
Quick Reaction Force (QRF) Cost Benefit Analysis: Route Fire

A qualitative review of the Quick Reaction Force and estimated cost savings provided on the Route Fire – 08/31/2022

Route Fire - Introduction

The Route Fire started on 08/31/2022, at approximately 12:00pm. Weather that day was conducive to rapid fire spread and presented the potential for significant damage



- **Name:** Route Fire
- **Location:** NB 1-5, North of Lake Hughes Road
- **Start Date:** 08/31/2022
- **Weather:**
 - Temp – 104 Degrees
 - Humidity – 11%
 - 10-Hr. Fuel Moisture – 4%
 - Live Fuel Moisture – 52%
 - Wind Speed – 10 MPH/Gust to 19 MPH
 - Wind Direction – North/Northwest

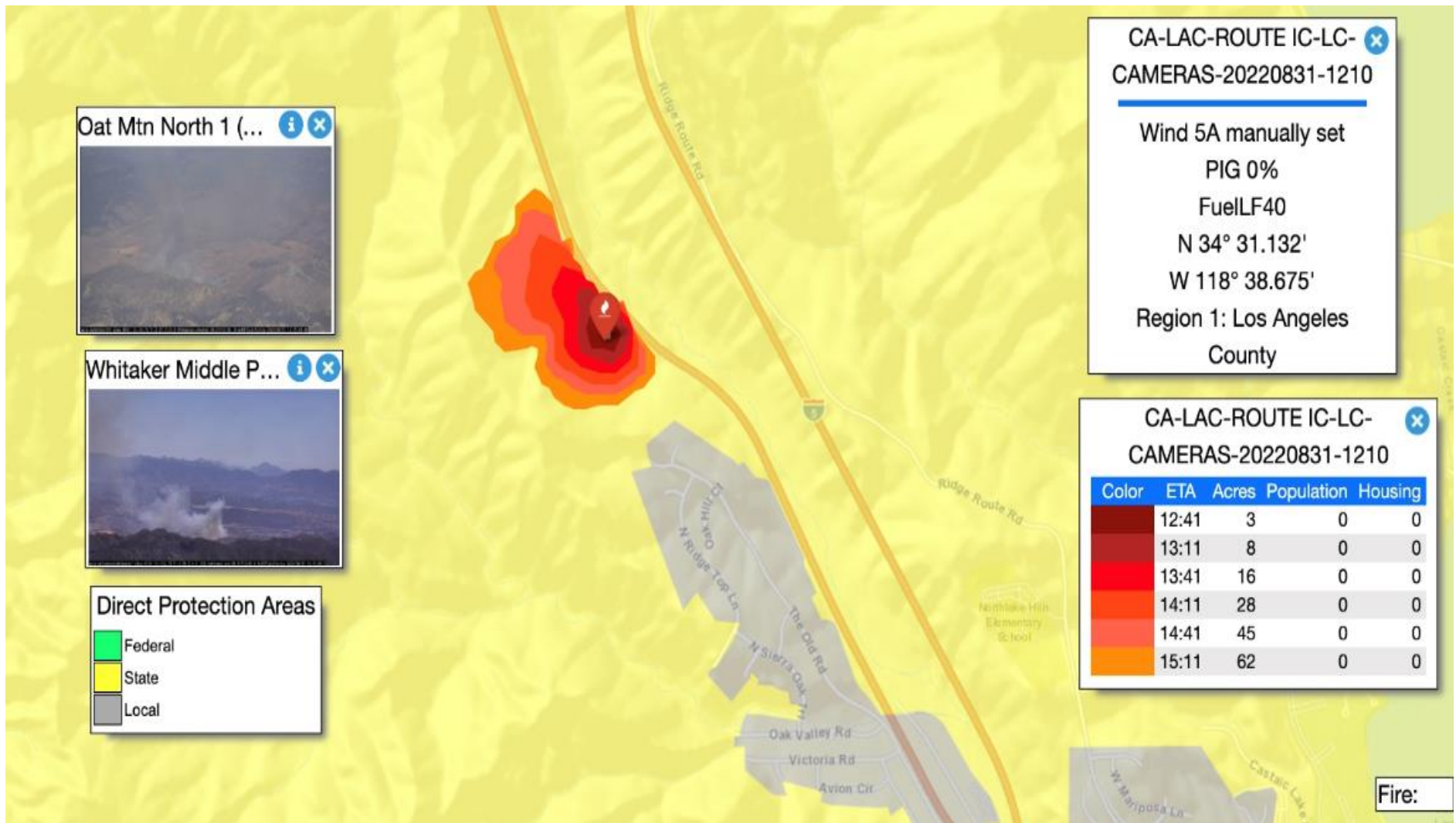
Route Fire - Initial Response (1 of 2)

