



MEMORANDUM REPORT

DATE: July 21, 2026

TO: Board of Commissioners of the Los Altos Hills County Fire District

FROM: Elena – Fremont Project Team,
Ryan Cronin, Technical Analyst/Project Manager
A. Harmon, Field Manager
Eugenia Woods, Programs, Planning and Grants Manager

SUBJECT: Elena - Fremont Evacuation Route Project Final Reports

RECOMMENDATION:

Receive Elena - Fremont Evacuation Route Project Final Reports

BACKGROUND

The Los Altos Hills County Fire District (District or LAHCFD) 2023-2027 Strategic Plan Goals & Strategies, Strategic Goal 1 *Prevention, Protection, Resiliency*, aims to fund, develop, and maintain programs to protect life, property and enhance safety to build a resilient community. Evacuation Route Hardening is an initiative of this goal. Integrated Hazardous Fuel Reduction (IHFR) programs identified in the LAHCFD Chart of Services include the Community-Focused Evacuation Route Hardening projects. These IHFR programs are based on fire science, the LAHCFD Community Wildfire Protection Plan (CWPP) Annex 4, and the expenditures allocated in the annual District budget. IHFR projects are designed to enhance community resiliency, educate District residents, and reduce community fire hazards. In accordance with Goal 1, staff identified high fire risk areas and initiated collaborative solutions with regional partners including the Santa Clara County FireSafe Council (SCCFSC) and the Santa Clara County Central Fire Protection District (County Fire or Fire Department). The projects target roadside hazardous vegetation reduction on major transportation corridors.

The Elena-Fremont and Purissima-La Paloma projects were initially completed in spring 2024. The fundamental goal of these evacuation route hardening projects is to provide greater protection for life safety and to reduce property losses in the event of wildfire by providing safer egress and ingress for evacuees and emergency responders.

Many evacuation route hardening projects have been completed since the first Page Mill Road project was completed in 2020. Within three years of this beginning, the most significant evacuation routes have been treated. Maintenance of these routes is less intensive than the initial treatment, allowing for time and resources to expand the treatment to secondary routes. Now, six years into the program, primary and secondary routes are all on a maintenance schedule. LAHCFD is now able to combine previous projects and add new TRIBUTARY roads to the Evacuation Route Hardening program. This Elena-Fremont project is the first time tributary roads have been introduced to the program.

Santa Clara County FireSafe Council (SCCFSC) remains the project manager for previous and current projects. These projects create evacuation routes for egress and ingress in event of wildfire or emergency incident by removing hazardous vegetation from the roadside. The result is greater public safety and alignment with LAHCFD's and Santa Clara County's evacuation initiatives.

Information about this project, and other District projects can be found on the Department website at <https://www.lahcfd.org/community-projects/>.

DISCUSSION

The Santa Clara County FireSafe Council Final Report for the Elena-Fremont Evacuation Route project accompanies this report. The District provides this report and summary of costs for the project. The Elena-Fremont Evacuation Route project was successful in attaining the goal of reducing hazardous fuel to provide a safer evacuation route.

QUANTITATIVE RESULTS and EXPENSES

	Elena-Fremont Evacuation Route Maintenance 2026			
	Date	Cubic Yards	Distance (Miles)	Area (Acres)
	Monday, May 4, 2026	13	1.5	3.64
	Tuesday, May 5, 2026	13	1.5	3.64
	Wednesday, May 6, 2026	11	1.5	3.64
	Thursday, May 7, 2026	18	2.1	5.09
	Friday, May 8, 2026	20	1.6	3.88
	Monday, May 11, 2026	17	1.5	3.64
	Tuesday, May 12, 2026	15	1.5	3.64
	Wednesday, May 13, 2026	7	0.6	1.45
	Total	114	11.8	28.61

Elena - Fremont data. All collected biomass was recycled at a Recycling Certification Institute (RCI) facility. Distance (Miles) is curblin treated.



Elena-Fremont Evacuation Route

Project Cost Breakdown

Service Description	Contractor	Completed	Amount
IHFR Project Management	SCC FireSafe Council	Mar 2026 -	15,912.87
Personnel Mileage	SCC FireSafe Council	Apr 2026 -	346.55
Project Supplies			
Project Supplies Reimbursement (LAHCFD)	Cal Card	May-26	75.34
Traffic Control Plan	City Rise	Feb-26	1,680.00
Traffic Control Contractor	Statewide	May-26	49,183.68
Fuel Reduction	Brush Hog	May-26	75,345.20
Biological Survey	Dudek	May-26	26,776.56
Postcard, Cover Letters, & ROE Mailers	Folger Graphics	Mar-26	2,211.47
Pre-Project UAS Flyover/Data	Air Metrix	Apr 2026 - May 2026	6,000.00
Post-Project UAS Flyover/Data	Air Metrix	Jun-26	5,900.00
Total Project Cost			183,431.67

