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Duke Development are accurate, the rate of growth is substantially greater on the roadways near the project area. The Duke Development traffic study was done in 1991 or 1992. The Canyon Hills project traffic study was done in 2002. In that 10 or 11 year period, the traffic in some places increased at an annual compounded rate between 3.5% and 3.75%. This rate is at least 75% greater than the projected growth rates listed in the EIR. This would mean that future traffic would be much worse. Any new traffic would worsen some roads likely to have a "F" LOS. The EIR must utilize a higher rate of growth than 2% to project traffic.

Examples of these increases in traffic between the Duke EIR and the Canyon Hills EIR include the following A.M. Peak Hour traffic counts done for the two EIRs. La Tuna Canyon Road in the Westbound direction by the project entrance site increases from 227 vehicles to 333 vehicles, a 46.7% increase in traffic. Tujunga Canyon Road in the Southbound direction at the intersection of Honolulu and La Tuna Canyon Road increases from 930 vehicles to 1,324 vehicles, a 42.4% increase in traffic. Honolulu Avenue in the Westbound direction at the intersection of La Tuna Canyon Road and Tujunga Canyon Road increases from 332 vehicles to 466 vehicles, a 44.7% increase in traffic.

Other examples of area traffic worsening at a greater rate than what is used to project future traffic is comparing some of the LOS and V/C done for the Duke and Canyon Hills Developments. The same 10 or 11 year difference exists between the two studies when the traffic counts were taken to compute the LOS and V/C. During that period at the intersection of La Tuna Canyon, Tujunga Canyon Road and Honolulu Avenue the A.M. Peak hour LOS goes from "C" to "F" and the V/C goes from .73 to 1.040. The P.M. Peak hour LOS goes from "D" to "E" and V/C goes from .88 to .938 at the same intersection. At the Development A access point which is the intersection of La Tuna Canyon Road and the Westbound Offramps of the Foothill Freeway also show marked increases in traffic volume and worsening traffic conditions. The A.M. Peak hour LOS goes from "A" to "B" and V/C goes from .43 to .611 at this intersection. The P.M. Peak hour LOS remains "A" in both studies but the V/C goes from .28 to .522 nearly doubling at this intersection.

These again worsen at a faster rate than is used in the EIR. The future LOS and V/C projects must use the actual rates for the area not imaginary unrealistic numbers. The EIR is meaningless as a planning tool if projected future impacts are not adequately reflected in the report and appropriately mitigated.

The information in the EIR indicates that there must be a traffic signal at the Foothill Freeway off ramp at La Tuna Canyon and the Development Area A project entrance. This intersection cannot function safely and the desired level of service without the installation of a traffic signal. The development in this area must not be allowed to proceed without this installing a signal at this intersection as a mitigation measure.

The Highway Patrol in their letter found in letter dated October 4, 2002 in Appendix B indicated a park and ride lot should be created on or near the project site. I think that this is a good idea given that area residents are 17% more likely to drive alone to work than the rest of the city and

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that there is no public transportation that serves the project site. The applicant must pay for the creation of this park and ride lot either on or off the Canyon Hills Development.

The EIR consultant did not take into account terrain factors, whether passing zones were present (on two lane roads), the width of the lanes, whether shoulders are present when computing the road capacities to compute the Volume to Capacity (V/C) and Level of Service (LOS). These must be considered because it appears that the consultant assumed that all area roads were flat, did not have curves, had shoulders, and may have had wider lanes than actual. These factors are critical because the vehicle capacity of these mountain roads is substantially less than what is stated in the EIR. This would mean that the LOS for the area roads is worse. This would also mean that the increases in traffic volume as a result of this development are likely to be significant and unavoidable impacts. If the V/C is substantially lower and the LOS is substantially worse than the EIR states, there will probably be no mitigation for this significant and unavoidable impact.

The following is a problem from Dr. Souleyrette, Department of Transportation Engineering, Iowa State University with references to Wright and Ashford, pp. 280 - 291, pp. 405 - 409, pp. 444-447. The problem computes the actual capacity of a 2-lane road that if completely ideal conditions were present could handle a volume of 2,800 vehicles per hour per lane. After all the factors are considered, the road has only a volume capacity of only 324 vehicles per hour per lane. I have pasted a copy of the problem computation and the tables cited in the computation.

The EIR consultant did not consider most of these factors with the project area roads. Again, this must be done in the EIR for the traffic analysis to be meaningful.

