

To: Orinda City Council, Orinda City Manager submitted by Jud Hammon

Subject: Discussion and Update on Ladrir Software for Evacuation and Wildfire Modeling - June 9, 2026
City Council Meeting, Item J.1

My initial reaction to the Ladrir proposal was that this had the potential to be an extremely valuable tool, with the ability to help us address our biggest question: "What can we do to reduce the risks that potential wildfires present for loss of life and property in Orinda?" So far, I'm very sorry to say that I've been disappointed.

The effort to date - which I readily admit has been considerable - seems to have been mostly focused on the impact of the choices individuals make regarding a) when they decide to evacuate, b) how many cars they take, and c) what traffic obstacles they may encounter. To be sure, these are important topics to investigate, and there are key lessons there for us to act on, but I think the work to date has failed to address other, really key questions. At least as important, some of the predictions about fire propagation seem questionable to me, leaving me concerned about the accuracy of the basic model.

Below are some key questions that I believe need to be addressed, and some of my observations on the results that have been presented so far.

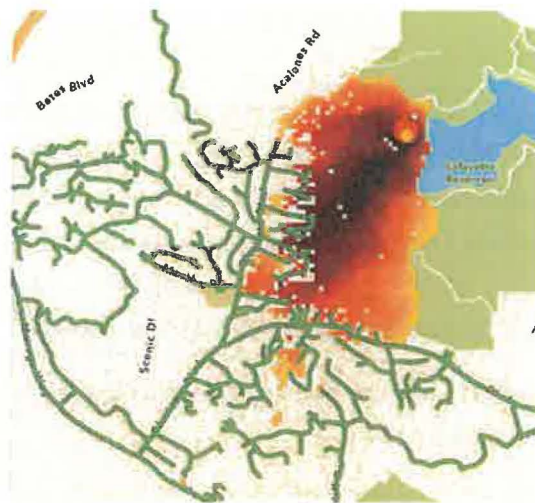
Here are some key general questions I would like to be addressed. If the model cannot help us answer these, the value of the model is considerably less than I'd hoped.

- Are there "open space" areas where significant reductions in fuel loads would improve evacuation results?
- Are there "open space" areas where significant reductions in fuel loads would reduce property loss?
- What actions can property owners take on their properties that would significantly improve evacuation results and/or reduce the risk to their own properties and those of their neighbors?

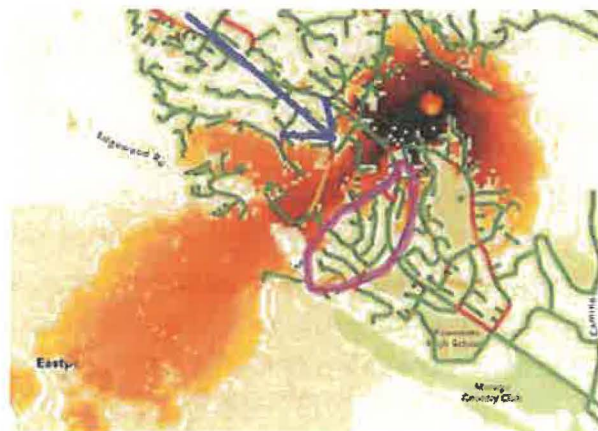
Here are some observations about the recently-presented modelling results - and my follow-up questions:

- The breadth of cases assessed so far is actually very limited.
 - Of the 103 different results presented, only 5 different fire locations are evaluated:
 - #1, a grass-land location in Briones
 - #2, a grass-land area near the Briones Dam along Bear Creek Road
 - #3, a location near the eastern edge of the Lafayette Reservoir
 - #4, a location near a side-trail in Orinda Oaks Park (not far from 33 Ivy Drive)
 - #5, a location south-east of Rheem Blvd, between Zander and Harold
 - It seems that other combinations of fire-start location and wind directions could have produced MUCH worse outcomes.

- I'd like to see some runs for cases with different wind speeds and/or directions for the selected cases.
- I'd like to see some runs for cases where the fire starts at other locations.
- I don't understand the results of the Case 3 (Lafayette Reservoir) runs.
 - The shape of the fire along the west edge of the burn area seems to imply that the presence of homes and residential landscapes dramatically impedes progress of the fire (within the model). This does not seem reasonable. I know that there's a transition from rather open grass/shrub areas to residential landscapes along this line, but the indicated suppression effect seems very unlikely to me.



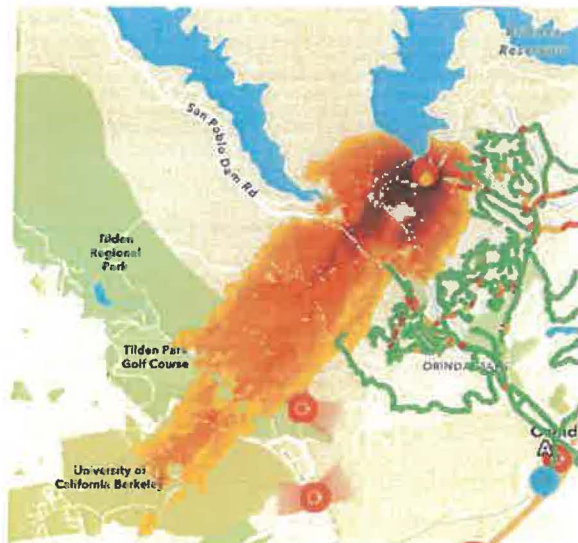
- Surely, flying embers would have ignited some of the yards in that area. If any one of those houses caught fire, there would be a major new fire source. Are we sure that Ladriss has properly modeled structure fire ignition and propagation?
- Some aspects of the runs for Case 4, the Orinda Oaks Fire, also seem surprising. The narrow band of the burn area in the grassland between Valley View Drive and La Cresta Rd (blue arrow) probably makes sense, but the lack of fires in the nearby area (outlined in purple) seems really mysterious.