Los Angeles County & U.S. Forest Service requested a second alarm brush response. The photo below shows the fire looking south-bound at Interstate 5



Route Fire - Initial Response (2 of 2)

Los Angeles County & U.S. Forest Service requested a second alarm brush response. The photo below shows the fire size at time of response



Route Fire - Escaping Initial Attack (1 of 2)

At Approximately 13:20, the Fire crossed Marple Canyon and began running east towards I-5. The photo below shows the fire threatening I-5 with slope, fuel and wind Alignment (looking north at I-5)



Route Fire - Escaping Initial Attack (2 of 2)

At Approximately 13:20, the Fire crossed Marple Canyon and began running east towards I-5. The photo below shows long range spotting across I-5 and the Old Ridge Route (looking south at I-5)



Quick Reaction Force Response

Quick Reaction Force Assets (1 of 3)

The QRF is comprised of Helitankers 61, 55, and 47 (shown in top pictures below) as well as Aerial Supervision Copter 76 (shown in bottom picture below)



Quick Reaction Force Assets (2 of 3)

In addition, Perimeter Solutions Mobile Retardant Base (MRB) is an integral component of the QRF Program



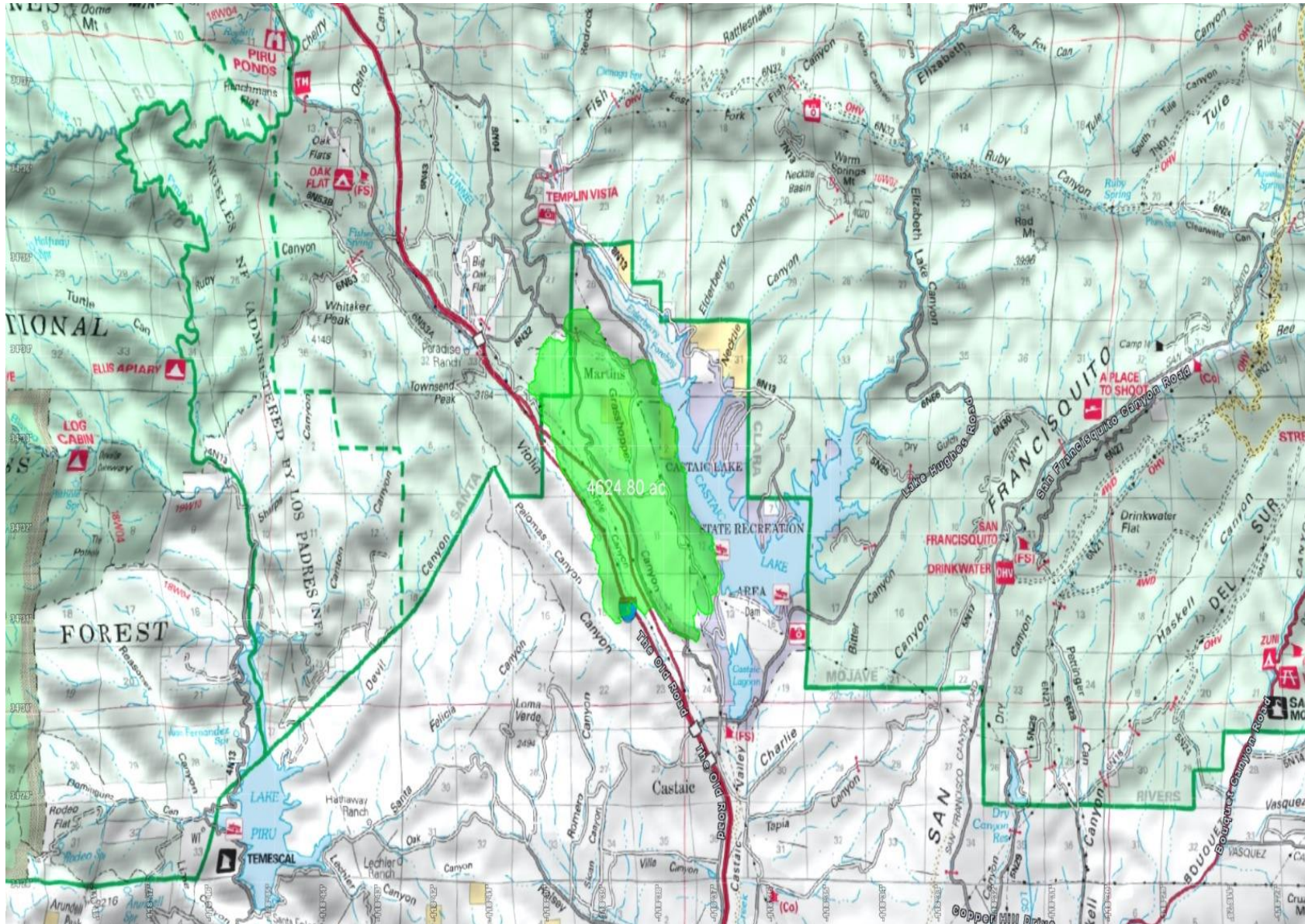
Quick Reaction Force Assets (3 of 3)

Picture below shows QRF Helitanker 55 hover-filling from the MRB



Quick Reaction Force - Assignment (1 of 2)

Los Angeles County assigned the QRF to provide direct retardant and water support at the head of the fire. The objective was to keep the fire from spreading north



