFR 0+41	1 VFR
2	2 VFR	2 VFR	2 IFR 3+25	2 VFR	2 VFR	2 VFR
3	3 IFR 2+46	3 IFR 5+48	3 IFR 5+30	3 VFR	3 IFR 2+29	3 VFR
4	4 VFR	4 IFR 2+14	4 VFR	4 VFR	4 IFR 1+44	4 VFR
5	5 IFR 2+42	5 IFR 4+33	5 IFR 2+45	5 VFR	5 IFR 2+00	5 VFR
6	6 IFR 2+35	6 IFR 3+25	6 VFR	6 VFR	6 VFR	6 VFR
7	7 IFR 3+55	7 VFR	7 VFR	7 VFR	7 VFR	7 VFR
8	8 VFR	8 IFR 4+10	8 VFR	8 VFR	8 VFR	8 VFR
9	9 VFR	9 IFR 3+10	9 VFR	9 VFR	9 VFR	9 IFR 0+31
10	10 VFR	10 VFR	10 VFR	10 VFR	10 VFR	10 IFR 0+31
11	11 VFR	11 VFR	11 VFR	11 VFR	11 VFR	11 VFR
12	12 IFR 1+11	12 VFR	12 VFR	12 VFR	12 VFR	12 IFR3+11
13 VFR	13 VFR	13 VFR	13 VFR	13 IFR 2+35	13 IFR 3+00	13 VFR
14 VFR	14 VFR	14 VFR	14 VFR	14 VFR	14 VFR	14 VFR
15 VFR	15 IFR 3+51	15 VFR	15 VFR	15 IFR 4+49	15 VFR	15 VFR
16 VFR	16 IFR 4+35	16 VFR	16 VFR	16 IFR 4+47	16 IFR 1+34	16 VFR
17 VFR	17 IFR 4+35	17 VFR	17 VFR	17 IFR 4+03	17 VFR	17 VFR
18 VFR	18 IFR 4+31	18 VFR	18 VFR	18 IFR 3+40	18 VFR	18 VFR
19 IFR 55 MIN	19 IFR 5+02	19 VFR	19 VFR	19 VFR	19 IFR 3+48	19 VFR
20 VFR	20 IFR 4+25	20 VFR	20 VFR	20 VFR	20 IFR 3+02	20 IFR 3+07
21 VFR	21 IFR 6+21	21 VFR	21 IFR 3+45	21 VFR	21 VFR	21 VFR
22 VFR	22 IFR 8+35	22 VFR	22 IFR 3+46	22 VFR	22 VFR	22 VFR
23 VFR	23 IFR 5+13	23 IFR 2+38	23 IFR 3+49	23 VFR	23 VFR	23 VFR
24 VFR	24 IFR 4+37	24 VFR	24 VFR	24 VFR	24 IFR 4+26	24 IFR 2+11
25 VFR	25 IFR 3+00	25 VFR	25 VFR	25 VFR	25 VFR	25 VFR
26 VFR	26 IFR	26 VFR	26 IFR2+10	26 VFR	26 VFR	26 IFR 1+52

	2+22					
27 VFR	27 VFR	27 VFR	27 IFR 2+59	27 VFR	27 IFR 2+01	27 IFR 8+21
28 IFR 4+19	28 VFR	28 VFR	28 IFR 0+23	28 IFR 4+25	28 VFR	28 VFR
29 VFR	29 VFR	29 VFR	29 VFR	29 VFR	29 IFR 1+20	29 VFR
30 VFR	30 VFR	30 VFR	30 VFR	30 VFR	30 VFR	30 VFR
31	31	31 VFR	31 VFR	31	31 VFR	31
5+33	69+44	25+58	31+45	24+19	26+05	19+53

Total hours May-Nov 2004 2744
Total IFR Hours 203+17
% hours IFR 7.4%

Conclusion: March was VFR 92.6% of the daylight hours during the period, Hemet was VFR 90.8%.

Security Checklist (USFS FEPP required)

Facility Access and Protection

Revised June 8, 2005

Fencing

- Minimum 6' chain link fence (existing) at permanent air tanker facilities, (8' new)
- Fencing must meet or exceed the requirements specified within the FAA approved airport security plan

Lighting

- Minimum of 3 foot candles of site lighting at permanent facilities while facility is active; lighting should cover ramp and all tank storage areas

Signage

- "NO TRESPASSING" or similar signs posted in prominent locations surrounding perimeter of facility
- Areas with restricted access should have appropriate signs posted
- Building exits that lead to restricted areas should be signed accordingly
- Signs should be multi-lingual in appropriate locations

Lock and key control

- Facility must utilize a "key control" system
 - Number of keys available must be limited
 - Keys may not be duplicated without approval
 - Excess keys must be located in secure and locked location

Facility Access

- Security plan must identify any areas of facility that are "Restricted"
- Identification system must be used for areas of facility deemed "Restricted"
 - Color coded shirts, hats, jackets, etc.
 - ID badges
 - Other technique
 - A government employee will escort those without background checks

Parking

- Access to parking in sensitive areas of facility must be limited and controlled
 - ID check
 - ID badge/ ID card
 - Security guard
 - Other procedure

Accessibility of retardant and bulk fuel tanks, pumps and tank valves

- Retardant tanks, pumps and valves that could be used to drain tanks must have a positive locking mechanism and/or tamper proof/tamper evident seals
- Fuel bulk storage tanks, pumps and valves that could be used to drain tanks must have a positive locking mechanism and/or tamper proof/tamper evident seals
- Security plan must specify pre-use inspection procedures

Surveillance, monitoring and site supervision

- Security plan must specify the level and type of surveillance and monitoring provided
 - Facility personnel, private security, FS law enforcement, local law enforcement, national guard, etc.
- Facilities used to respond to type II and larger incidents will provide security 24/7

Guests/visitors/personnel

- Restricted area access
 - Background checks completed for all personnel that have full access to restricted areas – contractors and part-time government employees
 - A government employee will escort those without background checks
- Verify and document identification information for all guests and visitors
 - Check and document information
 - Signature/initials of who verified information
 - Date and time of visit
- Supervision provided for all visitors while at facility

Security plan

At a minimum, every security plan will address the following items:

- Security plan must specify the responsibility of the base manager and other personnel for all aspects of security
 - Base Manager responsibilities
 - Provide or coordinate training for all personnel on security plan
 - Ensure that all transient aircraft are met by base personnel
- Contact information for local law enforcement, fire response and hazardous materials personnel
- Plan must identify what areas of facility are “Restricted”
- Plan must identify what tamper proof/tamper-evident seals and or/locking mechanisms will be utilized for retardants, bulk fuel tanks, chemicals and hazardous materials
- Plan must address the following procedures
 - Preflight security procedures/checks
 - Aircraft theft and hijacking response procedures
 - Aircraft ramp procedures
 - Aircraft hangar procedures (if applicable)
 - Security breach response procedures
 - Incident reporting protocol
 - Challenge procedures for unauthorized personnel
 - Emergency contact names and contact information

- Pre-use inspection procedures for any retardants, chemicals and hazardous materials
- Plan must identify any areas of facility that are “Restricted”
 - Identify whether fixed-wing or rotor-wing parking is “Restricted”
 - Specify identification system used for “Restricted” areas
 - Color coded shirts, hats, jackets, etc.
 - ID badges
 - Other technique
- Plan must ensure information protection
 - Ensure protection of security codes
 - Specify intervals to change/update security codes

Physical security measures

- Lock aircraft
- Aircraft shall be secured in locked hangar where available

Materials Handling (Retardant, petroleum products, fuels, chemicals, agricultural products, etc)

- Pre-delivery/off-site:
 - Ensure secure chain-of-custody of materials
- Materials storage:
 - Utilize tamper-proof/tamper-evident seals and/or locks
 - Distribution of hazardous materials monitored by authorized persons

Assessing current fire protection capability of two different air base locations

It is well known that fixed wing and helicopter based aircraft are integral and often used components of the fire suppression system in Southern California and in Riverside County. For Riverside County, the best summary of the effectiveness of the overall fire suppression system is the “Riverside Unit Fire Management Plan 2005” (Anthony 2005). This is posted on the CDF web site at http://www.fire.ca.gov/FireEmergencyResponse/FirePlan/units_countyfireplan.asp and is also available at any CDF unit on the CDF’s intranet at <http://cdfweb/Its/FirePAS/UnitFireMgtPlans/RRU.pdf> . In addition to describing the overall approach of the Fire Plan, the document provides detailed information on the specific assets at risk for each battalion within the County as well as a detailed Ignition Workload Assessment that summarizes where wildland fires start in the county, the type of ignition, and the whether the fire is contained within initial attack. The 2005 Fire Plan notes that Riverside Unit achieves very good initial attack success, for grass fuel types – 96%, brush fuel types – 91%, woodland – 94% and conifer forests – 95%. These high success rates are due in large part to the quick arrival of a range of fire suppression resources in initial attack – fire engines, hand crews, bulldozers, fixed wing aircraft, and helicopters.

Using the California Fire Economics Simulator to assess different location of fire suppression resources

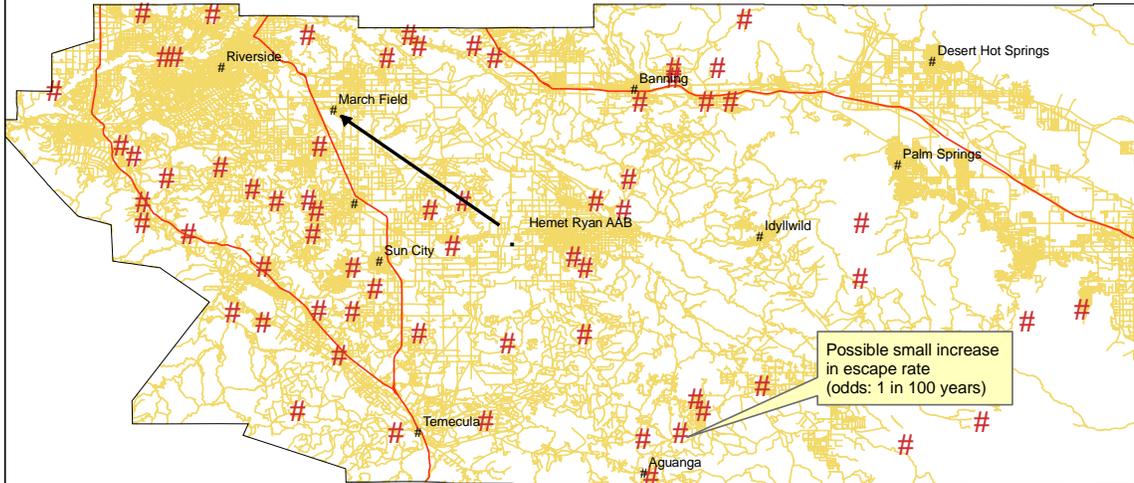
The increase, decrease or relocation of any fire suppression resource will change the timing and scale of suppression resources arriving at a fire. To assess the potential impact of moving or building a fire engine station, adding additional resources to existing stations, or locating or relocating, CDF worked with the University of California to develop a tool to accurately predict any potential changes in initial attack success due to changing the number and location of fire suppression resources. The details of the tool, known as the California Fire Economics Simulator (CFES2), are described in the two attached memorandum – “CFES2 – California Fire Economics Simulator” (Stewart 2002) and “CFES2 in Brief” (Spero 2002) that were prepared for briefings of legislative staff and the Department of Finance. Basically, an accurate comparison of the potential differences between the two proposed air tankers locations requires three primary components to ensure that the results match the real world conditions.

1. A database of the potential fire starts and weather conditions that replicates historic, and presumably future, conditions. This database should include best case and the worst case, and scenarios describing everything in between in the same proportions that they occur.

2. An accurate inventory of all available suppression resources (fire engines, bulldozers, hand crews, fixed wing aircraft, helicopters, etc.), the rules by which they are deployed, travel times to fire starts, and effectiveness rates once on site.
3. A simulation of how the resources match up against the full range of fire conditions (wind driven, non-wind driven, few fires in the region, multiple fires in the region, etc.) The model must be calibrated to match historic initial attack success rates to be useful for modeling any changes. As documented in the Riverside Unit Fire Management Plan (Anthony 2005), the initial attack success in Riverside rates vary from 91% to 96% for different fuel types.

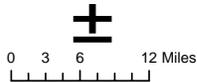
CDF uses our California Fire Economics Simulator (CFES2) to estimate potential impacts in changes to any one of the three main sets of conditions described above. In conjunction with the Riverside Unit CFES Coordinator, CDF's Fire and Resource Assessment Program (FRAP) fire economist used Riverside Unit's updated CFES2 input data to model initial attack for representative fire occurrence and fire suppression activity at 64 Representative Fire Locations throughout the Riverside Operational Unit. The location of the representative fires capture the fuels and locational diversity of Riverside County. To provide a statistically accurate outcome, the model is run 100 times with the air tankers based at Hemet-Ryan and at March. Given that there are around 700 wildland fires on SRA in Riverside County every year, this simulation compared the impact of the two different air bases over approximately 70,000 simulated fires. As noted in the following figure, if the air base was moved from Hemet-Ryan to March, the analysis predicted more fires to escape initial attack in only 1 out of 64 locations in 1 out of 100 years. Compared to 70,000 fires, this simulation suggests that the two locations are essentially equal in terms of the overall effectiveness in initial attack on wildland fires.

California Fire Economics Simulator (CFES2) Initial Attack Simulation: Moving Air Resources from Hemet/Ryan to March Field Did Not Significantly Change Initial Attack Outcomes



CFES2 Initial Attack Simulation

Representative Fire Locations



Key Assumptions

- All cooperating ground and air resources included in simulation.
- Simulation period: 100 years
- Fire occurrence and behavior variables held constant.
- Fireline production rate variables held constant.
- Comparison to current organization differs only in response times.

Changes in acreage within a 15 minute flight circle of the two airbases

It should not be surprising that the additional escape was in a location with a comparatively large difference in flight time to the fire. The movement of the air base northwest from Hemet-Ryan to March will logically place it closer to some acres and farther from others. To assess overall effectiveness of air suppression, it is necessary to look at the location of all air resource in Southern California as well as areas that historically have had aggressive fires that can escape initial containment. In addition to CDF's air base in Riverside County, CDF also has an airbase at Ramona in northern San Diego County. The US Forest Service also operates air bases at San Bernardino and Fox Field in Los Angeles County. The following figure labeled 'Responsibility Acres' shows the fire suppression responsibilities within the 15 minute flight circles of Ramona, Hemet-Ryan, and March air attack bases. A shift from Hemet-Ryan to March would create an 'arc' outside the 15 minute circle on the south side at the same time it would add other coverage to the northwest. The following table describes the potential changes in terms of acres within the 15 minute circle and acres within a 16-19 minute range.

Coverage within 20 minute response (5 minute takeoff, 15 minute in flight)	SRA - State Responsibility Area (acres)	LRA - Local Responsibility Area (acres)	FRA - Federal Responsibility Area (acres)
Same	1,337,723	1,518,981	1,376,315
1-4 minutes closer to March	114,023	284,274	480,915
1-4 minutes closer to Hemet Ryan	376,866	231,522	236,137
Net Difference at March	-262,843	52,752	244,778
Percent Difference	-14%	3%	12%

A shift to March would primarily impact acreage in northern San Diego County that is within 10 minutes of flight time from Ramona Air Attack Base. In addition a review of the potential of large fires in this part of San Diego is not that high compared to other areas within Southern California

Responsibility Acres

March AAB

SRA 1,449,646
FRA 1,800,512
LRA 1,857,616

Hemet AAB

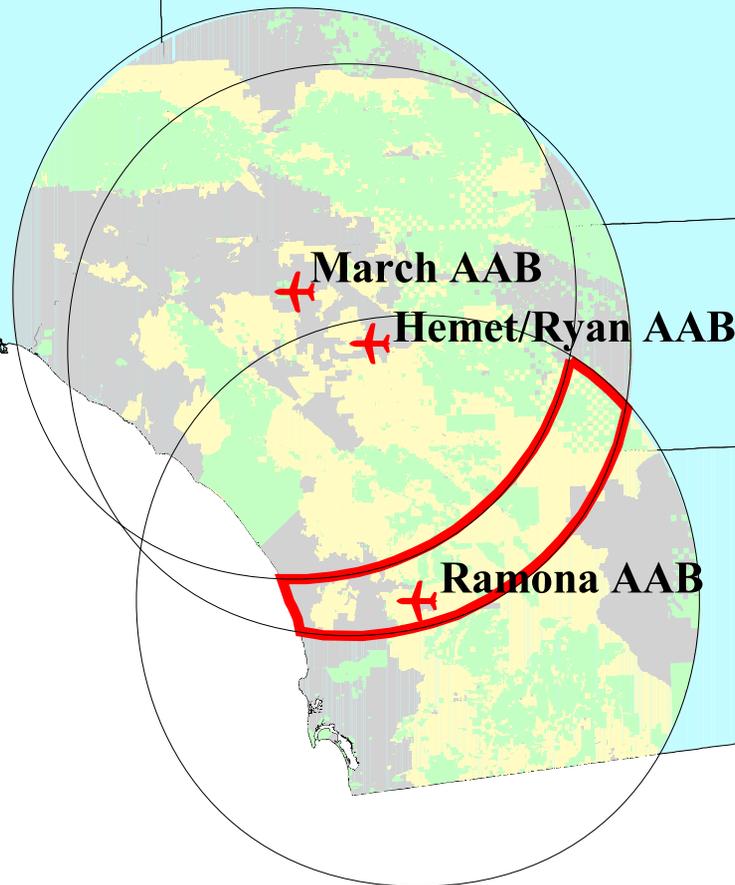
SRA 1,747,331
FRA 1,718,108
LRA 1,613,629

Ramona AAB

SRA 1,678,766
FRA 1,195,695
LRA 969,959

Highlighted Area

SRA 370,033
FRA 143,531
LRA 115,278

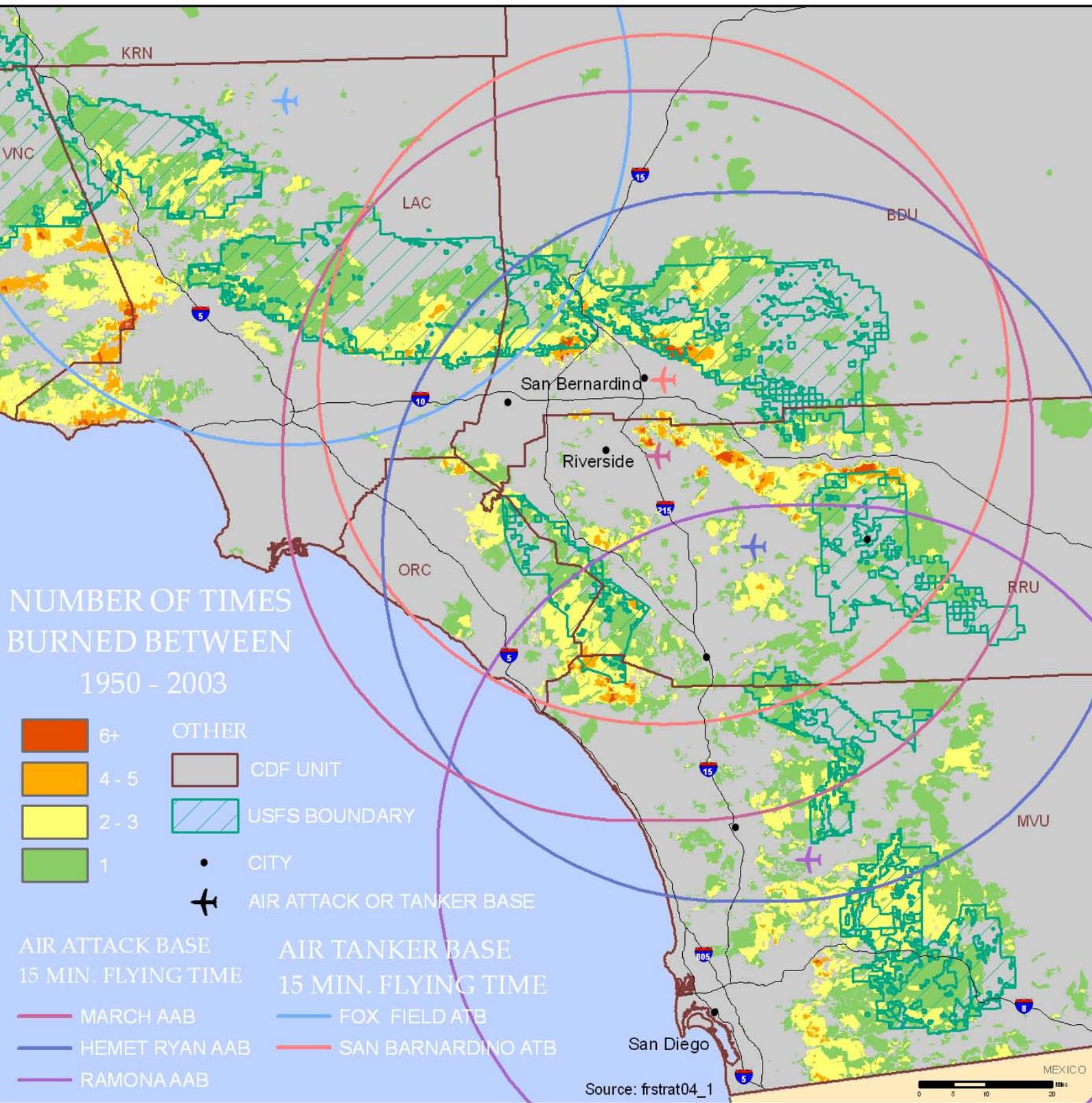


NOTE:

Circles are 52 miles in diameter approximately 15 minutes of flight

A comparison of 15 minute flight circles to historic fires

A shift to March would primarily impact acreage in northern San Diego County that is within 10 minutes of flight time from Ramona Air Attack Base. In addition a review of the potential of large fires in this part of San Diego is not that high compared to other areas within Southern California. The following figure overlay the 15 minute flight circles of CDF's potential sites as well as the combined circles of CDF and US Forest Service air attack bases. Four air tanker bases currently serve Southern California – two federal and two state. The 'flight circle' map overlays the 15 minute flying circles on top of a coverage of 'times burned between 1950-2003' and the location of the National Forests. This map clearly shows the areas where large fires have burned and will probably burn again in the future. The area outside the 15 minute flight circle from March but within the Hemet circle includes relatively limited area that has experienced more than 2 fires in the past 53 years. While the area outside the Hemet circle but within the March circle includes considerable areas that had from 2 to 5 fires over the past 53 years. Most of these fire prone areas are within the Angeles National Forest and directly upslope from very densely populated areas.



Source: frstrat04_1



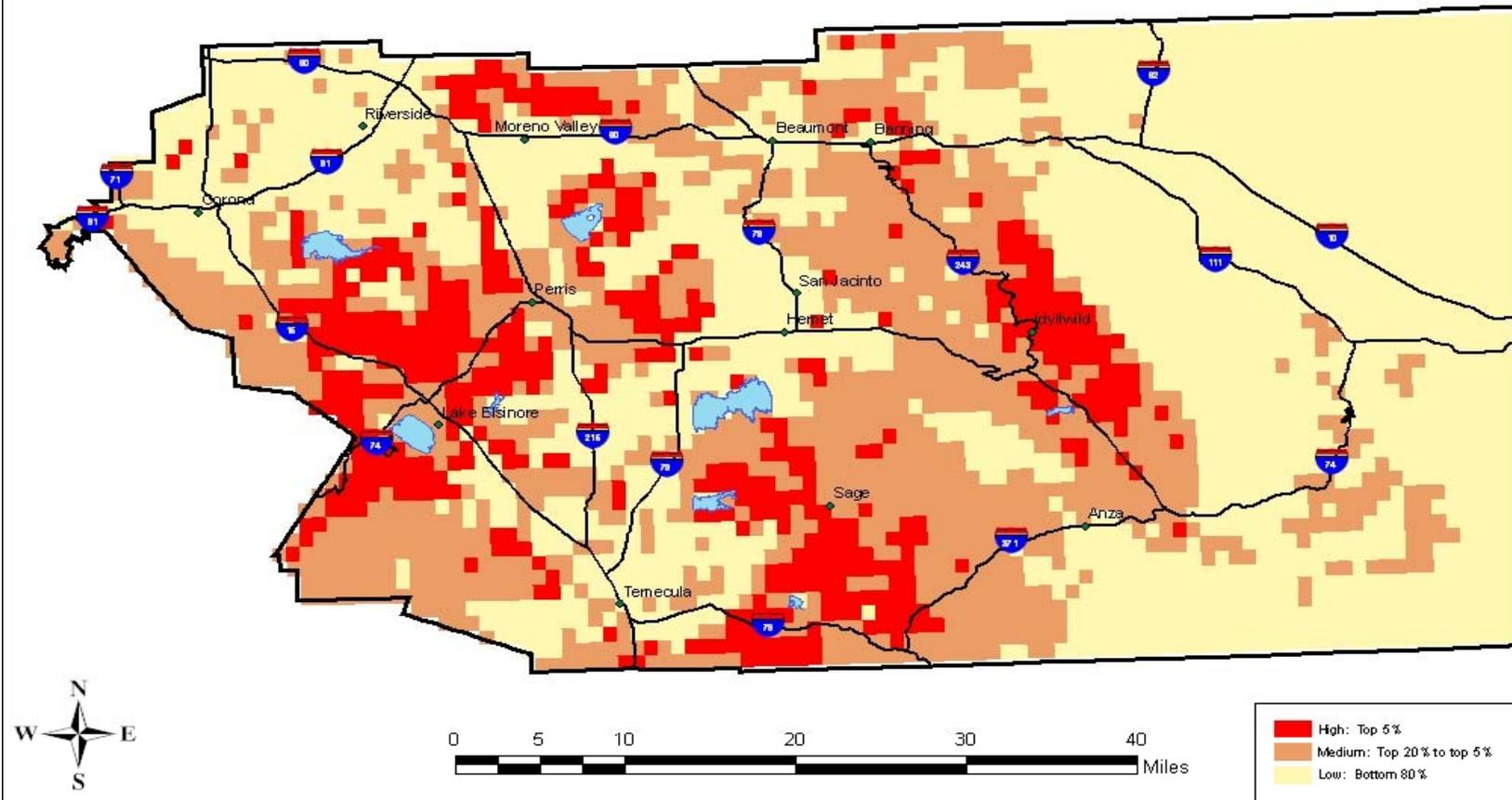
Fire Assets, Ignitions, Initial Attack Success, and Initial Attack Failure in Riverside County

The analysis of the various air base locations suggests that most of the changes would occur in San Diego and Los Angeles counties. Since most Riverside County falls within the 15 minute flight circles of both Hemet-Ryan and March, analyzing the coverage impacts requires a more detailed analysis of fire risk and fire occurrence within the county. The preceding “Number of times Burned between 1950 and 2003” clearly show that the areas with the most fires are on the relatively unpopulated mountain areas running NW-SE behind both air bases. From the point of view of citizens and private property owners in Riverside County, it is also worth looking at the spatial location of assets at risk from wildfire, fire ignitions, ignitions that escape initial attack and require more fire suppression resources, and the overall fire workload for the Riverside Operational Unit. The best source of relevant information is the Riverside Unit Fire Management Plan - 2005 (Anthony 2005). The following three maps illustrate a consistent pattern: while the areas of historic burned acres are in the mountainous areas in the north central part of the county, the assets at risk, ignitions, and overall fire workload are primarily in the western end of the county. The ‘Riverside Unit – Assets at Risk’ coverage shows a weighted coverage of private and watershed assets could be at risk if a wildfire escaped initial attack. The ‘Riverside Unit – 2004 Ignitions’ shows where ignitions actually occurred and whether initial attack was successful. While the assets at risk coverage shows high value areas widely scattered across the western half of the county, the actual pattern of ignitions is mainly in the northwestern portion of the county. This is more clearly shown in the ‘Riverside Unit – Failure Density’ map where the heaviest fire workload areas are shown in red.

2005 Riverside Unit Pre-Fire Management Plan

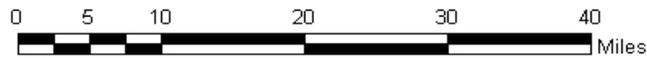
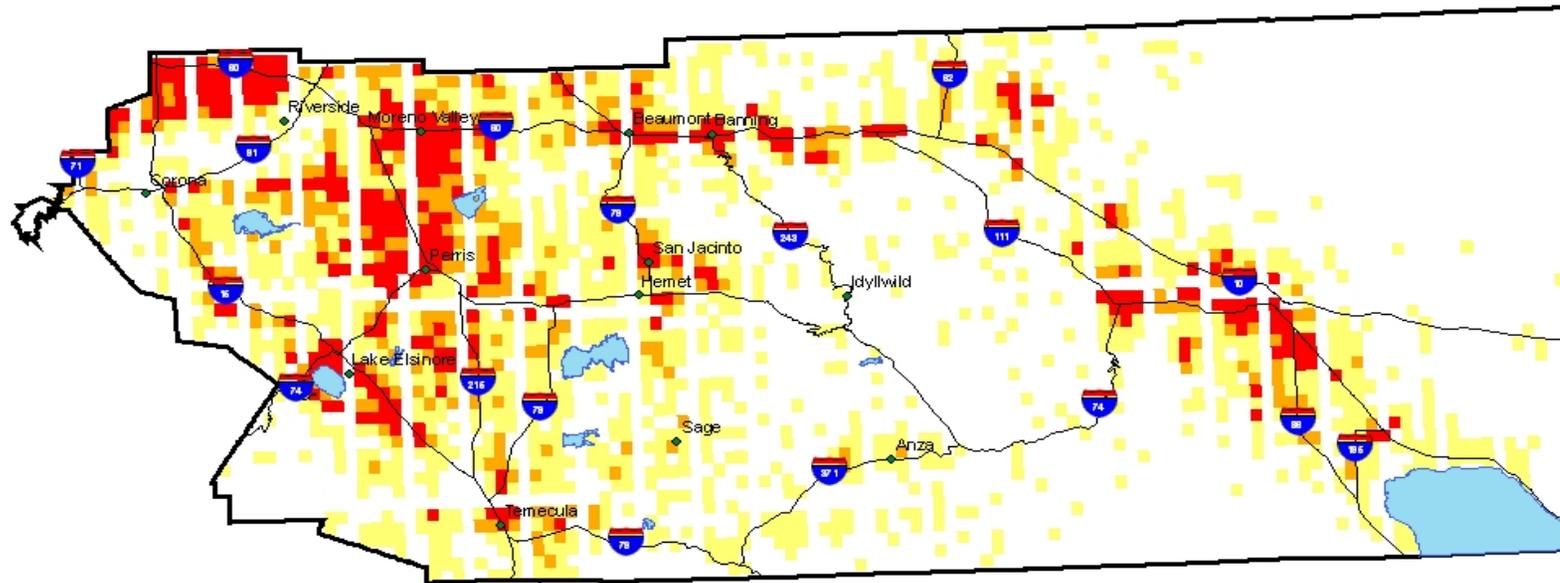


Riverside Unit - Assets At Risk





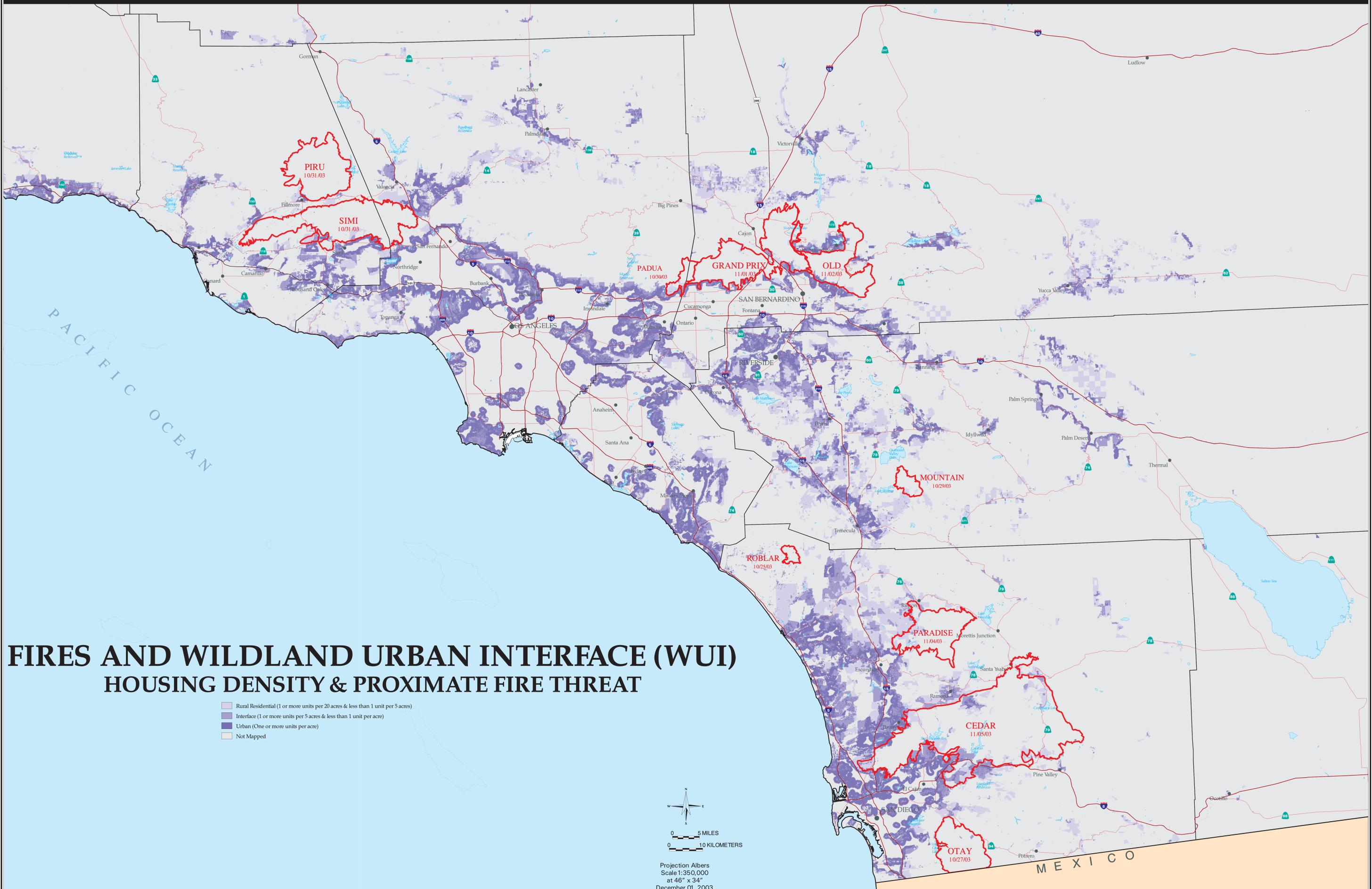
Riverside Unit - Failure Density



Fire Workload	
Yellow	1 - 5
Orange	5 - 10
Red	>10

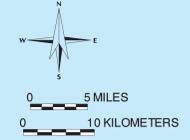
Southern California Subdivisions adjacent to Wildland Fuels and Potential Fires

Another approach for assessing the potential work load for air tankers is to analyze where large numbers of homes are adjacent to wildlands that could carry large wildland fires. In addition to initial attack on fires on State Responsibility Area (SRA), a substantial part of the overall number of flights comes from extended attack when fires threaten public safety in more developed areas whether they are in SRA or LRA. The 'Fires and Wildland Urban Interface (WUI)' map maps out residential areas that have a nearby wildland fire threat. For Riverside County, most of these areas are to the west of either Hemet or March and most of the acreage is in the northwestern corner of the county.