Problem:

rural, 2 lane road

given: 60 mph design speed, lane width = 11', 4' shoulders, 20% no-passing zones, 10% trucks, 5% RVs, 2% buses, 60/40 directional split, rolling terrain

find: service flow rate for LOS B ...

$$SF_i = 2800 \times (V/C)_i \times f_d \times f_w \times f_{HV}$$

$$(V/C)_i = 0.23 \text{ (table 8-4)}$$

$$f_d = 0.94 \text{ (table 8-5)}$$

$$f_w = 0.85 \text{ (table 8-6)}$$

$$f_{HV} = 1/[1 + P_T(E_T - 1) + P_{RV}(E_{RV} - 1) + P_B(E_B - 1)]$$

$$P_T = .10$$

$$E_T = 5 \text{ (table 8-7)}$$

$$P_{RV} = .05$$

$$E_{RV} = 3.9 \text{ (table 8-7)}$$

$$P_B = .02$$

$$E_B = 3.4 \text{ (table 8-7)}$$

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therefore,

$$f_{HV} = 0.63, \text{ and,}$$

$$SF_B = 2800 \times 0.23 \times 0.94 \times 0.85 \times 0.63 = 324 \text{ veh/hr}$$

Table 8-3
Level-of-Service Criteria for General Two-Lane Highway Segments

Level of Service	Percent Trunk Segments	Avg. Speed	VII. Route																			
			Level Terrain						Rolling Terrain						Mountainous Terrain							
			Percent No. Passing Zones						Percent No. Passing Zones						Percent No. Passing Zones							
			0	20	40	60	80	100	Avg. Speed	0	20	40	60	80	100	Avg. Speed	0	20	40	60	80	100
A	≥30	≥58	0.15	0.12	0.09	0.07	0.05	0.04	≥57	0.15	0.10	0.07	0.05	0.04	0.03	≥55	0.14	0.09	0.07	0.04	0.03	0.01
B	≥45	≥55	0.27	0.24	0.21	0.18	0.17	0.16	≥54	0.26	0.23	0.19	0.17	0.15	0.13	≥54	0.25	0.20	0.18	0.15	0.12	0.10
C	≥60	≥52	0.43	0.39	0.36	0.34	0.33	0.32	≥51	0.42	0.39	0.35	0.32	0.30	0.28	≥49	0.39	0.33	0.28	0.25	0.22	0.18
D	≥75	≥50	0.64	0.62	0.60	0.59	0.58	0.57	≥48	0.62	0.57	0.52	0.48	0.46	0.43	≥45	0.58	0.50	0.45	0.40	0.37	0.33
E	≥75	≥45	1.00	1.00	1.00	1.00	1.00	1.00	≥45	0.97	0.94	0.92	0.91	0.90	0.89	≥35	—	—	—	—	—	—
F	100	<35	—	—	—	—	—	—	<40	—	—	—	—	—	—	<35	—	—	—	—	—	—

*Ratio of flow rate to an ideal capacity of 2800 passengers cars/hr in both directions.
 *Average travel speed of all vehicles (in mph) for highways with design speed ≥60 mph; for highways with lower design speeds, reduce speed by 4 mph for each 10-mph reduction in design speed below 60 mph; assumes that speed is not restricted to lower values by regulation.

Adjustment Factors for Directional Distribution on General Terrain Segments

Directional Distribution	100/0	90/10	80/20	70/30	60/40	50/50
Adjustment factor, f_d	0.71	0.75	0.83	0.89	0.94	1.00

Table 8-6
Adjustment Factors for the Combined Effect of Narrow Lanes and Restricted Shoulder Width, f_w

Shoulder Width (ft)	12-ft Lanes		11-ft Lanes		10-ft Lanes		9-ft Lanes	
	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service
	A-D	E	A-D	E	A-D	E	A-D	E
≥6	1.00	1.00	0.93	0.94	0.84	0.87	0.70	0.76
4	0.92	0.97	0.85	0.92	0.77	0.85	0.65	0.74
2	0.81	0.95	0.75	0.88	0.68	0.81	0.57	0.70
0	0.70	0.88	0.65	0.82	0.58	0.75	0.49	0.66

*Where shoulder width is different on each side of the roadway, use the average shoulder width.
 *Factor applies for all speeds less than 45 mph.

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Table 8-7
Average Passenger Car Equivalents for Trucks, RV's, and Buses on Two-Lane Highways Over General Terrain Segments

Vehicle Type	Level of Service	Types of Terrain		
		Level	Rolling	Mountainous
Trucks, E_T	A	2.0	4.0	7.0
	B and C	2.2	3.0	10.0
	D and E	2.0	5.0	12.0
RV's E_R	A	2.2	3.2	5.0
	B and C	2.5	3.9	5.2
	D and E	1.6	3.3	5.2
Buses, E_B	A	1.8	3.0	5.7
	B and C	2.0	3.4	6.0
	D and E	1.6	2.9	6.5

The traffic study must be redone for all the problems with it that we discussed in this section. There must be additional mitigation measures as we discussed for safety reasons. For the reasons discussed EIR must to find that this development’s impact on the area traffic is significant.