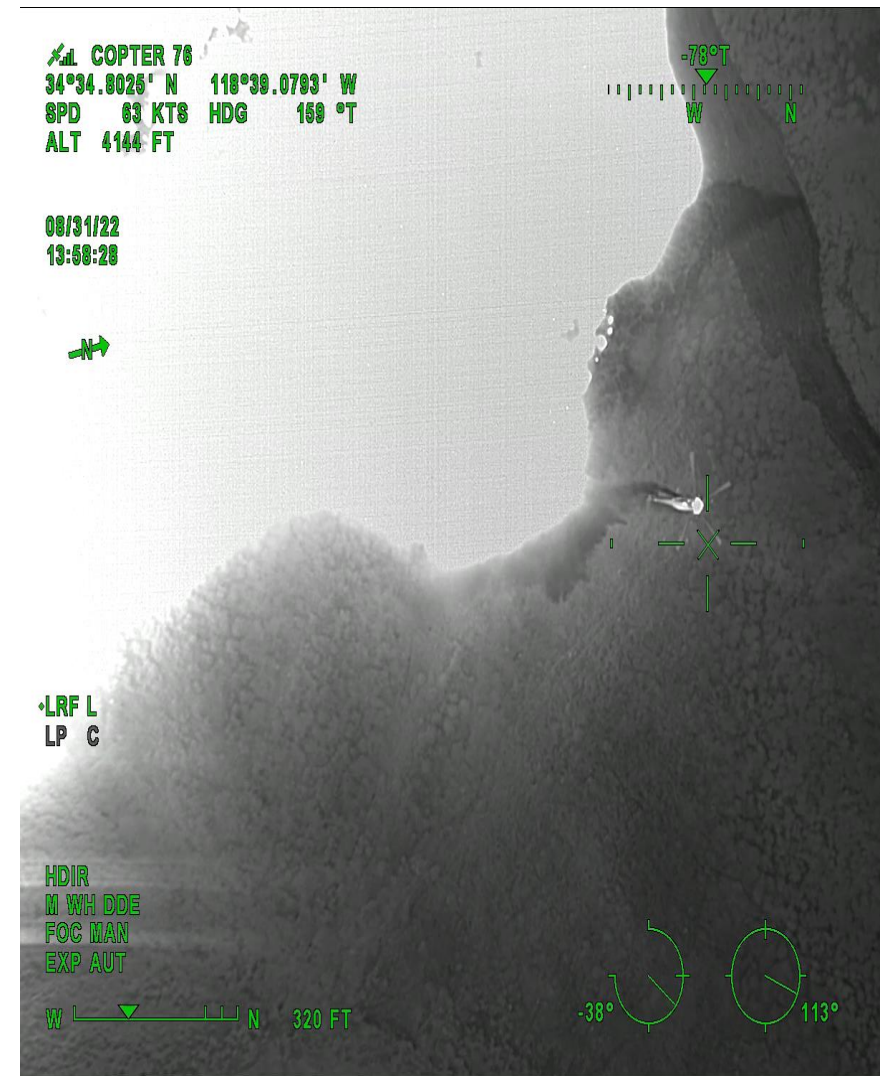
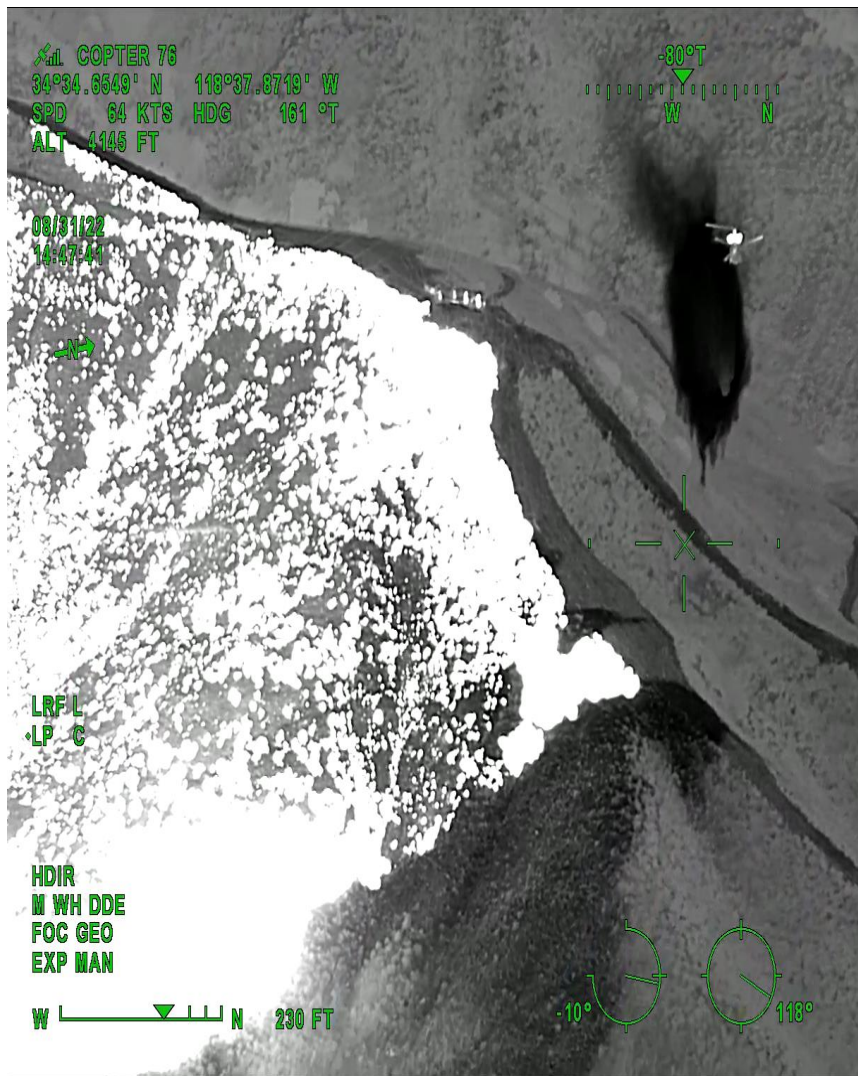
Quick Reaction Force - Assignment (2 of 2)