FIRES AND WILDLAND URBAN INTERFACE (WUI) HOUSING DENSITY & PROXIMATE FIRE THREAT

- Rural Residential (1 or more units per 20 acres & less than 1 unit per 5 acres)
- Interface (1 or more units per 5 acres & less than 1 unit per acre)
- Urban (One or more units per acre)
- Not Mapped



Projection Albers
Scale 1:350,000
at 46° x 34"
December 01, 2003

The State of California and the Department of Forestry and Fire Protection make no representations or warranties regarding the accuracy of data or maps. Neither the State nor the Department shall be liable under any circumstances for any direct, special, incidental, or consequential damages with respect to any claim by any user or third party on account of or arising from the use of data or maps.

Arnold Schwarzenegger, Governor,
State of California
Michael Chrisman, Secretary for Resources,
The Resources Agency,
Andrea E. Tuttle, Director,
Department of Forestry and Fire Protection

March Air base would provide roughly equal fire suppression success that has been historically achieved in the region

The overall conclusion from these various sources of data is that the two air base locations have slight differences in terms of how close they are to assets, fire ignitions, and fire escapes but that they would be equally effective within the overall fire suppression systems of CDF and its partners in Southern California.

This conclusion is different than those reached in the draft document of July 9, 2005 that was based on 5 non-representative fires and suppression only with air attack for a number of reasons.

1. It assumed suppression by air tankers only with no use of nearest available assets such as fire engines and hand crews during initial attack
2. The 5 selected fires are a small and non-representative sample of SRA fires in Riverside County and Orange County
3. The 60% initial attack rate for the current situation (Hemet best and worst cases) is too different from the actual 91%-96% success rate for this scenario to be considered an accurate simulation of actual fire and fire suppression in the region
4. The worst case scenario for March assumed delays from both an arriving and a departing plane at the same time as the CDF plane is trying to depart. The probability of both types of delays occurring in quick succession is extremely small, possibly one percent of the time, rather than the 50% of the time that is implied by using the worst case scenario for 5 out of the 10 fire simulations.

CFES2 – California Fire Economics Simulator

The California fire economics simulator is essentially a competition between how fast fires expand with how fast fire agencies can deploy resources to build fireline around the fire to contain it. If the 'fire' wins, we have an escaped fire that requires additional resources and time to put it out. If the 'fire agency' wins, the fire is suppressed with a specific estimate of resources required.

How fast the fire expands is mainly a function of

- 1) the type of fuel (ex. shrubs burns a lot hotter and with greater intensity than grass) and
- 2) the fire weather (ex. hot and windy days drive fires faster).

How many resources the fire agencies can deploy to make fireline is mainly a function of

- 1) how many resources are available (engines with crews, dozers, hand crews)
- 2) how long it takes it to be deployed on the fireline (travel time from various fire stations, set up time)
- 3) how many structures are near the fire (this is the primary responsibility of local fire engines but in practice local fire engines, and CDF engines will be assigned in the order they arrive at the fire, not by statutory responsibility. The number and location of local fire engines is a key component of CFES2)
- 4) how fast different resources (engines, dozers, hand crews) can put in fireline in different vegetation types (forest and shrub require more work per linear foot of fireline than grass) and terrain (steep terrain preclude the use of many vehicles)

A simulation model based on thousands of runs accounting for different fuel, weather, and number of simultaneous fires is more accurate than historic averages because of the very high year to year variability in the type of fire events that make up California's fire seasons. The accuracy of the model is tested by calibrating the model results with historic resources and historic fire starts. The simulation model then allows CDF to do 'what if' scenarios of more resources, less resources, moving stations to new locations, changes in fire weather, broad changes in fuel conditions, etc. The current statewide CFES2 runs are currently based on an extrapolation from CDF units where all data has been recently updated and verified. The financially relevant estimate of the cost of the fires that exceed initial attack resources is the sum of the number of escapes from CFES2 multiplied by the costs per escaped fire that is taken from empirical cost data.

The Full online manual is available at

http://webmain02/Library/cfes2/CFES2_Procedures.htm

A simple animation of the process is available at

<http://frap.cdf.ca.gov/tools/CFES/cfes.html>

A bibliography of peer reviewed research articles about CFES2 and its specific components

Gilless, J.K. and J.S. Fried. 2000. [Generating beta random variables from probabilistic PERT/CPM-type estimates of production times: an application in planning for wildland fire control](http://jeremy.msu.edu/pubs/annalsor.pdf) <<http://jeremy.msu.edu/pubs/annalsor.pdf>>. *Annals of Operations Research* [in press].

Fried, J.S. and J.K. Gilless. 1999. [CFES2: The California Fire Economics Simulator Version 2 User's Guide](http://jeremy.msu.edu/pubs/cfes2_manual.pdf) <http://jeremy.msu.edu/pubs/cfes2_manual.pdf>. University of California, Division of Agriculture and Natural Resources Publication 21580. 92 p. Fried,

Gilless, J.K. and J.S. Fried. 1999. [Stochastic representation of fire behavior in a wildland fire protection planning model for California](http://jeremy.msu.edu/pubs/fs_behavior_98.pdf). <http://jeremy.msu.edu/pubs/fs_behavior_98.pdf> *Forest Science* 45(4):492-499.

Fried, J.S. and B.D. Fried. 1996. [Simulating Wildfire Containment with Realistic Tactics \(PDF\)](http://jeremy.msu.edu/research/fs_96.pdf) <http://jeremy.msu.edu/research/fs_96.pdf>. *Forest Science* 42(3):267-281.

Torn, M. S., and J. S. Fried. 1992. Predicting the impacts of global warming on wildland fire. *Climatic Change* 21: (3)257-274.

Fried, J.S. and M.S. Torn. 1990. Analyzing localized climate impacts with the Changed Climate Fire Modeling System. *Natural Resource Modeling* 4(2):229-253.

Fried, J. S., and J. K. Gilless. 1989. Expert opinion estimation of fireline production rates. *Forest Science* 35: 870877.

Fried, J. S., and J. K. Gilless. 1988. Stochastic representation of fire occurrence in a wildland fire protection planning model for California. *Forest Science* 34(4): 948-955.

Bill Stewart

September 13, 2002

CFES2 in Brief

CFES2 is an MS-DOS computer program that simulates, for a CDF Unit or other administrative area, initial attack on wildland fires over a range of real-world firefighting conditions. CFES2 is a strategic planning tool, the culmination of efforts by CDF and UC Berkeley researchers to improve initial attack modeling technology for CDF managers. The conceptual framework grew out of experience with CFES-IAM Version 1, a deterministic simulator patterned after the Initial Action Assessment model used by the USDA Forest Service and Bureau of Land Management.

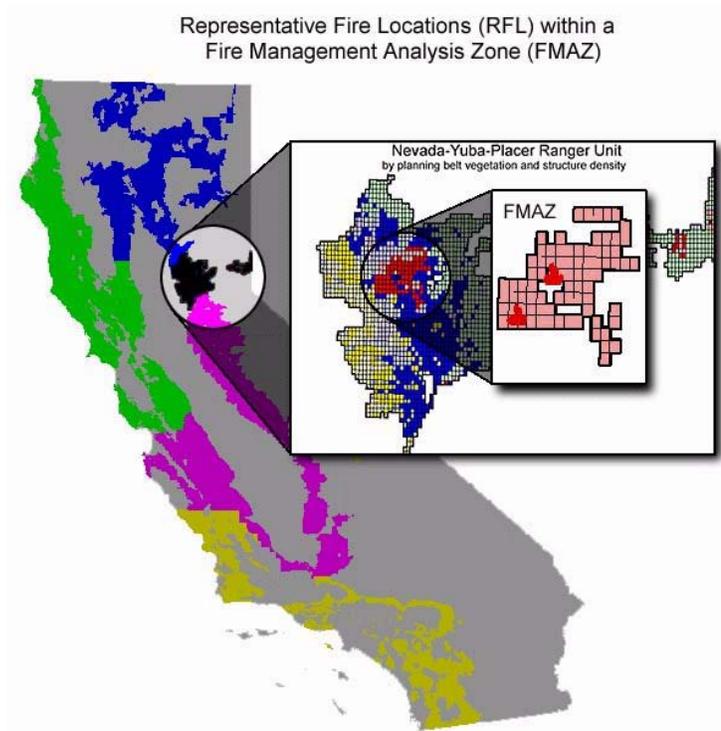
CFES2 is very different from both CFES-IAM and IAA, because it gets many of its critical operating parameters from statistical probability distributions rather than from averages. Data sources include historical fire and weather data; fuel, topography, weather, and population maps; and expert-opinion derived production rates. Simulation is a clock-driven, "next event" process that generates thousands of initial attack outcomes reflecting the complexity and variability of the initial attack system (e.g., drawdown, extreme rates of spread). CFES2 incorporates various institutional constraints on resource availability, such as staffing patterns, diversions of suppression resources for structure protection, turnaround time, and maintenance/other downtime. An innovative containment algorithm accounts for the timing of arrival of fire fighting resources and consequent effect on final containment size. CFES2 simulates initial attack in areas of similar vegetation, structure density, and weather, called Fire Management Analysis Zones (FMAZ).

CFES2 outputs include the expected annual number of fires that exceed initial attack simulation limits (and potentially become large and costly "escaped" fires), the percent of fires successfully contained within policy guidelines. The probability of escaped fires is also quantifiable.

CFES2 is part of the Fire Plan Assessment System and measures the Level of Service for purposes of focusing pre-fire management efforts. The Level of Service analysis is also an avenue for informing the state Board of Forestry in their efforts to ascertain to what extent CDF is providing "equal protection to lands of similar type, as required under PRC 4130. Ranger unit, regional, and state-level maps will depict the total level of service and the level of service by funding source. CFES2 can simulate just the "Schedule B" response, providing a measure of service that a fire history records cannot reveal directly. The California Board of Forestry will compare the levels of service provided by state-funded initial attack resources in "similar" Fire Management Analysis Zones. In addition, CFES2 facilitates a wide range of "what if" analyses, allowing managers the flexibility to test alternatives for stationing and using suppression resources, thus evaluating and improving the organization of resources for wildland fire protection.

A "historical" or "validation" simulation run is a check on the inputs, and can help identify problems with the data or assumptions. Only after the data used in the validation run is deemed satisfactory can the model's resources be updated to their current status and a "baseline run".

When model inputs are "in balance" for the historical (validation) simulation, the results (e.g., LOS, number of escapes per year) should be a reasonable reflection of the long run average fire history in each FMAZ. When any of these inputs are changed (e.g., number of engines dispatched), the scales may tip, resulting in a lower or higher Level of Service.



This graphic depicts the overall geographical context of a CFES2 simulation. As a hypothetical example, this FMAZ is the ranger unit's Brush planning belt.

The Brush Planning Belt has a Medium level of structure protection intensity. The two representative fire locations shown represent differences in travel times and dispatch policies (i.e., type, and number of suppression resources). The FMAZ is relatively homogeneous with respect to weather. Each Quad 81st in the FMAZ is associated with one or the other of the two RFLs (but not both).

James Spero ,CDF Fire and Resource Assessment Program , 2002

Hemet-Ryan AAB Capital Outlay Project Relocation Or Replacement Analysis

Attached are schedules and estimates for the relocation of the CDF air attack base to March Air Reserve Base or the replacement of the CDF airbase at Ryan Field in Hemet. The following narrative is to be used in conjunction with these documents:

Relocation to March ARB:

- The project California Environmental Quality Act, lease, development agreement and design is complete and the project is essentially ready to bid.
- General Funding (GF), \$8,296,000 for the Construction phase of this project was re-appropriated in Fiscal Year 05/06.
- Completion of this project is scheduled for May of 2007. This assumes the final decision to relocate is made by November 2005.

Replacement at Hemet:

- This project would be treated as a “New Start.” If this project is funded as part of the typical Capital Outlay process, the earliest that funding could be anticipated is Fiscal Year 07/08.
- General Funds, \$17,330,000, should be the anticipated funding source for this project. Please note that CDF has never had a project funded from GF at this value. Additionally, lease revenue bond funding typically does not work for projects on leased sites.
- This project’s best case scenario for schedule and estimated costs is based on the following:
 - Utilization of General Funds.
 - Improvements required on “State” property.
 - Riverside County would need CEQA clearance and funding or would have to already be in construction of offsite improvements prior to the State Public Works Board (PWB) approving this project in September 2008. In addition, Riverside County would be required to enter an agreement with the state to commit county resources to the project before funding would be authorized and granted.
 - Dept. of General Services’ Real Estate Services Division would be responsible for management of the project.
 - CEQA for the “State” project is anticipated to be a Negative Declaration. This must be completed prior to PWB approval of the project.
 - Property rights “Lease” must be complete prior to PWB approval. The county must commit to the same terms and commitments agreed to in the lease and landing fee agreement for March.
 - Hazardous materials mitigation and remediation is limited to structures.
- Scheduled Completion of the “State” project is November 2011, assuming all CEQA clearance and funding issues are finalized by September 2008

Relocate to March Air Base

**DEPARTMENT OF GENERAL SERVICES
REAL ESTATE SERVICES DIVISION - PROJECT MANAGEMENT BRANCH
PROJECT COST SUMMARY**

PROJECT:	HEMET RYAN AAB	WD ESTIMATE:	WD2CDF05
LOCATION:	MARCH ARB	EST. / PROJ. CCCI:	4328 / 4339
CLIENT:	DEPARTMENT OF FORESTRY	DATE ESTIMATED:	3/17/2005
DESIGN BY:	CDF	ABMS NO:	N/A
PROJECT MGR:	CLK	PREPARED BY:	CLK
PLAN DATE:	SEPTEMBER 01	DOF PROJ. I.D. NO.:	30.30.60

DESCRIPTION

Relocate and construct a Air Attack and Helitack Base at March ARB which consists of the following: approximately 1,984 sf, helicopter hangar; 3,600 sf OV-10 hangar; 4,646 air operations building; 3,850 sf (22 bed), barracks/messhall; 4,812 3 bay apparatus building/warehouse building . Site work consists of the installation of 6 retardant loading pits and associated utilities, retardant mixing plant pad, and the utilities associated with the delivery of retardant of the loading pits, Helipad and associated paving, site work including fencing, taxiways, paving, landscaping, retardant waste and surface runoff mitigation, on-site and off-site utilities and connections, radio tower, paved access road, appurtenances, demolition, clearing and grubing.

ESTIMATE SUMMARY

Site Work	\$3,309,000
Buildings	
Air Operations 4,646 gsf	\$1,024,000
Barracks 3,850 gsf	\$657,000
Warehouse 4,812 gsf	\$752,000
Helicopter Hangar 1,984 gsf	\$100,000
OV-10 Hangar 3,600 gsf	\$196,000

ESTIMATED TOTAL CURRENT COSTS: \$6,038,000

Adjust CCCI From 4100 to 4328 \$336,000

ESTIMATED TOTAL CURRENT COSTS ON NOVEMBER 15, 2004: \$6,374,000

Escalate to Start of Construction	11 Months @	0.42% /mo:	\$294,000
Escalation to Midpoint	6 Months @	0.42% /mo:	<u>\$161,000</u>

ESTIMATED TOTAL CONTRACTS \$6,829,000

Contingency At: 5% \$341,000

ESTIMATED TOTAL CONSTRUCTION COST \$7,170,000

FUNDING DATA & ESTIMATE NOTES

PROJECT:	HEMET RYAN AAB	WD ESTIMATE:	WD2CDF05
LOCATION:	MARCH ARB	DATE ESTIMATED:	3/17/2005
CLIENT:	DEPARTMENT OF FORESTRY	PREPARED BY:	CLK
		TEMPLATE:	2000B(CSI)

FUNDING DATA

<u>Chapter / Item</u>	<u>Phase</u>	<u>Amount</u>	<u>Totals</u>
Fund Transfers			
Ch. 324/98 Item 3540-301-0001 (20)	P	\$164,000	
Ch. 324/98 Item 3540-301-0001 (20)	W	\$166,000	
Ch. 379/02 Item 3540-301-0660 (8.8)	A	\$350,000	
Ch. 106/01 Item 3540-301-0660 (6)	C	<u>\$19,000</u>	
Total Funds Transferred			\$699,000
Funds Available Not Transferred			
Ch. 106/01 Item 3540-301-0660 (6)	C	\$3,328,000	
Ch. 379/02 Item 3540-301-0660(8.8)	C	\$1,759,000	
Ch. 208/04 Item 3540-301-0660(3.5)	C	<u>\$834,000</u>	
Total Funds Available not Transferred			<u>\$5,921,000</u>
Total Funds Transferred and Available			<u><u>\$6,620,000</u></u>

ESTIMATE NOTES

1. The construction costs in this estimate are indexed from the CCCI Index as of the date of estimate preparation to the CCCI index that is projected as of Jan. 1, 2005. The project estimate is then escalated for a 15 month period to an assumed construction midpoint. When an actual construction start date is established, escalation to the index for that date will be an added cost.
2. The Agency may have retained items that are not included in this estimate. RESD-PMB has not verified Agency retained pricing.
3. Included are estimated RESD due diligence costs of \$40,700.

**SUMMARY OF COSTS
BY PHASE**

PROJECT: HEMET RYAN AAB
 LOCATION: MARCH ARB
 CLIENT: DEPARTMENT OF FORESTRY

WD ESTIMATE: WD2CDF05
 DATE ESTIMATED: 17-Mar-05
 PREPARED BY: CLK

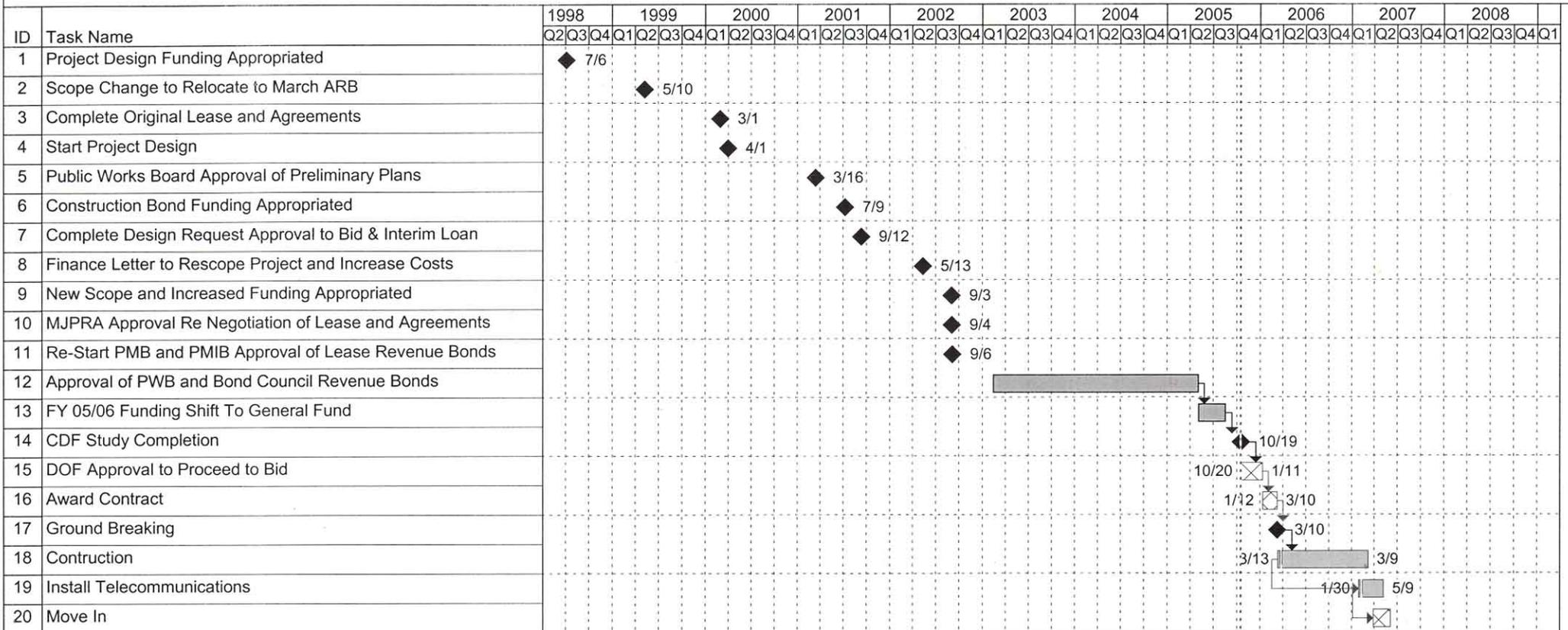
CONSTRUCTION DURATION	12 MONTHS
ESTIMATED CONTRACT COST	\$6,829,000 \$6,829,000
CONSTRUCTION CONTINGENCY	\$341,000 \$341,000
TOTAL	\$7,170,000 \$7,170,000

CATEGORY	STUDY 00	PRELIMINARY PLANS 01	WORKING DRAWINGS 02	CONSTRUCTION 03	TOTAL
ARCHITECTURAL AND ENGINEERING SERVICES					
A&E Design		\$86,000	\$110,500	\$89,600	\$286,100
Construction Inspection				\$50,000	\$50,000
Construction Inspection Travel				\$5,000	\$5,000
Coordination & Contract Management					
Advertising, Printing and Mailing			\$19,500		\$19,500
Construction Guarantee Inspection					
SUBTOTAL A&E SERVICES		\$86,000	\$130,000	\$144,600	\$360,600

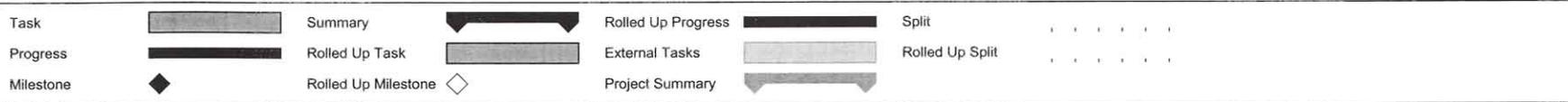
OTHER PROJECT COSTS					
Special Consultants (Type of Consultant)		\$25,000	\$10,000	\$25,000	\$60,000
Materials Testing				\$17,500	\$17,500
Project/Construction Management		\$17,800	\$23,100		\$40,900
Contract Construction Management				\$533,400	\$533,400
Site Acquisition Cost & Fees	\$350,000			\$49,000	\$399,000
Agency Retained Items					
DVBE - A&E		\$200	\$300	\$200	\$700
DVBE - Const.				\$6,300	\$6,300
School Checking					
Hospital Checking					
Essential Services					
Handicapped Checking			\$2,600		\$2,600
Other Costs -					
Environmental Document		\$35,000			\$35,000
SUBTOTAL OTHER PROJECT COSTS	\$350,000	\$78,000	\$36,000	\$631,400	\$1,095,400

TOTAL ESTIMATED PROJECT COST	\$350,000	\$164,000	\$166,000	\$7,946,000	\$8,626,000
LESS FUNDS TRANSFERRED		\$164,000	\$166,000		\$330,000
LESS FUNDS AVAILABLE NOT TRANSFERRED					
CARRY OVER		\$350,000	\$350,000	\$350,000	
BALANCE OF FUNDS REQUIRED	\$350,000	\$350,000	\$350,000	\$8,296,000	\$8,296,000

Hemet Ryan Air Attack Base Relocation - March AFB Project Schedule



CDF
Date: January 17, 2003



Rebuild at Hemet

**DEPARTMENT OF GENERAL SERVICES
REAL ESTATE SERVICES DIVISION - PROJECT MANAGEMENT BRANCH
PROJECT COST SUMMARY**

PROJECT:	HEMET RYAN AAB	ESTIMATE:	1
LOCATION:	HEMET	EST. / PROJ. CCCI:	4339
CLIENT:	DEPARTMENT OF FORESTRY	DATE ESTIMATED:	7/1/2005
DESIGN BY:	CDF	ABMS NO:	N/A
PROJECT MGR:	CLK	PREPARED BY:	CLK
PLAN DATE:	N/A	DOF PROJ. I.D. NO.:	N/A

DESCRIPTION

Relocate and construct a Air Attack and Helitack Base at March ARB which consists of the following: approximately 1,984 sf, helicopter hangar; 3,600 sf OV-10 hangar; 4,646 air operations building; 3,850 sf (22 bed), barracks/messhall; 4,812 3 bay apparatus building/warehouse building . Site work consists of the installation of 6 retardant loading pits and associated utilities, retardant mixing plant pad, and the utilities associated with the delivery of retardant of the loading pits, Helipad and associated paving, site work including fencing, taxiways, paving, landscaping, retardant waste and surface runoff mitigation, on-site and off-site utilities and connections, radio tower, paved access road, appurtenances, demolition, clearing and grubbing.

ESTIMATE SUMMARY

Site Work		\$6,500,000
Buildings		
Air Operations	4,646 gsf	\$1,115,040
Barracks	3,850 gsf	\$850,850
Warehouse	4,812 gsf	\$1,058,640
Helicopter Hangar	1,984 gsf	\$297,600
OV-10 Hangar	3,600 gsf	\$504,000

ESTIMATED TOTAL CURRENT COSTS: \$10,326,130

Adjust CCCI From 4339 to 4411 \$171,000

ESTIMATED TOTAL CURRENT COSTS ON JULY 2005: \$10,497,130

Escalate to Start of Construction	55 Months @	0.42% /mo:	\$2,425,000
Escalation to Midpoint	10 Months @	0.42% /mo:	<u>\$441,000</u>

ESTIMATED TOTAL CONTRACTS \$13,363,130

Contingency At: 5% \$668,000

ESTIMATED TOTAL CONSTRUCTION COST \$14,031,130

FUNDING DATA & ESTIMATE NOTES

PROJECT:	HEMET RYAN AAB	ESTIMATE:	1
LOCATION:	HEMET	DATE ESTIMATED:	7/1/2005
CLIENT:	DEPARTMENT OF FORESTRY	PREPARED BY:	CLK
		TEMPLATE:	2000B(CSI)

FUNDING DATA

<u>Chapter / Item</u>	<u>Phase</u>	<u>Amount</u>	<u>Totals</u>
Fund Transfers			
Total Funds Transferred			\$0
Funds Available Not Transferred			
Total Funds Available not Transferred			\$0
Total Funds Transferred and Available			\$0

ESTIMATE NOTES

1. The construction costs in this estimate are indexed from the CCCI Index as of the date of estimate preparation to the CCCI index that is projected as of July 2005. The project estimate is then escalated for a 10 month period to an assumed construction midpoint. When an actual construction start date is established, escalation to the index for that date will be an added cost.
2. The Agency may have retained items that are not included in this estimate. RESD-PMB has not verified Agency retained pricing.

**SUMMARY OF COSTS
BY PHASE**

PROJECT: HEMET RYAN AAB
 LOCATION: HEMET
 CLIENT: DEPARTMENT OF FORESTRY

ESTIMATE: 1
 DATE ESTIMATED: 1-Jul-05
 PREPARED BY: CLK

CONSTRUCTION DURATION	12 MONTHS	
ESTIMATED CONTRACT COST	\$13,363,130	\$13,363,130
CONSTRUCTION CONTINGENCY	\$668,000	\$668,000
TOTAL	\$14,031,130	\$14,031,130

CATEGORY	STUDY 00	PRELIMINARY PLANS 01	WORKING DRAWINGS 02	CONSTRUCTION 03	TOTAL
ARCHITECTURAL AND ENGINEERING SERVICES					
A&E Design		\$419,438	\$678,905	\$414,927	\$1,513,270
Construction Inspection				\$675,000	\$675,000
Construction Inspection Travel				\$350,000	\$350,000
Coordination & Contract Management		\$15,000	\$8,000	\$20,000	\$43,000
Advertising, Printing and Mailing			\$25,000		\$25,000
Construction Guarantee Inspection					
SUBTOTAL A&E SERVICES		\$434,438	\$711,905	\$1,459,927	\$2,606,270

OTHER PROJECT COSTS					
Special Consultants (Geotech/Hazmat/Survey)		\$25,000	\$40,000	\$50,000	\$115,000
Materials Testing				\$150,000	\$150,000
Project/Construction Management		\$20,000	\$95,000	\$175,000	\$290,000
Contract Construction Management					
Site Acquisition Lease Cost & Fees		\$50,000		\$5,000	\$55,000
Agency Retained Items					
DVBE - A&E					
DVBE - Const.				\$30,000	\$30,000
School Checking					
Hospital Checking					
Essential Services					
Handicapped Checking			\$2,600		\$2,600
Other Costs -					
Environmental Document		\$50,000			\$50,000
SUBTOTAL OTHER PROJECT COSTS		\$145,000	\$137,600	\$410,000	\$692,600

TOTAL ESTIMATED PROJECT COST		\$579,438	\$849,505	\$15,901,057	\$17,330,000
LESS FUNDS TRANSFERRED					
LESS FUNDS AVAILABLE NOT TRANSFERRED					
CARRY OVER			\$579,438	\$1,428,943	
BALANCE OF FUNDS REQUIRED		\$579,438	\$1,428,943	\$17,330,000	\$17,330,000

Potential Multi-Species Habitat Conservation Plan issues at the two air bases

Both air bases are within the Riverside Lowlands Bio-region of the Multi-Species Habitat Conservation Plan (MSHCP) that is part of the Riverside County Integrated Project. As described on the county web site <http://www.rcip.org/conservation.htm> , the MSHCP was designed to accomplish three goals: Streamline regulatory review related to endangered species, Return local control to the County, and conserve resources for future generations. While the March Air Base plan was analyzed and approved as a unique unit within the Riverside Lowlands bioregion, the proposed expansion on the Hemet-Ryan Air base has not been through the EIS/EIR process necessary to ensure compliance with the MSHCP and the Riverside County Integrated Project (RCIP).