Section IV. J.1. PUBLIC SERVICES- FIRE PROTECTION

The recent wildfires have demonstrated the brush land fire danger in Southern California. We do not want to see the headlines about the Canyon Hills Development that appeared in the October 31, 2003 edition of the LA Times saying “Homes ‘Should Never Have Been Built’”. Many experts have stated that in wild areas like the site that Canyon Hills is proposed that wildfires are not a question of if they will occur, but when they will occur. Before the arrival of the Spanish Explorers to the area, wildfires occurred in Southern California. Many plants found or expected to be found in the Verdugo Mountains will only germinate after a wildfire.

Though it has been discussed in this section about the LAFD hydrant requirements for water, it has not been proposed as a mitigation measure that the development meet those standards. The requirements are that fire-flow for this project has been set at 2,000 gallons per minute from 2 fire hydrants flowing simultaneously. This requirement must be proposed as a mitigation measure.

The DEIR list distances from the nearest fire stations 74, 24, & 77 of 2.8 miles, 3.4 miles, and 4.25 miles respectively. The EIR consultant did not independently measure the distances to the project site. We believe the distances that the fire engines may actually have to take may be longer. Also, the EIR fails to mention that the distance quoted only is to the entrance of the development. Houses further in either development A or B would be substantially further from the fire stations than discussed. The EIR should discuss the longest response time or distance in any portion of the development and expected response time or distances in the different areas of the development.

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The DEIR does not address what would happen to response time if there were a massive brush fire as there was in Southern California. Firefighters in a fast moving wind-driven brush fire could not deploy enough resources fast enough to stop or even slow the fires in the recent firestorm. The City and mutual aid agencies may not have enough resources to aid this area in a large brush fire. Certainly Engine Companies 74, 24 & 77, the nearest fire units to Canyon Hills could not be expected to protect the entire Canyon Hills Development and surrounding areas by itself, and might be deployed elsewhere in a large fire. The report does not take into account the added time it would take fire units to respond in a brush fire with roads being congested with residents trying to leave the area. The DEIR should discuss such scenarios as they have occurred repeatedly in Southern California wildfires. The report should discuss the fire unit response times from previous Verdugo Mountain fires in the last 50 years.

One fire occurred in the area in 1999 and another in 1955. These are only two fires that have occurred in the area in the last 50 years. The fire danger is real and does pose a great hazard for the project area. We have excerpted two articles from the 1955 fire. This burned the entire project site area and much of the surrounding area. How the fire department might be able to deal with the fire now is different than in 1955, but as we discuss further in our response, the current fire protection and recommended mitigation measures still do not mitigate the fire danger to the residents in the project to a threshold below a significant impact.

Fires in hillside housing areas produce stories about loss of life and property continually in Southern California.

The La Tuna Canyon Fire

By ALEX SHUTZ

La Tuna Canyon is a peaceful little valley nestled between peaks of the high Verdugo Mountains which form the north side of the San Fernando Valley and separate it from the Sunland-Tujunga area of the City of Los Angeles. This valley is popular for its rural atmosphere providing country living within a highly urban community. The primary attraction is the panorama of beautiful trees and orchards lying next to lush brush-covered mountains rising on all sides.

Sunday, November 6, 1955, was a day of low humidity, high temperatures, and fairly strong winds; the sort of day not unheard of, but somewhat unusual for the month of November. The season's rainfall to date in Los Angeles was almost unmeasurable. Hot, dry days with occasional drying winds had created tinder-dry conditions which made one feel that brush would ignite if you so much as snapped your fingers.

Two small boys playing at being campers in their own back yard allowed their kindled campfire to get beyond their control. Very quickly the fire spread to the dry brush nearby. The boy's father attempted to extinguish the fire, but it was beyond his control. At 12:27 p.m., the first fire companies were enroute to a reported brush fire at 9645 La Tuna Canyon Road. It was several days later before these companies were back in quarters.

Until this time, there were many references made to the '38 brush fire in the Santa Monica Mountain area. Old-timers talked about a week or more of straight fire duty. They talked about many problems, of limited water supplies, of severe structural exposures, of wicked fire tricks. They talked about "mountain time," and of going without food and sleep for many hours. They implied, if not directly so stating, that this was the roughest, toughest, and the most unusual fire-fighting experience that a fireman could face. Rookies had little to argue such impressive tales--until 1955.