All 4 QRF helicopters are equipped with Night Vision Goggles (NVG), which aide pilots with hazardous and low-light conditions



QRF Helitankers Begin Operations at 19:30

Photos below show HT-47 & HT-55 Dropping Retardant (left) and HT-61 Dropping Water (right) at the head of the Route Fire



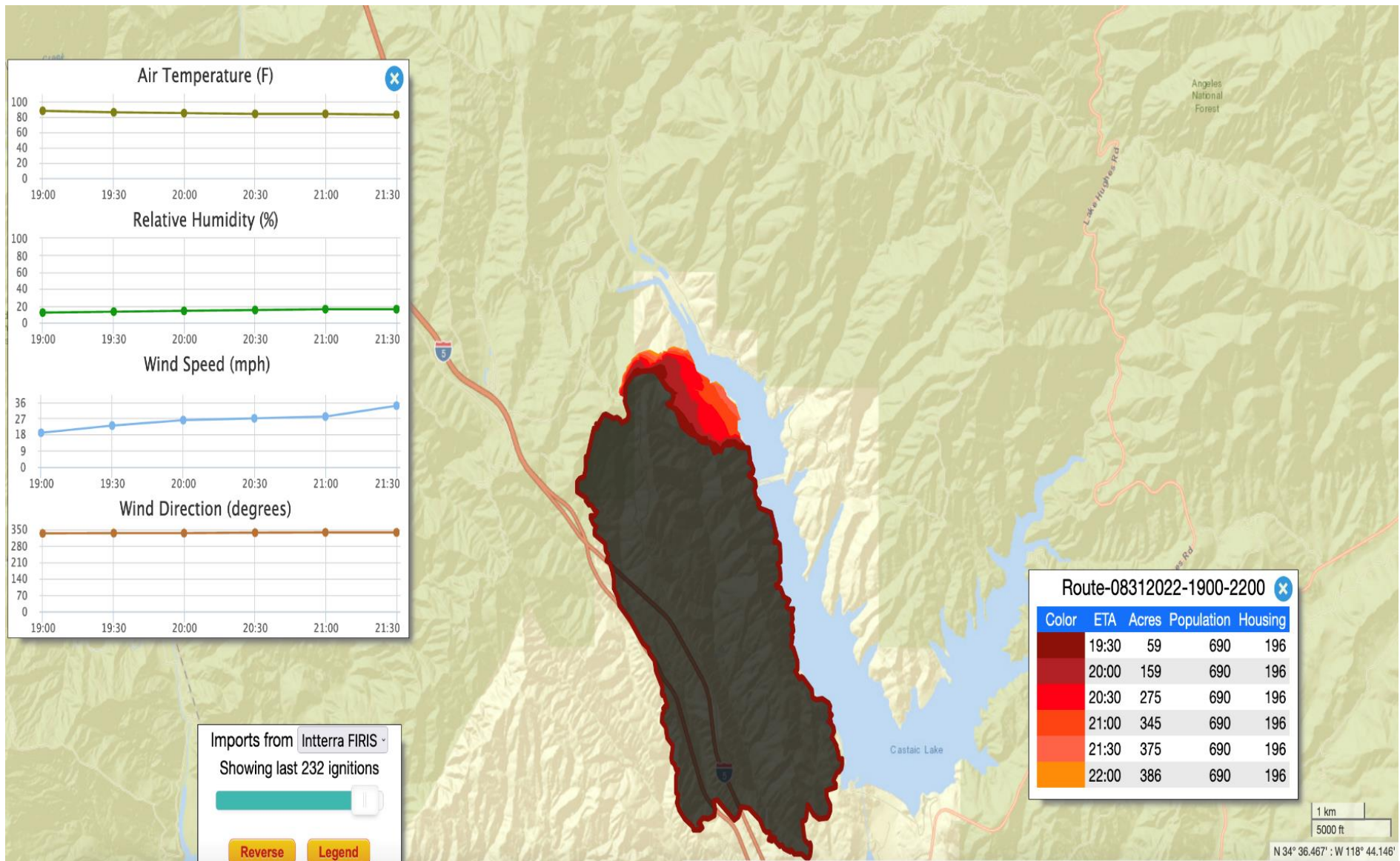
Quick Reaction Force - Delivered Results