The recently completed Hemet Ryan Airport Master Plan (June 2004), available at <http://www.rivcoeda.org/html/Aviation/aviationframe.html> , recommends a runway expansion to 5,300 feet as well as upgrades to the active sailplane runway that is parallel to the main runway. The upgrade would increase the ability to attract personal jets and other non-commercial users. As noted on the web site, Hemet Ryan is also one of the busiest sailplane centers in the nation. The proposed increase in recreational aviation of all sorts could complicate any proposed expansion of fire fighting air tankers that fly on very tight schedules when on missions. We reviewed the National Transportation Safety Board's web site, <http://www.nts.gov/nts/query.asp> , for civilian accidents in the cities near the two air bases. For the period 1965-2005, there were 78 crashes in Riverside, 63 in Hemet, 25 in Perris, and 5 in Moreno Valley (the nearest city to March Air Base). While March was a military only base for most of the period, the more pertinent fact is that many of the accidents involved smaller aircraft such as sailplanes and gliders.

The 2004 Master Plan contains a number of alternatives, as well as the preferred alternative for a 5,300 foot runway. The preferred alternative's 980 foot expansion would occur on the southwest end of the property and could all be done on airport owned land. This can clearly be seen on the runway blueprint http://www.rivcoeda.org/html/Aviation/Master_Plan/HemetRyan/HMTalp03.pdf .

Addressing the Eight Planning Species covered by the MSHCP

As noted in the General Biological Resources Report section (LSA, April 19, 2004) of the Airport Master Plan, "The proposed project site may have potentially significant impacts to these MSHCP-designated areas. Compliance with the MSHCP would mitigate impacts to the Proposed Noncontiguous Habitat Block 7 and along the Existing Constrained Linkage B. " (p 10, LSA report April 19, 2004) The report concludes that the direct construction involved with a runway

expansion to 5,300 feet could be done within the MSHCP if there is no direct occupied habitat disturbance. However, the report is moot on the potentially larger habitat alteration that would be involved with the necessary relocation of both Warren Avenue and Stetson Avenue. Since the master plan is not an EIS/EIR they have not engaged in official negotiations with the county, state, and federal wildlife agencies involved in managing the MSHCP.

Our review of the MSHCP confirms the statements made by LSA in their report in the 2004 Master Plan. The expansion of the Hemet-Ryan runway to the southwest on the land owned by the airport would require development and related habitat loss within the Hemet Vernal Pool Areas – East (Subunit 4) of the San Jacinto Valley Area Plan within the MSHCP. As noted on p 3-342, and the map of 3-373, of the Final MSHCP - http://www.rcip.org/mshcpdocs/vol1/3_3_13.pdf - this area has five biological issues to address the eight planning species within the region. The eight species are the:

- burrowing owl
- mountain plover
- vernal pool fairy shrimp
- California Orcutt grass
- Davidson's saltscare
- little mousetail
- spreading navarretia
- thread-leaved brodiaea, and
- vernal barley –

The MSHCP requires that all species be addressed and depends on both designing project to limit direct impact and mitigation through acquisition of acreage within each identified subunit. As noted in the MSHCP the criteria for any projects and/or mitigations within the subunit into which the runway expansion would extend are

Conservation within this Cell Group will contribute to assembly of Proposed Noncontiguous Habitat Block 7. Conservation within this Cell Group will focus on playas/vernal pool habitat and agricultural land. Areas conserved within this Cell Group will be connected to playas/vernal pool habitat proposed for conservation in Cell #3793 to the east, in Cell #3891 and #3892 to the south and in Cell #3684 and #3791 both in the Harvest Valley/Winchester Area Plan to the west. Conservation within this Cell Group will range from 70%-80% of the Cell Group focusing on the central portion of the Cell Group (p 3-364 of the MSHCP)

Potential Project Location and Habitat Protection Mitigation

The Master Plan only looks at direct alteration of habitat for the 980 foot runway expansion to 5,300 feet. It did not address the habitat alteration that would be required when Warren Avenue and Stetson Avenue are moved to accommodate the longer runway. Furthermore, the development of a runway to allow all existing air tankers to land and pick up retardant would require the further expansion to 6,000 feet. This could require the acquisition of more land within the identified habitat areas as well as even more alteration of the two roads.

Related ongoing county project and habitat issues near Hemet

It would appear that any expansion beyond the June 2004 Master Plan would require additional planning with regards to the endangered species and related habitat issues before any detailed engineering planning could begin. Based on the complexity and timeline for the adjacent realignment of State Route 79 that is being done under the auspices of the Riverside County Transportation Commission (RCTC), this could add an additional four years of planning and EIS/EIR preparation. While the 25 acres of direct land alteration for the runway and the area required to realign the two local roads may not be that large in comparison to the overall area, staying to the basic principle of the MSHCP would require looking at any runway expansion and associated secondary road construction in concert with other proposed projects. The major project in this area is the realignment of State Route 79 sponsored by the Riverside County Transportation Commission (RCTC at <http://sr79project.info/>). The location map of the project reproduced on the following page, http://sr79project.info/pdf/sr79_location_map.pdf , can be used to identify the project area, a number of proposed routes and the proximity to the air base. It would seem logical that any other publicly funded project involving roads in the area would either need to be integrated right now into this SR79 process or could only be finalized after the EIS/EIR for the SR79 is completed. The current timeline for the completion of the EIS/EIR <http://sr79project.info/schedule.html> is not until 2009, four years from now. This would suggest that any expansion and related construction related to an expanded runway could not begin to be planned until at least 2009 or 2010. That schedule would be based on the immediate investment of staff time and funding to integrate any airport expansion into the larger EIS/EIR process currently being sponsored by the county.

Delay implications related to potential habitat protection issues

In sum, it appears that the construction of any public works project within the D' Cell Group of the Hemet Vernal Pool Areas East (subunit 4) of the San Jacinto Valley Area Plan could require multi-species focused planning and possibly the purchase of habitat acres for mitigation. This would be in line with MSHCP policy of avoiding piecemeal habitat loss. From the point of view of investing in the future of fire protection in Riverside County, the main implication would be the

need for completing a thorough MSHCP oriented EIS/EIR before any airport specific plans, financing, and construction could begin. If the two secondary road realignments and the runway expansion to 6,000 feet could be piggybacked onto the partially completed EIS/EIR for the State Route 79 project, it would appear that the delay would be at least four years before any of those steps could be initiated.

3.0 Conservation Planning Process/Description and Area Plan Criteria of the MSHCP Conservation Area



- Vegetation Communities:**
- Montane Coniferous Forest
 - Woodlands and Forests
 - Coastal Sage Scrub
 - Riversidean Alluvial Fan Sage Scrub
 - Desert Scrubs
 - Chaparral
 - Playas and Vernal Pools
 - Grassland
 - Riparian Scrub, Woodland, Forest
 - Meadows and Marshes
 - Cismontane Alkali Marsh
 - Water
 - Developed, Disturbed Land
 - Agricultural Land

SOURCE: FSR&ETU-4, 1995



- Cell With Unique ID
- Cell Group with Identifier
- American Indian Lands (Not a Part)
- Public/Quasi-Public Conserved Lands



This map is a draft document. The map may not represent the final version because it is subject to change as more information is available. The geographic information system and data were developed for general informational purposes. This map is not intended to be used as a legal document and is not intended to be used as a basis for any legal action, including claims for injury and property damage.



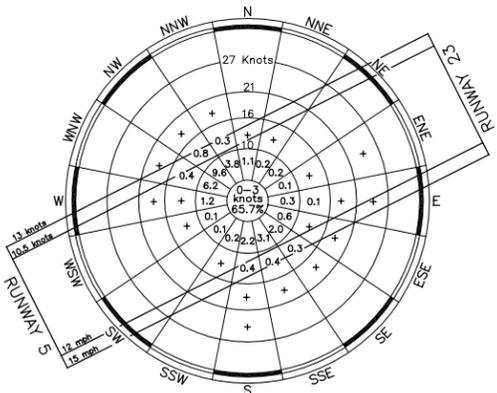
0 1 Miles
Date: 11/2007

San Jacinto Valley Area Plan With Vegetation, Cells and Cell Groups Keyed to MSHCP Criteria

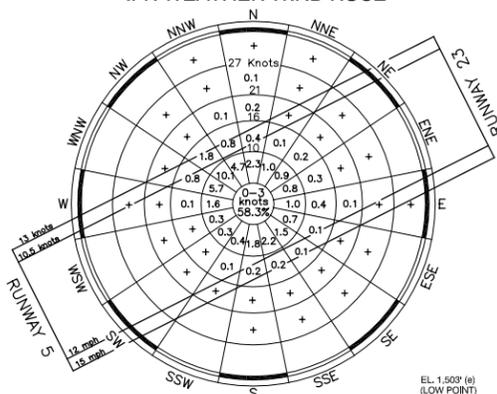
Figure 3-27



ALL WEATHER WIND ROSE



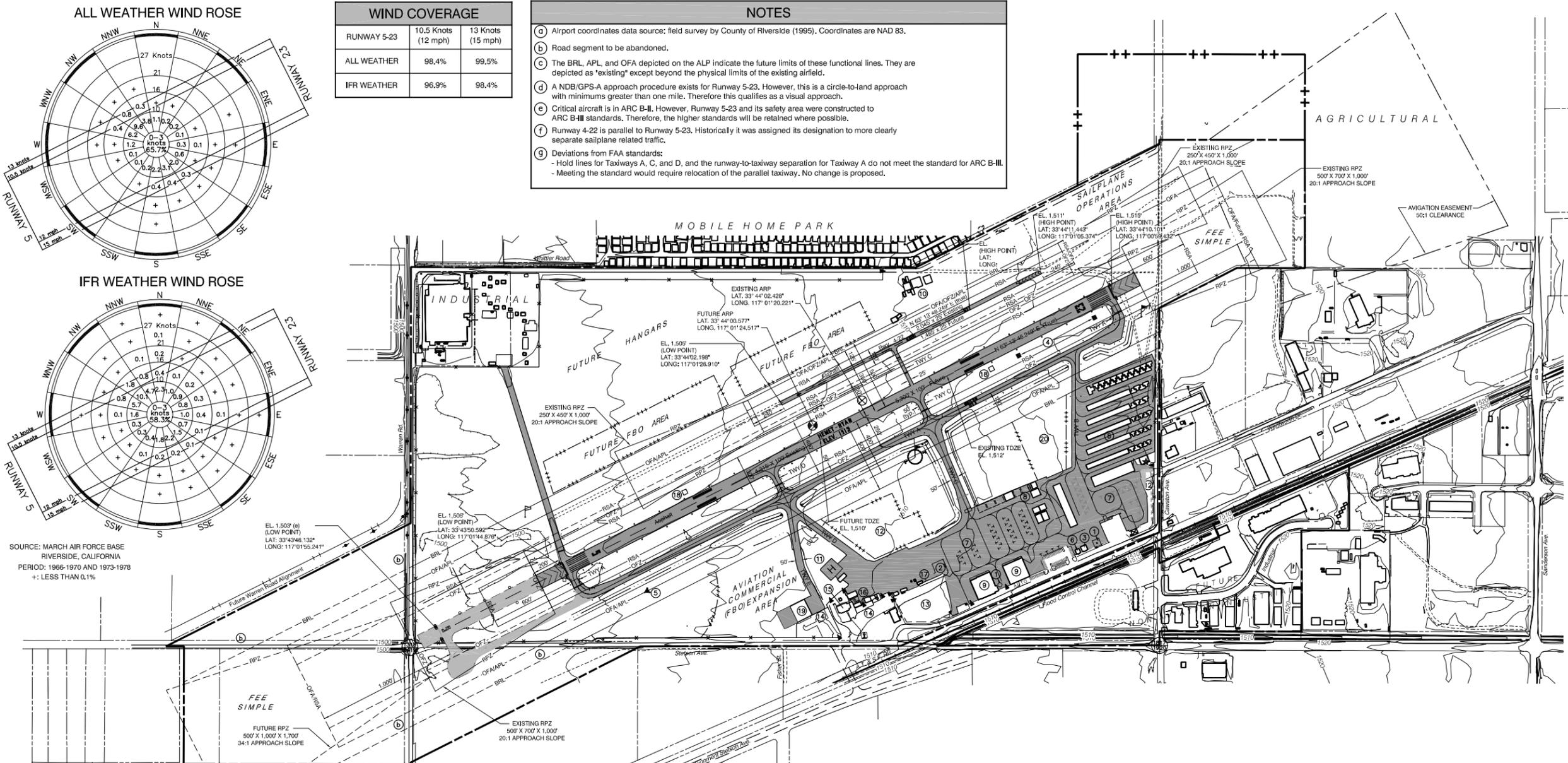
IFR WEATHER WIND ROSE



SOURCE: MARCH AIR FORCE BASE
RIVERSIDE, CALIFORNIA
PERIOD: 1966-1970 AND 1973-1978
+: LESS THAN 0.1%

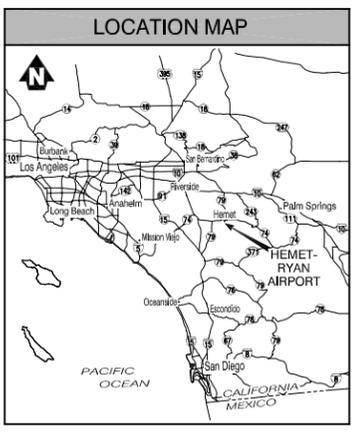
WIND COVERAGE		
RUNWAY 5-23	10.5 Knots (12 mph)	13 Knots (15 mph)
ALL WEATHER	98.4%	99.5%
IFR WEATHER	96.9%	98.4%

- NOTES**
- (a) Airport coordinates data source: field survey by County of Riverside (1995). Coordinates are NAD 83.
 - (b) Road segment to be abandoned.
 - (c) The BRL, APL, and OFA depicted on the ALP indicate the future limits of these functional lines. They are depicted as 'existing' except beyond the physical limits of the existing airfield.
 - (d) A NDB/GPS-A approach procedure exists for Runway 5-23. However, this is a circle-to-land approach with minimums greater than one mile. Therefore this qualifies as a visual approach.
 - (e) Critical aircraft is in ARC B-III. However, Runway 5-23 and its safety area were constructed to ARC B-II standards. Therefore, the higher standards will be retained where possible.
 - (f) Runway 4-22 is parallel to Runway 5-23. Historically it was assigned its designation to more clearly separate sailplane related traffic.
 - (g) Deviations from FAA standards:
 - Hold lines for Taxiways A, C, and D, and the runway-to-taxiway separation for Taxiway A do not meet the standard for ARC B-III.
 - Meeting the standard would require relocation of the parallel taxiway. No change is proposed.



FACILITIES LEGEND

- 1 Wash Rack
- 2 Fuel Island
- 3 Restaurant
- 4 VASI, to be replaced
- 5 AWOS Antenna
- 6 Aviation Museum
- 7 Aircraft Tiedowns
- 8 Aircraft Storage Hangars
- 9 Fixed Base Operators
- 10 Sailplane Facilities
- 11 Helipad
- 12 Box Hangars - (Future Site)
- 13 Large Aircraft Hangars - (Future Site)
- 14 Auto Parking
- 15 Fire Station
- 16 Future FBO If Firebase closes
- 17 Future large aircraft hangars, If Firebase closes
- 18 Future PAP
- 19 Riverside County Sheriff's Aviation Unit
- 20 T-Hangars (Future Site)



DRAWING LEGEND

	EXISTING	FUTURE
ACTIVE AIRFIELD PAVEMENT	[Symbol]	[Symbol]
OTHER PAVEMENT IN USE	[Symbol]	[Symbol]
GRAVEL SHOULDER/ROAD	[Symbol]	[Symbol]
AIRPORT PROPERTY LINE	[Symbol]	[Symbol]
OTHER PROPERTY LINES	[Symbol]	[Symbol]
AVIGATION EASEMENT	[Symbol]	[Symbol]
CRITICAL AIRFIELD AREAS *	[Symbol]	[Symbol]
BUILDINGS	[Symbol]	[Symbol]
FENCE	[Symbol]	[Symbol]
VEHICLE GATE	[Symbol]	[Symbol]
WIND CONE	[Symbol]	[Symbol]
HELIPAD	[Symbol]	[Symbol]
RUNWAY EDGE LIGHTS / REILS	[Symbol]	[Symbol]
ROTATING BEACON	[Symbol]	[Symbol]
AIRPORT REFERENCE POINT	[Symbol]	[Symbol]
TOPOGRAPHIC CONTOURS	[Symbol]	[Symbol]
WATERWAY/CULVERT/CHANNEL	[Symbol]	[Symbol]
POWER LINE	[Symbol]	[Symbol]
SECTION CORNER	[Symbol]	[Symbol]

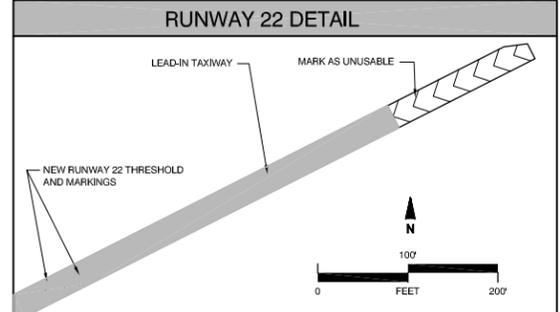
APL - Aircraft Parking Limits
 BRL - Building Restriction Line
 RSA - Runway Safety Area
 OFA - Object Free Area
 OFZ - Obstacle Free Zone
 RPZ - Runway Protection Zone

AIRPORT DATA

	EXISTING	FUTURE
AIRPORT SERVICE LEVEL (NPIAS)	General Aviation	No Change
AIRPORT REFERENCE CODE	B-III (e)	No Change
CRITICAL AIRCRAFT	Citation III	No Change
AIRPORT REFERENCE POINT (a)	Latitude: 33° 44' 02.428" N Longitude: 117° 01' 20.221" W	Latitude: 33° 44' 00.577" N Longitude: 117° 01' 24.517" W
AIRPORT ELEVATION (Above Mean Sea Level)	1,515'	No Change
MEAN MAX. TEMP. (Hottest Month)	98.6° F (July)	No Change
AIRPORT and TERMINAL NAVIGATIONAL AIDS	Beacon, NDB, GPS	No Change
GPS APPROACH ESTABLISHED	Yes	No Change
AIRPORT ACREAGE	Fee Simple: 440 Easement: 45	464 48
AIRCRAFT SPACES	Tiedowns: 65± T-Hangars/Portables: 100 Large Box Hangars: 3 FBO Area (Approx.): 15±	100± 130± 6 25±

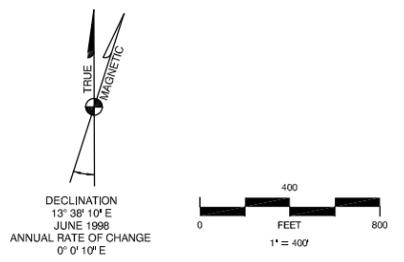
RUNWAY END DATA

APPROACH END OF RUNWAY:	5	23	4	22
APPROACH TYPE: [FAAR Part 77 Category]	Existing: Visual [B(V)] (d) Future: Nonprecision [C]	Existing: Visual [B(V)] (d) Future: No Change	Existing: Visual [A(V)] Future: No Change	Existing: Visual [A(V)] Future: No Change
APPROACH VISIBILITY MINIMUMS	Existing: >1 Mile Future: >3/4 Mile	Existing: Visual Future: No Change	Existing: Visual Future: No Change	Existing: Visual Future: No Change
APPROACH SLOPE: Required/Clear	Existing: 20:1/20±1 Future: 34:1/34:1	Existing: 20:1/50:1 Future: No Change	Existing: 20:1/50:1 Future: No Change	Existing: 20:1/50:1 Future: No Change
RUNWAY SAFETY AREA Length Beyond Rwy End	Existing: 600' Future: 1,000'	Existing: 600' Future: 1,000'	Existing: 240' Future: No Change	Existing: 240' Future: No Change
APPROACH & LANDING AIDS	Visual: Existing: None Future: No Change	Visual: Existing: VASI (VZL) Future: No Change	Visual: Existing: None Future: No Change	Visual: Existing: None Future: No Change
Electronic	Existing: GPS (Straight-in) Future: No Change	Existing: GPS (circling) Future: No Change	Existing: None Future: No Change	Existing: None Future: No Change
Runway (d)	Existing: 33°43'50.592" N Future: 33°43'46.132" N	Existing: 33°44'10.101" N Future: 33°43'46.132" N	Existing: 33°44'02.198" N Future: No Change	Existing: 33°44'11.443" N Future: No Change
COORDINATES	Latitude: Existing: 117°01'44.876" W Future: 117°01'55.241" W	Latitude: Existing: 117°00'59.432" W Future: No Change	Latitude: Existing: 117°01'26.910" W Future: No Change	Latitude: Existing: 117°01'05.374" W Future: No Change



RUNWAY DATA

	RUNWAY 5-23		RUNWAY 4-22 (f)	
	EXISTING	FUTURE	EXISTING	FUTURE
AIRPORT REFERENCE CODE	B-III	No Change	A-I	No Change
CRITICAL AIRCRAFT	Citation III	No Change	Sail Plane	No Change
PHYSICAL LENGTH AND WIDTH	4,315' x 100'	5,300' x 100'	2,045' x 25'	1,485' x 25'
RUNWAY/TAXIWAY SURFACE TYPE	Asphalt	No Change	Asphalt	No Change
EFFECTIVE GRADIENT	0.25%	0.23%	0.29%	No Change
PAVEMENT STRENGTH (1000#) S/D/DT	80/130/-	No Change	5/-/-	No Change
WIND COVERAGE	99.5% (15 MPH)	No Change	98.4% (12 MPH)	No Change
RWY. SAFETY AREA WIDTH/LENGTH BEYOND END	300'/600'	500'/1,000'	120'/240'	No Change
RUNWAY LIGHTING	Medium Intensity	No Change	None	No Change
RUNWAY MARKING	Nonprecision	No Change	None	No Change
TAXIWAY LIGHTING	Medium Intensity	No Change	None	No Change
MAXIMUM ELEVATION (MSL)	1,515'	No Change	1,511'	No Change



SUBMITTED BY: County of Riverside

Replaces ALP approved on June 20, 1998.

HEMET-RYAN AIRPORT
HEMET, CALIFORNIA
AIRPORT LAYOUT PLAN

MEAD HUNT ENGINEERS ARCHITECTS PLANNERS
707 Aviation Blvd., Santa Rosa, California 95403 - (707) 526-5010

County of Riverside

DESIGN: DD DRAWN: TE DATE: June 2004 SHEET 1 OF 4



[Description](#)

[Need](#)

[Benefits](#)

[Location Map](#)

[Partners](#)



[Process](#)

[Schedule](#)

[Library/Links](#)

[Email Signup](#)

[Comments](#)

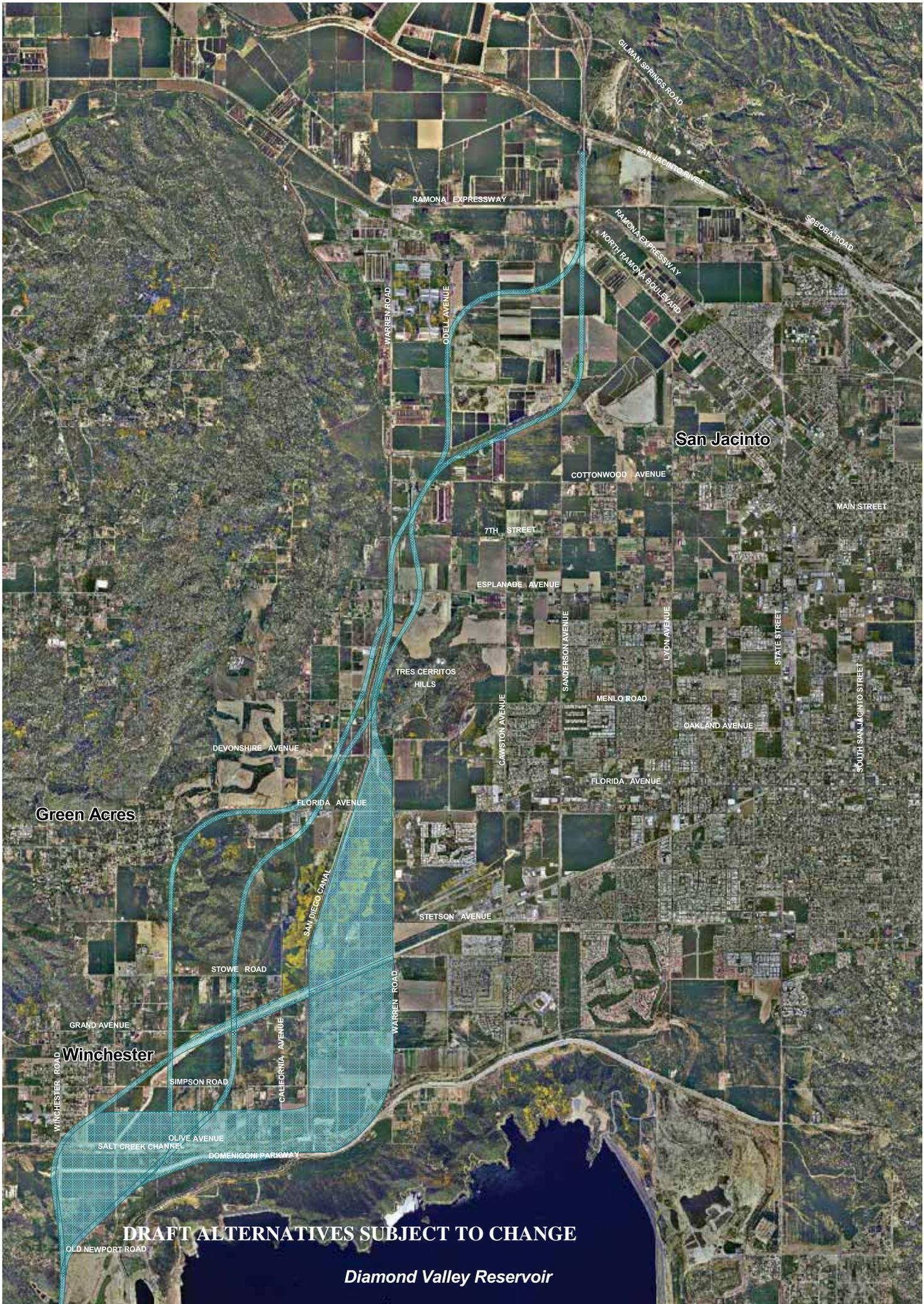
[Contact/Meeting](#)

Schedule

2004 - 2006	2007	2008 - 2009	2010
<ul style="list-style-type: none"> • Conduct Scoping Meetings • Evaluate and Redefine Alternatives • Prepare Technical Reports • Prepare Draft EIS/EIR 	<ul style="list-style-type: none"> • Circulate Draft EIS/EIR • Conduct Public Hearings • Identify Preferred Alternative • Prepare Final EIS/EIR 	<ul style="list-style-type: none"> • Circulate Final EIS/EIR • Prepare Final Engineering/Design • Acquire Right-of-Way 	<ul style="list-style-type: none"> • Begin Construction



A project of Riverside County Transportation Commission
 RCTC • 4080 Lemon Street, 3rd Floor, P.O. Box 12008 • Riverside, CA 92502-2208 • 951-787-7141 • www.rctc.org



San Jacinto

Green Acres

Winchester

DRAFT ALTERNATIVES SUBJECT TO CHANGE

Diamond Valley Reservoir

GILMAN SPRINGS ROAD

SAN JACINTO RIVER

RAMONA EXPRESSWAY

SOBOBA ROAD

RAMONA EXPRESSWAY

NORTH RAMONA BOULEVARD

WARREN ROAD

ODELL AVENUE

TRES CERRITOS HILLS

COTTONWOOD AVENUE

MAIN STREET

7TH STREET

ESPLANADE AVENUE

SANDERSON AVENUE

LYON AVENUE

STATE STREET

MENLO ROAD

OAKLAND AVENUE

SOUTH SAN JACINTO STREET

DEVONSHIRE AVENUE

FLORIDA AVENUE

CAWSTON AVENUE

FLORIDA AVENUE

Green Acres

SAN DIEGO CANAL

STETSON AVENUE

STOWE ROAD

WARREN ROAD

GRAND AVENUE

SIMPSON ROAD

CALIFORNIA AVENUE

OLIVE AVENUE

SALT CREEK CHANNEL

DOMENIGONI PARKWAY

OLD NEWPORT ROAD

WINCHESTER ROAD

Riverside Unit Fire Management Plan 2005

California Department of Forestry and Fire Protection
Riverside Unit
Craig E. Anthony, Unit Chief



Approved by:

Craig E. Anthony, Unit Chief

2005 Riverside Unit Fire Management Plan

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Community Wildfire Protection Plan Content Agreements

California Department of Forestry and Fire Protection
Chief Craig E. Anthony

Riverside County Fire Department
Chief Craig E. Anthony

Riverside County Board of Supervisors:
District 1 - Bob Buster
District 2 - John Tavaglione
District 3 - Jeff Stone
District 4 - Roy Wilson
District 5 - Marion Ashley

Idyllwild Fire Protection District

Mountain Communities Fire Safe Council
Idyllwild Chapter
Pine Cove Chapter
Pinyon Chapter
Poppet Flats/Twin Pines Chapter (Coming Soon)

Southwest Riverside County Fire Safe Council

United States Department of Agriculture, United States Forest Service
Cleveland National Forest
San Bernardino National Forest

California Department of Parks and Recreation
Mount San Jacinto State Park
Lake Perris State Park
Anza-Borrego State Park

Bureau of Land Management

Executive Summary

The 2005 Riverside Unit Pre-Fire Management Plan reflects the current State of Emergency that exists in the San Jacinto Mountains (Battalion 11) within the Unit. Personnel from the Pre-Fire Management Division, including the Unit Chief, Deputy Chief – Special Operations, Pre-Fire Division Chief, Battalion Chiefs, Pre-Fire Engineer, unit Foresters, VMP Co-Coordinator, and Riverside County Fire Department Pre-Fire Management personnel and, are working diligently with the Mountain Area Safety Task Force (MAST) to come up with solutions for this massive problem. Although Pre-Fire activities continue in other parts of the county through the shifting of resources, the focus of our activities has been and must continue to be these communities and watersheds within the mountainous area until the unprecedented threat can be sufficiently mitigated.

Plan Concept and Process

The State Board of Forestry and Fire Protection and the California Department of Forestry and Fire Protection (CDF) have drafted a comprehensive update of the Fire Plan for wildland fire protection in California. The planning process defines a level of service measurement, considers assets at risk, incorporates the cooperative interdependent relationships of wildland fire protection providers, provides for public stakeholder involvement, and creates a fiscal framework for policy analysis.

Goals and Objectives

The overall goal of the Pre-Fire Management Plan is to reduce total government costs and citizen losses from wildland fire in the Riverside Unit by protecting assets at risk through focused pre-fire management prescriptions and increasing initial attack success. The Fire Plan has five strategic objectives:

- ◆ Create wildfire protection zones that reduce the risks to citizens and firefighters.
- ◆ Include all wildland, not just the state responsibility areas. Analysis will ultimately include all wildland fire service providers - federal, state, local government, and private. This is the long-term strategy. This plan is primarily focused on the CDF Direct Protection Area (DPA) of the Riverside Unit, however the current extreme fuel conditions existing in the San Jacinto Mountains require the Unit to include the State Responsibility Area (SRA) within U.S. Forest Service DPA also.
- ◆ Identify and analyze key policy issues and develop recommendations for changes in public policy. Analysis will include alternatives to reduce total costs and/or increase fire protection system effectiveness.

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- ◆ Describe the wildland fire protection system in fiscal terms. This can include all public/private expenditures and potential economic losses.
- ◆ Translate the analysis into public policy.

