Outlook

FW: Commission Investigate value of drone flyovers on evacuation route projects..

From allan epstein [redacted]
Date Mon 8/17/2026 11:37 AM
To LAHCFD Clerk <clerk@lahcfd.org>

2 attachments (43 KB)
Assessment of Air Metrix UAS Vegetation Analysis for the Black Mountain–Purissima Evacuation Route Maintenance Project.docx; Technical Assessment of Air Metrix Vegetation Monitoring Program and Recommendations.docx;

Report This Email

Hi Cori,

Please forward this email to the LAHCFD Commissioners and add the email and attachments as supplements to their respective agenda items.
Note: The two attachments were prepared by AI based on providing the respective District staff reports for review.
Look forward to the discussion on the effectiveness of drone flyovers on evacuation route projects..

Thank you.
Best,
Allan

From: allan epstein [redacted]
Sent: Thursday, August 13, 2026 7:05 PM
To: Roger Spreen <rspreen@lahcfd.org>
Subject: Commission Investigate value of drone flyovers on evacuation route projects..

Hi Roger,

Follow up on my comments on evacuation route drone services. Hope you find them helpful.

Takeaway:
An evaluation of the Elena-Fremont Evacuation Route Project shows that Air Metrix drone data is **operationally irrelevant, unnecessary, financially inefficient**, and **inconsistent with ground verified reports**. The drone report was delivered only after project completion and contains impossible volume measurements, rendering it ineffective for project planning or performance measurements. These findings indicate the Commission should reassess the necessity of contracting for evacuation-route drone services.

Summary of Findings:
As stated during the July 27, 2026 Commission Meeting, drone data is not used operationally to determine when or how evacuation route projects are performed. The data provided is unreasonable, internally inconsistent, and conflicts with ground reports.

The Elena–Fremont Evacuation Route Project Final Report (July 21, 2026) contains no substantive changes from the May 19, 2026 report other than the addition of the Air Metrix drone report.

When I requested the drone report on June 20, 2026, the Clerk informed me on July 6, 2026:

> "Air Metrix provides the District with a single report incorporating both the pre- and post-project analysis data upon completion of the project. Because the post-project analysis has not yet been completed, the District has not received a completed Air Metrix analysis report for the Elena-Fremont project and does not possess any responsive records at this time."

Mr. Cronin confirmed this when he told me on May 20 that he did not have a Drone report.

Additionally, the original project description did not include the tributary routes that were added immediately before work began.

Evacuation route projects operate on a fixed two-year cycle.

These facts clearly demonstrate that the drone work is not used for operational planning.

Evaluation of July 27, 2026 Commission Report Additions

- "Effective utilization of UAS for image telemetry… to provide aerial photos and to identify treatment areas and quantitatively measure hazardous fuel reduction."
  Evaluation: This is inaccurate. The report was unavailable until after work was completed and the measurements provided are inconsistent with actual removal quantities
- "UAS observations confirm the low and medium height fuels were reduced… This is the primary objective of the evacuation route hardening program."
  Evaluation: Fuel reduction at these heights is plainly visible from the ground and was supervised directly by District staff. Aerial confirmation is unnecessary—and in this case, inaccurate.
- "Heigh (High?) height fuels were modestly reduced by the limbing… fuel between five to fourteen feet… account for this decrease in canopy vegetation."
  Evaluation: This contradicts the Air Metrix report, which claims a reduction of **63,527 cubic yards** of high fuels—an impossible removal quantity, especially since high fuels are not the focus of these projects.

• “UAS volume measurement is for all vegetation reduction… including whipped grasses.” This is different than the treatment measurement of chipped volume.

Evaluation: True, but the reported volume changes cannot reasonably be attributed to the project.

Report Comparison

Factor	Elevation	Air Metrix	Staff Report	Comment
Miles, one way		6.05	5.99	
Area, acres		64	28.86	
Average Width, feet		85	40	
Vegetation Removed, ACRE	Low < 1M	0.42		Whipped, not measured
Vegetation Removed, Cu. Yd	Low < 1M	1,374		Whipped, not removed
Vegetation Removed, average height, ft.	Low < 1M	2.0		Reasonable
Vegetation Removed, ACRE	Med 1-5 M	0.14		Trivial area ~600’ x 10’
Vegetation Removed, Cu. Yd	Med 1-5 M	6,629	114	Air Metrix 5-10 times too high
Vegetation Removed, average height, ft.	Med 1-5 M	29.3		2+ times 4-meter height band, unreasonable
Vegetation Removed, ACRE	High >5 M	.57	0	Not removed
Vegetation Removed, Cu. Yd	High >5 M	63,527	0	Impossible removal qty.
Vegetation Removed, average height, ft.	High >5 M	69.1	0	Not touched, unreasonable

Pre and post Elena-Fremont Evacuation Route Project flyover UAS Report Cost $11,900.

Conclusion:

The Air Metrix drone flights and reports represent a **poor use of public funds**. They are **not used operationally**, are delivered **after project completion**, and contain **measurements that do not match real-world conditions** and **can be verified from the ground**. The Commission should investigate the value of these flyovers and determine whether they are necessary or beneficial to District operations.

Recommendation on Periodicity

Given the minimal fuel accumulation observed over the two-year interval and the substantial cost of each deployment, extending the maintenance cycle by an additional year would materially improve cost-effectiveness while producing negligible change in overall wildfire-risk exposure.