Costs directly associated with the Elena - Fremont 2026 Evacuation Route Project

Successes

- Combining previously treated areas from prior projects promoted economy of scale for logistics such as permits, the traffic control plan, surveys and the contractor selection process.
- Incrementally adding new treatment area with the inclusion of tributary routes took advantage of the available capacity inherent when doing maintenance work.
- Effective utilization of Unmanned Aircraft Systems (UAS) for image telemetry. Air Metrix was contracted to provide aerial photos and to identify treatment areas and quantitatively measure hazardous fuel reduction.
- UAS observations confirm the low and medium height fuels were reduced by the treatment. This is the primary objective of the evacuation route hardening program.
- Heigh height fuels were modestly reduced by the limbing of trees. Fuel between five to fourteen feet from the ground account for this decrease in canopy vegetation.

- Note that the UAS volume measurement is for all vegetation reduction. UAS measurements include grasses that are whipped. This is different than the treatment measurement of chipped volume.

The Air Metrix *Elena Fremont June 2026_UAS Report* accompanies this report.

- Recognition that the insurance industry is now incentivizing the high value of hazardous vegetation management programs to reduce the threat of wildfire and property losses. LAHCFD efforts strongly support the Office of the Insurance Commissioner's Initiative for the insurance industry to recognize wildfire mitigation efforts as a benefit to the insured.
- Appreciation is expressed for the dedicated support of the LAHCFD Board of Commissioners, the Santa Clara County Fire Department, the Town of Los Altos Hills, the Santa Clara County FireSafe Council, Caltrans, County Roads & Airports, and the contractor, crews and traffic control involved in the success of the project.

Insights/Lessons Learned

- As a result of the collaboration and coordination between LAHCFD and its partners, the Elena-Fremont Evacuation Route project was successful and provided a strategic and high priority public safety benefit to the community in the event of a wildfire or emergency incident. LAHCFD thanks the team, contractors, Commissioners, community members and partner agencies for their contributions to and support of this project.

Links:

1. [LAHCFD 2023-2027 Strategic Plan, Goal 1](#)
2. [LAHCFD Chart of Services, V20, 01/07/2026](#)

Attachments:

1. Santa Clara County FireSafe Council *Elena-Fremont Final Report_SCCFSC*
2. Air Metrix *Elena Fremont June 2026_UAS Report*



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FINAL REPORT **Elena- Fremont Evacuation Route**

May 2026

Introduction:

The Elena-Fremont Roads in Los Altos Hills and Palo Alto, California, represents a significant thoroughfare for the western portion of Los Altos Hills Community. This interchange is a primary means of egress and ingress in case of an emergency evacuation. To secure this egress/ingress' integrity, Santa Clara County FireSafe Council, Los Altos Hills County Fire District, the City of Palo Alto and Palo Alto Fire Department proposed a joint roadside treatment of fuels.

Cooperators:

There were multiple agencies, contractors, and organizations that contributed to the project; Santa Clara County Fire Safe Council, Los Altos Hills County Fire District, Santa Clara County Roads and Airports, Caltrans, the Town of Los Altos Hills, Brush Hog Tree Care, and AWP Safety.

Goals For This Project:

- Trim woody vegetation and clear grasses and weeds along the roadside to enhance safety and visibility.
- Remove dead or dying woody debris to reduce fire risk and improve overall roadway conditions. Remove all downed woody vegetation, brush, tree branches, dry weeds, and deep accumulations of leaves.
- Reduce ladder fuels around larger trees.
- Remove dead, diseased, or damaged trees smaller than 8 inches DBH posing a hazard.
- Vegetation clearance will extend fourteen feet vertically above the pavement and up to fifty feet horizontally from the centerline of the road within the public right-of-way managed by the County of Santa Clara, the Town of Los Altos Hills, or Caltrans.
- Clear any eucalyptus bark on the ground, in the tree forks, or hanging loose from trees.



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Project Site:

The Elena–Fremont Evacuation Route Project provided hazardous fuels reduction and defensible space treatments along ten (10) roads within a critical evacuation corridor in the Los Altos Hills County Fire District. Treatment areas included Elena Road, La Barranca Road, Purissima Road, Concepcion Road, W. Fremont Road, Westwind Way, La Paloma Road, Manuella Road, Estacada Drive, and Miranda Road. The western extent of the project was located at the intersection of Elena Road and Natoma Road (37.3756413, -122.1521703), while the eastern extent was located at the intersection of W. Fremont Road and W. Edith Avenue (37.3804304, -122.1245742).

Vegetation treatment operations began on Elena Road at the Natoma Road access point and progressed south toward La Barranca Road. Crews continued along La Barranca Road and onto Purissima Road, treating roadside vegetation along the designated evacuation corridor until reaching the project boundary at Robleda Road. Operations then shifted to the eastern portion of the project area, where crews treated vegetation along Miranda Road, Manuella Road, and W. Fremont Road. Upon completion of the eastern corridor, crews returned to the western project area to complete the remaining treatment segments along Purissima Road and finalize work within the Elena Road corridor.