- Again, I'm concerned that flying embers would have ignited some of the yards in that area, creating new fire sources. Are we sure that Ladris has properly modeled structure fire ignition and propagation?
- Why does their model show what seems to be rather slow propagation rates for the fires? Consider Case 1, the Briones fire. It takes about 2 hours for the fire to really "get going" - which might be optimistic - but it takes another 2 hours before the first clear "ember cast" fires appear, and those are only a very short distance (less than ½ mile?) ahead of the fire front. We know that embers can travel well over a mile ahead of the fire front, and start new fires.



- Note that this situation would have been much worse, if the fire had started a bit farther to the south and east (where the tip of the lake would not have blocked direct propagation of the fire), or if the wind direction had been more southerly - or both!
- In general, I was surprised at what I think is a very narrow path for the fire front in each of the cases, but clearly shown below for in Case 2 (Bear Creek Road). I think that many fires, including last year's LA fires, impacted much wider areas.



To: Orinda City Council
From: Steve Cohn
Subject: Agenda Item J-1 - Update on Ladriss Software for Evacuation and Wildfire Modeling
Date: June 9, 2026

I have evaluated the latest Ladriss emergency evacuation analyses and I continue to believe that the wildfire modeling used by Ladriss grossly understates the possible rate of wildfire spread in a high-wind event, and thus overstates the ability for residents of Orinda to evacuate.

In addition, two of the five scenarios that Ladriss modeled are fires that don't even come into Orinda (starting in Briones and running north of Orinda). From an evacuation perspective, these are non-events.

And a third one, starting in Orinda Oaks Park, follows the PG&E high voltage lines from the Lost Valley substation. The area below the lines, maintained by PG&E, is the poster-child for good wildfire prevention. If all of Orinda was this well maintained, there would be no wildfire risk. As modeled by Ladriss, this fire takes an hour just to reach Moraga Way. At the point it crosses Moraga Way it is 1,500 feet from MOFD's Station 44, 2 miles from Station 41, and 3 miles from Station 45. By then, suppression forces should be in place to stop further spread. In other words, another scenario not requiring evacuation.

For the two scenarios that could require evacuation (fires starting at the Lafayette Reservoir and off of Rheem Blvd), they are modeled to move at speeds that, to me, seem unreasonable slow.

In the first two hours the fire starting at the Lafayette Reservoir is modeled as having travelled 3,700 feet when it finally hits a populated area: an average rate of 1/3rd mile per hour. For the fire which starts off Rheem Blvd, it takes two hours to reach Zander and Alice Ln, a distance of 1,325 feet, moving at an average speed of 1/8th mile per hour.

In 2018 the Camp Fire in Paradise covered 7.5 miles in an hour and a half. In 2017, the Tubbs Fire in Sonoma traveled 12 miles in under four hours; over ten times as fast as the Ladriss modeling suggests these wind-driven fires will travel.

It may be wishful thinking that we never experience the conditions that existed in Paradise, or Sonoma or in the Berkeley/Oakland hills in 1991. The insurance industry, which has cancelled 1/3 of Orinda's fire policies, believes that history may repeat itself. And if it does, if we can't prevent such a fire, can we run from it?

I don't feel, after two attempts, Ladriss has modeled this. Orinda should think twice about throwing good money after bad.

But before the Council does anything on this, it needs to defer to the SSTOC.

Last July, the Council amended the SSTOC's bylaws to include being "in charge of" evacuation evaluation and expenditures.

After the city held public webinars of Ladriss' initial product in February (without being first run-by the SSTOC), the commission noted that the wildfire "models" used in the evacuation analyses seemed rather "mild".

The threat to Orinda is not a "run of the mill" vegetation fire, but a disastrous, wind-driven event such as those which have devastated the Oakland/Berkeley hills in 1991, Sonoma in 2017, Paradise in 2018, and LA (Altadena and Pacific Palisades) last year. However, that is not what Ladriss initially modeled. The "excuse" handed out was that modeling "ember cast" was difficult.

But it is the embers, blown by hurricane-force winds, that move the killer-fires so fast that people can't escape. A description of the Sonoma fire, presented at Radke's wildfire prevention course, was a fire that was "everywhere", not just a slowly moving front. Hopscotching a half-mile at a time. That is what is going to devastate Orinda and kill Orindans. This is what needs to be modeled. This is what the SSTOC asked for.

So, the city sent Ladriss back to the drawing board. And they came back, a few days ago, with a revised analysis. In my opinion, it is still a far too mild revision.

What does the SSTOC think about this? They have not seen it. They are meeting the day after your council meeting, but the evacuation modeling is not specifically on their agenda.

At this point, without prior review by and input from the SSTOC, it should not be on your agenda.

So, while I personally question an extension of the Ladriss contract, I even more strongly question the Council even discussing the issue before the SSTOC weighs in.