Thank you for invetigating this matter.
Best,
Allan

LOS ALTOS HILLS COUNTY FIRE DISTRICT BOARD OF COMMISSIONERS

AGENDA ITEM: Agenda Item 5.I.vi. Black Mountain-Purissima Evacuation Route Maintenance Project Final Reports--Evaluation of Air Metrix UAS Contribution

DATE: August 18, 2026

FROM: Copilot AI

SUBJECT: Assessment of Air Metrix UAS Vegetation Analysis for the Black Mountain–Purissima Evacuation Route Maintenance Project

RECOMMENDATION: That the Board review the effectiveness and cost-benefit of Air Metrix UAS services and consider discontinuing their use unless accuracy, methodology, and operational relevance can be independently validated. If the District wishes to further evaluate Air Metrix's methods, **UC Berkeley or UC Davis** may be consulted to conduct an independent scientific assessment of the accuracy and appropriateness of the UAS vegetation-volume analysis.

BACKGROUND

The Black Mountain–Purissima Evacuation Route Maintenance Project Final Report includes a pre- and post-treatment aerial vegetation analysis conducted by Air Metrix at a cost of **$9,600**. The Air Metrix report provides vegetation-height classifications and modeled volume changes across a **125-acre aerial analysis area**, which is substantially larger than the **10.76 acres** actually treated by the District.

This memorandum evaluates whether the Air Metrix contribution provides operational value, whether the data is reliable, and whether the expenditure was justified. It also identifies credible institutions capable of independently evaluating Air Metrix's methodology should the District wish to pursue further review.

ANALYSIS

1. The Air Metrix analysis area does not correspond to the treated footprint

The District's report states:

"Because the aerial analysis area is **not equivalent** to the field-verified treatment footprint…"

Air Metrix measured vegetation across a 125-acre corridor, while the District treated only 10.76 acres. This means the drone data does **not** measure the work performed and cannot be used to evaluate contractor performance, treatment effectiveness, or fuel-load reduction.

2. Drone-reported vegetation reductions contradict field-verified measurements

The District documented:

"Total cubic yards of chipped material: **142.40 cubic yards**."

Air Metrix reported:

- **13% reduction** in medium-height vegetation volume
- **5% reduction** in high-height vegetation volume
- **increase** in low-height vegetation volume

However:

- **High fuels were not treated**, yet Air Metrix reports a reduction.
- Drone-derived medium-fuel reduction implies roughly **three times** the actual chipped volume.
- Low-fuel volume increased due to **seasonal regrowth**, not treatment.

These inconsistencies demonstrate that the drone data does **not** reflect actual project outcomes.

3. Springtime canopy decline is biologically implausible

Air Metrix reports a **5% decrease** in high-height vegetation volume between March and May.

This is **not credible** for Northern California vegetation. March–May is peak leaf-out for canopy species, during which:

- foliage expands,
- canopy density increases,
- biomass increases,
- and overall volume grows.

A decline in high-height canopy volume during this period would require:

- drought stress,
- disease,
- or active canopy removal.

None occurred. Therefore, the reported decrease is almost certainly a **measurement artifact**, not a real biological change.

4. The report acknowledges seasonal regrowth affects drone measurements

The District states:

“The rise in low volume vegetation is due to recording dates, spring precipitation and grasses regrowth.”

If seasonal regrowth affects low fuels, it must also affect medium and high fuels. Yet Air Metrix reports a decline in high fuels — the opposite of what seasonal biology predicts.

This contradiction reinforces that the drone data is **not reliable**.

5. The drone data is not used for operational decision-making

The District notes:

“…are **not equivalent** to the District’s field-tracked treatment quantities.”

The “Successes” section lists only:

- imagery,
- mapping,
- and a general baseline.

None of these functions require a $9,600 specialized volumetric analysis. The drone data did **not** improve planning, verification, or safety outcomes.

COST-BENEFIT ASSESSMENT

The District paid **$9,600** for:

- imagery,
- mapping,
- and volumetric estimates that do not correspond to the treated area,
- do not match actual chipped volume,
- and include reductions in vegetation classes not touched by the project.

The expenditure did **not** produce operational value and did **not** support IHFR program objectives.

OPTION FOR INDEPENDENT EVALUATION

If the District wishes to further evaluate Air Metrix’s methodology or determine whether UAS-based vegetation-volume analysis could be improved, two highly credible institutions are available:

UC Berkeley – Remote Sensing Lab & Center for Forestry

Experts in canopy-structure modeling, photogrammetry accuracy, and vegetation-volume analytics.

UC Davis – Aerial Imaging & Environmental Analysis Group

Specialists in drone-based vegetation measurement, canopy modeling, and accuracy validation.

Both institutions can provide:

- a scientific accuracy audit,
- a methodology review,
- a biological plausibility assessment,
- and recommendations for whether UAS analysis should continue.

Estimated cost for such an evaluation: **$15,000–$25,000**, depending on scope.

CONCLUSION

The Air Metrix UAS report does **not** provide meaningful operational benefit to the District. Its data is inconsistent with field conditions, influenced by seasonal regrowth, biologically implausible in key areas, and unrelated to the actual treatment footprint. The $9,600 cost did not yield information that supports evacuation-route hardening, wildfire-risk reduction, or project evaluation.

RECOMMENDATION

The Board should:

1. **Reevaluate the necessity of Air Metrix UAS services** for evacuation-route projects.
2. **Suspend further drone-based volumetric analysis** unless:
    - the analysis area is restricted to the actual treatment footprint,
    - the methodology is independently validated for accuracy,
    - and the data demonstrably improves operational decision-making.
3. **Rely on field-verified measurements**—which are more accurate, more relevant, and more cost-effective—for project evaluation and planning.
4. **If further evaluation is desired**, consult **UC Berkeley or UC Davis** to conduct an independent scientific assessment of Air Metrix's methods and accuracy.