Retardant line objective was met by 0300 hrs. on 09/01/2022. Dozer and handline construction completed 0800 hrs on the same day



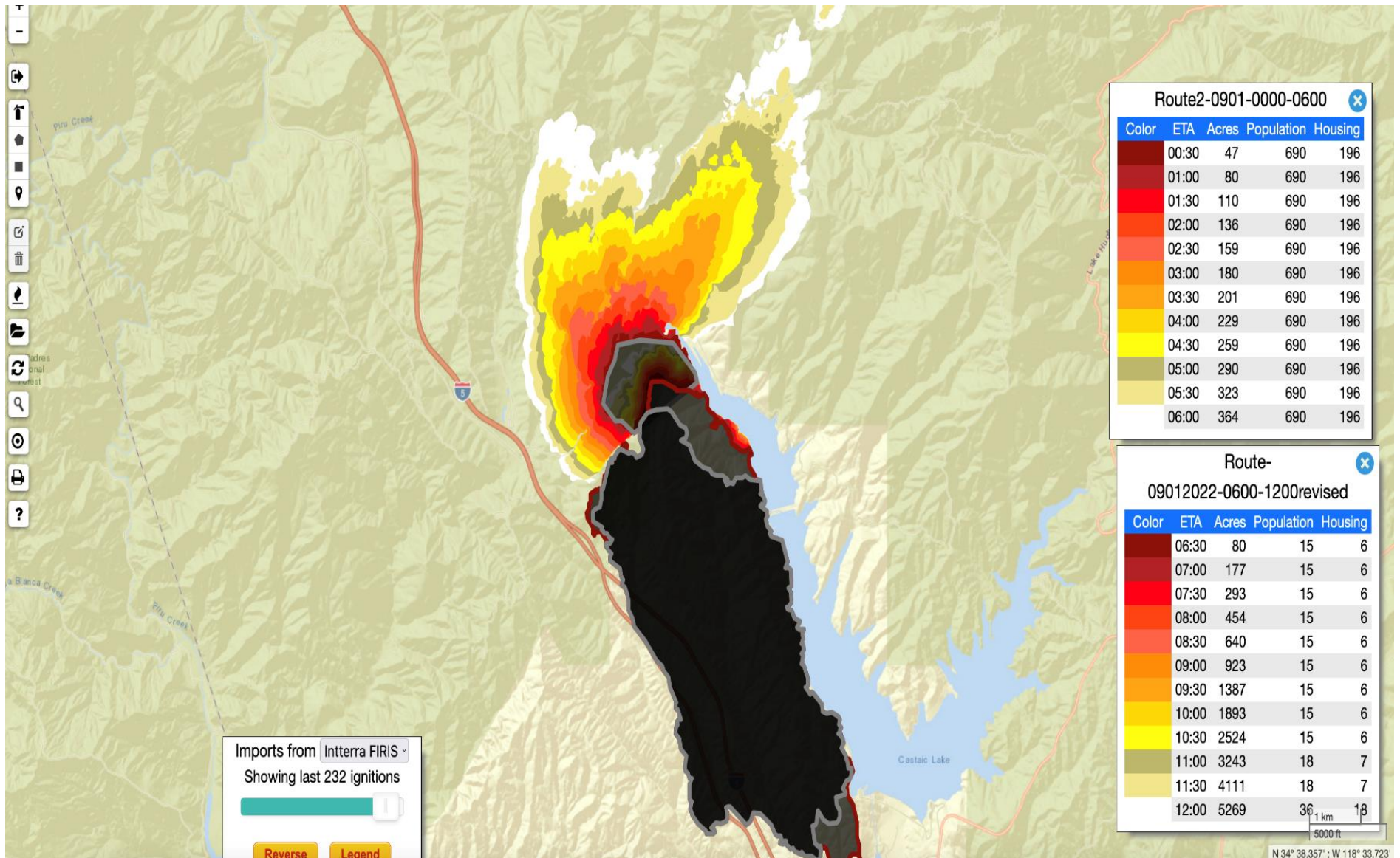
WIFIRE Prediction Models (1 of 2)