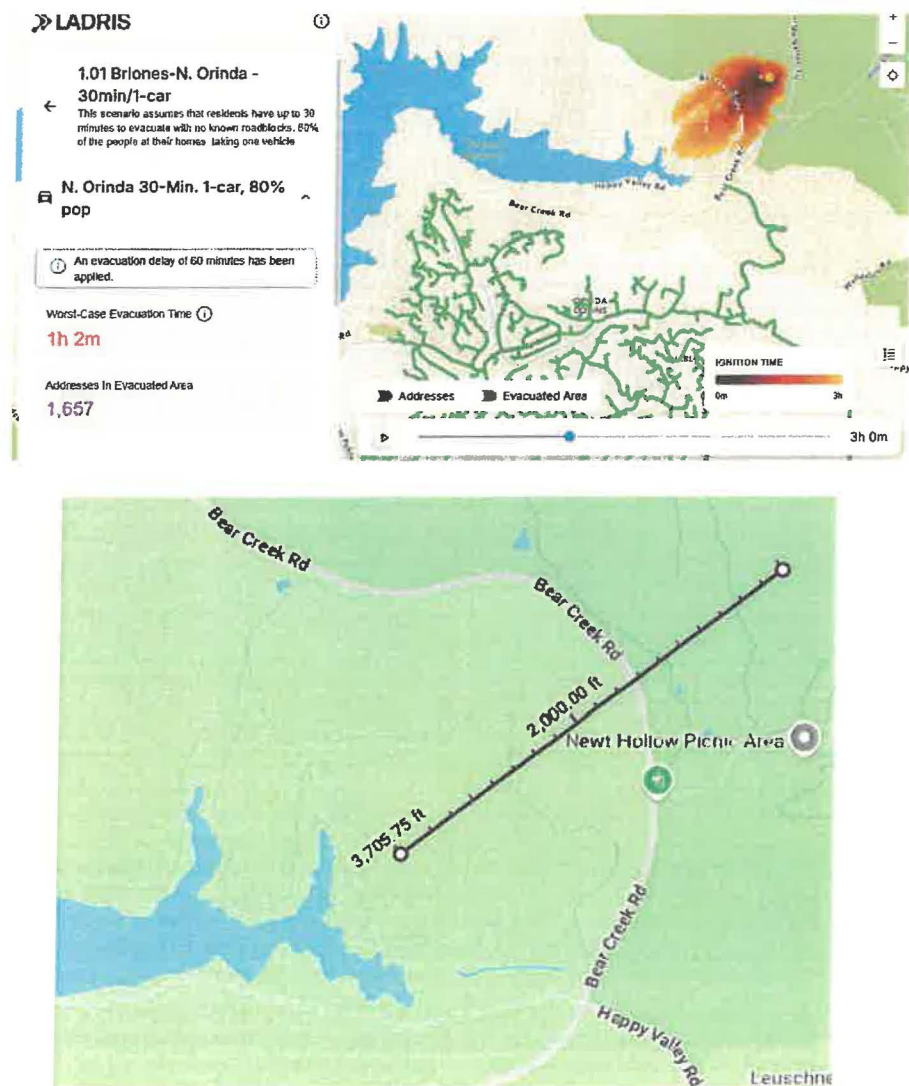
Ladris Evacuation Analyses

June 1, 2026

Ladris Fire Scenarios
June 1, 2026 (with ember casting)

	Scenario 1 Briones		Scenario 2 Bear Creek - N Orinda		Scenario 3 Lafayette Res - Glorietta		Scenario 4 Orinda Oaks - Lost Valley		Scenario 5 Rheem - Orinda Oaks	
	Distance (feet)	Speed (MPH)	Distance (feet)	Speed (MPH)	Distance (feet)	Speed (MPH)	Distance (feet)	Speed (MPH)	Distance (feet)	Speed (MPH)
1 hr					2,400	0.45	1,500	0.28	700	0.13
2 hr					3,700	0.35	2,150	0.20	1,325	0.13
3 hr	3,700	0.23	4,000	0.25	3,700	0.23	2,400	0.15	3,450	0.22
February analyses		0.31		0.25		0.19		0.09		0.06
	(miles)	MPH								
Camp Fire Paradise	7.5	5.0								
Tubbs Fire Sonoma	12	3.5								

Scenario 1 – Fire starting in Briones



Scenario 2 – Fire starting in N. Orinda off Bear Creek Rd

LADRLS

2.01 BC-N. Orinda - 30min/1-car (Bear Creek Roadblock)

← This scenario assumes that residents have up to 30 minutes to evacuate with a roadblock at Bear Creek Road, 80% of the people at their homes, taking one vehicle.