Fire Plan Framework

The five major objectives form the basis of an ongoing fire planning process to monitor and assess Riverside County's wildland fire environment. They include:

- ◆ Wildfire Protection Zones. These zones are buffers around the community to reduce citizen and firefighter risks from costly and damaging fires.
- ◆ Initial Attack Success. This measure can be used to assess the department's ability to provide an equal level of protection to lands of similar type, as required by Public Resources Code 4130. This measurement is the percentage of fires that are successfully controlled before unacceptable costs are incurred.
- ◆ Assets Protected. The assets addressed in the plan are citizen and firefighter safety, watersheds and water, timber, wildlife and habitat (including rare and endangered species), unique areas (scenic, cultural, and historic), recreation, range, structures, and air quality.
- ◆ Pre-fire Management. This is the process that assesses alternatives to protect assets from unacceptable risk of wildland fire damage. Project alternatives may include a combination of fuels reduction, ignition management, fire-safe engineering activities, and forest health improvement to protect public and private assets.
- ◆ Fiscal framework. This is a tool for assessing and monitoring the cost-effectiveness of the wildland fire protection systems.

Pre-Fire Management Plan Applications

- Identify those areas of concentrated assets and high risk for state, federal, and local officials and for the public
- Allow wildland fire service providers to create a more efficient fire protection system focusing on meaningful solutions for identified problem areas.
- Give citizens an opportunity to identify public and private assets to design and carry out projects to protect those assets.
- Identify, before fires start, where cost-effective pre-fire management investments can be made to reduce taxpayer costs and citizen losses from wildfire.
- Encourage an integrated intergovernmental approach to reducing costs and losses.
- Enable policy makers and the public to focus on what can be done to reduce future costs and losses from wildfires.

Assessment Framework

The Pre-Fire Management Plan includes a framework for a systematic assessment of the existing levels of wildland protection services, identifies high-risk and high-value areas that are potential locations of costly and disastrous wild fires, ranks the areas in terms of priority needs, and prescribes what can be done to reduce the future costs and losses. This assessment system has four major components:

- Level of Service
- Assets at Risk
- Hazardous Fuels
- Severe Fire Weather

During the data collection and validation phase, input is solicited and invited from interested stakeholders as it pertains to assets at risk. Stakeholders may be other government agencies, private landowners, service groups, or homeowner associations. It is an objective of the Pre-Fire Management Plan that those who benefit from the protection of an asset should also share in costs for protecting that asset. Thus, asset stakeholders are encouraged to provide financial support for the projects that provide significant benefits to their assets at risk.

Collaboration

Mountain Area Safety Task Force (MAST)

The California Department of Forestry and Fire Protection (CDF), in cooperation with all of the agencies and individuals in the Riverside County MAST, have teamed up to mitigate an unprecedented emergency facing the forested mountain communities. Four years of severe drought combined with drastically overstocked tree stands have resulted in tremendous rates of tree mortality due to bark beetles in and around the community. In March 2002, the Riverside County Board of Supervisors declared a local emergency. In March 2003, Governor Davis concurred with the County and issued his own State of Emergency Proclamation. The governor has made a request to President Bush for a federal declaration.

The MAST was formed to mitigate the threat to life, property, watershed and the ecosystem. It is currently Riverside Unit's single greatest threat to SRA, (even though it is within federal DPA) and is the number one priority of the Riverside Unit. This is not only for the protection of life, property and resources, but to protect the lives of CDF and other agency firefighters and law enforcement personnel that may be called to fight a fire or conduct large-scale evacuations in communities within the San Jacinto Mountains.

In addition to CDF, the MAST consists of members from many agencies, groups and elected officials: Mountain Communities Fire Safe Council; U.S. Forest Service; Riverside County Fire Department; Natural Resource Conservation Service; Idyllwild Fire Protection District; Riverside County Board of Supervisors; Riverside County Office of Emergency Services; State OES; Riverside County Flood Control; Southern California Edison; Senator Feinstein; Congresswoman Bono; Senator Battin; Assemblyman Benoit; California Department of Fish and Game; California Department of Transportation; Riverside County Transportation Land Management Agency; South Coast Air Quality Management District; Pine Cove/Idyllwild/Fern Valley/Lake Hemet Water Districts; Riverside County Waste Management; Pine Cove Property Owners Association; UC Co-op Extension Service; Riverside County Sheriffs Office; California Highway Patrol. The MAST is organized using the Incident Command System (ICS) with a unified command; formal Incident Action Plans (IAPs) are produced and followed by the MAST members.

The MAST ICs have set the following incident objectives:

- Provide for Public and Employee Safety
- Clear transportation and utility corridors of dead trees
- Protect Communications Systems
- Protect the community from catastrophic fire and tree falling hazards
- Develop and implement the following plans:
 - Immediate – Evacuation, structure contingency, transportation and utility corridors, communication sites, damage assessment and dead tree removal.
 - Mid-term – Transition to long-term community protection, regeneration and forest health.
 - Long-term - Strategic actions leading to continued forest health and community safety
- Provide for coordinated Public Relations Program with the public, elected officials and within agencies
- Provide for coordinated agency responses
- Maintain emergency response capability including structure protection contingency
- Prioritize and maintain transportation and utility corridors and communication sites
- Prioritize community protection through Defensible Fuel Profile Zones, hazard tree abatement, fuelbreaks and fire law/code enforcement
- Provide for removal of trees and slash through solid waste management and development of private sector utilization and markets
- Provide cost/benefit analysis of actions based upon objectives
- Identify and develop financial aid opportunities through grants and incentives.

Specific MAST Division Assignments for CDF Personnel

- Remove dead/dying trees that threaten to block vital evacuation corridors using conservation camp crews working in partnership with CalTrans and county road department. Assignment is ongoing daily
- Develop a structure protection pre-plan for all mountain communities. Assignment was completed August 8, 2003 for Pine Cove, Idyllwild, Mountain Center
- Identify and construct safety zones for use by firefighting/law enforcement resources, which can be also used as a “shelter in place” option for members of the public, should there not be sufficient time to evacuate. To date six safety zones have been identified and completed. The safety zones are – Tahquitz Pines, Idyllwild Pines, Buckhorn Camp, AstroCamp, International School Of Music and the Arts (ISOMATA), and the Idyllwild Transfer Station.
- Assist private property owners with identifying dead/dying trees that must be removed due to fire and falling hazards – work with FEMA, OES, the County

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and other agencies to help secure funding to assist property owners with the extreme and unexpected costs of removing trees around their structures. As of May 1, 2005, over \$28,254,000 has been obtained for the County of Riverside, through FEMA, USFS, NRCS and other federal grants to assist with dead tree removal and fuels treatment on private SRA lands.

- Create Defensible Fuel Profile Zones (DFPZ) around the communities on both public and private lands in order to have sufficient defensible space to keep a wildfire from entering or leaving the community – accelerate work on Red Hill VMP shaded fuelbreak and add additional land under contract – Initiate work on the Baldy Mountain VMP project to protect the communities of Mountain Center and Baldy Mountain Village. Augmentation camp crews are working on DFPZs
- Assist the Mountain Communities Fire Safe Council in securing grants for fuel reduction projects in the communities – provide technical assistance on setting up and administering projects. This is an on-going project.
- Develop a community evacuation plan in cooperation with the other fire and law enforcement agencies. Project was completed primarily by CDF personnel August 8, 2003
- Work with utility companies to ensure dead/dying trees are felled and removed that threaten to fall on lines and start fires or interrupt service. Identify communication sites that need tree removal in order for them to be protected and available in the event of fire or other type incident. SCE has completed their first and second passes through the San Jacinto Mountains and surrounding communities. SCE is currently working on “maintenance” type removals, removing new mortality as it is located.
- Enforce the Public Resources Code and other applicable fire codes/ordinances on all properties within the community to reduce fuel loading. Develop educational materials to assist the property owners in knowing what exactly is required. Pre-Fire Staff have been hosting various meetings with agencies and the public to ensure equal enforcement and education in the communities. Station personnel are gearing up to begin LE-38 inspections in their areas, with additional follow-up by Fire Prevention staff to issue citations as appropriate.
- Develop a reforestation and forest health management plan that will keep fuels at acceptable levels and ensure forest health. Through Forest Health Grants, two Forestry Assistant II's and an office tech have been hired to begin working on forest rehabilitation and forest health issues.
- Develop a comprehensive strategy for disposing of the enormous amount of fuels being generated by the felling of dead/dying trees. CDF personnel, working in cooperation with Riverside County Waste Management and the USFS have set up a tub grinding operation capable of grinding up to 40” diameter logs and all the associated slash into wood chips. The wood chips are going to a wood-burning electrical generation plant and/or to a company that produces mulch for the public market.
- Work with the USFS, University of California and other agencies to develop markets to take advantage of the massive volume of logs and biomass that

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are resulting from the tree die-off and subsequent removal. A \$2,000,000 grant has been received to promote wood utilization in the San Jacinto Mountains.

- Work with other MAST agencies and Environmental Systems Research Institute (ESRI) to develop a shared GIS database for use by all MAST agencies in conjunction with public access of select portions of that GIS along with other educational information on the emergency via a public website, www.calmast.org. The initial database and website are complete as of August 28, 2003. Numerous upgrades and additions will be constantly occurring.

This Incident Action Plan for this emergency is constantly evolving. It is estimated that it will take at least 5 years of a constant massive effort to remove the vast amount of hazardous fuels currently existing in the San Jacinto Mountains.

MAST Accomplishments as of December 2004

- All 6,477 parcels received some level of survey for dead trees
- County Contracts resulted in removal of 3,905 trees on 779 parcels
- County Contracts resulted in removal of 1,509 trees on the six Safety Zones
- SCE removed 18,100 trees
- NRCS removed 3,779 trees with five contracts
- Total of approximately 27,293 trees removed
- Fire Safe Council completed hazard abatement on 200 private parcels
- 3,850 hours spent by 32 visiting Foresters assisting RRU/RVC during this emergency
- Evacuation Table Top Exercise Conducted June 24, 2004
- I-Zone Drill scheduled for June 15, 2005 – Will include all the agencies affiliated with MAST working in the field.

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Government Stakeholders

An integrated, intergovernmental approach is used to assess all wildlands. Federal, state and local wildland fire and resource protection agency partners in planning are:

- United States Department of Agriculture
 - Forest Service
 - San Bernardino National Forest, San Jacinto Ranger District
 - Cleveland National Forest
 - Natural Resource Conservation Service

- United States Department of Interior
 - Bureau of Land Management
 - Fish and Wildlife Service

- State of California
 - Department of Forestry and Fire Protection
 - Department of Fish and Game
 - Department of Parks and Recreation
 - Department of Transportation

- Riverside County
 - Riverside County Fire Department
 - Transportation and Land Management Agency
 - Riverside County Parks and Recreation

- The Following Cities:
 - Banning
 - Beaumont
 - Calimesa
 - Canyon Lake
 - Corona
 - Desert Hot Springs
 - Hemet
 - Lake Elsinore
 - La Quinta
 - Moreno Valley
 - Murrieta
 - Norco
 - Palm Springs
 - Palm Desert
 - Perris
 - Riverside
 - San Jacinto
 - Temecula

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Private and Quasi-Public Stakeholders

- ❑ Private individuals / property owners.
- ❑ Ranchers and farmers utilizing open lands.
- ❑ Corporate entities holding lands or conducting business in areas at risk.
- ❑ Home and property owners associations.
- ❑ Real Estate and Business Associations.
- ❑ Coordinated Resource Management Planning Committees (CRMP).
- ❑ Firesafe Councils and Alliances.
- ❑ Water companies relying on watershed areas.
- ❑ Electric companies concerned with power generation and distribution.
- ❑ Railroads and other transportation entities traversing wildlands.
- ❑ Communication companies with facilities sited on or traversing wildlands.
- ❑ Agricultural commissions, boards, committees and associations.
- ❑ Habitat conservation groups.
- ❑ Groups and associations promoting various outdoor activities.
- ❑ Historical societies.
- ❑ Tourism and commerce promoting groups.
- ❑ Petroleum/Natural Gas pipeline companies

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Assets at Risk

The primary goal of fire protection in California is to safeguard the wide range of assets found across wildland areas. These assets include life and safety, structures, range, recreation, hydroelectric power, watersheds, soil, water storage, water supply, scenic value, timber, air quality, historic buildings, non-game wildlife, game wildlife, and infrastructure.

ASSET AT RISK	PUBLIC ISSUE CATEGORY	LOCATION AND RANKING METHODOLOGY
HYDROELECTRIC POWER	PUBLIC WELFARE	1.) WATERSHEDS THAT FEED RUN OF THE RIVER POWER PLANTS, RANKED BASED ON PLANT CAPACITY; 2.) CELLS ADJACENT TO RESERVOIR BASED PLANTS (LOW RANK); AND 3.) CELLS CONTAINING CANALS AND FLUMES (HIGH RANK)
FIRE FLOOD WATERSHEDS	PUBLIC SAFETY PUBLIC WELFARE	WATERSHEDS WITH A HISTORY OF PROBLEMS OR PROPER CONDITIONS FOR FUTURE PROBLEMS. RANKS ARE BASED ON AFFECTED DOWNSTREAM POPULATION
SOIL	ENVIRONMENT	WATERSHED RANKED BASED ON EROSION POTENTIAL
WATER STORAGE	PUBLIC WELFARE	WATERSHED AREA UP TO 20 MILES UPSTREAM FROM WATER STORAGE FACILITY, RANKED BASED ON WATER VALUE AND DEAD STORAGE CAPACITY OF FACILITY
WATER SUPPLY	PUBLIC HEALTH	1.) WATERSHED AREA UP TO 20 MILES FROM WATER SUPPLY FACILITY (HIGH RANK); 2.) GRID CELLS CONTAINING DOMESTIC WATER DIVERSIONS, RANKED BASED ON NUMBER OF CONNECTIONS, AND 3.) CELLS CONTAINING DITCHES THAT CONTRIBUTE TO THE WATER SUPPLY SYSTEMS (HIGH RANK)
SCENIC VALUE	PUBLIC WELFARE	FOUR MILE VIEWSHED AROUND SCENIC HIGHWAYS AND ¼ MILE VIEWSHED AROUND WILD AND SCENIC RIVERS, RANKED BASED ON POTENTIAL IMPACTS TO VEGETATION TYPES (TREE VERSUS NON-TREE TYPES)
TIMBER	PUBLIC WELFARE	TIMBERLANDS RANKED BASED ON POTENTIAL DAMAGE BY FOREST INVENTORY AND ANALYSIS (FIA) REGION AND OWNERS.
RANGE	PUBLIC WELFARE	RANGELANDS RANKED BASED ON POTENTIAL REPLACEMENT FEED COST BY REGION/OWNER/VEGETATION TYPE
AIR QUALITY	PUBLIC HEALTH ENVIRONMENTAL PUBLIC WELFARE	POTENTIAL DAMAGES TO HEALTH, MATERIALS, VEGETATION, AND VISIBILITY; RANKING BASED ON VEGETATION TYPE AND AIR BASIN
HISTORIC BUILDING	PUBLIC WELFARE	FROM STATE OFFICE OF HISTORIC PRESERVATION, RANKED BASED ON FIRE SUSCEPTIBILITY
RECREATION	PUBLIC WELFARE	UNIQUE RECREATION AREAS OR AREAS WITH POTENTIAL DAMAGE TO FACILITIES, RANKED BASED ON FIRE SUSCEPTIBILITY
STRUCTURES	PUBLIC SAFETY PUBLIC WELFARE	RANKING BASED ON HOUSING DENSITY AND FIRE SUSCEPTIBILITY
NON-GAME WILDLIFE	ENVIRONMENTAL PUBLIC WELFARE	CRITICAL HABITATS AND SPECIES LOCATIONS BASED ON INPUT FROM THE CALIFORNIA DEPARTMENT OF FISH AND GAME AND OTHER STAKEHOLDERS
GAME WILDLIFE	PUBLIC WELFARE ENVIRONMENT	CRITICAL HABITATS AND SPECIES LOCATIONS BASED ON INPUT FROM THE CALIFORNIA DEPARTMENT OF FISH AND GAME AND OTHER STAKEHOLDERS
INFRASTRUCTURE	PUBLIC SAFETY PUBLIC WELFARE	INFRASTRUCTURE FOR DELIVERY OF EMERGENCY AND OTHER CRITICAL SERVICES (E.G. REPEATER SITES, TRANSMISSION LINES)

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A closer look at a specific asset at risk in Riverside County, wildlife habitat, reveals the complexity involved with assessing and managing for these assets. Riverside County is home to numerous endangered plant and animal species, all of which are affected by fire in some manner. Endangered species play a critical role in the ecosystem and must be factored into the equation when ranking assets. Managing for these species and their habitat is often in direct conflict with the management of other assets such as the protection of lives and property. The attached asset rankings map displays how these assets are ranked within the county.

Water quality has proven to be another example of a critical asset within Riverside County. Water stored in reservoirs within the county is supplied to businesses and residences throughout the Los Angeles Basin as well as the Inland Empire. Maintenance of water quality is crucial to Riverside County's 1.5 million residents and the support of its largest business, agriculture. Public consumption, recreation, and hydro-electricity are all affected by the quality of water. There are 8 reservoirs within the county that supply water for drinking, recreation, or hydro-electricity. They are: Lake Perris, Lake Mathews, Vail Reservoir, Lake Hemet, Canyon Lake, Lake Elsinore, Lake Skinner and Diamond Valley Lake.

The following is a summary of the assets at risk, by Battalion for Riverside Unit. The information primarily is in consideration to the potential for large and damaging wildland fires, and the potential for a significant amount of structures damaged.

Battalion 1 – Perris

Significant damage would most likely be seen in the east side of the Perris Valley between Station 3 (Nuview) and Station 54 (Homeland), as there are some high dollar homes in the area. The potential for large and damaging fires, in the potential amount of structures lost, is more of a problem in the Good Meadow area. This is due to the large amount of mobile homes and scattered single-family dwellings in the Good Meadow area. The mobile homes, coupled with scattered structures presents a significant exposure problem in the event of a fast moving grass fires.

Battalion 2 – Lake Elsinore

The primary assets at risk in Battalion 2 are lives and residential structures. A secondary concern is the potential damage that could occur if a severe winter followed a large fire in the Trabuco area of the Ortega Mountains. This area has suffered two major fires in recent history, the 1988 Ortega Fire which burned 16,000 acres from Orange County into the Lake Elsinore area, and the Decker Canyon Fire on August 8, 1959 which claimed the lives of five fire fighters. The area is also under coastal influences, combined with Lake Elsinore, which create "sundowner" winds, significant down canyon winds in the afternoon.

Battalion 3 – Beaumont

The assets at risk within Battalion 3 are predominately residential and recreational. The primary recreational assets are located in Poppet Flats, and Bogart Park in Cherry Valley. One of the areas at risk is the Morongo Indian Reservation. In this

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area, there is poor hazard reduction compliance, arson issues, and high amounts of off-road vehicle use. Additionally, due to the severe 2004/2005 winter many of the fire roads in the area sustained damage. These roads include the International Truck Trail, Mile-High Truck Trail, and the Cherry Truck Trail. Pending the completion of maintenance on these critical access Truck Trails, fires in these areas can be expected to burn through multiple burning periods.

Battalion 4 – Corona

The major assets at risk from a Santa Ana River bottom fire are the structures that line the bluffs overlooking the river, which would be susceptible to a fire coming out of the river bottom, and potential wildlife habitat. There is a problem gaining access to a good portion of the river bottom.

A small portion of the Chino Hills is located along the west end of the County line and on a normal fire day we are able to contain a fire there to 100 acres or less. When there is a Santa Ana wind event, a fire has the potential to run into Orange County rapidly and threaten hundreds of homes in the Yorba Linda/Carbon Canyon areas. The Chino Hills State Park covers just over 13,000 acres of the Chino Hills and holds recreational values and wildlife habitat.

The Dawson Canyon and Spanish Hills areas consist of the hills south of Home Gardens running east to Lake Hills and running south basically along the east side of I-15 to Lake Street. The assets at risk generally consist of the approximately 35 homes located in the two areas.

The assets at risk in the foothills that run along the Cleveland National Forest (Trabuco Ranger District) from the Orange County line to the Battalion 2/4 dividing line consist of the numerous housing developments that adjoin the wildland and the numerous houses built in some of the canyons and hillsides.

Battalion 5 – San Jacinto

The major assets at risk within Battalion 5 are the residential areas of the San Jacinto Valley, and the community of Sage, located near Station 28. The biggest risk currently facing Battalion 5 is the west-facing slope below the communities of Idyllwild and Pine Cove. A repeat of the 1974 Soboba Fire is now possible due to fuel conditions. Also at risk in Battalion 5 are the foothills surrounding Simpson Park, located south of the community of Hemet. A fire starting at the east end of Simpson Park, in conjunction with Santa Ana wind conditions, has the potential to be a multi-million dollar loss fire.

Battalion 11 - Mountain

Station 23 – Pine Cove

The assets at risk in the Pine Cove/Idyllwild area include residences, business, and a significant number of camps, which are typically occupied by children throughout the summer. The potential problems faced in the communities include: difficult ingress and egress, potential for smoky conditions and limited

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visibility coupled with narrow; winding roads, power lines throughout forested and residential areas, and steep rocky terrain.

Station 29 – Anza

The assets at risk in the Anza area are primarily the large number of homes scattered throughout the brush fields in the valley. All of the large public assets, such as the Trinity Boys Home property, propane storage facility, schools, and the community itself are well protected with large areas of defensible space.

With the predominately east wind influence present, any fire started within the brush fields to the south and east ends of the valley will have the potential for a large damaging fire due to the response times of both initial attack engines and extended attack engines. This with the scattered homes in these areas will cause a chance of property loss. The northern portion of the valley has large stands of brush Fuel models 4 and 6 that can be influenced by winds both east and west that can push fire through the areas up the south slopes of Thomas and Cahuilla Mts. to the USFS lands. This area all so has scattered homes through out the brush areas. There has been no real large fire history with the valley area in the past 12-15 years.

There has been a minor problem with PWF incidents and five fires started with suspicious causes in the past few years.

Station 30 – Pinyon

The major assets at risk located in the Pinyon area consist of scattered, residential single-family dwellings located. Also included is the BLM Santa Rosa National Monument

Station 53 – Garner Valley

The dead fuel from the last seven years of drought is still dead; the only difference is that with the heavy rains there is more grass to carry the fire. The brush that is not dead is showing heavy growth this year. On the positive side, the local cattle population is way up due to the Feds opening up some more grazing permits, so the cows are helping cut down on the grass

Station 77 – Lake Riverside

Aguanga is a rural community and within the last year a large increase in private dwellings has been noticed. Several senior trailer parks, an elementary school, casino, and a private extreme sports camp are located within its boundaries. San Bernardino national forest skirts the northern boundaries of Station 77's Primary Response Area.

Battalion 13 – Menifee

Battalion 13 is 42 square miles and has roughly the following boundaries: North of Murrieta city, South of Perris city, West of the Winchester area and just East of Elsinore (halfway down Railroad Canyon Road).

The area with the highest potential for large and damaging fires is in the area of Menifee, Station 68's PRA. The primary housing construction in the area of

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Cottonwood Canyon is single and doublewide mobile homes. The hazards include, but are not limited to: Limited access and egress, limited water supply, and housing construction.

The area south of Bundy Canyon Road may also pose a problem, however it is at least a north facing aspect. During north wind conditions, coupled with a wildland ignition, the potential exists for fire to rapidly spread south to Murrieta.

Battalion 15 – Temecula

Station 12 – Temecula

Major assets at risk in the Temecula area include the De Luz area (A major Avocado producing region) inter-mixed with very high dollar housing and the Santa Margarita river drainage, which runs from Temecula to the Pacific Ocean. Old Town Temecula is also at risk, due to prevalent westerly afternoon winds, which have pushed fire downhill into Temecula in the past. Another area is the Pala/Temecula Grade, where there is a very heavy brush load, and an active real estate market has generated large, high dollar homes in the area. Additionally, a community of homeless has set up a decent size encampment at the mouth of the Margarita drainage.

The potential is here as everywhere in the county for a large high dollar fire. If there were a start in the Santa Margarita drainage or the Pala/Temecula Grade, it would be difficult to achieve an initial attack success, due to fuels, topography, and accessibility.

Station 75 – Bear Creek

The major assets risks within Station 75's Initial Attack area (SRA) include hundreds of residential structures with a minimum square footage of 4,000 feet up to a maximum of 12,000 square feet on five-acre parcels in the LaCresta and Tenaja area. This area is a significant watershed and environmental sensitive area. The 6,500-acre Santa Rosa Nature Conservancy contains over 10 miles of roads only accessible by Type III engines is also entirely within Station 75's initial attack area. Recreational areas include Tenaja Falls and a portion of the Wildomar Off Highway Vehicle area on the Cleveland National Forest, both of which are located in the Initial Attack area. There are also numerous equestrian facilities and trails in the LaCresta area.

A significant potential for a large destructive wildfire exists within Station 75's area. This potential includes reasons listed above, a lack of any significant recorded fire history, and climatic conditions relating to the daily coastal influences. There are also several large communities with hundreds of significantly sized residences within the wildland urban interface and only two routes of ingress or egress in the event of an emergency. The general population frequently uses significant recreational areas and opportunities to access the National Forest areas. In the event of a wildfire there is a significant reflex time to augment required resources to affect evacuations and structure protection necessary in the area.

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Station 92 – Wolf Creek

Major assets at risk within Station 92's first in area include hundreds of custom and ranch style residential structures with some equestrian activity. Accessibility and water supplies/sources to these residential structures is good. There are also two smaller and older style developments/communities, which have limited access and poor water supplies. As a general rule, access to the residential structures can be made by Type I engines, however access to the wildland is limited to Type III engines.

The Fire Situation

General Description

The primary ignition source for wildland fires in the Riverside Unit over the past ten years has been from equipment. In 2004, 37% of fires were equipment caused. The five-year average (2000-2004) shows equipment resulting in 30% of the fires, and the ten-year average (1995-2004) shows equipment as resulting in 28% of the fires. Riverside Unit further identified equipment caused fires into mowing, welding/grinding, and miscellaneous electrical, and miscellaneous equipment. Mowing does not appear to be a significant factor in ignitions, whereas miscellaneous electrical, welding/grinding, and miscellaneous equipment seem to be significant ignitions sources.

Excluding undetermined and miscellaneous ignitions sources, arson caused fires constitutes the next highest ignition source. In 2004 8% of the fires were arson caused, with a five-year average (2000-2004) of 10% and a ten-year average (1995-2004) of 9%.

Playing with fire was down in 2004 as well, at 5% of the fires in the unit. The five-year average (2000-2004) is 8% and the ten-year average (1995-2004) is 10%. This is in part due to the number of education programs and contacts Riverside Unit personnel make on a yearly basis.

Education

	Number of Programs	Number of Contacts		Hours
Schools	107	15020		
Career Days	15	2000		
Group	344	43599		
Fairs	4	56540		
Displays				
Parades				
Totals	470	117159		
			VIP Coordinator	900
			Other CDF	6418
			VIP	0
			Totals	7318

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The following is a list of the significant wildland fires in Riverside Unit during 2004:

2004 Significant Fires

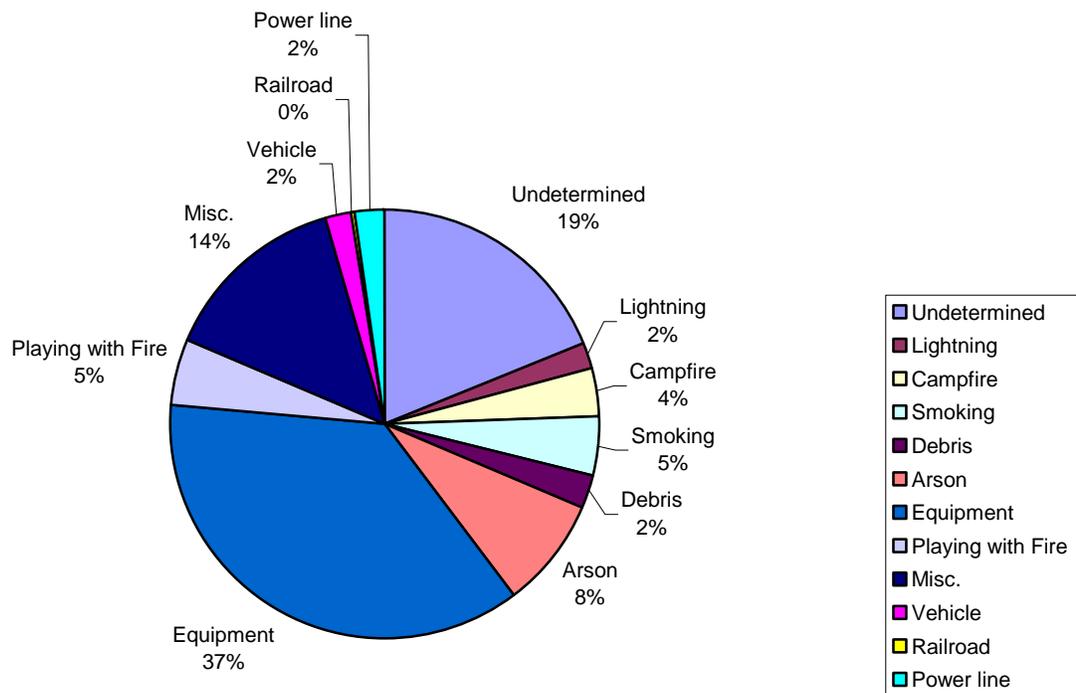
Name	RRU #	Cause	Acres
Cerrito	35517	Equipment	16,447
Citrus	58691	Equipment	682
Cottonwood	38418	Campfire	1,819
Eagle	35190	Equipment	8,945
Fish	36803	Equipment	63
Gafford	35197	Misc.	405
Lakeview	56039	Misc.	360
Melton	57236	Misc.	3,330
Morales	70756	Und	184
Pleasure	32913	Vehicle	2,456
School	35567	Misc.	359
Verbenia	55439	Equipment	3,138

The significant fires wildland fires in 2004 further reflect this, in that 42% of the significant fires were equipment caused. The majority of these significant fires occurred during the month of May, with June following in the next busiest month.