The La Tuna Canyon fire burned over an area of more than forty-five hundred acres. Two homes and two guest houses were lost, along with several out-buildings, automobiles, trailers, fences and miscellaneous improvements. The fire cost

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the City of Los Angeles several thousand dollars in extraordinary operating expense. It cost citizens much more than this in property damage and loss of valuable water shed. There is a good chance that winter rains, already starting, may increase the loss through flood damage. Already, plans for flood protection in this area call for expenditures of one hundred thousand dollars. But, property damage as high as it was, is infinitesimal--for a fireman's life was lost!

The La Tuna Canyon Fire

By ROBERT T. DOVE
Mountain Patrol



As nearly as it can be determined, the La Tuna Canyon holocaust had a very innocent and unspectacular birth. Two eight year old boys, in their own back yard in the 9600 block of La Tuna Canyon, and, without any malicious plans for the future, were preparing a noonday feast. A strong easterly wind carried enough of their fire across a clearing to ignite the adjacent hillside brush. One of the boy's father responded with department-like speed to their cry for help and valiantly attempted to extinguish the burning grass and brush with a garden hose. The wind quickly drove the fire through the tinder dry fuel and out of his reach. The father immediately called the fire department and the rest of the account of the fire is a matter of radio log history. The first-in Company reported a large, rapidly growing brush fire and immediately asked for additional help. This indication that a major brush fire was burning out of control heralded in five nightmarish days and nights of wind driven fires in the rugged western half of the Verdugo Mountains.

The 1955 La Tuna Canyon fire is actually a series of fires that burned in many directions at the beckon of wind and terrain conditions. At various times there were two or three major fire heads on the rampage simultaneously. A daily box score might help straighten out the maze of radio messages and on-the-scene reports that were issued.

Sunday, Nov. 6--

12:30 P.M. to 2:00 P.M.

Fire traveled north and east to the Shadow Island Dr. area and an attempt was made to hold along the Green Verdugo Fire Road.

1:45 P.M. to 3:00 P.M.

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A second and separate fire in the 9800 block of La Tuna Canyon. This was maliciously set by an eleven year old boy who apparently wasn't satisfied with the fire to the north.

2:00 P.M. to 5:00 P.M.

Fire jumps Green Verdugo Fire Road on a half-mile front and is stopped above the homes along Day and McGroarty Streets, west on Ora Vista.

6:00 P.M. to 8:00 A.M., Monday

Fire break constructed along east flank of the fire from the Green Verdugo Fire Road to the St. Elizabeth grounds in La Tuna Canyon.

Monday, Nov. 7--

10:30 A.M. to 12:00 Noon

Fire breaks out of the Shadow Island Dr. area and is driven north and west to Sunland Blvd.

12:00 P.M. to 3:00 P.M.

Fire is driven south and west to La Tuna Canyon, Tuxford St. and Sunland Blvd.

3:30 P.M. to 4:30 P.M.

Fire front moves east to endanger homes in the Glencrest-Bluffdale area.

5:30 P.M. to 6:30 P.M.

Fire front moves west and south to Glenoaks Blvd.

7:00 P.M. to 10:30 P.M.

Fire front moves east to cross Wildwood Fire Road and south across Chandler Fire Road to the Mother Cabrina area.

10:30 P.M. to 9:00 A.M. Tuesday

Fire moves slowly to the east in the high hills between La Tuna Canyon and Glen Oaks Blvd.

Tuesday, Nov. 8--

10:00 A.M. to 2:00 P.M.

Fire moves rapidly to the east up La Tuna Canyon and sweeps over the Tujunga hill-side homes on Reverie Road and Tranquil Dr.

2:00 P.M. to 9:00 P.M.

Fire continues east toward the Hostedder Fire Road and south toward the Verdugo motorway.

2:00 P.M. to 3:00 P.M.

Fire moves north toward Tujunga and is stopped behind the homes along Verdugo Crestline Dr.

3:00 P.M. to 11:00 P.M.

Extensive back firing along the Green Verdugo Fire Road blocks any further northward progress of the fire.

Wednesday, Nov. 9

Cold trail and patrol operations of the fire area.

Thursday, Nov. 10

Continued cold trail and patrol operations.

12:30 P.M.

Flare up along Verdugo Crestline Dr.

Friday, Nov. 11

Continued cold trail and patrol operations.

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Saturday, Nov. 12

Completed cold trail and patrol operations.

* * *

The many directional shifts of the fire clearly indicates that erratic wind conditions hampered the Department effort to control this fire more than any other single factor. Fire fighting efforts were further compounded by an inadequate water supply and road conditions throughout the major part of the fire area.