The project encompassed approximately 5.99 linear miles of roadway, equating to approximately 11.98 treated miles when accounting for treatment on both sides of the roadway where applicable. Completed treatments reduced hazardous vegetation adjacent to roadways, improved roadside defensible space, and enhanced emergency ingress and egress for residents and emergency responders utilizing these evacuation routes.



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Elena- Fremont Evacuation Route Project Map

Elena Fremont Project Area Map

2026



Tributary	Elena Fremont	La Paloma	LAHCFD Boundary	0	0.25	0.5	1 Miles
ESTACADA DR	CONCEPCION RD	LA PALOMA RD					
MANUELA AVE	ELENA RD	PURISSIMA RD					
MANUELLA RD	FREMONT RD	WESTWIND WAY					
MIRANDA RD	LA BARRANCA RD						



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Permissions:

One of the biggest challenges in these types of projects is getting permission to treat the properties. During planning of the project, we conducted an extensive public outreach effort to get the permissions needed. It included mailers, newspaper articles, door-to-door visits, and a social media campaign. We were able to include ten (10) of the 124 parcels involved. Prior to the project, LAHCFD staff conducted a survey of the area to identify key parcels within the project scope. SCCFSC's timeframe for ROE forms to be returned was approximately 3 weeks with a due date of Friday April 17, 2026. LAHCFD Staff went out to conduct door knocking 2 weeks prior to project start date.

Biological Precautions:

As with all our projects, protecting the biodiversity of the area is a high priority. A Biological Survey was conducted on Monday April 27 & Tuesday April 28, by Dudek, 5 days before the project started. The biologist identified and flagged wood rats' nests, active birds' nests, drainages, and any habitats within the treatable area. The biological review was completed within the nesting season. Heritage trees were not identified during the field verification stage and were not included in the work plan. Finally, a buffer of 25 feet was implemented along stream beds and seasonal waterways. The biological monitor was on site and provided daily assessments alongside the vegetation crews but prior to any work commencing to further ensure the protection of habitats.

Project Duration:

The project started on Monday May 4, 2026, and was completed on Wednesday May 13, 2026, a total of 8 Days. We encountered 0 red flag days.

Jurisdictions And Funders Involved:

Santa Clara County Fire Safe Council, Los Altos Hills County Fire District, Santa Clara County, Caltrans, and Town of Los Altos Hills.

Contractors Selected:

Dudek was selected for this project due to availability and competitiveness of the bid. Brush Hog Tree Care was selected for this project due to availability and competitiveness of the bid. AWP Safety was selected to provide six flaggers and traffic control for project duration.



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Project Photos





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By The Numbers:Area treated - 11.98 miles.

- Acres treated - 28.86 acres.
- No poison oak was treated during this project.
- Eight (8) days of treatment on the project itself was carried out by Brush Hog Tree Care.

We successfully completed the maintenance evacuation route, tributaries, and vegetation treatment. This project also supports goals in the LAHCFD CWPP annex 4 as well as the overall Community Wildfire Protection Plan.

We would like to acknowledge the contribution made by Brush Hog Tree Care, Dudek, and AWP Safety. All entities were committed to assisting Santa Clara County FireSafe Council with the project from start to finish.

AWP Safety provided six traffic control personnel throughout the project to ensure that the work could be done in an efficient and safe manner. All roads worked on are commuter roads with high bike and foot traffic routes, and driveways; the traffic control personnel were necessary for the safety of the tree crews, SCCFSC staff, LAHCFD staff, general traffic, pedestrians and bicyclists in the Los Altos Hills area. I'm happy to report, with AWP Safety traffic control coverage and the safe working practices of Brush Hog Tree Care, we were able to finish the project with no reported injuries or incident reports. In addition to that, Los Altos Hills County Fire District granted permission for the project crew to use their parcel for a staging area.

Safety briefings were held by the safety officers Barbara Gonzalez, and Ryan Cronin each morning before start of work to discuss traffic control, personal protective equipment (PPE), local emergency services, environmental hazards, and weather conditions.

We would like to thank all the cooperators and property owners for all their support. If you have any questions or concerns, please feel free to direct them to:

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Project Manager

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Phone: (650)605-3459

Nestor Valle

Senior Project Manager

e-mail: nvalle@sccfiresafe.org

POST TREATMENT REPORT

*ELENA ROAD
LA BARRANCA ROAD
PURISSIMA ROAD
LA PALOMA ROAD
CONCEPCION ROAD
WESTWIND WAY
WEST FREMONT ROAD
MANUELLA ROAD
MIRANDA ROAD
ESTACADA DRIVE*