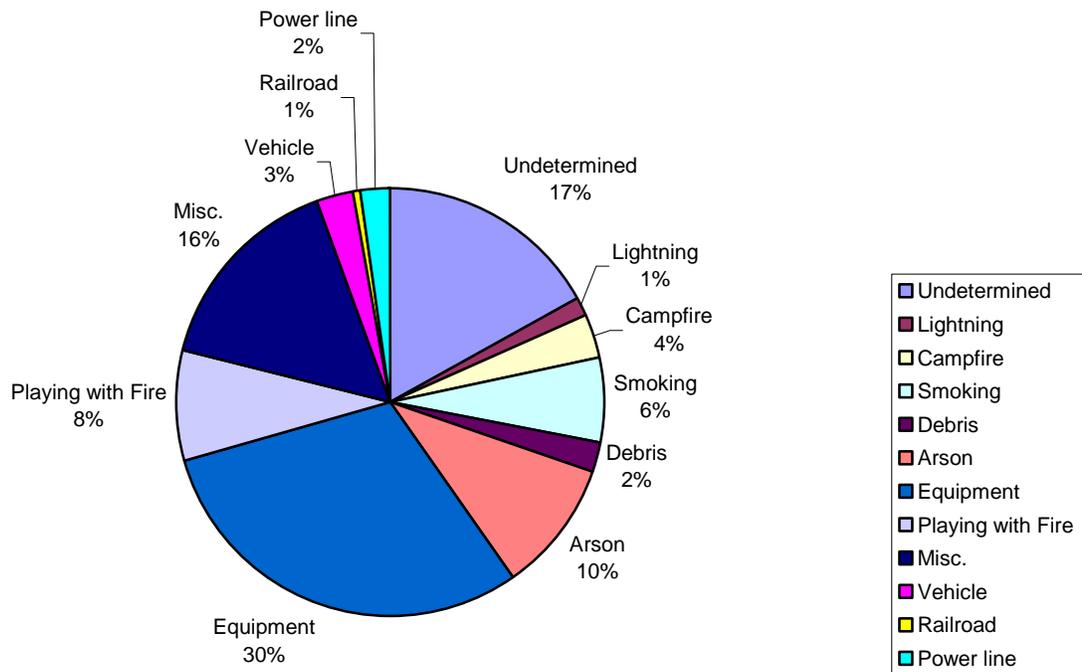
Riverside Unit Wildland Ignition Data

2004			2000-2004			1995-2004		
Cause	Count	%	Cause	Count	%	Cause	Count	%
Undetermined	197	19%	Undetermined	871	17%	Undetermined	2023	17%
Lightning	19	2%	Lightning	72	1%	Lightning	146	1%
Campfire	39	4%	Campfire	186	4%	Campfire	375	3%
Smoking	47	5%	Smoking	331	6%	Smoking	831	7%
Debris	24	2%	Debris	116	2%	Debris	297	3%
Arson	87	8%	Arson	508	10%	Arson	1066	9%
Equipment	381	37%	Equipment	1576	30%	Equipment	3178	27%
Playing with Fire	53	5%	Playing with Fire	429	8%	Playing with Fire	1207	10%
Misc.	149	14%	Misc.	811	16%	Misc.	1939	17%
Vehicle	18	2%	Vehicle	132	3%	Vehicle	281	2%
Railroad	4	0%	Railroad	32	1%	Railroad	48	0%
Power line	23	2%	Power line	118	2%	Power line	341	3%
Total 1041			Total 5182			Total 11732		

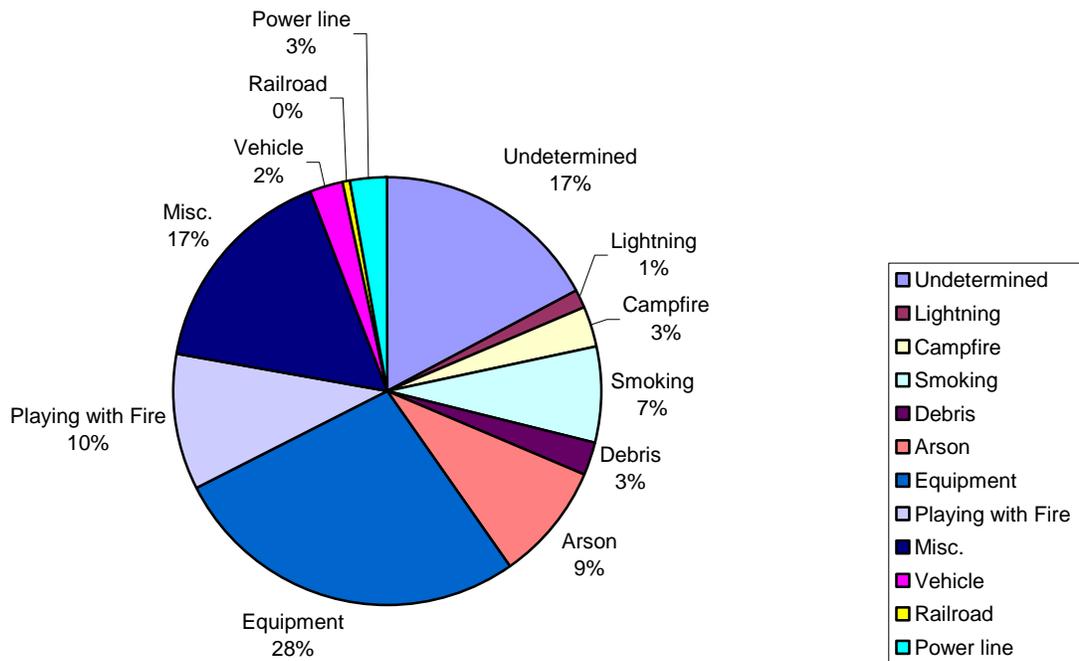
Riverside Unit - 2004 Wildland Ignitions



Riverside Unit - 2000-2004 Wildland Ignitions



Riverside Unit - 1995-2004 Wildland Ignitions



General Description of Desired Future Condition

San Jacinto Mountains – MAST Goals

- 1) Reforestation efforts will help restore species forest stand structure and composition back to un-evenaged and mix conifer.
- 2) Reforestation efforts will aid preventing erosion and protect water quality.
- 3) Shaded fuelbreaks are a method of protecting communities from catastrophic fire by removing (Brush) ladder fuels and while retaining larger mature trees
- 4) Generally, Height growth is a function of tree genetics and site quality; while diameter growth is a function of stand stocking or number of trees per area.
- 5) Fire behavior is a function of fuel, weather and topography. The amount and type of fuel can be treated so that catastrophic fire is mitigated.
- 6) An overall goal of 40-80 Trees Per Acre (TPA) is recommended, and staff is currently working to educate the public on the concept of Basal Area/Acre as the preferred method for determining stocking standards.

Ignition Workload Assessment

Public Resources Code (PRC) Section 4130 sets for the following responsibilities for the Board of Forestry and CDF:

Directs the Board to classify all wildland within State Responsibility Area (SRA) based on cover, beneficial water uses, probable erosion damage and fire risks and hazards.

Determine the intensity of protection to be given to each type of wildland.

Prepare a Fire Plan to assure adequate statewide fire protection so that lands of each type can be assigned the same intensity of protection.

The ignition workload assessment will show how successful CDF has been in providing equal fire protection to similar lands. In addition, it will show where this goal is not being achieved and improvement is needed.

Fires are grouped into "success" and "failure" categories based on various factors. The assessment groups fires by general vegetation or fuel types (planning belts). Within the fuel type, fires are further classified based on final fire size and weather conditions at the time of ignition. Each fire is classified and labeled as either a successful initial attack or a failure.

Successes vs. failures by fuel types are attached. Riverside Unit shows very good initial attack success, for grass – 96%, brush – 91%, woodland – 94%, and conifer – 95%.

Ignitions Workload Analysis Matrix

Unit: RRU

Planning Belt: G (grass)

FIRE SIZE

FWI

	Spot	Small	Medium	Large	Escape
LOW	276	41	8	0	1
MEDIUM	124	25	8	4	2
HIGH	38	10	1	0	0
UNMATCHED	502	113	27	8	10

Planning Belt ID:
Unit ID:

Success: 96 %

Fire Sizeclass Cutoffs for grass planning belt	FWI Index Intensity Cutoffs
Spot: Less than 1 acre(s)	Low: less than 15
Small: 1 - 10 acres	Medium: 15 - 30
Medium: 10 - 100 acres	High: greater than 30
Large: 100 - 500 acres	Unmatched: no weather observation available
Escape: greater than 500 acres	

Ignitions Workload Analysis Matrix

Unit: RRU

Planning Belt: B (brush)

FIRE SIZE

FWI

	Spot	Small	Medium	Large	Escape
LOW	759	60	53	29	53
MEDIUM	275	32	23	9	13
HIGH	60	4	5	6	6
UNMATCHED	794	94	63	22	40

Planning Belt ID:
Unit ID:

Success: 91 %

Fire Sizeclass Cutoffs for brush planning belt	FWI Index Intensity Cutoffs
Spot: Less than 1 acre(s)	Low: less than 15
Small: 1 - 5 acres	Medium: 15 - 30
Medium: 5 - 25 acres	High: greater than 30
Large: 25 - 100 acres	Unmatched: no weather observation available
Escape: greater than 100 acres	

Ignitions Workload Analysis Matrix

Unit: RRU

Planning Belt: W (woodland)

FIRE SIZE

FWI

	Spot	Small	Medium	Large	Escape
LOW	269	41	7	7	4
MEDIUM	116	22	5	3	3
HIGH	31	3	4	1	1
UNMATCHED	451	86	25	7	17

Planning Belt ID:
Unit ID:

Success: 94 %

Fire Sizeclass Cutoffs for woodland planning belt	FWI Index Intensity Cutoffs
Spot: Less than 1 acre(s)	Low: less than 15
Small: 1 - 10 acres	Medium: 15 - 30
Medium: 10 - 50 acres	High: greater than 30
Large: 50 - 200 acres	Unmatched: no weather observation available
Escape: greater than 200 acres	

Ignitions Workload Analysis Matrix

Unit: RRU

Planning Belt: I (interior conifer)

FIRE SIZE

FWI

	Spot	Small	Medium	Large	Escape
LOW	107	3	0	1	0
MEDIUM	25	3	6	0	1
HIGH	5	0	0	0	0
UNMATCHED	97	3	8	2	2

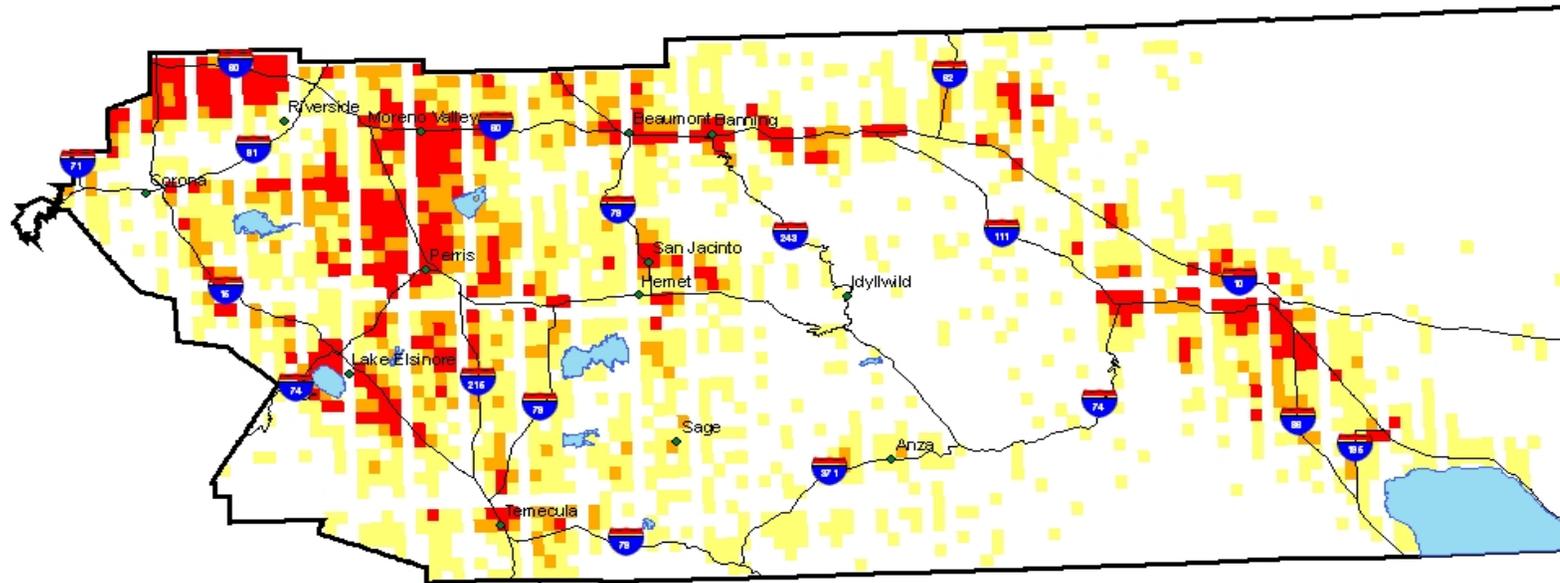
Planning Belt ID:
Unit ID:

Success: 95 %

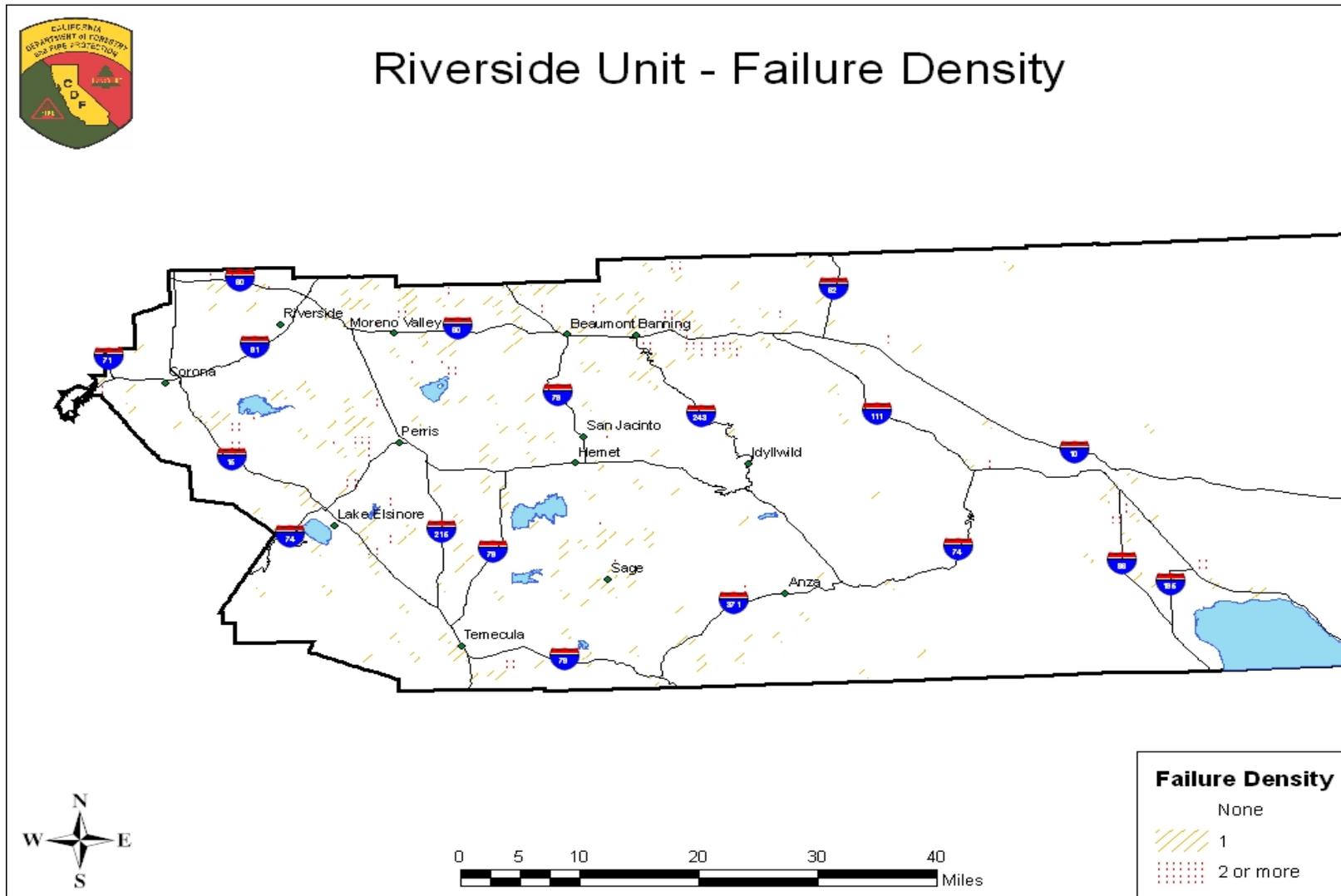
Fire Sizeclass Cutoffs for interior conifer planning belt	FWI Index Intensity Cutoffs
Spot: Less than 1 acre(s)	Low: less than 15
Small: 1 - 2 acres	Medium: 15 - 30
Medium: 2 - 10 acres	High: greater than 30
Large: 10 - 100 acres	Unmatched: no weather observation available
Escape: greater than 100 acres	



Riverside Unit - Failure Density



Fire Workload	
Yellow	1 - 5
Orange	5 - 10
Red	>10



Vegetative Wildfire Fuels

Wildland fuels (live and dead vegetation) are a key component of fire behavior. The various fuels found in California have specific characteristics, which allow fire behavior analysts to categorize them based on how they burn. The Fire Behavior Prediction System (FBPS) was the method chosen for categorizing fuels for the fire plan process. This method classifies fuels into 13 different fuel models, each of which has specific physical and burning characteristics. The models include 3 grass, 4 brush, 3 timber and 3 slash fuel types. Custom fuel models have also been developed from these basic models to take into account the variations found in desert areas and wildland areas with an urban component.

The fuel models are used to label current and historic fuels. Historic fuels, those fuels that existed prior to a significant wildfire or VMP burn, are important because they tell us what the climax vegetation and fuel type will be for a particular area. The historic fuel models are used to label the Unit's planning belts in the fire plan.

Current fuel models are used along with slope class, ladder fuel component, crown closure, and difficulty of control rating to derive the fuel hazard rank for each quad 81st. It has been determined that in California no wildland fuel can be considered to have a low hazard rating, so the adjective descriptions only include medium, high or very high.

In Riverside County, as well as San Bernardino and San Diego, we have seen dramatic and historic changes in our montane chaparral and timber fuel types in just the last year. The record-breaking drought has killed huge stands of timber and brush over tens of thousands of acres in our mountains. It has become the number one fuel problem for our County. Mortality mapping is constantly being updated cooperatively through the MAST using GIS technology.

Battalion 1 – Perris

Generally Battalion 1 consists of a light grass in the populated areas on the west and east sides of the Battalion. The medium fuels are in some of the same areas, but in the more sparsely populated areas, such as Santa Rosa Mine Road and Juniper Flats.

Battalion 2 – Lake Elsinore

The Battalion 2 area primarily consists of light brush and heavy grass throughout the area. Due to the frequent fire history in the area, these areas are maintaining the light brush and heavy grasses. The Ortega front country, in the Trabuco Ranger District consists primarily of a medium to heavy brush, which is one of the more volatile areas of Riverside Unit.

Battalion 3 – Beaumont

The fuels in Battalion 3 are widely varied, ranging from grass, coastal sage scrub, chamise, Russian Thistle to scrub oaks. In the area north of Cherry Valley, manzanita is the predominate fuel. The heavy rains this past winter contributed to a significant grass crop throughout the Battalion.

Battalion 4 – Corona

In the Santa Ana River bottom there is a continual bed of fuels just east of the Van Buren Boulevard bridge in Pedley extending west to Highway 71 along the county line. The river bottom fuel load is made up of annual grasses, bamboo, various brush species and various types of trees.

In the Chino Hills area annual grasses are abundant, with small patches of brush and a few oak/sycamore trees in the canyon areas.

In the Dawson Canyon and Spanish Hills area the fuels are annual grasses and light brush. These hills have been burned numerous times over many years, with the exception of a few canyons. Because of the light fuel load, the large fires in this area have been predominantly wind driven.

In the foothills that run along the Cleveland National Forest the fuels are generally light grasses with heavy brush.

Battalion 5 – San Jacinto

The fuels in Battalion 5 below 2000' in elevation mostly consist of grasses and coastal sage scrub (Fuel Model 2). Above 2000' in elevation the fuel type is dependent on the length of time since last fire, i.e. less than 20 years ago - grass and medium brush (Fuel Model 6), greater than 20 years ago - heavier mixed brush (Fuel Model 4).

Battalion 11 – Mountain

Station 23 – Pine Cove

The fuels in the Pine Cove/Idyllwild area are composed of mature chaparral with a mixed conifer forest overstory. The predominant understory species include manzanita, chaparral whitethorn, deer brush and chamise. The tree over story consists of mixed stands of Jeffery Pine, Ponderosa Pine, Coulter Pine, Incense Cedar, White Fire and Sugar Pine. There is no recorded fire history for the area since fire records started being kept around 1924; therefore it is assumed the vegetative community is at least 75 years old.

Station 29 – Anza

The fuel types in the Anza area consist of approximately 25% fuel model 1 mostly located on the valley floor on the Cahuilla Indian Reservation and along the Cooper Cienega Truck trail to the south. Fuel model 4 is approximately 30%, inter-mixed in areas through the valley. Fuel model 6 is approximately 45%, consisting of

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larger stands of manzanita and red shank with plant height as high as 10-15 feet on average.

Overall, the area has a grass under story, which is 12-18" in height. The grass is also matted down, which adds to the fuel loads. The red shank is showing new stringy bark, which adds to the ladder fuels in the brush fields.

Station 30 – Pinyon

The fuels in the Pinyon area consist of Fuel Models 4 and 6, with patches of Fuel Model 1 located throughout.

Station 53 – Garner Valley

The dead fuel from the last seven years of drought is still dead, the only difference is with the amount of rainfall this winter there is a significant grass crop to carry a potential fire. The brush that is not dead is showing heavy growth this year. On the positive side, the local cattle population is way up due to the Federal lands being opened up to more grazing permits, so the local cattle population is helping reduce the grass crop.

Station 77 – Lake Riverside

The Lake Riverside area is located near Aguanga. The fuels near Highway 79 and Highway 371 consist of grass (Fuel Model 3) and progressing northeast on Highway 371 the fuels change into fuel model 4.

Battalion 13 - Menifee

Battalion 13 is 42 square miles and has roughly the following boundaries: North of Murrieta city, South of Perris city, West of the Winchester area and just East of Elsinore (halfway down Railroad Canyon Road). The fuels consist of light native California vegetation, i.e. brush. The area is surrounded and interspersed with a healthy grass crop that has already “turned”.

Battalion 15 – Temecula

Station 12 – Temecula

The fuels in the Temecula area include annual grasses (Fuel Models 1 and 3) and brush species chamise, sage, buckwheat (Fuel Models 4,5 and 6).

Station 75 – Bear Creek

Within the SRA of Station 75's IA there are Fuel Models 1 and 3 (Short and tall annual grasses) along with Fuel Models 4, 5, and 6 (Chaparral and dormant brush including chamise and coastal sage).

Station 92 – Wolf Creek

Station 92's fuels are generally made up of annual grass (Almost all of which are located in last year's fire areas) and chaparral, dormant brush including chamise and coastal sage.

Structure Fuels

Defensible Space/Fire Safe Inspections

Riverside Unit is conducting Fire Safe Inspections utilizing the LE-38 program throughout the county. Unit Forestry staff have developed a database which allows the records of inspection to be stored electronically on the station computers. The LE-38 form contains a compilation of codes, from both the Public Resources Code and the Riverside County Ordinance 787.2, which adopts the Uniform Fire Code. This allows for the utilization of PRC 4291, and some more site specific regulation required by the County Ordinance.

As a part of the MAST Organization the private lands in the San Jacinto Mountains are being inspected by three different agencies, the California Department of Forestry and Fire Protection/Riverside County Fire, the United States Forest Service, and The Idyllwild Fire Protection District. Unit staff held a training day with all the agencies to go over to the changes associated with PRC 4291, and to ensure equal enforcement and interpretation of the laws across the area.

**LE-38 SRA
INSPECTIONS REPORT**

Number of VIP Inspections	0
Number of CDF Inspections	19276
Number in Compliance	16035
Number of Violations	3241
Number Cited	15

Ordinances Regarding Construction

The Riverside Unit has adopted the 2000 Edition of the Uniform Fire Code, which specifies various requirements for the development of new construction within the County. The Planning and Engineering Department of the Riverside County Fire Department is responsible for ensuring new developments within the county meet the various ordinances pertaining to building homes in the wildland. These ordinances include PRC 4290, PRC 4291, Riverside County Ordinance 787.2, and the new Fire Marshal Building Standards.

Unit Staff are working with the local Fire Safe Councils to disseminate information and educate the public on the message of Firewise home construction practices. The LE-38 program at the station level provides for a one-on-one contact with residents. This is the opportunity for residents to discuss what they can do to ensure their homes survivability in the event of a catastrophic wildland fire.

Frequency of Severe Fire Weather

Fire behavior is dramatically influenced by weather conditions. Large costly fires are frequently, though not always, associated with severe fire weather conditions. Severe fire weather is typified by high temperatures, low humidity, and strong surface winds.

The Fire Plan's weather assessment considers different climates of California, from fog shrouded coastal plains to hot, dry interior valleys and deserts to cooler windy mountains. Each of these local climates experiences a different frequency of weather events that lead to severe fire behavior (severe fire weather).

The Fire Plan's weather assessment uses a Fire Weather Index (FWI) developed by USDA Forest Service researchers at the Riverside Fire Lab. This index combines air temperature, relative humidity, and wind speed into a single value index. This index can be calculated from hourly weather readings such as those collected in the Remote Automatic Weather Station (RAWS) data collection system. The FWI does not include fuel moistures, fuel models and only uses topography to the extent that RAWS station weather readings are influenced by local topography.

Weather assessment information will be used to help analyze how changes in fire suppression forces will affect the Unit's level of service.

Vegetation Management Program Projects

Summary of the Vegetation Management Program

The Riverside Unit integrated its Vegetation Management and Pre-Fire Engineering Programs in January 1998 and created a Pre-fire Management Division. This integration has combined the planning and assessment tools developed for the 1995 California Fire Plan with the resources of the Vegetation Management Program (VMP) in order to implement fire hazard/fuels reduction projects in the most appropriate areas of Riverside County. The VMP Program has been used very successfully for fire hazard reduction in Riverside County since the program was first created. The use of fire weather, fire history, and fuels information provided through the Fire Plan provides a foundation to explain and justify to management and to the public why we are spending limited VMP resources and staff time in these high fire hazard areas.

The focus of VMP in Riverside County has historically been and will continue to be directed at fire hazard/fuels reduction and ecological restoration projects. The presence of numerous endangered species throughout Southern California has made burning for native habitat restoration a valuable tool. In most cases, these restoration burns also lend themselves to reduce fuel loads that pose a fire hazard to adjacent urban development. There is very little grazing activity in the county and therefore burning for range improvement has not been a priority.

Pre-fire staff are assisting several ecological reserves with the development of fire management plans that will involve fuels management as a component. Prescribed burning through the VMP Program will most likely be utilized for fire hazard reduction and ecological restoration on these properties when the plans are complete. Chipping is also a very appropriate tool that is used, particularly where there are smoke sensitive issues or where there is too great a threat to use prescribed fire.

Wildland Urban Interface (WUI) grants from the USDI Bureau of Land Management (BLM) and other grants are often required to help finance these critical projects. These grants are awarded on an annual basis and must meet the criteria set forth by the BLM

Past Projects

Lake Mathews VMP

The Management Plan for the Lake Mathews/Estelle Mountain Reserve specifies the use of prescribed fire to reduce or eliminate the non-native annual grasses and return the landscape to the native grass and sage scrub species. The vegetation within the Reserve is comprised primarily of non-native annual grassland, with smaller areas of mixed chaparral, Riversidian sage scrub, and California juniper woodland. Ultimately, VMP plans will be developed to implement prescribed fire on the 6,478 acres within the northern half of the Reserve. The area has been divided into forty-three (43) prescribed fire units that will be burned on a rotational basis that best mimics the natural fire cycle.

Three units totaling 500 acres were scheduled for burning during the spring of 2002. However, numerous lawsuits prevented any work from occurring on that project. It is currently suspended pending a resolution of those legal issues.

In spring 2003, Metropolitan Water District of Southern California (MWD) approached CDF about conducting VMP on lands owned by MWDF in the Lake Mathews Project area. We are currently working with the MWD environmental consultant in pursuing the identification of specific project units in order to proceed with environmental review.

Lake Perris VMP

Lake Perris State Recreation Area is located in western Riverside County about 18 miles southeast of the city of Riverside. The project area is located at between 1600 and 1700 feet in elevation in the basin northeast of the lake. Lake Perris has approximately 2000 acres of habitat that is grassland. These grassland areas were highly disturbed in the past by grazing and agriculture and are currently dominated by non-native plants. The predominant plants are European annual grasses and mustards including Wild oats (*Avena* spp.), Bromes (*Bromus* spp.) and mustards (*Brassica* spp.). Also present, but less dominant are annual forbs including filaree (*Erodium* spp.).

The project implements prescribed fire within the Lake Perris State Recreation Area for the purpose of habitat restoration. This is part of a long-term management plan to restore fire to the LPSRA at intervals that mimic the natural fire cycle as closely as possible.

The specific objective of this project is to create conditions favorable to the Stephens' kangaroo rat (SKR) and other native wildlife species by removing European annual grasses and mustard and promoting the growth of low growing

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annual forbs and selected native grasses. Complete consumption, > 90% is desired, with removal of the annual grasses and mustard as well as their seed and accumulated litter from the burn unit.

The current project area covers 618 acres divided into three (3) burn units. Two of the units, covering 454 acres, were burned in the spring of 1999. The remaining 133 acres were burned in 2001. The State Park continues to approach CDF for additional burning opportunities within the park.

Tenaja VMP

The Tenaja VMP project is located west of Murietta along the De Luz Creek drainage south of the intersection of Tenaja Road and Avenida La Cresta. The northern and eastern portion of the project is comprised mostly of large residentially zoned parcels. The central and southern project area is conservation and park land primarily covered with chaparral plants on the slopes and Engelmann Oak woodlands in the drainages.

The purpose of the Tenaja VMP is to reduce hazardous fuel loading in the upper De Luz Creek watershed. Historically, large fires initiating in the De Luz, Fallbrook, and Camp Pendleton areas have burned with the prevailing on shore winds and threatened the now developed areas on the Santa Rosa Plateau. This project is part of a larger plan to reduce the fuel loading adjacent to the plateau communities of Tenaja and La Cresta. Prescribed burning has taken place on the Santa Rosa Plateau Ecological Reserve immediately to the east since 1987 and additional projects are planned to the northwest on both state responsibility lands and the Cleveland National Forest within the next three years. Combined, these projects will provide a significant buffer against fires moving with the onshore prevailing winds from the south and west toward these now heavily developed communities.

Specifically, the Tenaja VMP will use prescribed fire to treat 364 acres of watershed in and adjacent to the De Luz Creek drainage. The northern end of the project will tie into Tenaja road and a newly constructed fuelbreak along the Rancho California Road easement. The west and east flanks will primarily utilize existing road systems with some new hand line construction. The southern end of the project area is steep with no existing roads and will therefore involve mostly construction of hand line. The interior vegetation will be burned in a mosaic pattern to develop age classes that are less likely to sustain major wildfires and enhance wildlife habitat.

The primary objectives of the prescribed burn project are to reduce fuel loading in the chaparral plant species and develop a mosaic of age and species diversified vegetative cover. An overall reduction in chaparral fuel loading of 50 to 80% is desired. Engelmann oak woodlands will not be treated and will be protected from adjacent burning operations.

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Approximately 300 acres have been completed to date and as of 2003, the Tenaja project was incorporated into the Santa Rosa Plateau Reserve Project because the land involved was given to the Reserve. Additional acreage will be added to the remaining balance of 64 acres and it was slated for burning in fall 2003 or spring/summer 2004. Currently, the Tenaja project is held up in litigation. The project remains open, but with no foreseeable short-term resolution to the lawsuits.

Ronald McDonald House CFIP

The project is located in the north end of Garner Valley; Section 4, Township 6 south, Range 3 east, San Bernardino Base Meridian, Idyllwild quad. Pre-commercial thinning and pruning of 5 acres. Brush competing with the conifer stand will also be removed or thinned. The project is designed to reduce competition for water, nutrients and light concentrating biomass production on remaining trees and creating a healthier more vigorous forest. The project will also reduce fuel loading and reduce ladder fuels creating a more fire safe forest and wildland urban interface. In addition, a forest management plan has been prepared which the landowner may use now and in the future years to guide them in sound forest and land management practices which include fire safe considerations for both natural resources and developed portions of the land.

As of August 2003, a majority of the work has been completed. In addition to the initially targeted vegetation removal, dead trees resulting from the drought and bark beetles have also been removed. This has resulted in a property that has had its fuels sufficiently treated so that this camp has been identified as a "shelter in place" facility where members of the public or other camps can come to survive the passage of a fire if they are unable to evacuate off the mountain.

Current Projects

El Cariso and Decker Canyon Fuelbreaks

The project involves the improvement of a fuelbreak in the El Cariso/Decker canyon area located along Highway 74 west of Lake Elsinore. The location of these communities puts them at extreme risk from wild fires burning under coastal or Santa Ana wind conditions in predominantly chaparral fuels. This project has reduced the fire hazard by modifying the fire environment and giving fire protection agencies points of access to initiate defensive and offensive control strategies around the community.

The project is divided into the following components:

El Cariso Fuelbreak: Establish a 100' wide fuelbreak completely around El Cariso Village. A fuelbreak was originally constructed in 1990 on State Responsibility Lands north of Highway 74. This fuelbreak is being reconstructed with a new segment added south of Highway 74 in order to completely encircle the village. Cut material is being piled and burned or chipped on site. In June 2004, the El Cariso Fuelbreak was completed.

Decker Canyon Fuelbreak: Vegetation is scheduled to be thinned, pruned, and/or cleared within 50 feet of each side of the primary roads within Decker Canyon in order to improve access for fire equipment and escape routes for residents leaving the area. Cut material will be chipped and spread on site or piled and burned. Cooperators in this project include 19 private landowners, the Cleveland National Forest, the Orange County Fire Authority and the Riverside Unit of CDF. This project is still pending, with discussion among local VMP coordinators regarding the use of goats on the projects.