It will be necessary to describe this fire and the fire control operations as a series of separate fires. Bear in mind this one very important fact--the control and final extinguishment of the La Tuna Canyon Fire was accomplished through the combined cooperative effort of many individuals and agencies. It is not possible to record individual or agency credit in an article of this size. Still, in fairness, it must be clearly established that the cooperation of outside agencies contributed immeasurable to the successfulness of the operation. The Los Angeles County Fire Department furnished many fully manned Engine and Tank Companies as well as the steady procession of Camp Crews and bulldozers seen in operation throughout the extent of the fire. The Federal Forestry gave us timely aid with six pieces of fire equipment with crews and a large hand tool crew. The fire departments of Burbank and Glendale added some very needed additional assistance whenever it was required.

When you consider this and the assistance contributed by the Police Department, the Board of Education, the Red Cross and other agencies, and the hundreds of hardworking citizens, the surprisingly low property loss figure is readily understandable. Now let us examine the records as it points out one fire at a time.

THE SUNDAY FIRE

It has already been stated that a growing major brush fire greeted the first assignment companies as they pulled in to the fire. Their efforts were directed at curtailing the lateral movement of the fire along the north wall of La Tuna Canyon. By this time, the fire had such a speed, that catching it along the ridge was out of the question. As additional companies arrived, they were sent up Sunland Blvd. to Shadow Island Dr. and up a dirt road that is called "the airport road." The main ridge south of Sunland Blvd. has been fairly well leveled off in an unsuccessful effort to give the San Fernando Valley a fog-free airport. Though it is no landing strip, it is an ideal fire break and with aggressive hose line work, the northern and western movement of the fire was temporarily brought under control.

The eastern flank of the fire posed an entirely different problem and was later to give us no end of trouble. At this time, the directional head of the fire was to the east over rugged brush covered hills and canyons. This area has no fire breaks or fire roads and the fire gave the tractor crews no time to construct hasty breaks.

One energetic attempt to block the eastern progress of the fire was made with the net result of proving once again, that a 4-wheeled drive tank wagon will go practically anywhere that there is room for its tires. Utilization ridge lines and trails suitable only for goats or bulldozers, the tank wagon with an eager 15-man crew gave the fire a temporary setback. As it proved out, this effort was 10 minutes late and a 1000 foot of hose short.

When this effort failed, a fear became a fact! Now it was clearly demonstrated that the City of Los Angeles had an uncontrolled fire burning in inaccessible terrain. Further, the fire was burning so swiftly that there was little possibility of establishing an organized position to block the fire's immediate progress. By 1:45 P.M. rugged terrain and a strong wind gave the initiative to the fire, and for the next four hours, the fire fighter fought a dangerous and heroic defensive battle. No homes were lost, but Autofireman James Catlow was so severely burned that it cost him his life.

Separating the homes in Sunland from the fire was a single brush covered ridge. Running along the crest of this ridge strategically located turn-arounds and water tanks, and has been fire tested many times in the past as an adequate defensive position. Once again the decision was made to defend along the road. Hastily, the equipment was redirected to this location. A 2 1/2" hose line was laid from the fire road down to a hydrant on the Sunland side and was immediately loaded. About 10 pieces of equipment were on hand to be spotted when a very dangerous situation developed. The wind suddenly changed toward the north and drove the fire out of the lateral canyons and up the slope toward the Green Verdugo Fire Road. Though this action on the part of the fire was anticipated, its speed and the intensity was simply

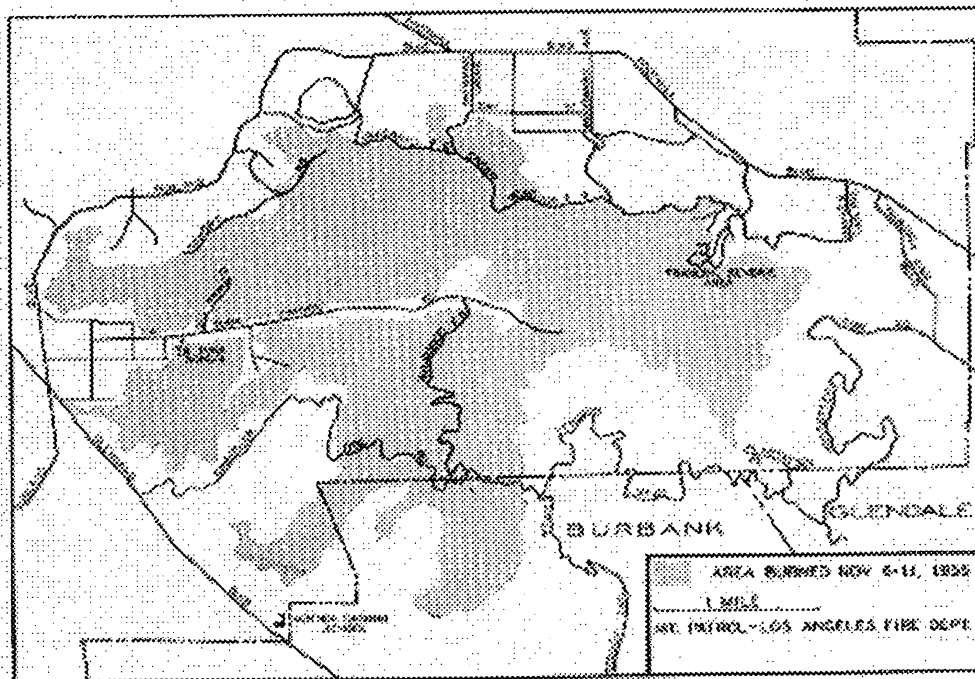
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overpowering. Quickly, the rigs were spotted in the closet available cover and many protective lines were laid. For a distance of 100 or more feet along the road, the fire was aggressively, though futilely fought. 1 1/2" fire streams nearly disappeared in the furnace-like heat. As the main body of the fire swept over the position, all water was directed to protect the men and the equipment from the effects of the intense heat. Men without hose lines laid in the mud and were kept wet from nearby rigs. Some men stacked up on the ground like hot cakes with the top man keeping the pile wet with a hose line.