**COUNTY FIRE
DISTRICT**

JUNE 2026

EXECUTIVE SUMMARY



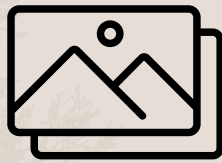
64 acres



6.05 mi



June 2026



5,230 images



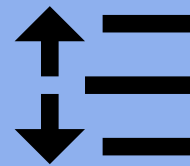
166x



Moisture level
analysed

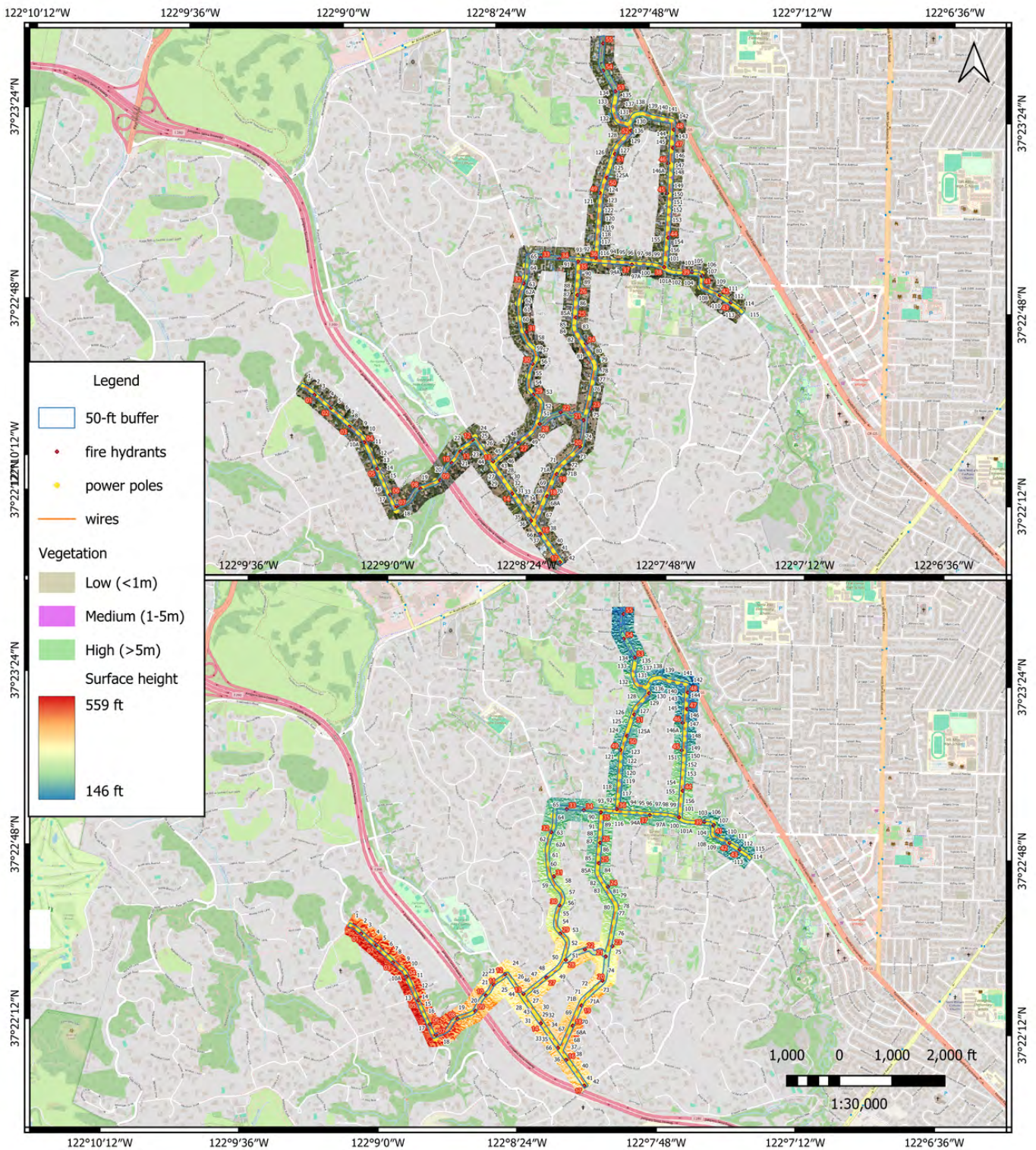


Health status
analysed



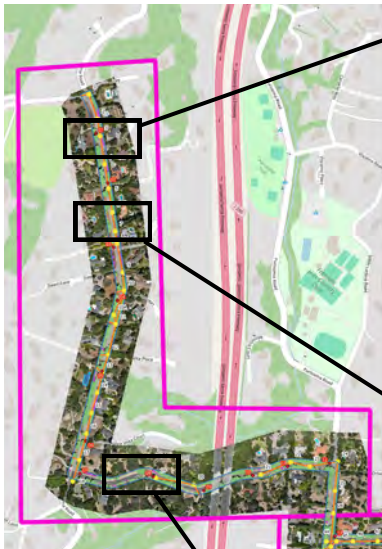
Vegetation height
groups

OVERVIEW



CHANGES: BEFORE (MAY) - AFTER (JUNE) (1ST MILE)