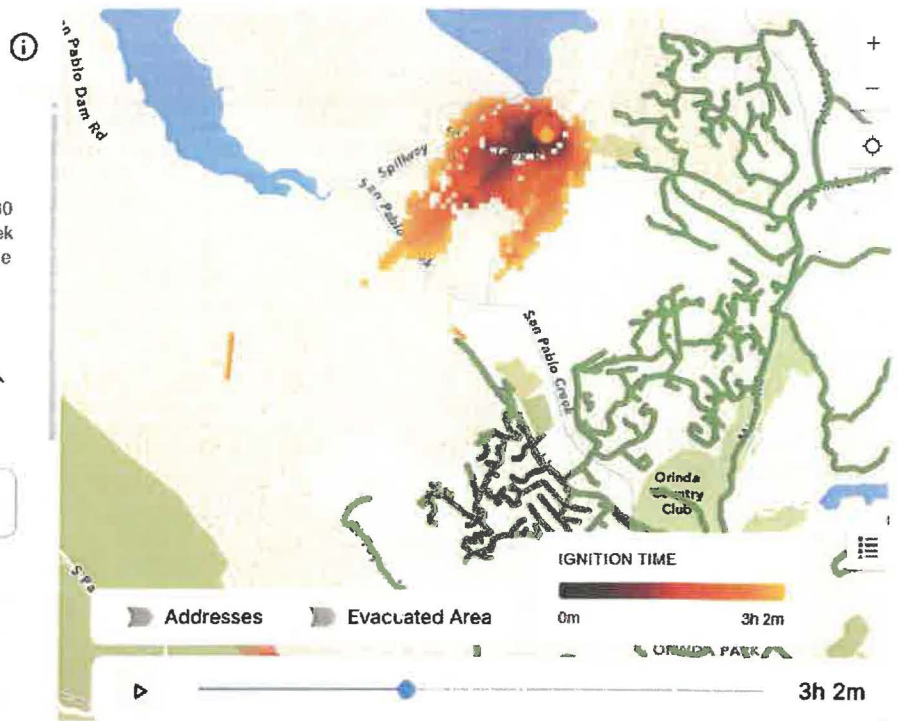
🚗 **N. Orinda 30-Min. 1-car 80% pop** ^

ⓘ An evacuation delay of 60 minutes has been applied.

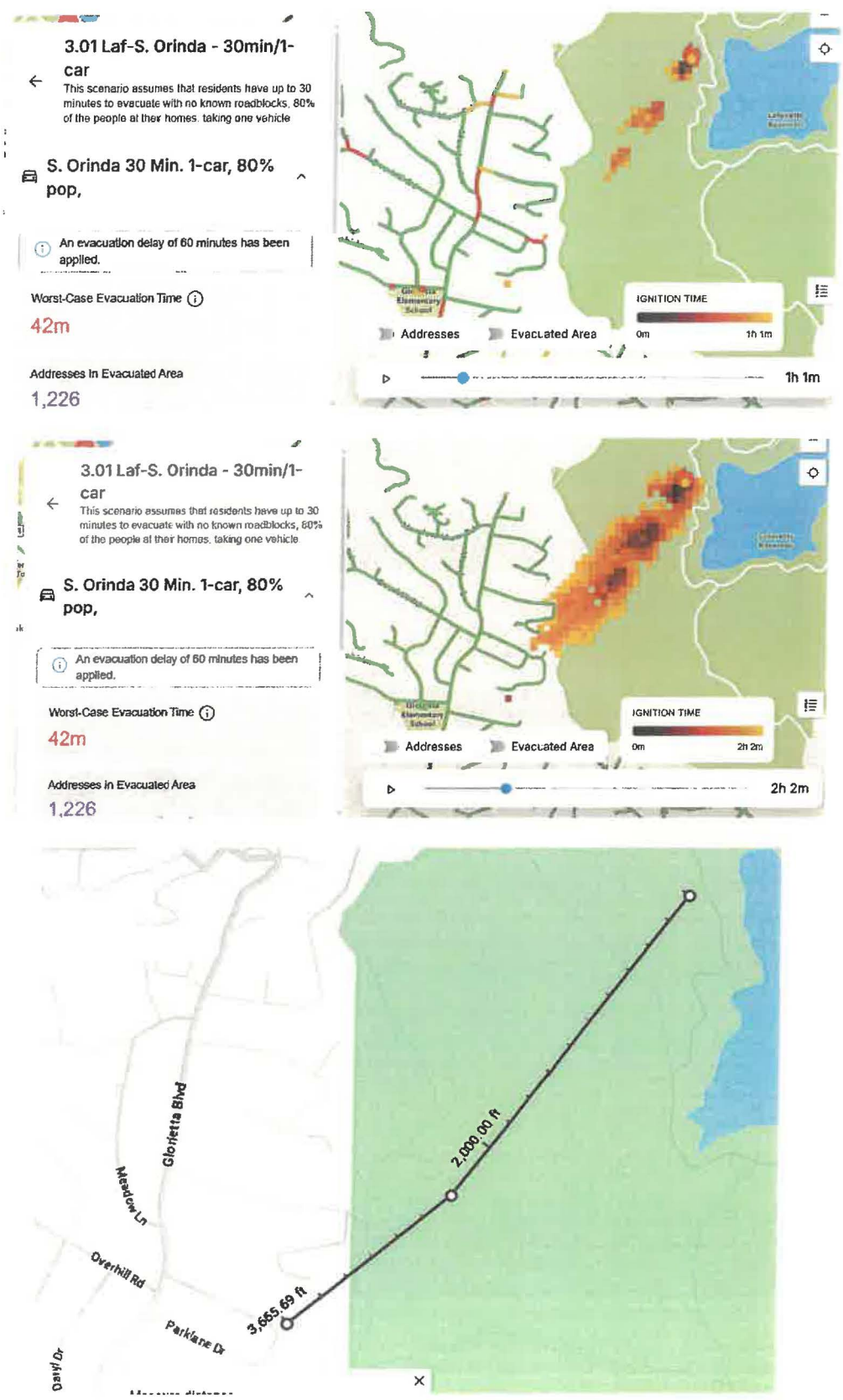
Worst-Case Evacuation Time ⓘ

1h 2m

Addresses in Evacuated Area



Scenario 3 – Fire starting at Lafayette Reservoir heading toward Glorietta



A-3

Scenario 3 – Fire starting at Lafayette Reservoir heading toward Glorietta (continued)

3.01 Laf-S. Orinda - 30min/1-car

This scenario assumes that residents have up to 30 minutes to evacuate with no known roadblocks, 80% of the people at their homes, taking one vehicle.