It was during this momentary eternity that Autofireman James Catlow brought everlasting credit to himself as well as everyone in the fire service. Hose Wagon 39 was in a narrow spot in the road, as the fire hit there too fast to actually get set. He was able to get two lines into action, and by working one, he performed superhumanly in an effort to protect his equipment for future use, and to keep the road open for men who were ahead of him. His injuries were not accidentally incurred, as he could have retreated merely 10 yards to relative safety. His act of heroism required unbelievable determination and demonstrates to all to see and realize that a devoted fireman will do his full duty regardless of personal cost.

The fire swept over the Green Verdugo Fire Road on a half-mile front and continued its relentless courses toward the many homes along Day and McGroarty Streets in Sunland. Attempts were made at both the east and west flanks to stop the downhill progress of the fire, but it quickly outdistanced the available tanks and pumpers were hurried into the Sunland community and the northern movement of the fire was stopped on the slope, before the homes were endangered. At the same time, tractors constructed hasty breaks along the flanks of the fire. By 5:00 P.M. this northern front was secured.

An hour later a mass of City and County personnel and equipment was assembled on the eastern flank of the fire on the Green Verdugo Fire Road. Three bulldozers and nearly one hundred men with hose lines and hand tools worked throughout the night to construct a fire break down into La Tuna Canyon. Proof of their good work is attested to by the fact that no amount of wind and flare ups could push the fire across the break they constructed. This type of night operation is very hazardous, and two stuck bulldozers in the burning brush, many falls, and countless crashing boulders impressed this truth on everyone's mind. In spite of the difficulties, everyone was justly proud of their work on the Sunday Fire.



THE MONDAY FIRE

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Monday was the day of big plans. Monday was also the day of big winds. The big plan phase of the day began about two in the morning. Even the most pessimistic planner could vision the final containment of the fire by noon. The "B" shift "firefighter" gave the A shift "cold trailer" the usual pep-talk routine. From all indications the day's work was going to be a routine operation of putting the fire to bed and picking up the hose. By working all through the night on the east and south flanks, the big job was done. We thought!

Around 2:00 a.m., Monday morning, the west flank began to flare up down in Del Arroyo Canyon. It was a lazy little fire without much promise for the future. With reluctance, it was determined that this flank would have to wait until dawn to be secured. Actually the terrain was so rugged and unfamiliar that a night operation was considered too risky to personnel. At the time, it appeared wisest to plan and assemble men and equipment for a daylight attack. Considering everything, it was a rosy dawn on Monday morning.

Now in this area, early morning winds are rare, seldom if ever are they gusty, and they simply never blow to the north west. Yet this was the combination that faced the fire fighter. The prepared line went down into the canyon quickly and an energetic attempt was made to halt the fires westward move. Frustratingly, the fire kept just beyond the reach of the nozzle. Soon the wind took charge of the situation and drove the fire up the north wall of the canyon toward the Sunland Blvd.-Dale Ave. area. This flare-up was aggressively fought, and with a directional change in the wind, was soon controlled.

This change in the wind was certainly no bargain. Because of this severe and gusty north wind, the fire fighter battled one crisis after another from 10 o'clock in the morning until 10 o'clock at night. Control of the fire as utterly out of the question. Just saving homes, taxed the capabilities of the fire fighter to the utmost. For every fireman on the scene, this was certainly one day of trial by fire. With brains, guts and a little water, nearly a hundred homes were saved from destruction or damage by fire.