Lake Mathews/Estelle Mountain Core Reserve

The Lake Mathews/Estelle Mountain (LMEM) Core Reserve is located in western Riverside County and is currently 11,232 acres in size. The Reserve's current configuration and management structure has its origins in a 1996 Habitat Conservation Plan (HCP) for the Stephen's kangaroo rat. The Reserve Management Committee (RMC) is comprised of representatives from the U.S Fish and Wildlife Service, the California Department of Fish and Game, the Bureau of Land Management, The Metropolitan Water District of Southern California, the Riverside County Habitat Conservation Agency, and the Center for Natural Lands Management.

The 1993 fire management plan serves as a foundation and model to expand the planning effort into the LMEM Core Reserve. In May 1998, the RMC initiated the

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expanded fire management planning effort in cooperation with the California Department of Forestry and Fire Protection. The expanded plan, completed in the spring of 1999, addresses pre-fire fuels management and fire suppression planning issues as they relate to the protection of public safety and endangered species habitat management.

Pre-fire management projects will focus on the implementation of prescribed fire on 6,478 acres within the northern half of the reserve. The area has been divided into forty-three (43) prescribed fire units that will be burned on a rotational basis that best mimics the natural fire cycle. Pre-fire management efforts in this area will focus on fuelbreaks, weed abatement and focused fire prevention activities aimed at keeping fire out of the area in order to facilitate regeneration of native species. In 2004 prescribed fire had been utilized on 1,006 acres in the reserve, and the plan remains open to continue the rotation of burning the prescribed fire units.

Mount Baldy

The Mount Baldy VMP is an emergency fuels reduction project that will be done cooperatively with the San Bernardino National Forest. This 272-acre project represents a critical piece of ground that is the last remaining link tying the former West Ridge II VMP project with the 1999 Mixing Fire. Without treating these fuels, which include large acreages of dead chaparral resulting from the drought, a fire starting along State Highway 74 in the Dry Creek area would be able to sweep uphill to threaten Mountain Center and Baldy Mountain Village. Although only 75 acres of SRA would be treated in this co-op project, these acres are critical to the project due to topography. Three-quarters of this project was completed in Fall 2003, and the remaining one-quarter is scheduled for Spring 2005.

Poppet Flats Fuelbreak

The rural community of Poppet Flats is located at the northern end of the San Jacinto Mountains, approximately six miles south of Banning along Highway 243. Within the community there are over 400 private parcels, many of which contain occupied residences. The largest landowner is the Silent Valley Club, which is a 460-acre RV park housing 850 campsites and 1150 storage units. Lands managed by the San Bernardino National Forest, the Bureau of Land Management (BLM), and the Bureau of Indian Affairs surround most of the community. Access in and out is limited to Poppet Flats Road running out to Highway 243 on the east. Secondary access can be made to the southwest; however, it is unreliable due to locked gates at the Soboba Indian Reservation and lack of maintenance.

Poppet Flats sits in a southwest-facing valley, which ranges in elevation from 3200 to 4000 feet. Numerous fires have started on the Soboba Indian Reservation below Poppet Flats as well as recent arson fires along Highway 243 to the northeast. The physical orientation and location of the community places it at extreme risk from the normal southwest wind driven fire as well as the "Santa Ana" wind driven fire from

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the east. Vegetation within and around the community is composed primarily of chaparral species such as chamise and manzanita, however, a significant cover of native California oak species is found along Poppet Creek. The age class of the vegetation varies since several large fires have burned in the area over the last three decades.

The intent of this proposed project is to implement a two-phase project that will provide a fuelbreak and truck trail completely around the Poppet Flats area. Phase one, completed July 2003 involved the construction of the fuelbreak and truck trail on private, National Forest, and BLM lands east of Poppet Flats Road. Phase two of the project will complete the construction of the fuelbreak north and west of the community.

The truck trail will be re-constructed to allow access for Type-3 engines and vegetation will be cleared to create a fuelbreak with an average width of 100 feet. Actual width will vary in order to create a feathered, mosaic appearance.

All cut material will be piled and burned or chipped. Vegetation Management Program (VMP) agreements have been initiated with private property owners to facilitate work and address environmental concerns on their lands.

In addition to the perimeter fuel modification, a community-chipping program will be established to facilitate the disposal of green waste generated by the property owners' annual weed/brush abatement activities. Chipping will be accomplished by CDF fire crews using a State-owned chipper housed at Oak Glen Conservation Camp.

Local residents within the community are very supportive of the proposed project. The Silent Valley Club, which is the largest private landowner within the project area, has committed their support through use of equipment and other resources. The San Bernardino National Forest and Bureau of Land Management are also committed to providing resources and support to the project.

As of August 2003, Phase I on the east side of Poppet Flats is complete. On July 25th, 2003, a 4,400-acre fire burned up to the east side of Poppet Flats. Firefighters were successful in keeping the fire out of Poppet Flats and the Silent Valley Club.

Phase II on the North and West side of the community is 2/3's complete, as of June 2004. Staff is currently working on property agreements on the remaining 1/3 of the project, with an expected Phase II completion by Spring 2005. The major issue regarding the completion of the Poppet Flats fuelbreak is obtaining signed RM-75's from various derelict properties. VMP staff is currently working with the Riverside County Assessors office to obtain the most recent APN information in an effort to complete the project.

Red Hill Fuelbreak

The unincorporated community of Pine Cove, located in the San Jacinto Mountains of Riverside County, has a population of approximately 1500 permanent residents on 2200 improved parcels. Pine Cove is situated predominately on a western/southwest aspect of the San Jacinto Mountain range at 6200' elevation and is "mid-slope" between the San Jacinto Valley to the west at 1700' in elevation and San Jacinto Peak at 10,804' in elevation to the east. Lands owned and protected by the U.S.D.A. Forest Service/San Bernardino National Forest surround the community of Pine Cove.

The vegetative community is comprised of mature chaparral with a mixed conifer forest over story. The predominant under story species include manzanita, chaparral whitethorn, deer brush and chamise. The tree over story consists of mixed stands of Jeffery Pine, Ponderosa Pine, Coulter Pine, Incense Cedar, White Fire and Sugar Pine. There is no recorded fire history for the area since fire records started being kept around 1924; therefore it is assumed the vegetative community is at least 75 years old.

In 1991, the California Department of Forestry and Fire Protection (CDF) entered into a Vegetation Management Program (VMP) Agreement with 34 private property owners on the western border of Pine Cove. The intent of the project was to reduce the fuel loading along the western perimeter of the community and to provide a "shaded fuelbreak" to protect the community from a potentially devastating slope driven wildland fire from the west. The CDF completed the project as defined in the 1991 Agreements in November 1997.

The Riverside Unit has re-entered into agreements with the current private property owners whose properties lie within the 1991 Red Hill Vegetation Management Program. In addition to maintaining the prescribed fuel loading levels completed during the 1991-1997 Program, it is proposed that CDF increases the treatment area within the same private properties to broaden the "shaded fuelbreak" and create a wider buffer of protection. The actual width of the treated area will vary depending on the type of vegetation and topography. The proposed fuel reduction project will be completed by piling dead vegetation, thinning brush and small trees with chainsaws and placing this material into small piles to be burned in cool weather. The net treatment area is approximately 251 acres.

This fuel reduction project is part of a larger plan to tie several fuel treatment projects together and thus provide a continuous fuel modification zone along the western edge of the San Jacinto Mountain communities

The proposed project has the potential of reducing the damages from wildland fires spreading into the community of Pine Cove. Fire history records indicate that fires in the surrounding area are traditionally slope and wind driven, burning in an easterly

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direction. The only exceptions to this historical data are those fires that are wind driven during a "Santa Ana" wind event.

The proposed project is intended to provide a buffer of protection to the community of Pine Cove by reducing fuel-loading levels and to provide an area to which fire suppression forces can safely take action on an encroaching fire.

The original 1991 Red Hill Vegetation Management Project was supported by the Idyllwild/Pine Cove Coordinated Resource Management Planning Group (CRMP) and by the Pine Cove Property Owners Association. The project was also well supported by the participating property owners. In addition, the 1991 Red Hill Vegetation Management Project was conducted in conjunction with the U.S.D.A. Forest Service/San Bernardino National Forest fuelbreak project that "linked" federal lands that separated the private property parcels of the original project.

Since this project was initially envisioned in the 2000 RRU Fire Plan, the massive tree mortality and resulting State emergency declaration for the area have occurred. Thousands of trees have died within the project area. Therefore, CDF is reentering the same project area on multiple occasions, as more trees die and future treatment will be required for several years to come. The current VMP contract has been renewed and expires in October 2006. Insect control crews from Bautista and Oak Glen camp as well as regular grade crews are working on this massive fuel reduction project. CDF special augmentation engines are assisting with the project also, which keeps additional firefighting resources in close proximity to the potential disaster that could occur in the area.

Southwest Riverside County Multi-Species Reserve/Johnson Ranch

The Southwest Riverside County Multi-species Reserve incorporates approximately 15,000 acres in southwest Riverside County around Lake Skinner and north to the Diamond Valley Lake. The reserve is a composite of ownerships comprised of the Metropolitan Water District, Riverside County Regional Park and Open Space District, and the Riverside County Habitat Conservation Agency. The reserve was established to enhance and protect endangered species habitat and protect the watersheds surrounding Lake Skinner and Diamond Valley Lake. A committee, comprised of a representative from each of the landowners as well as the U.S. Fish and Wildlife Service and the California Department of Fish and Game, is responsible for management decisions on the reserve lands.

A draft fire management plan was initiated in August 1997 by the Metropolitan Water District in cooperation with the Reserve Management Committee and the California Department of Forestry and Fire Protection. The final plan was completed in 2003 and will result in the initiation of prescribed fire and other fuels management projects.

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During 2004 approximately 550 acres were burned, with approximately 600 acres scheduled to be treated in 2005.

The Santa Margarita River Management Area

The Santa Margarita River Management Area (SMRMA) is a joint project of the Fallbrook Public Utility District, Mission Resource Conservation District and San Diego State University. It is funded through grants from the Federal Emergency Management Agency (FEMA) and CDF. It consists of two properties, the Santa Margarita Ecological Reserve (SMER) and the Fallbrook Public Utility District (FPUD). The SMER property is a Biological Field Station for SDSU and the FPUD property was acquired for a dam that was never built. See attached Reserve management area map.

SMRMA covers approximately 5,480 acres of land straddling the Riverside / San Diego County Line west of Interstate 15. It follows the Santa Margarita River Drainage south of Temecula. More than three-quarters of the area lies within Riverside County. The topography is largely steep hilly terrain bisected by a deep river gorge. It is mostly covered by various types of chaparral, coastal sage scrub, oak woodland forest and cottonwood-willow riparian areas. Although located in very high fire hazard area, most of the property has not burned for more than 25 years. The entire SMRMA area is habitat for a number of rare and endangered plant and animal species. It is surrounded by rural residential and light agricultural use property. Most of the agriculture consists of avocado and citrus groves.

The area is mostly CDF Direct Protection Area and CDF has been working in an advisory capacity with SDSU in the preparation of a Pre-Fire Management Plan. A draft plan has been developed which will incorporate the elements of ignition risk reduction, infrastructure improvements, fire defense improvements, vegetation management through prescribed burning and a pre-fire suppression plan. Elements of each are described below.

Ignition risk reduction:

- ❑ Additional gates, fencing and sign posting.
- ❑ Increased patrol by the U.S. Border Patrol and Sheriff's Deputies to reduce trespass.
- ❑ A Neighborhood Watch Program in adjacent residential properties.
- ❑ Smoking and fire suppression equipment restrictions on persons and vehicles entering SMRMA on official business.

Infrastructure Improvements:

- ❑ Re-grading and improving roads and trails within and accessing SMRMA.
- ❑ Road signage as appropriate.
- ❑ Fire Safety Zone / Staging areas for fire suppression personnel and equipment.

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Fire defense Improvements:

- ❑ Creation of a fuelbreak along the California Aqueduct Road at least 100' in width. This fuelbreak will bisect SMRMA along a north-south axis.
- ❑ Real-time access to weather information from an on-site station.

Vegetation Management:

- ❑ Prescribed burning in the chaparral fuels to create an age-class mosaic that reduces fuels and enhances habitat.

Pre-Fire Suppression Plan:

- ❑ Develop a plan by mutual agreement for distribution to fire suppression agencies having jurisdiction that addresses fire suppression tactical necessities while minimizing the impacts of those activities upon the environment.

Status: Project is still in planning stages. A draft Wild Fire Management Plan has been prepared by SDSU for review. Some of the ignition risk reduction measures that do not involve ground disturbance have been implemented.

Santa Rosa Plateau Ecological Reserve VMP

The project involves prescribed burning on the Santa Rosa Plateau Ecological Reserve, which is located immediately west of Murrieta in the eastern foothills of the Santa Ana Mountain Range. A VMP plan was first developed for the Reserve in the mid-1980's and subsequent burn plans have been in place ever since. There are 4,230 acres covered under the current agreement.

Prescribed fire was introduced onto the reserve primarily to simulate natural fire cycles and characteristics that support native vegetation communities historically present in the area. The reserve is divided into numerous burn units that are randomly selected for burning each year. On average fire is returned to the same unit approximately every five to seven years with between 500 and 1500 acres being treated annually. In addition to the ecological benefits, these recurring cycles of fire generate plant communities with less dangerous wild fire behavior characteristics. They also develop vegetative age classes that will be less likely to create or sustain major wild fires.

Fuels are primarily annual grasses with oak woodland cover; however, chaparral is present in all or portions of several units. Project preparation work involves cutting of hand line and road maintenance to facilitate access and control lines. Burning is typically carried out using drip torches and aerial ignition devices.

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Management of the reserve has changed, and is now the responsibility of The California Department of Fish and Game, under the direction of a management committee. Ownership is comprised of The California Department of Fish and Game, The Nature Conservancy, the Riverside County Regional Park and Open Space District. The new agreement with the Department of Fish and Game took effect in February 2004.

In June of 2003, 558 acres of this project were successfully burned and as of June 2004, a total of 1,130 acres have been burned.

California Forest Practice Act – Exemptions and Emergency Notices

There are numerous Timber Harvest Plan (THP) exemptions and emergency notices in effect that are resulting in thousands of trees being removed with 100% slash cleanup in most cases. This activity will have an enormous impact on reducing the staggering amount of fuel that has resulted from the drought and bark beetle outbreak. CDF Foresters have been busy conducting Forest Practice inspections on the timber operations occurring on private land.

The governor's emergency proclamation temporarily lifted the requirement for filing exemptions and notices with the State. However, all other provisions of the Forest Practice Act and Rules are in affect. It is estimated that tens of thousands of trees have been removed off of SRA lands in the last year by Licensed Timber Operators and tree service contractors and that thousands more trees need to be removed.

Along power line rights of way CDF foresters are working closely with Southern California Edison (SCE)-hired foresters and line clearing crews to ensure compliance with the forest practice rules. We are also working with government crews that are removing trees along state highways and county roads for the same purpose.

As part of the VMP program and the San Jacinto Zone of Infestation authorized insect control program, CDF conservation camp crews are also removing thousands of trees in compliance with the forest practice rules.

DEPARTMENT OF FORESTRY AND FIRE PROTECTION

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July 18, 2005

Jim Wright
Deputy Director, Fire Protection
California Department of Forestry
and Fire Protection
P.O. Box 944246
Sacramento, CA 94244-2460

RECEIVED

JUL 18 2005

by: Supervisor
Jeff Stone

Dear Deputy Director Wright,

Attached are three copies of the Hemet Ryan Air Base Relocation Review. I've asked individual committee members to submit directly to Sacramento CDF any additional technical information, or concerns, not included in the report. Sacramento CDF Air Program is developing some additional information that was not submitted to the committee. Committee member Lee Delap, Sacramento CDF Technical Services, submitted comments on July 15, 2005. These comments are included under a separate transmittal letter.

CRAIG E. ANTHONY
Riverside Unit Chief
Air Base Move Committee Chairman

CEA:db

Attachment

cc: Air Base Move Committee

**Air Attack Base Location Analysis
Riverside County
July 18, 2005**

Executive Summary

The California Department of Forestry and Fire Protection (CDF) determined in 1998 that the Hemet-Ryan Air Attack Base needed to be relocated. The decision to relocate the base was primarily a result of concerns expressed by Riverside County officials on the future capability of air tanker operations and civil aircraft, and the inadequate Hemet Airport runway length. CDF prepared a report analyzing alternative locations for the Air Attack Base and concluded that March Air Force Reserve Base was the best alternative in Riverside County. The 1998 report concluded that from an operational perspective, the Hemet Airport provides the best location in meeting CDF's initial attack fire suppression goals. However, remaining at Hemet was not identified as an option in 1998.

In May of 2005, the Riverside County Board of Supervisors, through an agendaized Board item, requested that CDF revisit the decision to relocate from Hemet Airport to March Airport. Supervisors Stone and Tavaglione met with the CDF Director to present the concerns of the Board of Supervisors. The CDF Director established a committee to take a "neutral" look at the decision to relocate the air attack base.

The committee held two meetings to identify and determine the significance of the current factors in the location of the air attack base. While a number of issues were reviewed, the following were the significant issues identified:

1. Hemet Airport geographic location provides the greatest success in meeting the CDF initial attack fire suppression goals.
2. March Airport has a greater percentage of time below Visual Flight Rule Standards than Hemet Airport.
3. Hemet Airport's current runway length is inadequate for future CDF air operations.
4. Sacramento Air Program staff has flight safety issues that need to be addressed prior to a final location decision.

The significant change since the 1998 report is the commitment by Riverside County to make the necessary improvements to the Hemet Airport to support a CDF Air Attack Base. The 1998 report cited Hemet Airport as the most effective operational location for achieving CDF fire suppression goals. During the current committee review, fire suppression simulation runs demonstrated that Hemet Airport provided a greater success rate than March Airport. However, during the committee meetings, CDF Sacramento Aviation personnel expressed reservations about potential safety concerns that will need to be taken into consideration during the CDF Executive review of this committee report.

Also, due to the diverse makeup of the committee, the committee Chairman encouraged committee members to transmit their individual views and concerns to the CDF Director.

Background

The California Department of Forestry and Fire Protection (CDF) is responsible for wildland fire protection on private and state-owned lands in California that hold timber, watershed and range values. The California State Board of Forestry and Fire Protection classify these lands as State Responsibility Area (SRA).

In Riverside County, the CDF fire protection system is comprised of state-funded engines, fire crews, dozers, and firefighting aircraft. These state-funded resources function within an integrated fire protection system that partners with local government in the unincorporated county areas and sixteen contract cities. Local government funds the structural fire and emergency medical services and operates in a seamless command and control system that relies on a "closest resources" dispatch strategy. The State benefits from this integrated fire protection system where, on the majority of SRA fires, the first arriving fire engine is a local government funded resource under CDF command and control.

Time is a critical factor in the success or failure of CDF's initial attack response. Successful containment of wildland fires is dependent on delivering to the fire scene control line production units (engines, handcrews, and aircraft) that exceed the rate of fire spread. The CDF Aviation resources provide one of the most effective tools in achieving the containment of wildfires (production units exceeding fire parameter growth). While CDF aircraft line production capabilities require the ground crews to follow up on aircraft retardant drops, CDF aircraft are normally not constrained by geographical features. Aircraft have the ability to retard the rate of fire spread with repeated retardant on the fire where there is the most activity. This allows the ground protection units to build fire line and stop the fire growth.

The strategic location of firefighting resources provides the foundation for CDF Initial Attack effectiveness, or success rate, of 95% of all fires contained at or under 10 acres in size. CDF's Hemet-Ryan Air Attack has a long history of being one of the most active and important air bases in the CDF system.

In December of 1997, the Riverside County Supervisor for the Third District sent a letter to CDF raising concerns that "Hemet-Ryan Airport may not be the best location" for future air attack base operations. The Supervisor cited the direction given to the Riverside County Economic Development Agency (EDA) to make Hemet-Ryan Airport a more productive general aviation airport. The letter cites the potential recreation impacts of "what will soon be Southern California's largest reservoir and recreation facilities" and anticipated a higher airport usage expressed concerns that "these activities will probably not be compatible with the heavy air traffic generated by CDF during fire season."

Based on the Riverside County Supervisor 1997 concerns, CDF prepared a study of replacement potential air base locations in Riverside and San Bernardino entitled the Hemet-Ryan Air Attack Base Relocation Study. The 1998 study developed a comparative matrix analysis for critical factors at French Valley Airport, March Air Reserve Base, San Bernardino International Airport and Hemet-Ryan Airport. The critical factors used in the study included:

- Location
- Runway length and width
- Runway load carrying capacity
- Large aircraft restrictions
- Access to runway (taxi length)
- Controlled airport
- Proximity to SRA
- Competing airport land uses
- Fuel availability
- Landing fees
- Down days for airport during severe fire weather
- Compatibility of use with the surrounding area and the general plan
- Continued use in the future
- Aircraft access problems (climb rate)
- Airspace limitations

The 1998 report listed the following "Con" factors for the March and Hemet-Ryan:

March Airport

- Instrument flight rules may apply during declared fire season due to the smog.
- 100 Low-lead fuel not currently available
- Cross winds under Santa Ana conditions

Hemet-Ryan Airport

- Competing airport land uses (student pilots, gliders, general aviation, Ultra-lights, etc.) incompatibilities with air tanker operations. (Note: Report references the Third District Supervisor's 1997 letter for these potential impacts.)
- Length and width of runway - 4,315' by 100' w/ 200' overrun at each end.
- Non-controlled Airport.
- All USFS Air Tankers with the exception of DC-4s are prohibited from utilizing Hemet Airport due to runway length.

Also, the 1998 report's Critical Factor Analysis acknowledged that no landing fees or lease cost information was available for March Airport. The report stated that Riverside County did not want to extend the Hemet Lease beyond 2008 and that Hemet was in conformance with the Riverside County Land Use Airport Use Plan.

The 1998 report provides a "Program Analysis" narrative considering climate, topography, fuels, weather, assets at risk and other geographic and demographic factors. The report confirms, "The area served by Hemet-Ryan includes some of the most seriously imperiled lands in the State." The report finds "it can be concluded that any relocation of this air attack base (Hemet) away from these areas must necessarily result in an increase to the number of fires exceeding the ten-acre failure threshold because retardant delivery is slowed in the critical initial attack phase." The report found that the relocation to March Airport reduced services to "only 190,478 acres."

The 1998 report assumed that Hemet-Ryan Air Base was not available for future use and the analysis was to find the next best alternative. The following comments, while focused at the differences between March and San Bernardino airports, would assume to hold true when considering the difference between March and Hemet airports:

- Since it can reasonably be assumed that any change in air base location will negatively impact the initial attack delivery system and result in an increase in the number of initial attack failures, there must be a corresponding increase to the cost of fire suppression borne by the State's General Fund and an increase in citizen losses as a result of these initial attack failures.
- Another factor that must also be considered is the reload component – the further the distance from base to fire incident, the longer the turn-around time the aircraft has before it returns with its next load of retardant.
- Ryan Air Attack base has been the most active air attack base in the State of California and probably the world for many years. The analysis of this research paper points out that March Air Base would have the least negative effect on the current state responsibility fire protection system.

Analysis of the current situation

In May of 2005, the Riverside County Board of Supervisors requested CDF revisit the decision to relocate Hemet-Ryan Air Attack Base to March Airport. The foundation of the BOS request was represented by current Third District Supervisor strong support for maintaining the shortest response time to the high hazard fire danger area of the southwest portion of Riverside County. Also, the Riverside County EDA notified CDF that they concluded that no airport incompatibility uses existed and that the issues anticipated in 1997 that impacted Hemet Airport use were no longer a concern to the county. Also, EDA presented plans to lengthen the runway and thereby remove one of the major CDF concerns with future air operations at Hemet. The Department of Forestry and Fire Protection Director appointed a committee to take a neutral look at its decision to relocate Hemet-Ryan Air Attack Base to March Airport. The Director requested that the committee analyze current factors and forward an analysis to CDF Sacramento for a final decision.

The committee membership includes two Riverside County BOS members, and subject experts from Riverside County and Sacramento CDF, see Attachment "A" for committee membership. The committee's first meeting was in May. This meeting provided a number of concerns and opportunities as the members presented a number of unique issues

important to constitute group or program representatives. The committee identified the potential factors and developed information to determine each factor's potential significance in the final air attack base location decision. Based on the committee responsibility and perspectives, different priorities were attached to individual factors. It became apparent that, even with the agreement on the individual factors, committee members perspectives could lead to different location recommendations. The committee chairman encouraged committee members to transmit their view of individual factors importance directly to the CDF Director for consideration in the final air base relocation decision.

Current Considerations

Costs Comparison: Since 1998, when March lease and landing fee information was not available, the State and March JPA have agreed to a lease, which establishes the fee and lease structure. The following is a comparison of 2004 Hemet-Ryan Air Base costs and the "first year" lease effective when CDF occupies the March facilities:

	Hemet-Ryan	March
Annual Lease	\$ 9,527	\$ 15,000
Annual Landing Fees	\$39,305 ¹	\$143,000 ²
Total	\$48,832	\$158,000

Flight Activity: The March Airport activity will be a combination of military and civil operations. The best available information on flight activity is a 1998 USAF Air Installation Compatible Use Zone Study (AICUZ) that current and forecast for military aircraft was 40,396 operations per year, see Attachment "B". The AICUZ anticipated the number of civil aircraft was 21,000 operations per year, for a combined 61,396 military and civil operations. The anticipated civil flights did not include the addition of CDF aircraft operations. On the average CDF Hemet-Ryan activity is approximately 1,400 to 1,500 annual flights. Hemet Ryan had approximately 57,000 annual flights in 2004.

The potential impacts of flight activity are delays in CDF flight operations resulting in delayed responses or extended retardant turn around time. USAF flight operations state that priority will be given to CDF flight operations. However, large military or civil commercial aircraft can result in three minute delays in take off due to wake turbulence and/or a two-minute delay if aircraft are in the final approach. It is difficult to estimate the number of times this five minute "worst case" delay will occur. The Fire Behavior model, used to estimate containment success, used a "best case" (no delays) and a "worst case" (5 minute delay) to assess impacts of travel time from March and Hemet and flight delays because of traffic and/or wake turbulence. The Fire Behave model will include a "worst case" of two minutes for Hemet because wake turbulence is not a factor.

¹ Hemet landing fees based on the three year average 2002, 2003, and 2004.

² March landing fees are a flat annual rate.

Visual Flight Rules Restrictions: One of the concerns expressed by the air tanker pilots and unit operational chiefs was the impact of March being below Visual Flight Rules (VFR) more often than Hemet Airport. Hemet lacks the detailed VFR records that are available for March. Hemet contract air tanker pilots and assigned CDF employees assert that Hemet rarely, if ever, is below VFR rules. The USAF has reviewed March VFR data for a 32-year period. See Attachment "C". In reviewing the data the following information is available:

Percentage of Time Below VFR Minimums

Month	Time Periods		
	<u>6AM to 9AM</u>	<u>9AM to 12AM</u>	<u>12AM to 3PM</u>
May	37.1%	14.6%	10.7%
June	34.9	13.5	9.6
July	26.0	7.9	6.1
August	21.6	6.3	4.9
September	28.6	12.2	8.7
October	35.9	16.7	11.8
November	23.6	11.3	5.5

There was a lot of discussion by the committee on air operations impacts during periods below VFR minimums. The committee was informed that CDF S-2s are not eligible to receive VFR certificates from FAA. Sacramento Air Program staff suggested that S-2s could operate below VFR minimums under "special VFR rules." The air tanker pilot attending the committee meeting stated that pilots would not operate air tankers under "special VFR rules." While the capability of the aircraft and pilots will have to be considered by flight experts, it is apparent that the March has more visibility issues than Hemet Airport. The 1998 relocation report identified smog as a "con" for moving to March.

Runway Length: The 1998 relocation report cited runway length (4,315 feet) as one of the critical shortcomings of Hemet. The CDF Air Base Standards establishes 6,000 feet as the desired runway length. The Riverside County EDA has notified CDF that they are committed to extending the Hemet runway to 6,000 feet; see Attachment "D" for EDA letter. The extension of the runway is a critical factor and should be viewed as a necessity for Hemet Airport to function as a CDF Air Attack Base.

CDF Air Base Design Standards: The committee requested CDF Sacramento Air Program provide the standard design specifications. The "general minimum standards for CDF Air Attack Bases" is found in Attachment "E". As a military air base, March airport exceeds these standards. Embedded in the CDF standards, in red, compares Hemet Airport to the CDF standards.

Crosswind Component Impacts: A crosswind or crosswind component refers to that portion of the wind, which acts perpendicular to the runway. Most airplanes have a maximum demonstrated crosswind component listed in the Pilots Operating Handbook (POH). The S2-T air tanker has a 45-degree quartering crosswind of 25 mph and a 90-degree crosswind

of 17 mph. The SE to NW orientation of the March Airport runway provides the potential for S2-T flight operations being restricted during East wind conditions. March Airport crosswind data for the period of 1972 to 2004 shows an extremely low impact from crosswind impacts. If the air base is relocated to March anticipated high East wind periods might result in the need to relocate the air tankers to an alternative site.

Hemet is, rarely if ever, impacted by East wind conditions. While the weather data is not well documented, local experience at Hemet-Ryan provides the reasonable assumption that crosswind is not an operational impact.

Based on the best available information, crosswind factors are not assumed to be a significant factor at March or Hemet. See Attachment "F" for detail information on crosswind potential.

Flight Distance from March to Hemet-Ryan: March Airport is located 14.6 nautical miles NW of Hemet-Ryan which adds 4:51 minutes to the flight time in those case where the emergency response is SE of March airport, see Attachment "G".

Taxi Times: While there was an original concern with the potential for extended taxi requirements at March airport, discussion with the USAF indicates that the Arresting Gear at the South end of the runway will be removed by the end of 2005, and "short landings" will routinely be authorized avoiding long taxi times. Therefore, the March "worst case" model does not include any delays based on extended taxi requirements. Taxi time is not a significant issue at March or Hemet-Ryan.

Fire History: Attachment "H" provides a fire history map with 12-minute flight radius for the CDF Ramona Air Base in San Diego County, Hemet-Ryan CDF Air Base in Riverside, USFS Norton Air Base in San Bernardino, and March Air Port in Riverside County. The 12-minute radius circle is based on the 20 minute CDF response goal (8 minute get away time and 12 minute flight time). Attachment "I" displays the 12 minute flight for existing air attack bases and March Airport. In reviewing the map, the greatest impact will be the Anza area located southeast of Hemet. The Anza response times will be extended into one of the historical highest start incident and large fire areas in Riverside County. Based on estimated flight times, the southern portion of Riverside County will be served by the Ramona CDF Air Base in San Diego County.

The total SRA acres in Riverside County (RRU), San Bernardino County (BDU) and San Diego County (MVU) are 2,673,526 acres. Hemet-Ryan covers 784,548 (29%) of the total SRA acres in the tri-county area. The following is the SRA breakdown for Hemet-Ryan and March (in place of Hemet-Ryan):

	Hemet-Ryan	March
San Bernardino Co.	38,244 ac. (5% BDU SRA)	91,623 ac. (12% BDU SRA)
San Diego Co.	143,418 ac. (12% MVU SRA)	17,420 ac. (1% MVU SRA)
Riverside Co.	602,886 ac. (85% RRU SRA)	473,574 ac. (67% RRU SRA)

The fire history map, 20-minute response circles and revised SRA allocation for the tri-county area presents a clear picture of a significant impact on the initial attack success rate.

The two most significant impacts are:

- Longer response times for air tankers to the Anza area and entire SE county.
- The Ramona air tankers in San Diego will have larger SRA first in area. March will protect 582,617 SRA acres in the tri-county area (Hemet-Ryan currently protects 784,548 SRA acres). Since March airport is north of Hemet it is reasonable to assume that the San Diego air tankers will have the added responsibility of being first in for the "lost" Hemet acres. San Diego air tankers already service a larger SRA area than Hemet. The increase primarily responsibility for CDF San Diego County air tankers and greater second in response time for CDF March based air tankers will have a negative effect on San Diego initial attack success rate.

Pilot Safety: Sacramento Air Program expressed concern with pilot safety issues at Hemet Airport. The concerns express were of a technical nature and need to be examined during the Sacramento review final review of air base location.

Controlled Airspace: The committee again does not have the expertise to weigh the value of controlled airspace. Discussions occurred at the committee that support the value of operating with and without controlled airspace. Since CDF currently operates more than half of its air bases without controlled airspace it is difficult to form a judgment at the committee level on the value of controlled airspace. This issue remains to be discussed with air program experts, including input from air tanker pilots.