Photo below shows the WiFire prediction model of the Route Fire from 19:30 – 22:00 Aug 31st. Model shows estimated new growth of 386 acres without suppression



WIFIRE Prediction Models (2 of 2)

Photo below shows WiFire prediction model of Route Fire in 30 min intervals from 00:30 – 12:00. Model projected new growth of 5,269 acres without suppression

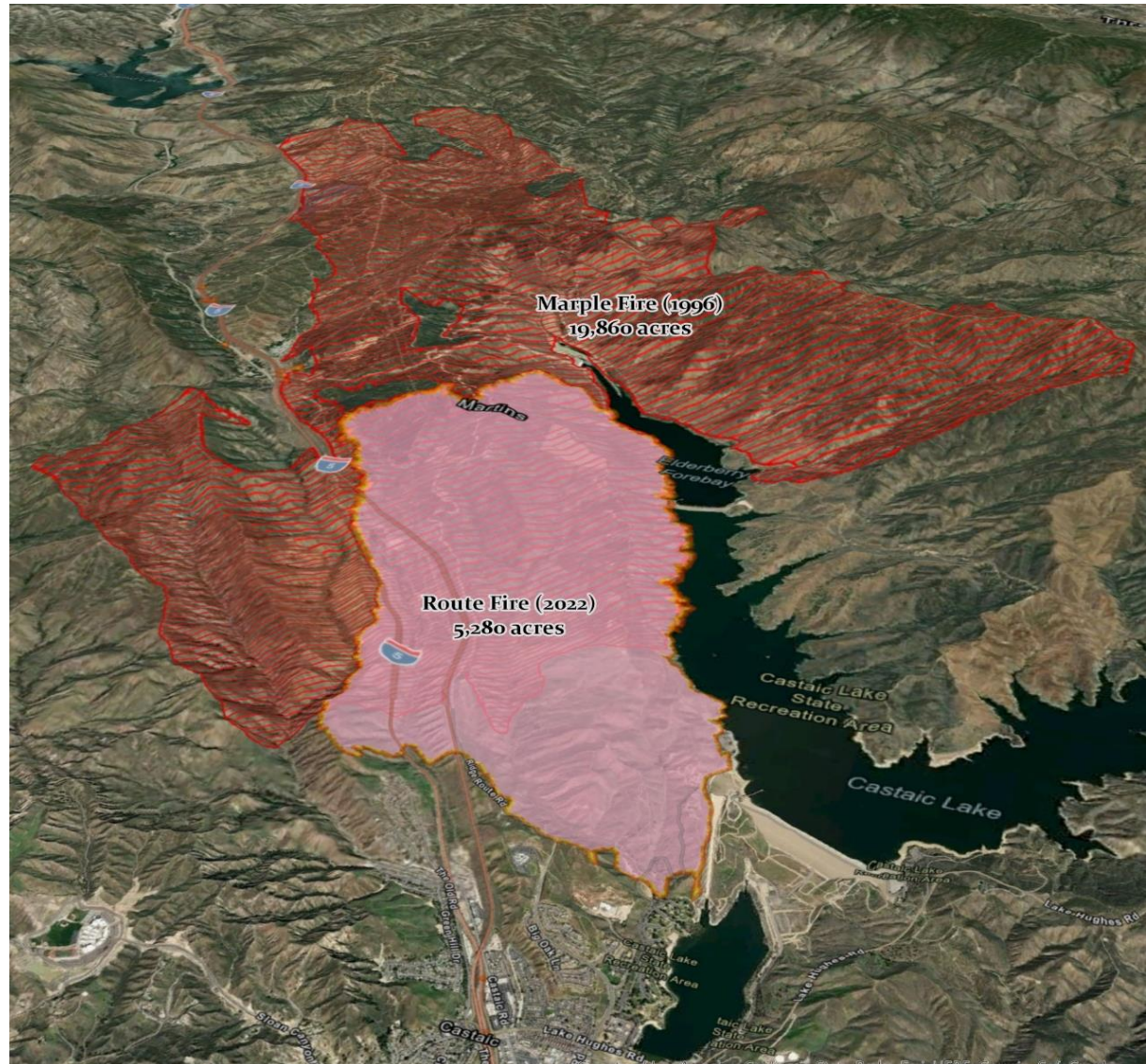


Case Study: Marple Fire vs. Route Fire

Route Fire Comparison: Marple Fire

In 1996, the Marple Fire burned in the same location and in similar conditions to the Route Fire. It provides a compelling case study on the impact of QRF on the Route Fire

- **Start:** 8/26/1996, at 12:20 hours
- **Impact:** Fire exceeded 10,000 acres by midnight.
- **Response:** 2,130 Firefighters, 11 Airtankers and 14 Helicopters deployed within 3 days
- **Cost:** Direct suppression cost between \$5 and \$6 million dollars in 5 days



QRF Delivery Statistics Aug 31st – Sept 1st

Total Suppression costs for the QRF totaled \$402k between retardant and flight time costs. In total, QRF flew ~44 hours and dropped ~280k gallons of water / retardant

Aircraft	Water		Retardant		Flight Time (Hours)			Total Cost (\$)
	Drops	Gallons	Drops	Gallons	Day	Night	Total	
HT-61	58	40,400	-	-	1.8	5.4	7.2	\$37,800
HT-47	26	55,500	17	32,500	3.1	4.8	7.9	\$66,350
HT-55	49	127,100	12	22,500	6.0	5.9	11.9	\$99,950
Copter-76	-		-		8.9	8.1	17.0	\$62,050
Retardant	-		-		-	-	-	\$136,800
Total	133	223,000	29	55,000	19.8	24.2	44.0	\$403,950

Direct Suppression Cost Comparison

Based on the estimated Direct Suppression Costs of the Marple Fire and modeled projections of the Route Fire, QRF provided a pivotal force in minimizing total fire cost

	Marple Fire	Route Fire	Difference
Direct Suppression (2022)	\$70 - \$140M*	\$7 - 8M	\$62 - \$133M

QRF resources directly saved \$60 to \$130M in direct suppression costs due to the ability to provide immediate aerial-response and continue suppression during night hours. This **does not include** the impact on **indirect costs**, which typically average 2-3 times that of direct suppression costs

Quick Reaction Force



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COULSON
AVIATION

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