Tank wagons and Patrol trucks had a field day in this fast traveling fire. For the most part, the fire did not allow enough time for an Engine Company to lay and pick up. Getting set once during the six or seven periods of crisis was a real accomplishment and a well performed task.

The spread of this fire is more easily realized by stating that two mountain Patrolmen in one rig layed hose, fought fire, picked up and moved to the head of the fire, eight separate times during a forty minute period. The success of a score of tank crews is indicated by the low structural loss figures. Ignoring an unknown amount for contents, \$12,000.00 should cover the losses of the Nursery office, two garages and the various sheds destroyed.

One illustration of fire fighting during "Operation Leapfrog" can be considered typical of the whole day's work. Envision a rig racing into the yard of a hillside from just minutes ahead of the onrushing fire. Hose lines were quickly laid and loaded by the tired but well drilled crew. The driver stuffs every available garden hose into the top of the tank and starts refilling regardless of the water level in the tank. Hurriedly the structures are closed up, then shrubbery and combustibles are cleared away from the structures and butane tanks. The long cared for cypress hedge is put to the axe, and the wail of the property owner is answered with a friendly "I'll chop-you push." Occasionally burning out ahead of the fire is started where there is time. There the fire hits and for the next 3 or 4 minutes, the fire fighter lives in a nightmare of blowing smoky heat, sparks and dirt while he keeps himself, the structure and the rig covered with water. After the main fire passes, the little fires around the house are extinguished, the roof and eaves wet down, and the inside of the house and attic is checked. Then the hose is "figure eighted" on the top of the rig and the race is on once more to get ahead of the fire. Left behind is one more example to prove that a determined crew with reasonable clearance and a little water can save someone's home and years of memories from destruction by fire.

Monday was a day of successful defensive fire fighting. The fire fighter never looked better in his whole life.

THE TUESDAY FIRE

This was the day the wind blew toward the East! During the early morning hours the homes along the upper canyon floor of La Tuna were protected by a large fire fighting force as the fire moved eastward behind them. By nine o'clock in the morning the fire had crossed over and outflanked a fire break that had been laboriously constructed during the night. The wind came up early and began to push a large fire up La Tuna Canyon toward the Tujung homes that lie in a big brush

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filled basin at the top of Hillhaven Ave.

As in the rest of the Mountain area, this fire has been preplanned for years by the first-in company and the mountain patrol. A careful survey indicated that 43 homes would be directly threatened by a large fire in this area. By 10 o'clock in the morning this anticipated large fire was an immediate reality. Here again, the speed of the fire vastly increased the danger to the fire fighter and reduced the time of preparation. All available tank wagons, booster tanks, and all Mt. Patrol rigs were rushed to this area. The water supply in the vicinity was reinforced by a hose line up Hillhaven from Foothill Blvd. Through a combination of sound planning, good leadership and a maximum effort by all concerned, we were ready when the fire hit.

The fire had a front of approximately two blocks initially. It was the most impressive phase of the week long battle. Preceding the fire line by 75 yards was a wave of flame over 100 feet high. There was no smoke at ground level and surprisingly little heat as volumes of fresh air were being sucked into the fire. The noise of the fire and the fact that the sun was completely blotted out, contributed more to the unreality of the situation than did the heat.

For the fireman on the scene, there was little or no time to watch the awesomeness of the fire or the queer antics of the domestic animals as they were freed from their pens. It was the same old familiar rush of clearing combustibles away from structures and butane tanks and of laying the all important hose lines.

These facts can be flatly stated here and now. Every home that could be saved by the use of water, was saved. Tank vehicles should not waste any water in wetting down thick brush ahead of such a large fire--save every drop for the personnel, the structure and the rig. The mobility of a water carrying rig in this type of a fight is of singular importance. When one house is safe, pick up, refill and become available to the officer in charge.

The main body of the fire swept over the homes in the Reverie Road-Tranquil Dr. area at about 11 o'clock in the morning. The local inhabitants, who barely got out of the path of the fire with an armload of valuables were afforded a dreadful view from various vantage points. All that could be seen through the smoke and fire were glimpses of firemen working small lines and rigs moving to the various houses. Not even the bravest soul would predict even limited success for the 40 to 50 firemen battling in the area. As the smoke cleared to reveal some homes still safe and as the radio reports began coming in, hope began to push aside the gloom. As before, the combination of guts, water, and a little clearing around the structures had won another battle against a powerful fire.