Behave Model Containment Simulations: The Behave 3.0 CONTAIN and SIZE Modules were used to evaluate containment success based on "best" and "worst" aircraft responses from Hemet Air Base and March Airport. The simulation factors were held constant with the exception of aircraft response and turn-around times. The fire environmental conditions assumed a moderate rate of spread with temperatures in the range of 85 to 95 degrees, relative humidity of 25 to 35 percent, and light winds. Attachment "J" provides the module assumptions.

Five fire simulations were evaluated for containment success. See Attachment "K" for map of fire locations. These fires were located within the "first in" air tanker response areas located to the east, south, and west of March and Hemet. The taxi times for Hemet were based on actual experience, while March was based on future air base location and taxi distance to and from runway.

The following is the summary of factors used:

Best Case

<u>Activity</u>	<u>Hemet</u>	<u>March</u>
Taxi to take off position	2.65 minutes	1.00 minutes
Await Takeoff-Wake Turb.	0.00	0.00
Await Aircraft in Pattern	0.00	0.00
Land & taxi to reload pit	0.50	3.04
Reload with retardant	4.00	4.00
Total	7.15	8.04

Worst Case

<u>Activity</u>	<u>Hemet</u>	<u>March</u>
Taxi to take off position	2.65 minutes	1.00 minutes
Await Takeoff-Wake Turb.	0.00	3.00
Await Aircraft in Pattern	2.00	2.00
Land & taxi to reload pit	0.50	3.04
Reload with retardant	4.00	4.00
Total	9.15	13.04

All simulations assumed a 4-minute orbit time over the fire with the individual flight time to the fires based on travel distance from Hemet or March. The results for the Behave module run were as follows (See Attachment "L"):

Initial Attack Success Results using Fire Behave Simulation

<u>Fire Name</u>	<u>Hemet</u>		<u>March</u>	
	<u>Best Case</u>	<u>Worst Case</u>	<u>Best Case</u>	<u>Worst Case</u>
Tripp	Contain	Contain	Escape	Escape
Cirrus	Contain	Contain	Escape	Escape
Steele Peak	Contain	Contain	Contain	Contain
Orange Co. North	Escape	Escape	Escape	Escape
Orange Co. South	Escape	Escape	Escape	Escape

The primary factor for initial attack success appears to be flight time. The nautical miles for each of the fires is provided below:

Nautical Miles for Fire Behave Simulations

<u>Fire Name</u>	<u>Hemet</u>	<u>March</u>
Tripp	15.9 Nau. Miles	30.4 Nau. Miles
Citrus	6.6	20.4
Steele Peak	14.5	8.1
Orange Co. North	34.448	23.509
Orange Co. South	29.798	25.589

Construction Funding Option: Riverside County Economic Development Agency has indicated that the County is considering offering to construct a "build to suit" Air Attack Base at Hemet Airport and leasing the facility to CDF. EDA has requested a meeting to discuss a potential lease arrangement and construction timelines.

Discussion

In reviewing the factors identified by the committee, the following appear to be significant:

- Decreased success levels for initial attack fires from March Airport.
- Hemet Airport runway length
- Occurrences of VFR minimums at March Airport.
- Fire History

The above represent the major issues that need to be considered in determining the best location for the Air Attack Base. The current review supports the findings of the 1998 report that concluded that moving away from Hemet would increase the numbers of fires that exceed the ten-acre failure threshold. This increase in large fires will have a direct impact on Riverside County property improvements and increase the State Emergency Fund expenditures. The 1998 report concluded that if Hemet had to be moved "the less negative effect" would be the relocation to March airport. CDF needs to recognize the potential impact on air resources for San Diego County as the initial attack area for Ramona's air tankers is increased. In addition the response time for Riverside based air tankers will increase with the relocation to March Airport.

Several significant factors have changed since the 1998 report. The increase recreation use of Hemet did not occur. Riverside County EDA is now a strong supporter of the air attack base remaining at Hemet. The factors that have not changed are the concern with visibility at March and the need to extend the Hemet runway length. While flight operations are

normally not scheduled until 10 AM, it is not usual for Incident Commanders to request air support as early as 7 AM to support ongoing fire control efforts. Over 32 years of VFR information demonstrates that March Airport has significant more VFR requirements than past experience indicates for Hemet Airport. The USAF provided VFR information shows that September and October VFR minimums are that meet between 6 AM and 12 Noon 38.8% and 52.6% time, respectively. CDF has an initial attack mentality and to relocate this critical air resources where availability will decrease should only occur if no other alternative exists.

The Riverside County Board of Supervisors and Riverside County EDA are committed to making the runway length and other improvements necessary to meet CDF standards. This represents a major change from the position previously presented to CDF by county officials. Any decision to construct a new air base at Hemet Airport must include a strong lease arrangement for an extended period of time to protect the State's investment. This lease arrangement already exists with March Joint Powers Authority and represents the surety necessary for relocating the Air Base. The same surety is necessary for remaining at Hemet Airport.

Recommendations

The following recommendations are reflective of operational prospective combined with the commitment of Riverside County to make the necessary improvements at Hemet Airport to meet CDF standards. These recommendations acknowledge that technical air program concerns of air safety and controlled airspace will be further reviewed in Sacramento.

Recommendations

1. CDF negotiate with Riverside County EDA an agreement establishing timelines, including the identifying funds, to make the necessary airport improvements; such as, runway length and surface streets relocation.
2. CDF meet with Riverside County to review the details of the "build to suit" lease construction for the air base.
3. CDF prepare fire emergency escape cost estimate to demonstrate the economic value of remaining at Hemet Airport
4. CDF find that Hemet Airport is the best location for meeting the initial attack goals for Riverside County and Northern San Diego County.

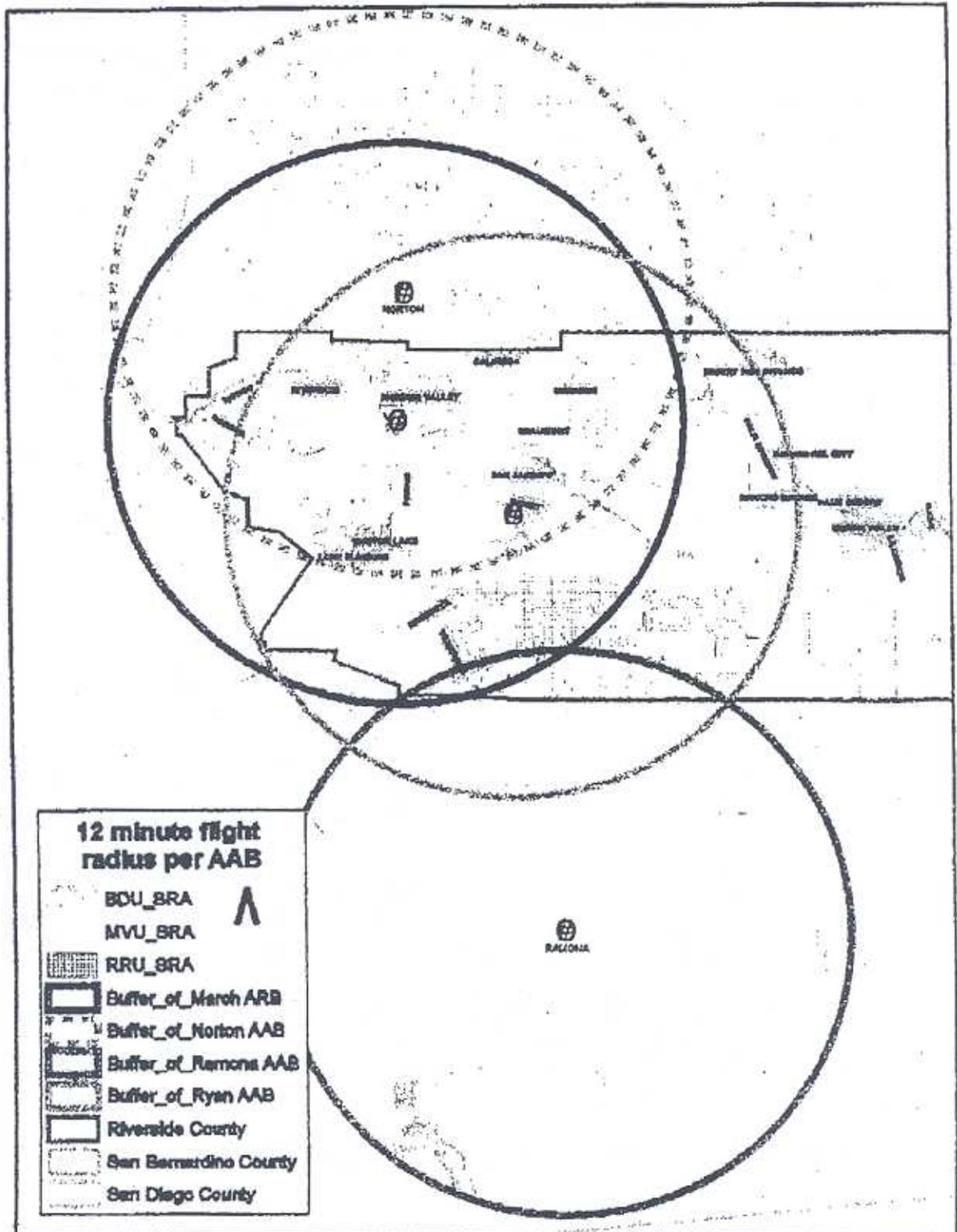
AIR BASE MOVE WORKING TASK GROUP

Craig E. Anthony, Riverside Unit Chief, Chairman
John Tavaglione, Riverside County Supervisor, District II
Jeff Stone, Riverside County Supervisor, District III
Mike Padilla, CDF Aviation Management
Lee Delap, CDF Tech Services
Bob Green, CDF San Bernardino Unit Chief
Bob Martinez, CDF Retired Assistant Region Chief

Interested Parties:

Phil Rizzo, March Joint Powers Authority
Deen Oehl, Calif. Fire Pilots Assoc.
Rob Field, Riverside County Economic Development-Aviation
Michael Jarvis, CDF Communications

Fixed Wing 12 Minute Flight Radii



MARCH AIR RESERVE BASE, CALIFORNIA

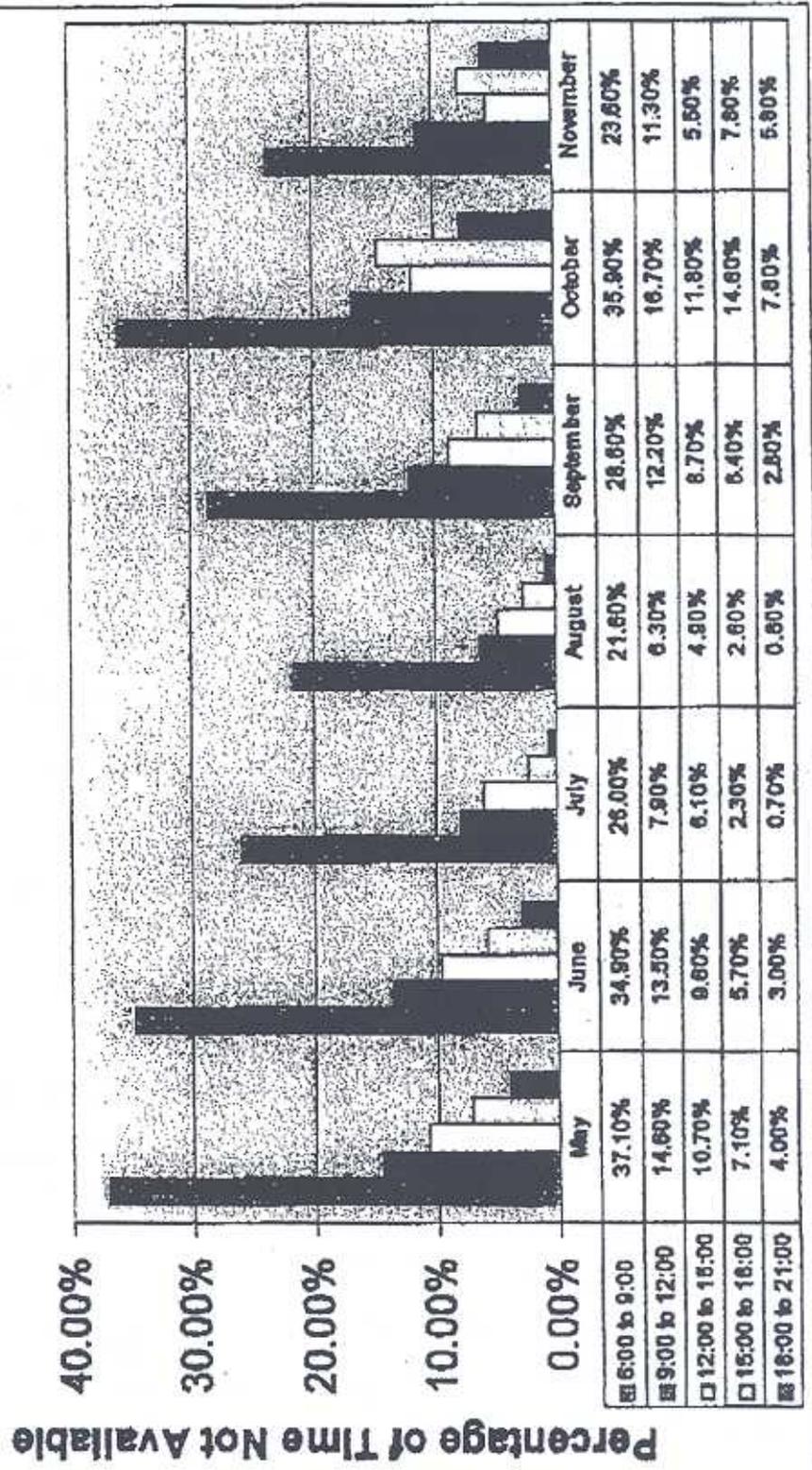
TABLE 2-1 CURRENT AND FORECAST AIRCRAFT OPERATIONS AT MARCH ARB

	Arrivals	Daily Average Operations ^a		Total	Annual Operations
		Departures	Closed ^b		
Military (Current and Forecast)					
Based^c					
C-141	3.42	3.42	18.60	44.04	11,450
KC-135	7.44	7.44	40.62	96.12	24,990
P-16	2.30	2.30	1.08	6.76	1758
					38,198
Subtotal:					
Transient					
Attack/Fighter	0.75	0.75	0	1.5	390
Large Jet Cargo/Tanker	1.25	1.25	0	2.5	650
Medium Jet	0.10	0.10	0	0.20	52
Large Turboprop	0.55	0.55	0	1.10	286
Small Jet Passenger	0.05	0.05	0	0.10	144
Small Turboprop	0.25	0.25	0	0.50	130
Trainers	0.15	0.15	0	0.30	78
Helicopters	0.50	0.50	0	1.00	260
					1,990
Subtotal:					
Military Related Civil					
Large Jets	0.25	0.25	0	0.50	130
Medium Jets	0.10	0.10	0	0.20	52
Business Jets	0.05	0.05	0	0.10	26
					208
Subtotal:					
Total (Current & Forecast)					40,396
Civil (Forecast)					
Comma Caravan	0.575	0.575	0	1.151	420
E210	0.575	0.575	0	1.151	420
ATR 42	0.863	0.863	0	1.726	630
737-200	1.438	1.438	0	2.877	1,050
DC-8	4.027	4.027	0	8.055	2,940
DC-10	1.151	1.151	0	2.301	840
B-757	3.740	3.740	0	7.479	2,730
A310	5.753	5.753	0	11.507	4,200
747-200/300/400	0.575	0.575	0	1.151	420
DC-10-30/40	0.863	0.863	0	1.726	630
767-200	9.205	9.205	0	18.411	6,720
					21,000
Total Civil (Forecast)					21,000

- a. Averages based on 260 flying days/year for military operations and 365 days/year for forecast civil operations.
b. Closed patterns counted as two operations (arrival and departure)
c. Does not include Customs and Aeroclub operations which do not contribute significantly to aircraft noise levels.

Visual Flight Rules March 1000' Ceiling 3-miles Visibility

Below Minimum VFR at March Averages 1972 to 2004



RIVERSIDE
COUNTYEconomic &
Community
Development

Housing

Redevelopment
AgencyWorkforce
DevelopmentEdward-Dean
Museum
& Gardens

Aviation

County Fair &
National Date
Festival

May 26, 2005

Office of 3rd District Supervisor Jeff Stone
 County of Riverside
 4080 Lemon Street
 Riverside, CA 92501
 Attn: Stevie Field, Legislative Assistant

Subject: Hemet-Ryan Airport Runway Extension

Ladies and Gentlemen,

As discussed, the Hemet-Ryan Master Plan presently calls for the runway to be extended from 4,315' to 5,300'; this length is included in both the Master Plan currently in effect (which was adopted in the late 1980's) and the draft Master Plan we just completed. Because the draft Master Plan hasn't been adopted yet, it is our intention to modify the draft plan to reflect a planned length of 6,000', as this is simpler than attempting to amend an existing Master Plan.

We have talked this issue over with the Federal Aviation Administration (FAA) and they have no objections to our proposed modification. It's critical that they buy off on this, as the Airport Layout Plan (ALP), which is developed along with the Master Plan and is the only document the FAA approves, must reflect the proposed length in order to get funding for the project (the Board of Supervisors is the approval authority for the overall Master Plan).

Also, because two streets must be realigned in order to construct the extension, the City of Hemet must agree to participate, and they have done so; in fact, we will be preparing a joint environmental document to ensure that all issues are addressed simultaneously.

So, the sequence is as follows:

- Revise the draft Master Plan
- Prepare the environmental documents (both NEPA and CEQA requirements must be met)
- Have the Board of Supervisors adopt the Master Plan
- Hire an engineering firm and design the extension, as well as the road realignments
- Proceed to construction

The FAA seems to think we could get construction funding in the 2006-2007 Federal fiscal year, which is fine since it will take about that amount of time to complete all the planning and environmental efforts we have to finish before we

Workforce Development Center @ Monroe Park 44-199 Monroe Street, Suite B., Indio, CA 92201

Telephone 760/863-2552 Facsimile 760/863-2551

Websites www.rivcoeda.org

can construct. The extension itself should only take about six months to construct, weather permitting, and I would expect that the City could complete the road work while we're awaiting FAA funds. So conceivably we could be finished by the end of 2007, barring any lawsuits by folks opposed to our plans.

If you have any questions please do not hesitate to call me at (760) 863-2530.

Sincerely,

//S//

Robert D. Field
Deputy Director/Director of Airports

S:\EDCOM\AIRPORTS\HMTRY\ANCDP\FwyExLtr.doc

Attachment E

CDF Airbase Design Standards

The following are general minimum standards for CDF Air Attack Bases and are based on requirements or guidance as specified in various federal and state guidelines, policies, or procedures. Not all current CDF Air Attack Bases meet these standards due to various circumstances. Some standards however are not negotiable such as security and safety related and where possible CDF is making every effort to bring these facilities into compliance.

Comparison with Hemet Airport are provide in red.

1. Security

Must meet U.S. Forest Service Guide Lines for federal excess aircraft and aviation support facilities as identified in USFS Handbook FSH5709.16 - Flight Operations Handbook, Chapter 50- Aviation Security; the USDA Physical Security Standards and Procedures Handbook; the CDF Procedure No. 17: Security Operations; where relevant, pertinent Federal Aviation Administration regulations governing airport security.

Security measures include but are not limited to:

- Buildings and other support structures.
- Flight line operations and flight line access.
- Retardant storage and mixing facilities
- Personnel and visitor access and movement.
- Reporting

Hemet currently has a security plan that meets CDF guidelines. In reviewing the Forest Service guidelines, Hemet appears to already meet most of these requirements. In addition, Riverside County Airports is in the process of upgrading security at Hemet Airport to include a six-foot fence with two feet of barbwire around the entire airport.

2. Infrastructure

Where applicable must meet the provisions of the California Infrastructure Act and the department's Facilities Planning Program Guidelines for Air Attack Bases. Taxiway and runway specifications are based on minimum requirements for the operation of Large Air Tankers as specified by the USFS or recent design criteria used CDF at newly constructed bases.

- Runway:
 - Length - 6,000 feet
 - Width - 100 feet
 - Gradient - less than 1.0%
 - Crown - 2%
 - Load - S60, 000 D 130,000

Riverside County Airports is planning on extending the runway length to 6,000 feet in the near future. The runway width is already 100 feet. Although the County's web site incorrectly states that the landing weight at Hemet is only 80,000 lbs dual wheel, the actual landing weight is 160,000 lbs dual wheel and 80,000 lbs single wheel as confirmed by the County. A copy of the engineer's report used for the design of runways and taxiway at Hemet, as well as a letter from County Airports confirming the correct landing weight are available.

- **Taxi ways:**
Capable of supporting 60,000 Lbs. single tire landing gear and 130,000 Lbs. dual tire landing gear.
Surface must be in good condition no FOD

Hemet's taxi way exceeds the above requirements.

- **Retardant Pits**
Four (4) pull-through concrete pits 50'00" wide x 100'0" long
Spaced at 153'0" on center.
90 or 45 degree orientation to taxi way

Hemet currently has 8 pits.

- **Parking**
Six tankers, two Air Attack Aircraft and one administrative airplane on paved areas. (No in the dirt parking)

Hemet has parking for up to 12 tankers and four Air Attack aircraft with no dirt parking.

- **Facilities**
Located near departure end of favored runway.
Appropriate accommodations for dispatch, retardant crews, air attack personnel and pilots. Refer to design of Fresno, Sonoma, Paso Robles, and Porterville buildings/floor plans.
Jet fuel available, Avgas optional.
County use plan must protect flight traffic area for at least next twenty years (20).

Hemet currently has sufficient property to accommodate the new air base design mentioned above. Riverside Country Airports' master plan addresses the flight traffic area. Jet fuel is available at Hemet 24 hours a day.

3. Safety of Flight

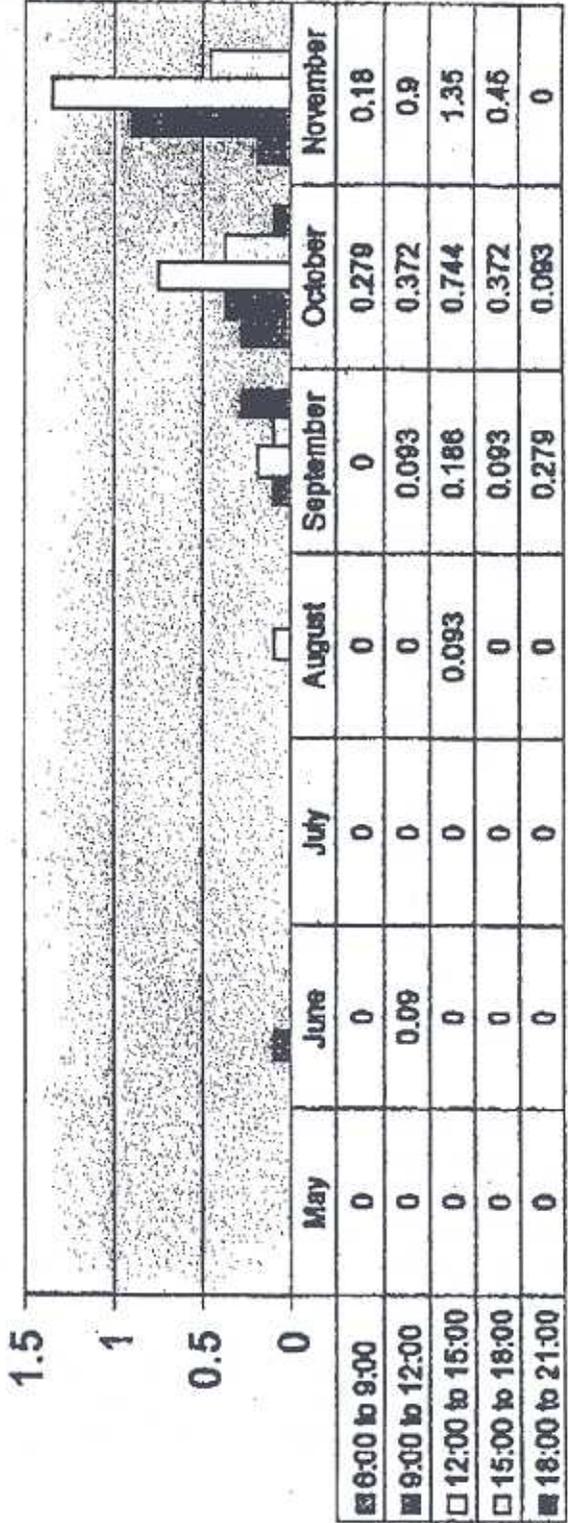
Where possible it is the intent of CDF to provide the optimum safety margin possible to the operation of aircraft in and around its Air Attack bases without significantly

March Crosswind Data

ATTACHMENT F

Hours Over Maximum Crosswind at March 1972 to 2004

Time in Hours Unable to
Takeoff or Land



diminishing the ability to perform the mission. It must be remembered however that safety of the flight crews and the general public always takes precedent over mission. The following minimum standards are guidelines but should be considered deciding factors when comparing the location of air attack base operations.

- Airport

Class D airspace (Generally, controlled airspace to 2500 MSL above airport, with control tower), if facility has more than 50,000 annual operations and/or intersecting runways.

Minimum level A crash rescue equipment or equivalent available.

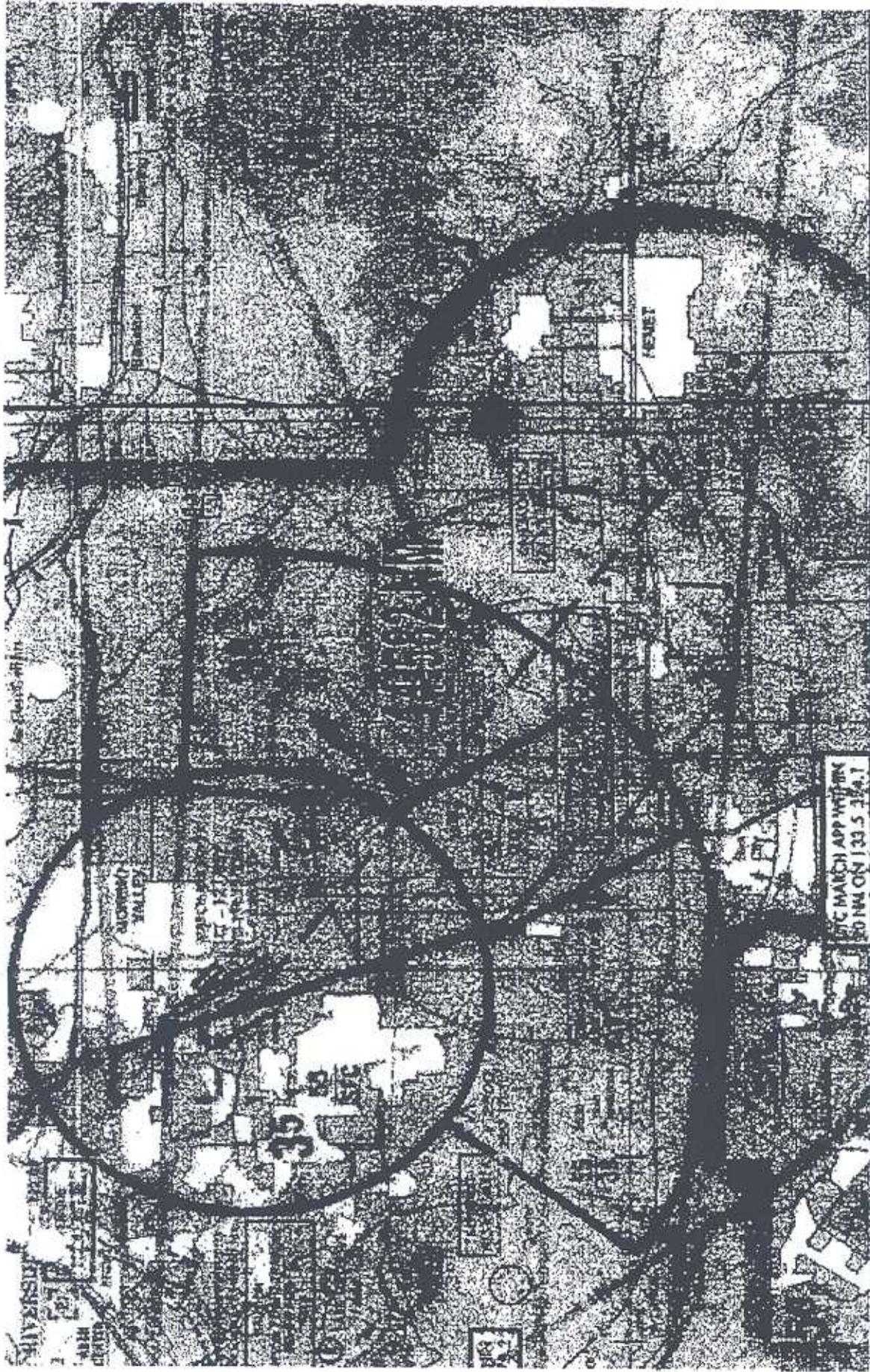
No major airline activity. (Commuter service only)

Class D airspace: Of the thirteen CDF Air Bases, only five have control towers. Of the last three bases that were constructed, none of them had a control tower upon completion. Well after its completion, Ramona received a tower due to increased air traffic.

Crash rescue at Hemet is provided by the City of Hemet, which has a station at the airport, that is covered 24-7. The City Hemet indicated they were acquiring an airport crash rescue unit.

No major airline activity: Although March does not have major airline activity, it does have a significant amount of military activity with aircraft that are as large as or larger than most airlines fly. Also, during the build-up of the war, the military had several airliners (both civilian and military) coming and going from March for several months.

The environment and health impacts appear less at Hemet for CDF personnel and pilots. The proposed March air attack base is near the end of the runway, every aircraft that takes off from March will be going to full power across from the proposed air base. The nose will make it extremely difficult for pilots to get quality down time. Per our contract with DynCorp (sec 3.3.1), the State is to provide pilots "ready room" free of personnel traffic, loitering, noise, and other distractions. A reasonable assumption is the decibel level at March will be greater than Hemet. If the base is relocated to March the proximity of the air attack base to the runway may require additional sound proofing strategies for employees.