1st mile



	Low vegetation before		Low vegetation after
	Medium vegetation before		Medium vegetation after
	High vegetation before		High vegetation after



Bushes trimmed

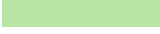


Trees trimmed



Grass reduction

CHANGES: BEFORE (MAY) - AFTER (JUNE) (2ND MILE)

	Low vegetation before		Low vegetation after
	Medium vegetation before		Medium vegetation after
	High vegetation before		High vegetation after

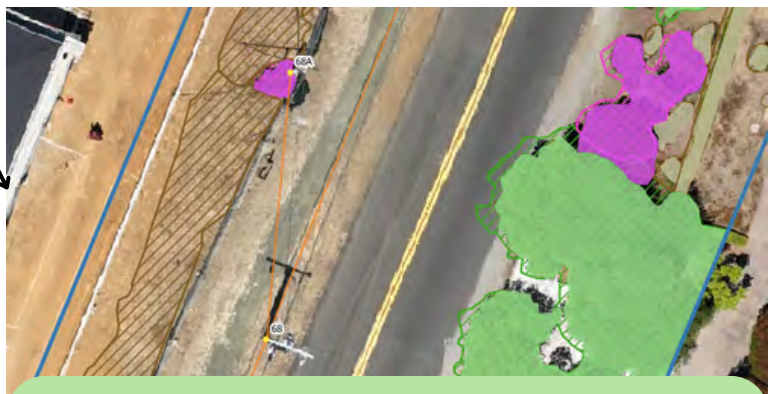
2nd mile



Bushes and trees cut down

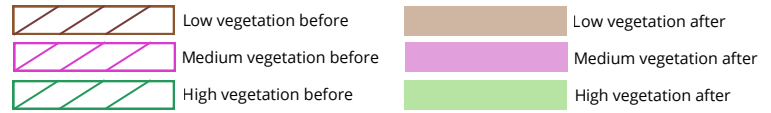


Grass reduction



Grass reduction

CHANGES: BEFORE (MAY) - AFTER (JUNE) (3RD MILE)



3rd mile



Trees trimmed

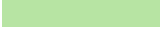


Grass reduction



Bushes trimmed

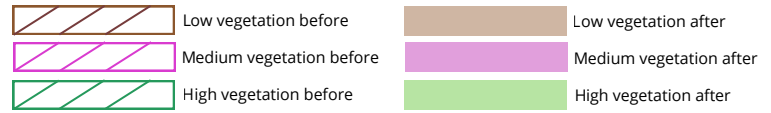
CHANGES: BEFORE (MAY) - AFTER (JUNE) (4TH MILE)

	Low vegetation before		Low vegetation after
	Medium vegetation before		Medium vegetation after
	High vegetation before		High vegetation after

4th mile



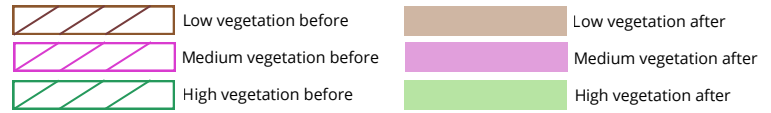
CHANGES: BEFORE (MAY) - AFTER (JUNE) (5TH MILE)



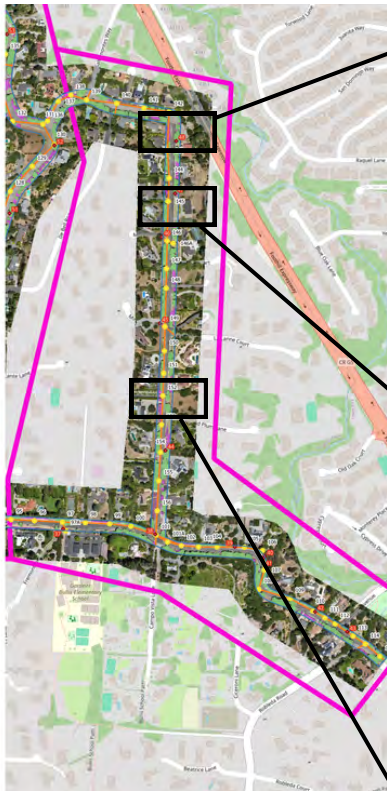
5th mile



CHANGES: BEFORE (MAY) - AFTER (JUNE) (6TH MILE)