The emotional impact of this discovery on the part of the home owners cannot be described easily. A person who is forced to abandon his life long possessions and memories to apparently inevitable destruction by fire is not too coherent in his praise and thanksgiving when he finds that all is not lost. Fire and smoke failed to put the lump in the fireman's throat that came with the realization that the babbling praise and tear filled eyes of the local population was not caused by smoke and excitement.

Even with all the efforts of the fireman, the fire took too big of a toll. Structure loss in this area were two homes and garages and nine sheds, all valued at \$40,000.00. This figure does not show the value of the contents of the structures, the damaged homes, or the destroyed domestic animals.

Though the main fire moved on to the east to be controlled by bulldozer and camp crews, the Tujunga community was far from safe. At about noon, the fire along the slopes of La Tuna Canyon turned north, and many homes along Verdugo Crestline Dr. were threatened. Each home was protected in turn as the fire came up to it. Even though everyone worked steadily for 2 or 3 hours, the fire nowhere reached its moving intensity.

At 3:00 p.m. drastic action was taken by the fire fighter that for once and for all was to take the initiative away from the fire. Large scale back-firing operations were commenced. It was clearly evident that the fire along the slopes of La Tuna Canyon would continue to burn northward on a wide front. In this area, the green Verdugo Fire Road is on the La Tuna downhill side, and it is not a good defensive position. It was wisely decided to back fire from the road even though a mile and a tenth is quite a fire to deliberately start.

The actual operation was a gigantic affair and smoked over 140 fire fighters and nearly thirty pieces of equipment. It

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required the hose and pumping duties of nine pumpers to furnish the relay line that was 2.1 miles long. Including patrol rigs, there were about 20 tank wagons used. Working with calculated movement, the job was completed in about six hours. The conduct of the operation was an organizational masterpiece. Additional men and equipment were sent up from Base Camp as they were required. The brush above the fire road was carefully wet down before back firing was commenced. Every inch of this private fire had over-lapping hand lines to keep it under control. Observers at vantage points were constantly on the lookout for spotting behind the back fire. Complete and enthusiastic cooperation on everyone's part was the order of the day. In all, it was a completely safe operation, even if it did scare the Sunland-Tujunga Civilians half out of their wits. They thought we were back firing from Catalina!

At about midnight, the main fire made its last big run. Flames estimated at one hundred feet high roared up to meet the back fire. By this time there were a hundred yards of cleared ground between the Fire Road and the main fire. Only small sparks got into the unburned brush, and in wet brush they did no harm. With the exception of one short lined flare-up on Thursday. The La Tuna Fire was all over but the shouting!

PATROLLING AND COLD TRAIL OPERATIONS

It is not fair to the firemen who successfully executed this operation to slight this phase of the fire. It's not that we pity them for the sweat they expended, but their's was an extremely important job.

Wednesday, Thursday, Friday and Saturday is officially logged as "Patrol and Cold Trail Operations." What a masterpiece of understatement!! Many men swung brush hooks and shovels for hours just to insure that the fire would not eat up one more valuable square foot of ground cover. Headlights and flashlights could be seen at all hours of the night in the areas that had not yet been secured.

This job was hard, unspectacular labor. From no angle can it be considered fun. The hills were steep and rocky and in some places the brush was so thick, axes had to replace the brush hook.

One typical operation took place early Friday morning. A night crew had come out for supper at midnight from a very steep area. They reported growth too big for brush hooks, a ragged fire line with large hot spots well into the unburned brush, and, a hose line at the crack of dawn was agreed upon as the solution for this situation. Men and equipment were assembled and the line was flanked out at the top. The hill was so steep, it took only 12 minutes to get 1750 feet of 1" hose down to the hot spots. Thirty minutes later, the fire was put out for keeps. It took two hours and a half of the most strenuous work to get the hose and crew back to the top. This operation points out the thoroughness and seriousness of the work of the cold trailing crew.

The value of a good cold trail shows up in two important ways. It insures that a fire, once controlled, will not rekindle to embarrass and plague a battleweary fire department. It prevents further burning and guarantees that additional tons of mud and boulders will not be washed down on the homes below when the winter rains strike. The cold trail does nothing for the burned over area, but it can represent thousands of dollars saved from the flood damage toll. The simple log book statement of "Patrol and Cold Trail Operations" represents miles of very successful cold trails and a well performed completion for a job of fire fighting.

The La Tuna Canyon fire didn't go out --it was put out! Every fire fighter can be justly proud of an excellent record and his job well done.

The report needs to discuss probable losses in a massive brush fire even if homes in the project are built of fire retardant materials and have sprinkler systems. There should be a discussion of what could happen in a major bush fire and a "50 year" brush fire, a massive brush fire that might be expected to occur only once in 50 years. There are studies that have been done on wildfires which would address whether some of the mitigation measures proposed in the DEIR are adequate.