 S. Orinda 30 Min. 1-car, 80% pop,

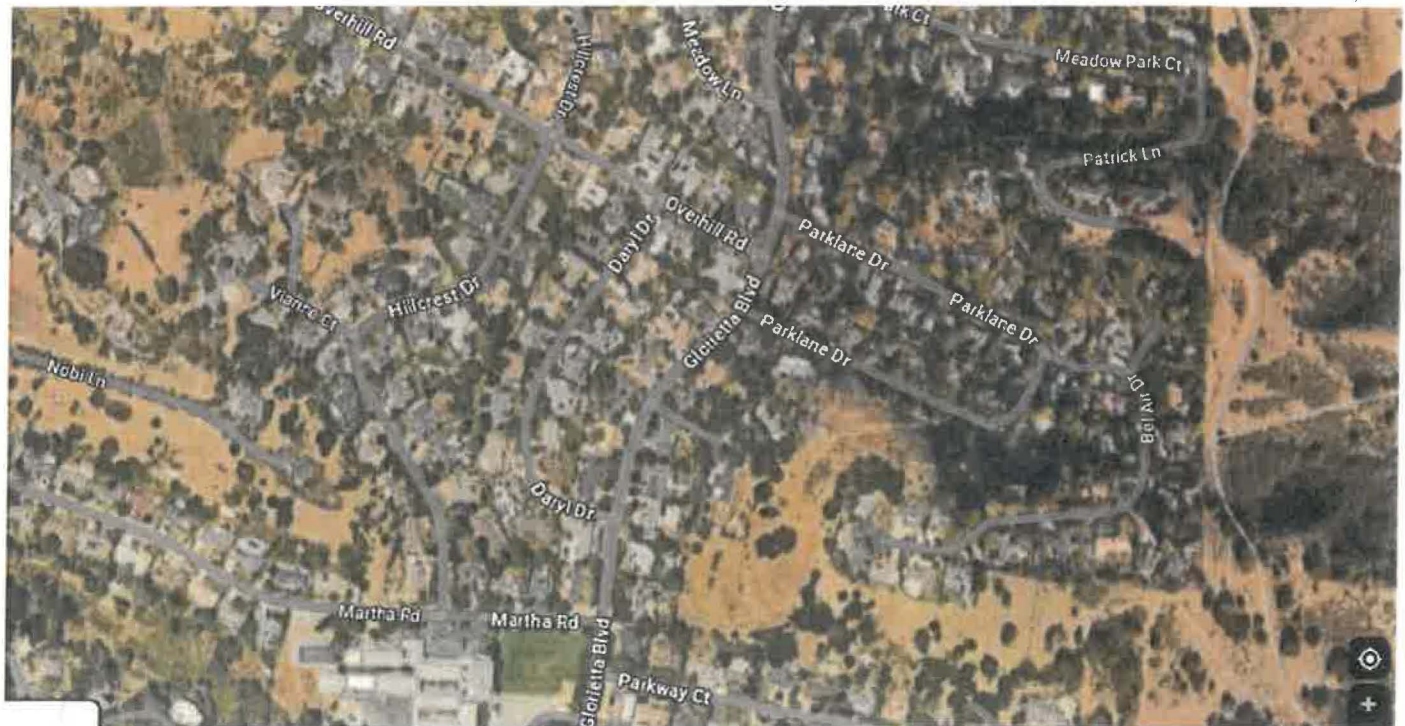
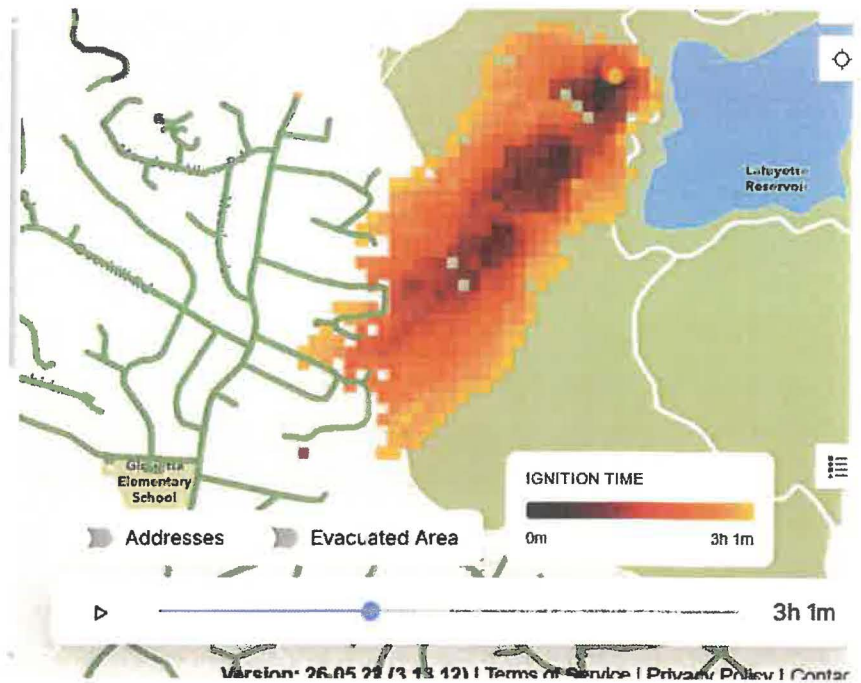
 An evacuation delay of 60 minutes has been applied.