6th mile



Bushes trimmed



Trees trimmed



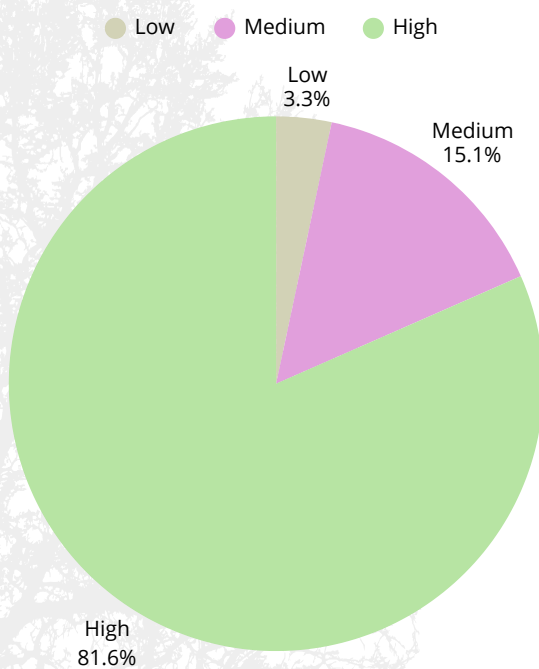
Bushes trimmed



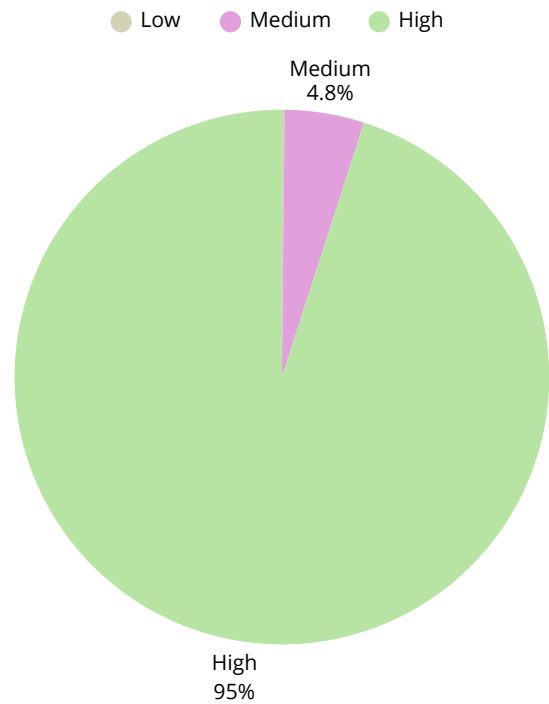
SHAPSHOT OF VEGETATION PROFILE

A primary goal of an evacuation route treatment is to reduce low height vegetation such as grasses and medium height vegetation such as shrubs and saplings that are ladder fuels. Finally the retention of a healthy tree canopy in the high height provides shade and cooler temperatures.

Vegetation area, %

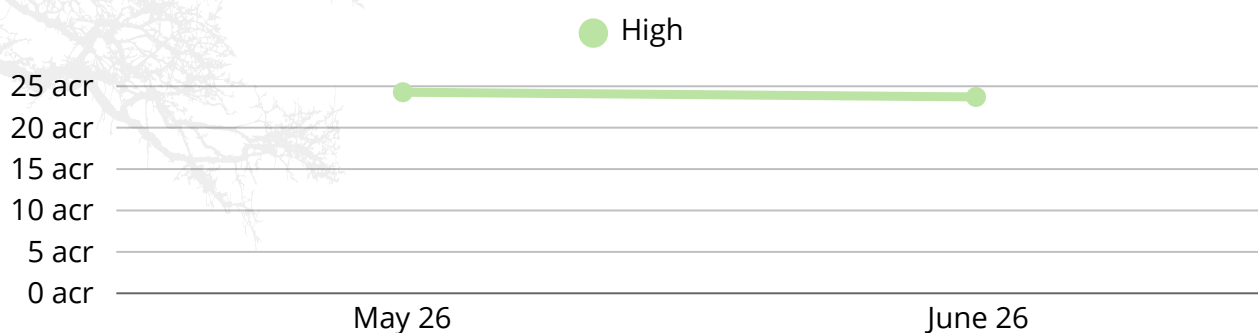
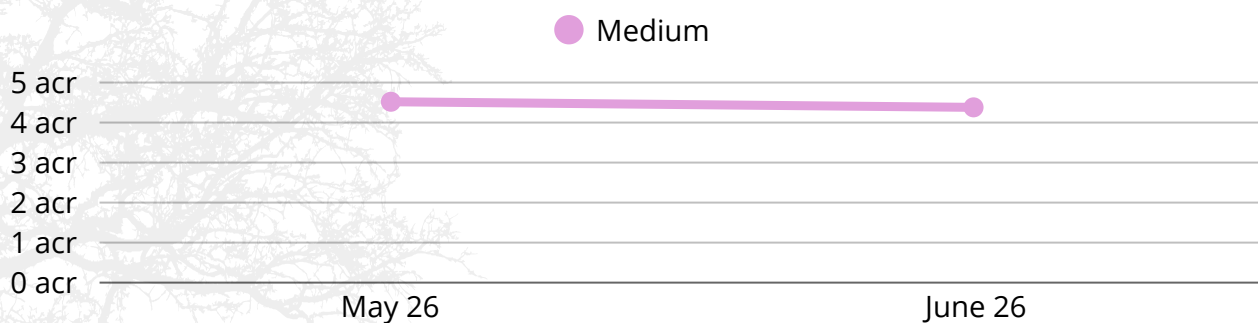
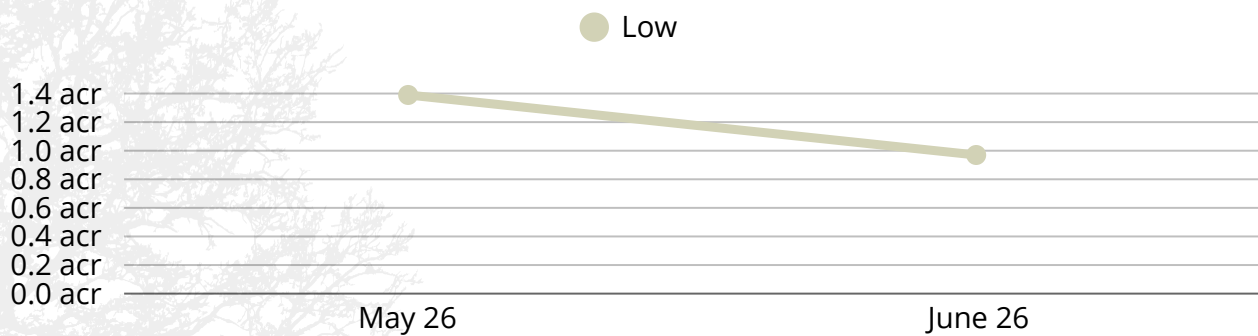