Direct Flight Time from March Air Base to Ryan Airport:

0:04:51 at 204 MPH (180 KTS)

Distance: 14.582 Nautical Miles

March and Hemet Initial Attack

Behave version 3.0 Containment Simulations

Environmental Conditions

- Weather and fuels conditions are kept moderate to keep fires smaller during the one hour simulation period
- Temperature 85°-95° F
- Relative humidity 25-35%
- Winds 0 - 3 mph
- Fuels moderate dry climate brush or light grass

Assumptions

- Tankers build line at Retardant Delivery Coverage Level 6 (6 gal/100ft²)
- Tankers are on ground at base when dispatched
- No divert during the 1 hour simulation
- Drops are followed by successful ground action immediately
- Drops are continuous with no gaps
- Spot fires are not a factor
- Drops anchor at origin working toward head

Methods

- Point source fires with 1 hour attack and fire spread duration
- Behave 3.0 CONTAIN and SIZE Modules utilized to simulate fire spread and suppression progress
- Airtanker fireline production for 4 airtankers building fireline

Airtanker Production Rate

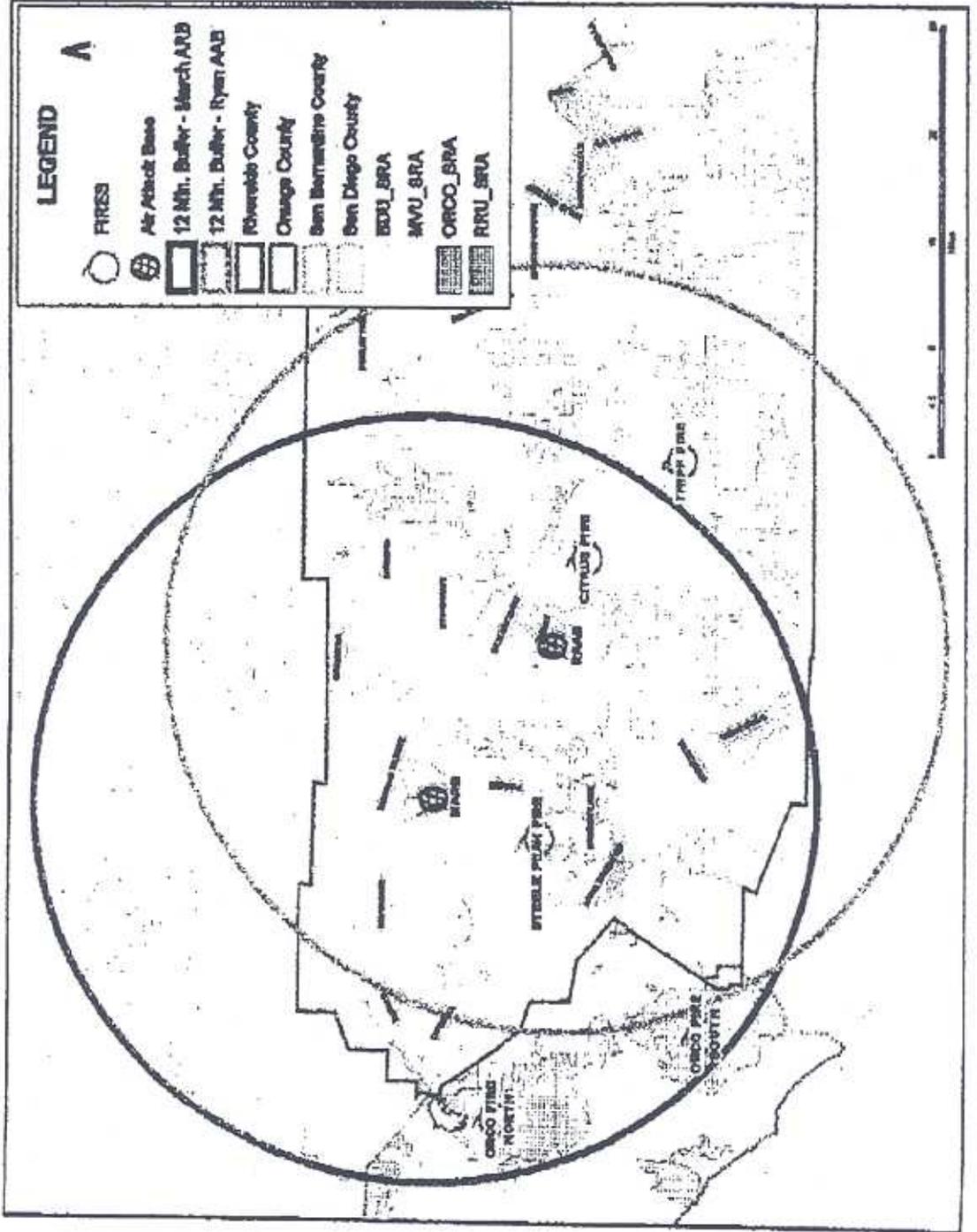
Line Built / Hour =

Retardant Line Length/drop (CL6)

(Ground Time+Enroute Time+Orbit Time+return time+ reload time)

Five Fire Simulations

ATTACHMENT K



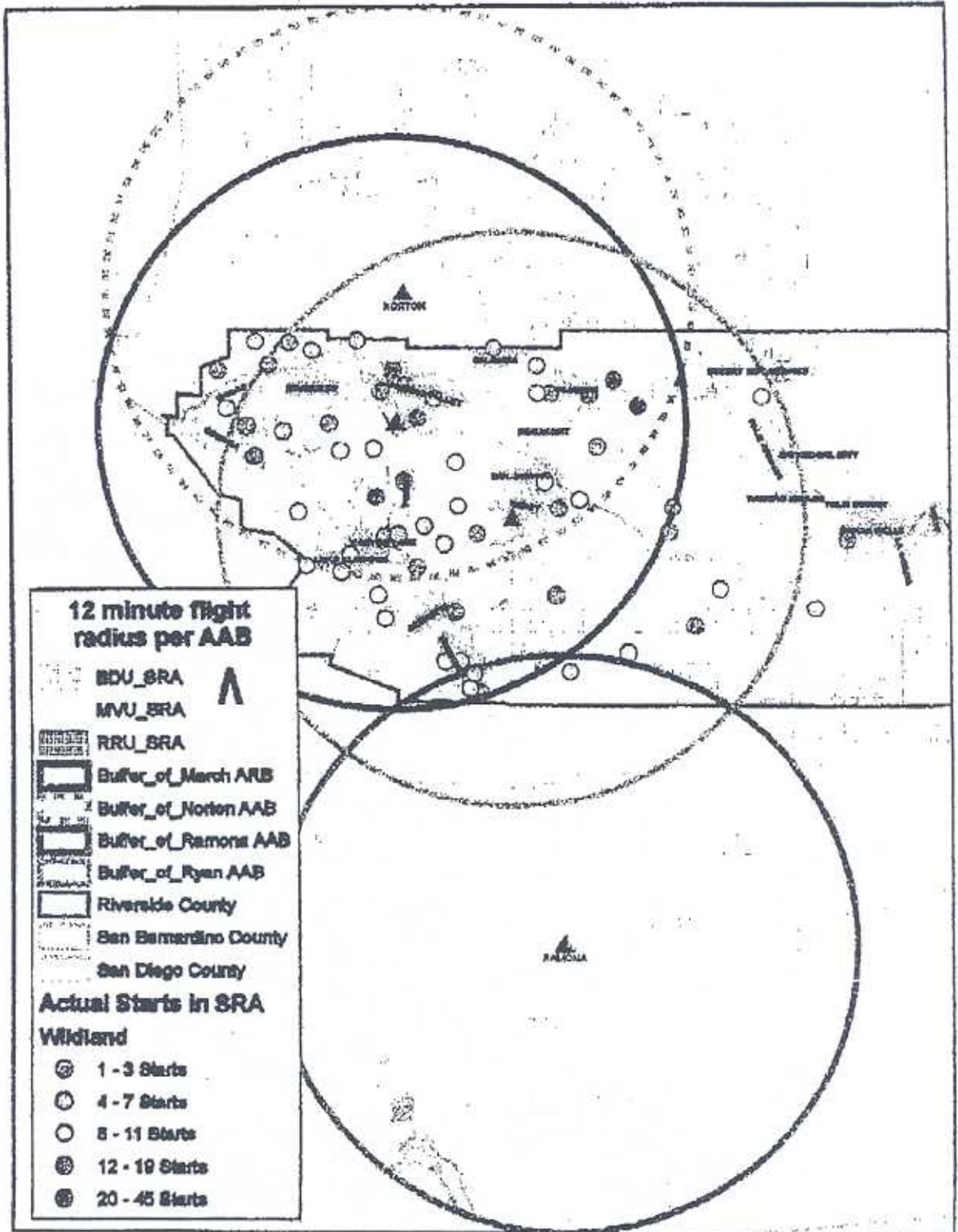
Orange County North Fire

ATTACHMENT L

All Scenarios - Fire Escapes

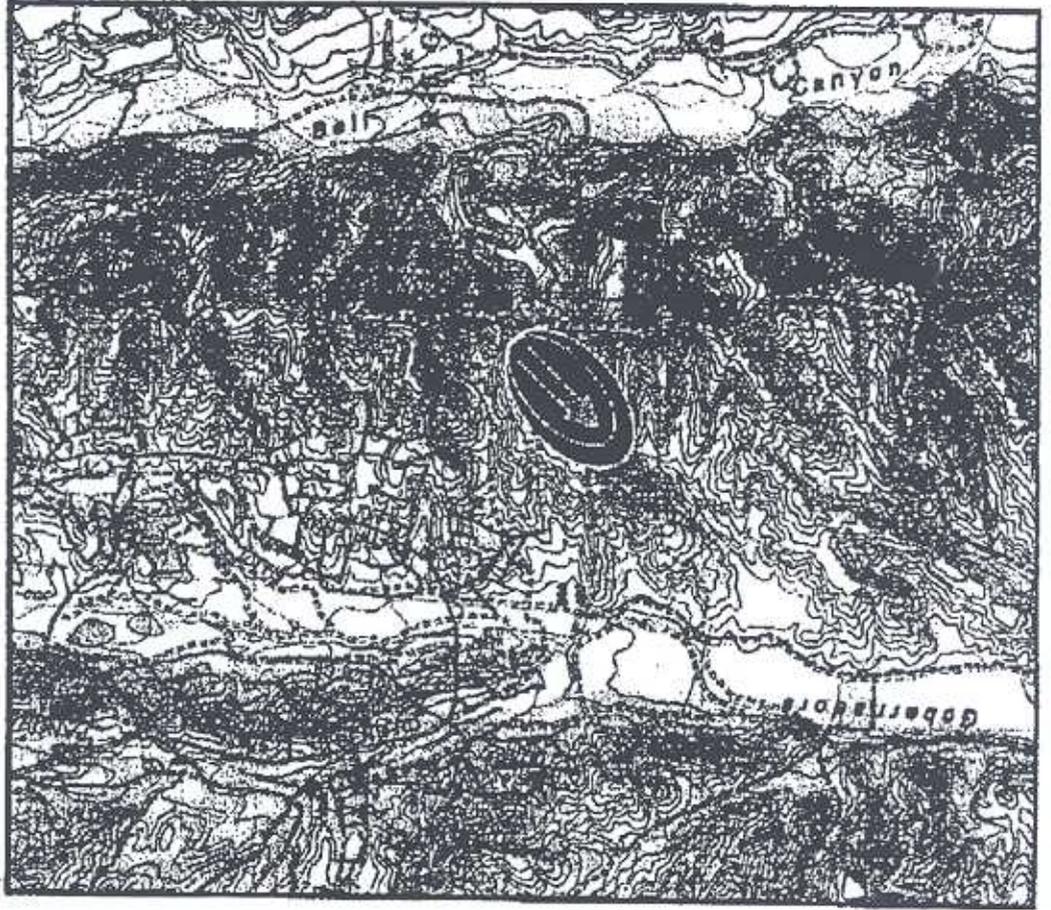


Fire History Map



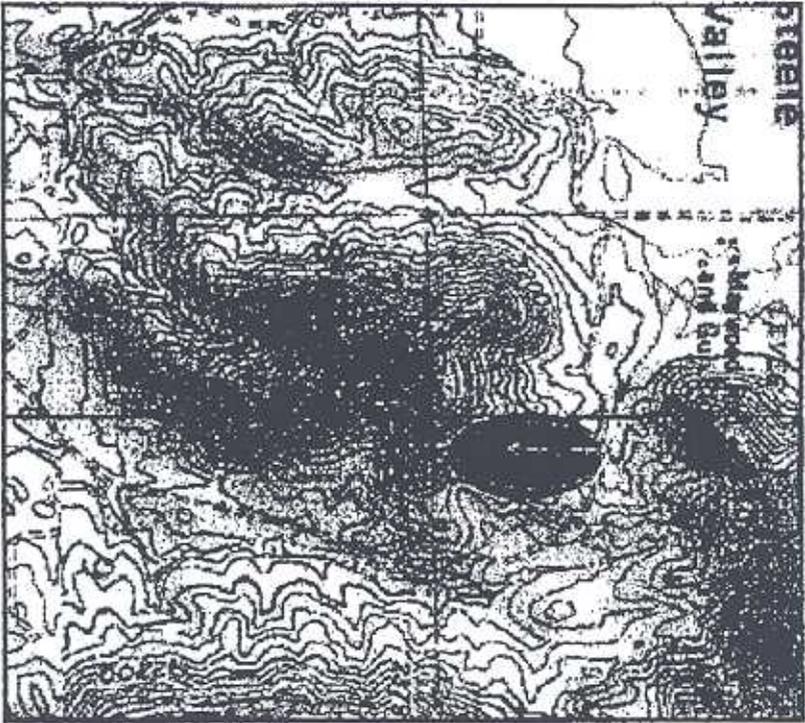
Orange County South Fire

All Scenarios – Fire Escapes

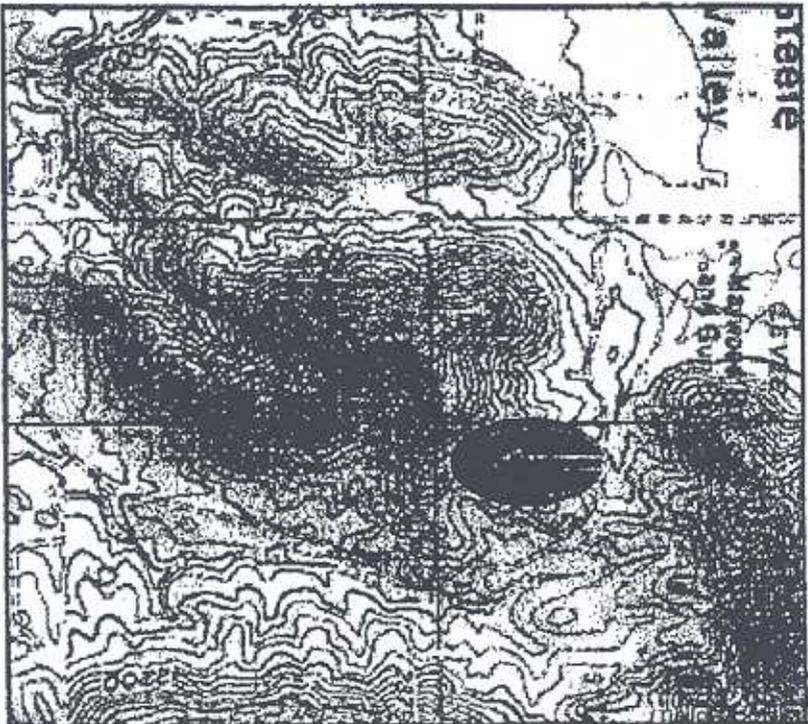


Steele Fire

March Worst Case Map - Fire Contained

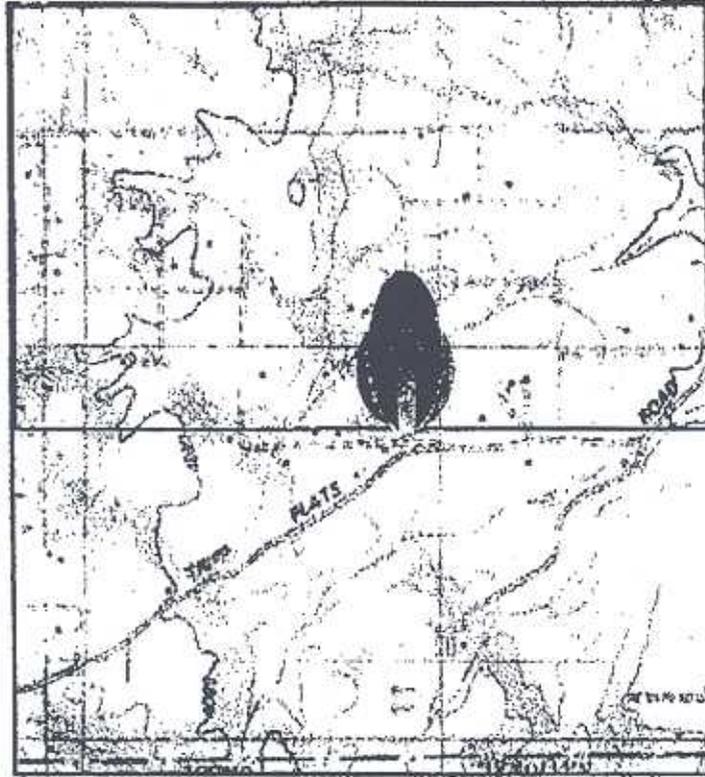


Hemat Worst Case Map - Fire Contained

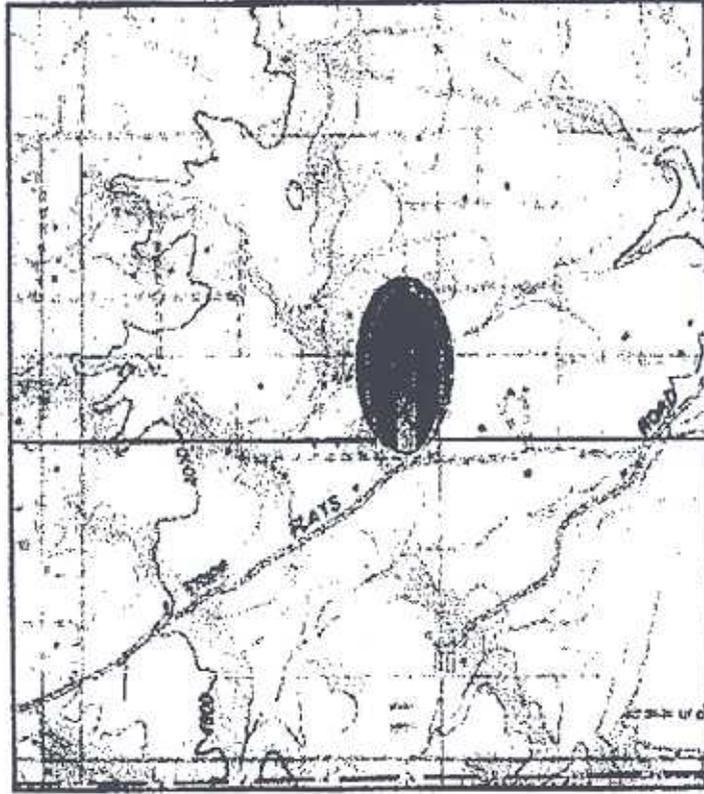


Tripp Fire

March Worst Case Map -- Fire Escapes

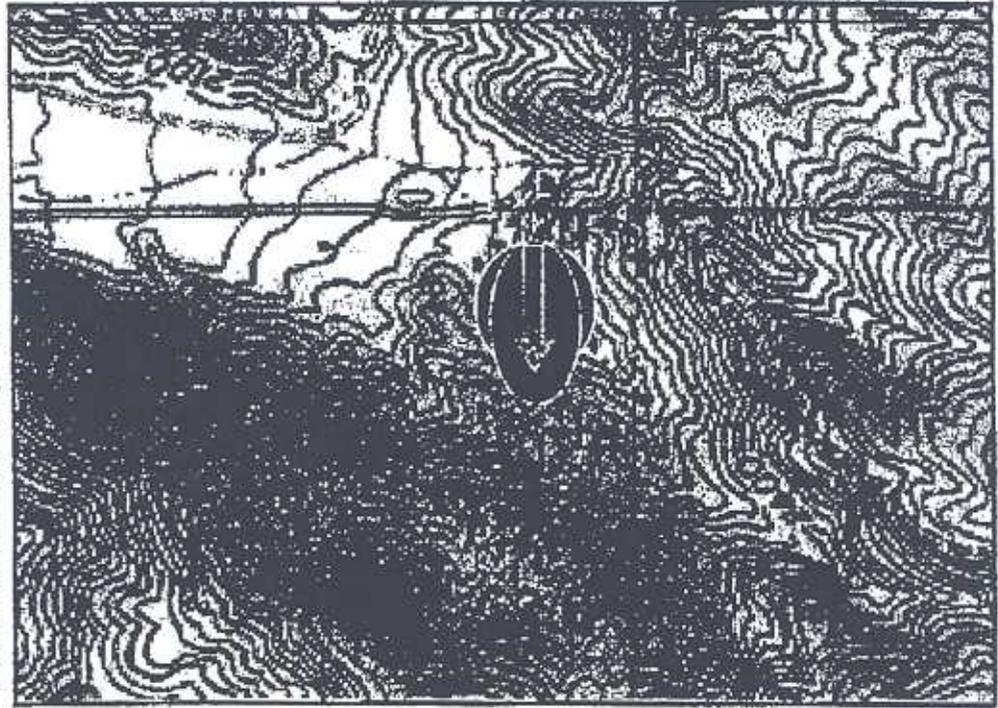


Hermet Worst Case Map -- Fire Contained

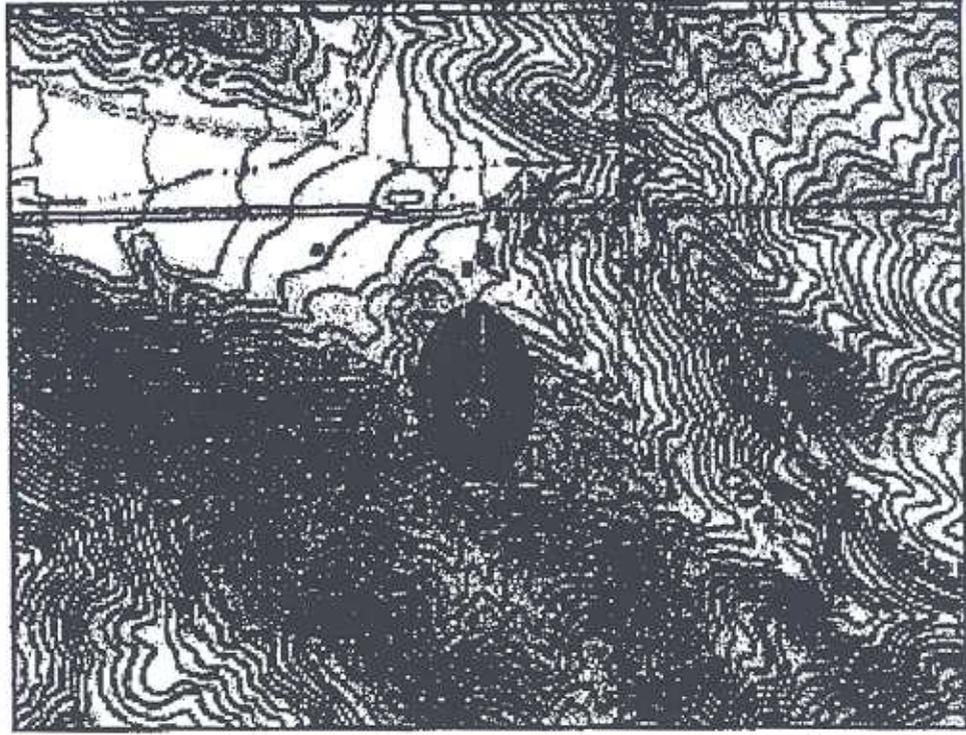


Citrus Fire

March Worst Case Map - Fire Escapes



Hemet Worst Case Map - Fire Contained



Hartman, Lisa

From: Jarvis, Mike
Sent: Friday, October 14, 2005 3:13 PM
To: Hartman, Lisa
Subject: FW: Airport Letter

From: Field, Robert [mailto:RFIELD@rivcoeda.org]
Sent: Thursday, September 08, 2005 6:07 PM
To: Jarvis, Mike
Cc: Field, Stevie
Subject: RE: Airport Letter

Mike,

Please see our response, which is attached as a Word document; I took the liberty of converting your questions into that format to facilitate a response. If you have any problems opening the attachment, please let me know and I will resend or forward a hard copy. Let me know if either you or Director Geldert has any questions or requires additional information. Thanks,

Rob

Robert Field
Assistant Director/Director of Airports
Riverside County Economic Development Agency
44-199 Monroe Street
Indio, CA 92201
PH: (760) 863-2530
FAX: (760) 863-2551

From: Jarvis, Mike [mailto:Mike.Jarvis@fire.ca.gov]
Sent: Wednesday, September 07, 2005 12:58 PM
To: Field, Robert
Subject: Airport Letter

Dear Mr. Field:

Hello, we met at the June meeting of the working group regarding CDF's move to March Air Base from Hemet-Ryan Airport.

CDF Director Dale Geldert has asked me to contact you regarding a May 26 letter that you wrote that was included as part of Chief Crag Anthony's draft report in July. Your letter keyed in on some crucial areas of significance and Director Geldert has asked me to locate the relevant answers and/or documents connected to your letter.

Below I have placed your words from your letter in *italics* and "quotation marks" to distinguish them from my follow up questions in **bold**. I'm sorry for the numerous questions but you raise some very important questions. Any information you can provide will help expedite a timely decision in this complex process. Most of the answers can come in the form of email but any large documents can be mailed directly to:

Director Dale Geldert
The Resources Agency
Department of Forestry and Fire Protection
1416 Ninth Street, Room 1505

10/14/2005

Post Office Box 944246
Sacramento, CA 94244-2460

If you have any questions please do not hesitate to contact me via email or at (916) 653-7711. I look forward to your response and to working with you in the future.

Sincerely,
Michael T. Jarvis
Deputy Director of Communications
California Department of Forestry and Fire Protection

QUESTIONS

"The Hemet-Ryan Master Plan presently calls for the runway to be extended from 4,315' to 5,300'

Can you provide us with a copy of the Hemet-Ryan Master Plan document?

"This length is included in both the Master Plan currently in effect (which was adopted in the late 1980's) and the draft Master Plan we just completed..."

Can we also get a copy of the draft Master Plan?

"Because the draft Master Plan hasn't been adopted yet, it is our intention to modify the draft plan to reflect a planned length of 6,000', as this is simpler than attempting to amend an existing Master Plan."

What's your time frame on this amendment and what are all the areas that will be modified in this document?

"We have talked this issue over with the Federal Aviation Administration (FAA) and they have no objections to our proposed modification."

Do you have correspondence from the FAA approving your modification proposal? If so can you send a copy? If not, can you give us contact information for the FAA representative you have been working with? Is the Airport Layout Plan (ALP) complete? If so, may we have a copy of that?

"Also, because two streets must be realigned in order to construct the extension, the City of Hemet must agree to participate, and they have do (SIC) so; in fact, we will be preparing a joint environmental document to ensure that all issues are addressed simultaneously."

What is the status on this document? Can we get a copy of this document? If it is not complete, what is your projected time of completion?

"Revise the draft Master Plan"

What is a realistic timetable for this action?

"Prepare the environmental documents (both NEPA and CEQA requirements must be met)"

What level of NEPA and CEQA analysis is anticipated and what is a realistic timetable for completion of these actions?

"Have the Board of Supervisors adopt the Master Plan"

This requires public hearings and public review. What is a realistic timetable for these actions?

"Hire an engineering firm."

How long is the standard Request for Proposals and bidding process

"...and design the extension, as well as the road realignments."

Does the county own this land or would the land for this be taken through eminent domain? Will the road realignments require public hearings?

"The FAA seems to think we could get construction funding in the 2006-2007 Federal fiscal year."

Is this your same FAA contact on this? We'll need any corresponding documents if you have them.

"The extension itself should only take about six months to construct, weather permitting, and I would expect that the City could complete the road work while we're awaiting FAA funds."

Have you confirmed this with the City of Hemet?

QUESTIONS and ANSWERS

Note: Original County statements are in Arial *italics* (with quotation marks), CDF questions are in **Arial Bold**, and County responses are in blue Times New Roman.

1. *"The Hemet-Ryan Master Plan presently calls for the runway to be extended from 4,315' to 5,300'."*

Can you provide us with a copy of the Hemet-Ryan Master Plan document?

A: Yes, but the old Master Plan and Airport Layout Plan are essentially the same as the current draft of the new Airport Master Plan, which can be viewed electronically (see next response), so please refer to that document. If you find that you still need a hard copy of the old Master Plan, we can have one duplicated and forwarded to you in the next week or so.

2. *"This length is included in both the Master Plan currently in effect (which was adopted in the late 1980's) and the draft Master Plan we just completed..."*

Can we also get a copy of the draft Master Plan?

A: The draft Master Plan can be viewed on the internet at the following website; go to: <http://www.rivcoeda.org/html/Aviation/aviationframe.html>

then click on the Hemet-Ryan tab, then go to the bottom of the page on the left hand side and click on the Master Plan tab; you will then be able to view (and download, if you prefer) the entire plan as a PDF file.

3. *"Because the draft Master Plan hasn't been adopted yet, it is our intention to modify the draft plan to reflect a planned length of 6,000', as this is simpler than attempting to amend an existing Master Plan."*

What's your time frame on this amendment and what are all the areas that will be modified in this document?

A: We will be revising the draft Master Plan shortly, following the conclusion of an agreement with the City of Hemet regarding the realignment of Stetson Avenue and Warren Road and the responsibilities of our two jurisdictions with regard to the preparation and processing of environmental documents related to our respective projects. The primary modification of the draft Master Plan will be those changes necessary to reflect a runway/taxiway length of 6,000'; otherwise the document will be the same as the one available on our website. Once the draft Master Plan has been completed, the County and the City will jointly prepare and distribute the accompanying environmental documents.

4. *"We have talked this issue over with the Federal Aviation Administration (FAA) and they have no objections to our proposed modification."*

Do you have correspondence from the FAA approving your modification proposal? If so can you send a copy? If not, can you give us contact information for the FAA representative you have been working with? Is the Airport Layout Plan (ALP) complete? If so, may we have a copy of that?

A: We do not have correspondence from the FAA, nor will we; when it comes to planning for airport improvements, the FAA generally defers to the underlying jurisdiction. The FAA does not approve the Master Plan document; rather, the only document the FAA formally approves is the ALP, which has been approved in its current form and reflects the airport both in its existing configuration and in its ultimate configuration, at least as indicated in the last County-adopted version (i.e. with an ultimate runway length of 5,300'). The current ALP is functionally identical to the ALP in the draft Master Plan, which again can be viewed on our website.

5. *"Also, because two streets must be realigned in order to construct the extension, the City of Hemet must agree to participate, and they have done so; in fact, we will be preparing a joint environmental document to ensure that all issues are addressed simultaneously."*

What is the status on this document? Can we get a copy of this document? If it is not complete, what is your projected time of completion?

A. See answer to question 3 above.

6. *"Revise the draft Master Plan."*

What is a realistic timetable for this action?

A: The revisions can take place in a couple of weeks--that really isn't much of a chore. The real challenge will come with the preparation and circulation of the CEQA and NEPA documents prior to final Board adoption of the final Master Plan.

7. *"Prepare the environmental documents (both NEPA and CEQA requirements must be met)."*

What level of NEPA and CEQA analysis is anticipated and what is a realistic timetable for completion of these actions?

A: We anticipate having to prepare and Environmental Impact Statement for CEQA compliance, but based on recent experience will only need an Environmental Assessment and Finding of No Significant Impact (FONSI) for NEPA compliance. The NEPA documents would be circulated and acted upon by the FAA, not the County, though we would have to prepare them. As for a timeframe, that's largely dependent upon the scope of the document, which will in turn be driven by what we agree upon through our negotiations with the City of Hemet, but we estimate about a nine month process, as most of the biological studies have already been conducted and we have already solicited proposals for preparing the environmental documents, so should be ready to execute a consulting contract and get the process moving right away.

8. *"Have the Board of Supervisors adopt the Master Plan."*

This requires public hearings and public review. What is a realistic timetable for these actions?

A: The Master Plan would be adopted at the end of the CEQA review process, following certification of the EIR. A lawsuit would clearly have the potential to delay this process, though we think it unlikely that either the adoption of the Master Plan or construction of the runway extension project would be stopped as there are really no impacts associated with this project that can't be mitigated in some fashion, despite Mr. Breliant's likely representations to the contrary (see 13 below).

9. *"Hire an engineering firm."*

How long is the standard Request for Proposals and bidding process?

A: Under FAA rules, we are able to hire engineers from a rotating list of consultants, and therefore do not have to go through a formal RFP process; rather, we will be able to simply negotiate a Scope of Services and a fee with one of our pre-qualified civil engineers and proceed immediately to design.

10. *"...and design the extension, as well as the road realignments."*

Does the county own this land or would the land for this be taken through eminent domain? Will the road realignments require public hearings?

A. The County owns the land necessary for construction of the extension, though we would ultimately want to acquire some additional land for approach protection. The land for the realignment of the streets would have to be acquired by the City; it is our understanding that they already control (via dedication) the right-of-way for Stetson Avenue, but would have to acquire right-of-way for Warren Road.

11. *"The FAA seems to think we could get construction funding in the 2006-2007 Federal fiscal year."*

Is this your same FAA contact on this? We'll need any corresponding documents if you have them.

A: The FAA does not commit funds this far in advance, and has now gone to what they refer to as a bid-based grant program, meaning they give grants based on bid results in an effort to avoid tying up funds on projects that won't be bid for some time to come. We should note that Riverside County is one of the top performers in this regard, and we have just completed two very similar projects--a 1,400' extension of the runway at French Valley Airport (F70) in Temecula and a 1,700' extension of the runway at Jacqueline Cochran Regional Airport (TRM) in Thermal, and are not novices when it comes to these types of projects.

12. *"The extension itself should only take about six months to construct, weather permitting, and I would expect that the City could complete the road work while we're awaiting FAA funds."*

Have you confirmed this with the City of Hemet?

A: This will be confirmed in our agreement with the City.

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