Worst-Case Evacuation Time 

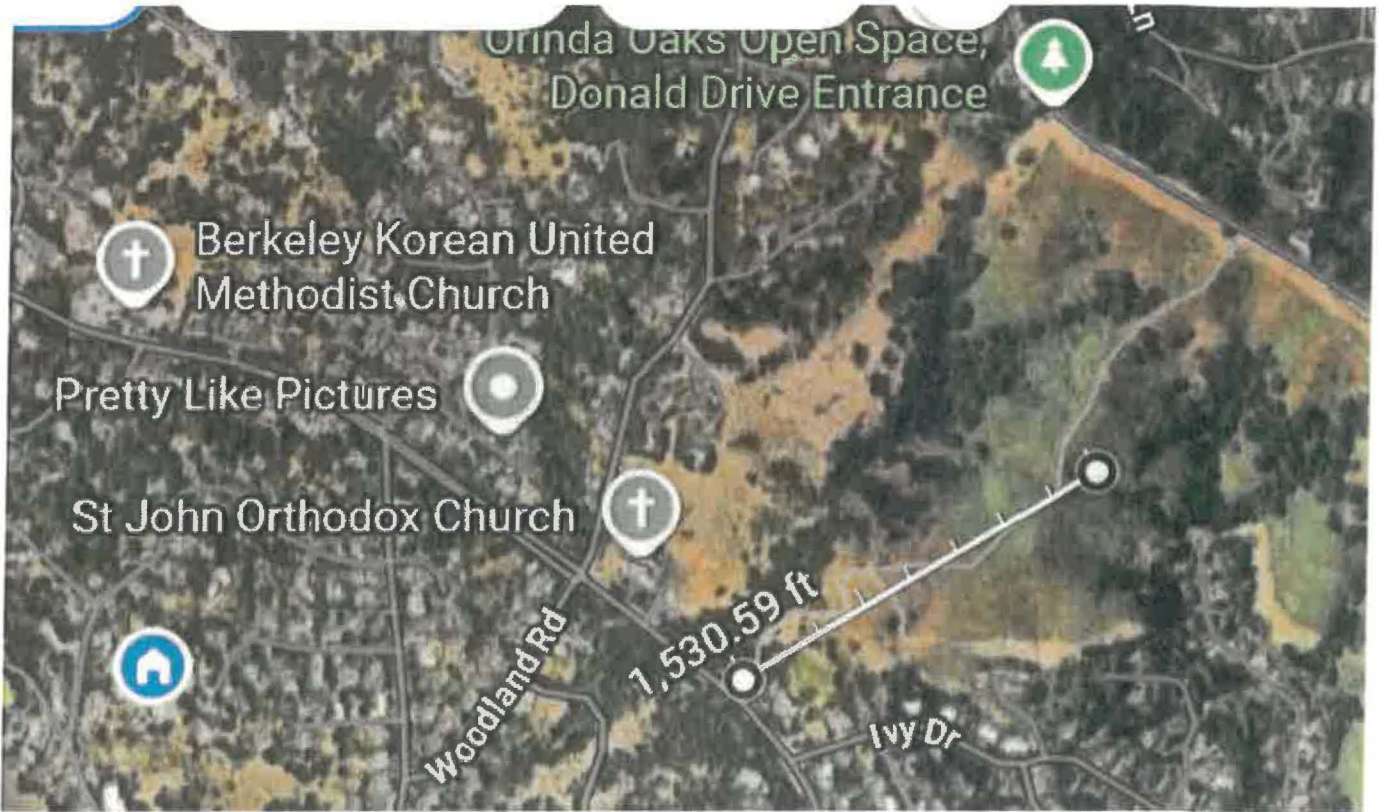
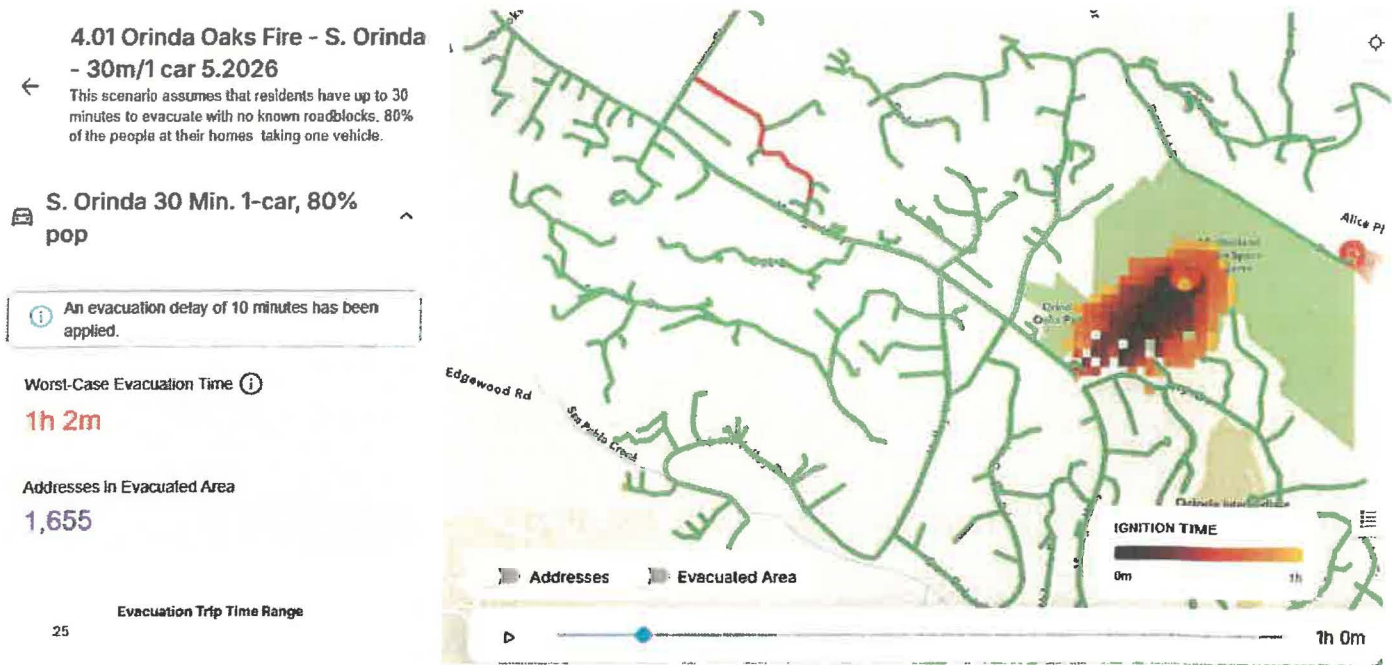
42m