Vegetation volume, %



SHAPSHOT OF VEGETATION PROFILE

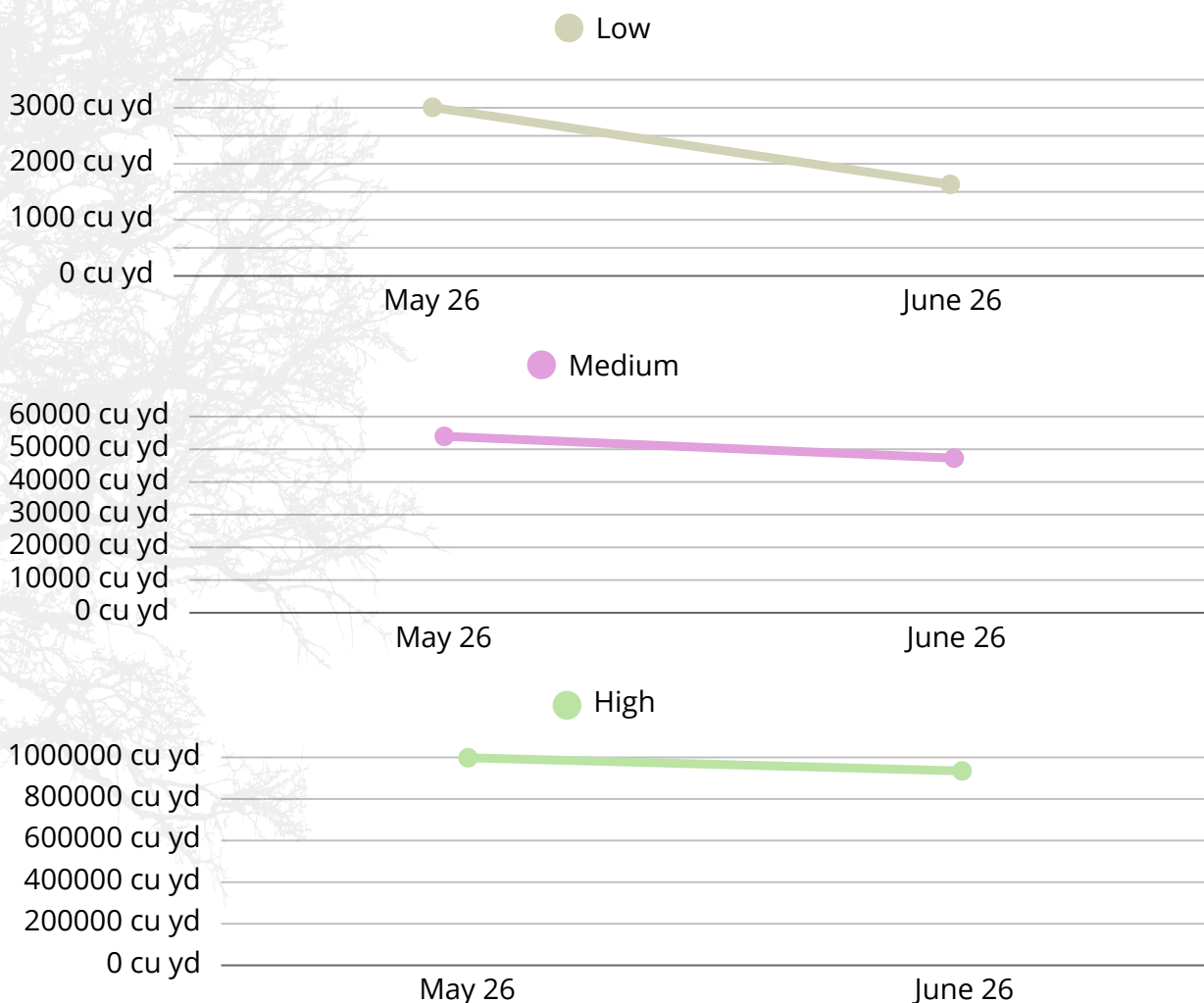
Vegetation height\ Area (acres)	May '26	June '26	Acreage change
Low (up to 1 m)	1.39	0.97	-30%
Medium (1-5 m)	4.52	4.38	-3%
High (more than 5 m)	24.28	23.71	-2%