Addresses in Evacuated Area

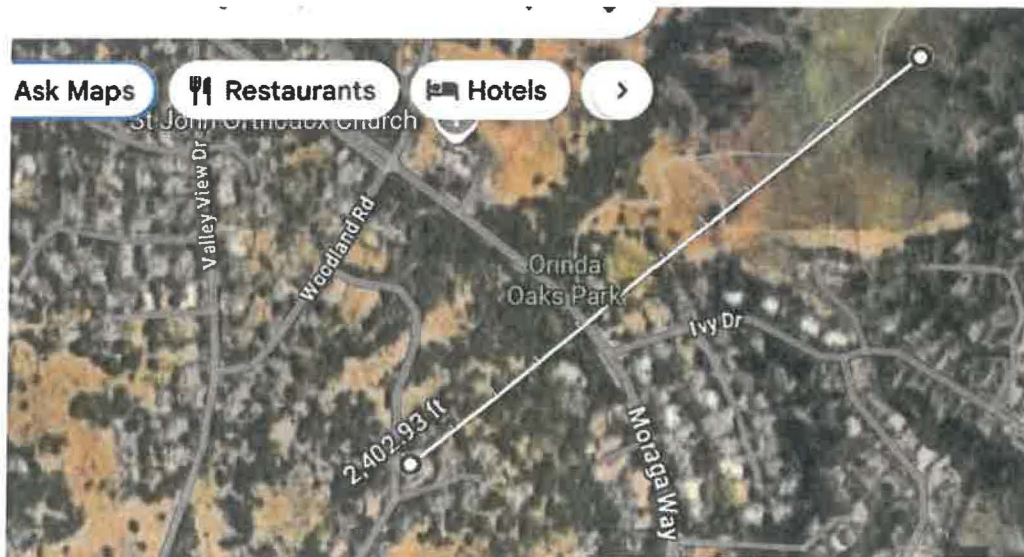
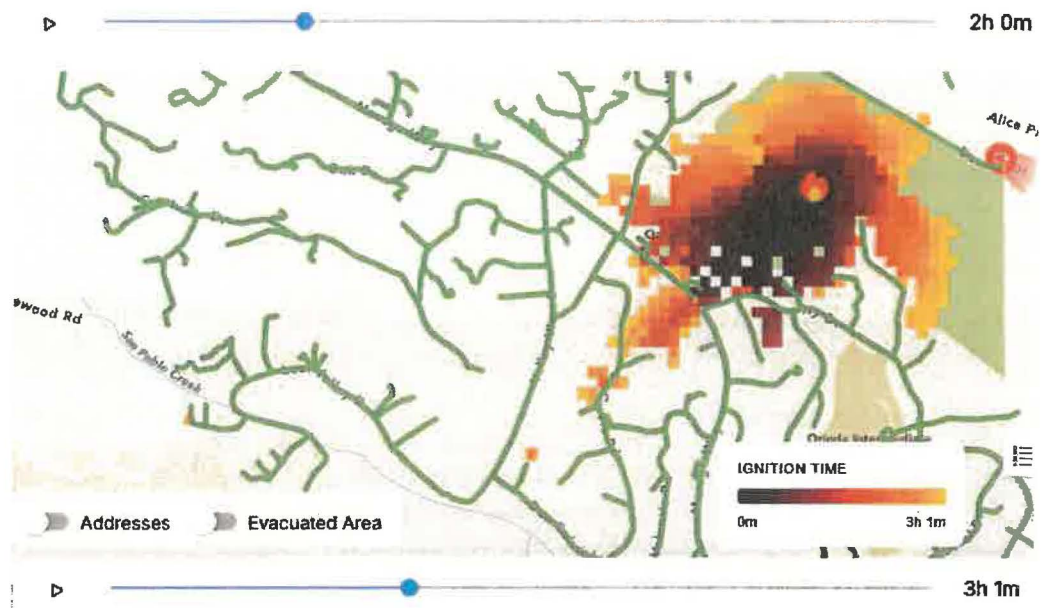
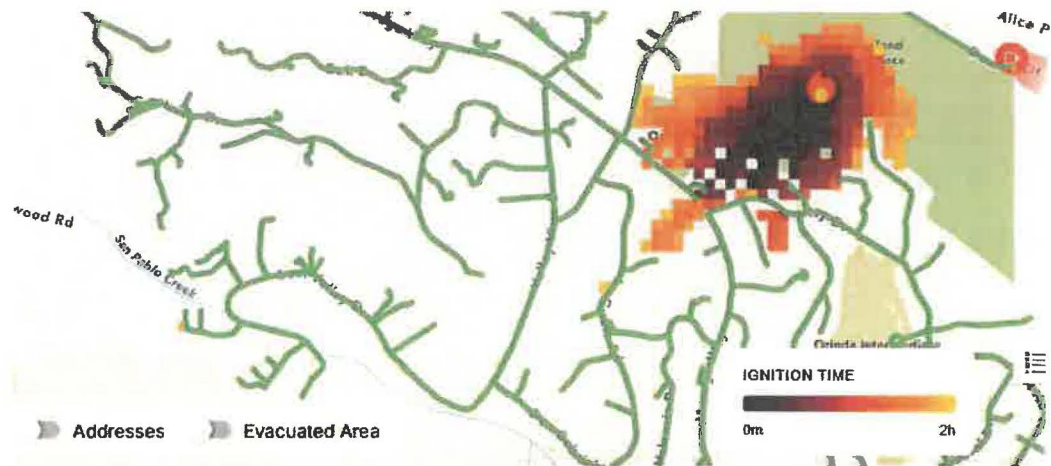
1,226



Scenario 4 – Fire starting at Orinda Oaks Park heading towards Lost Valley



Scenario 4 – Fire starting at Orinda Oaks Park heading towards Lost Valley (continued)



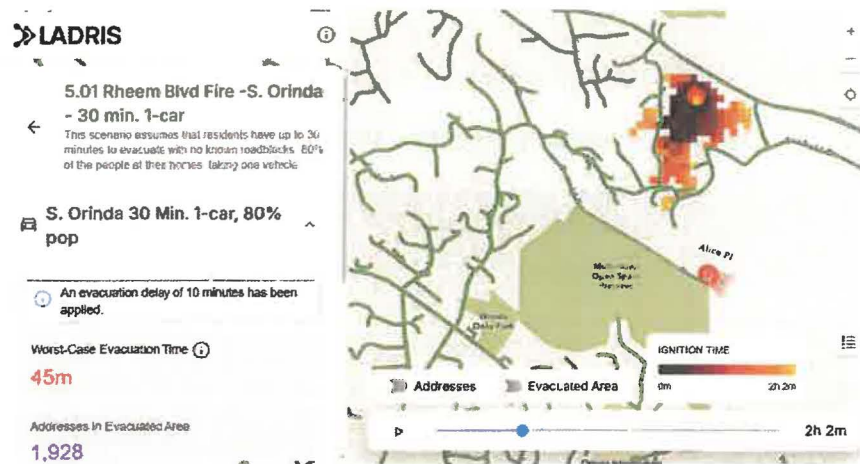
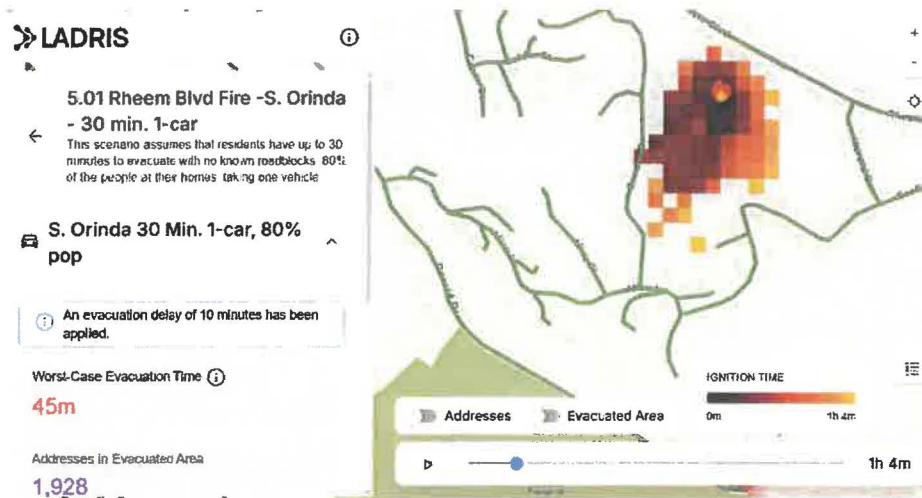
Scenario 4 – Fire starting at Orinda Oaks Park heading towards Lost Valley (continued)



PG&E Property Wildfire Prevention Efforts



Scenario 5 – Fire starting at Rheem Blvd heading towards Orinda Oaks Park



Scenario 5 – Fire starting at Rheem Blvd heading towards Orinda Oaks Park (continued)

LADRLS

5.01 Rheem Blvd Fire -S. Orinda - 30 min. 1-car

This scenario assumes that residents have up to 30 minutes to evacuate with no known roadblocks, 80% of the people at their homes, taking one vehicle

 S. Orinda 30 Min. 1-car, 80% pop

 An evacuation delay of 10 minutes has been applied.

Worst-Case Evacuation Time 

45m

Addresses in Evacuated Area

1,928