SHAPSHOT OF VEGETATION PROFILE

Volume is another way to measure a primary goal of an evacuation route treatment. Again the goal is to reduce low height vegetation and medium height vegetation. Retention of high height vegetation creates a shaded fuel break effect.

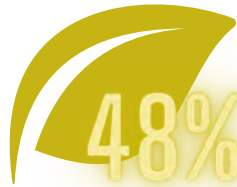
Vegetation height \ Volume (cubic yards)	May '26	June '26	Volume change
Low (up to 1 m)	3,007	1,633	-46%
Medium (1-5 m)	53,972	47,298	-12%
High (more than 5 m)	998,352	934,875	-6%



VEGETATION HEALTH STATUS (NDVI)



Very stressed

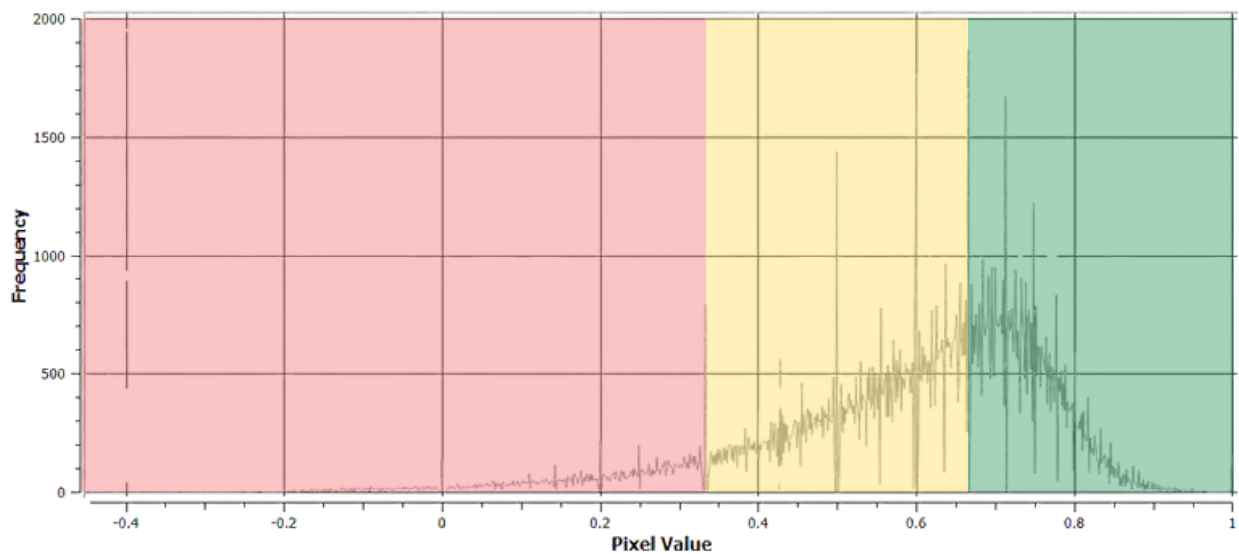


Moderately stressed



Low stressed

NDVI Distribution Chart



NDVI, or Normalized Difference Vegetation Index, is a numerical indicator used to assess the presence and health of vegetation by analyzing how surfaces reflect light at specific wavelengths. It is calculated using the formula $(NIR - Red) / (NIR + Red)$, where NIR stands for near-infrared reflectance and Red refers to red light reflectance.

The NDVI values range between -1 and +1. Values closer to +1 indicate dense, healthy vegetation, such as a forest canopy or thriving crop field. Moderate values (around 0.3 to 0.66) suggest sparser or less healthy vegetation like grasslands or shrubs. Values near zero or negative values typically represent diseased or dead plants.



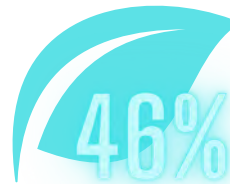
MOISTURE CONTENT (GNDVI)



Water stressed



Low level of
water content

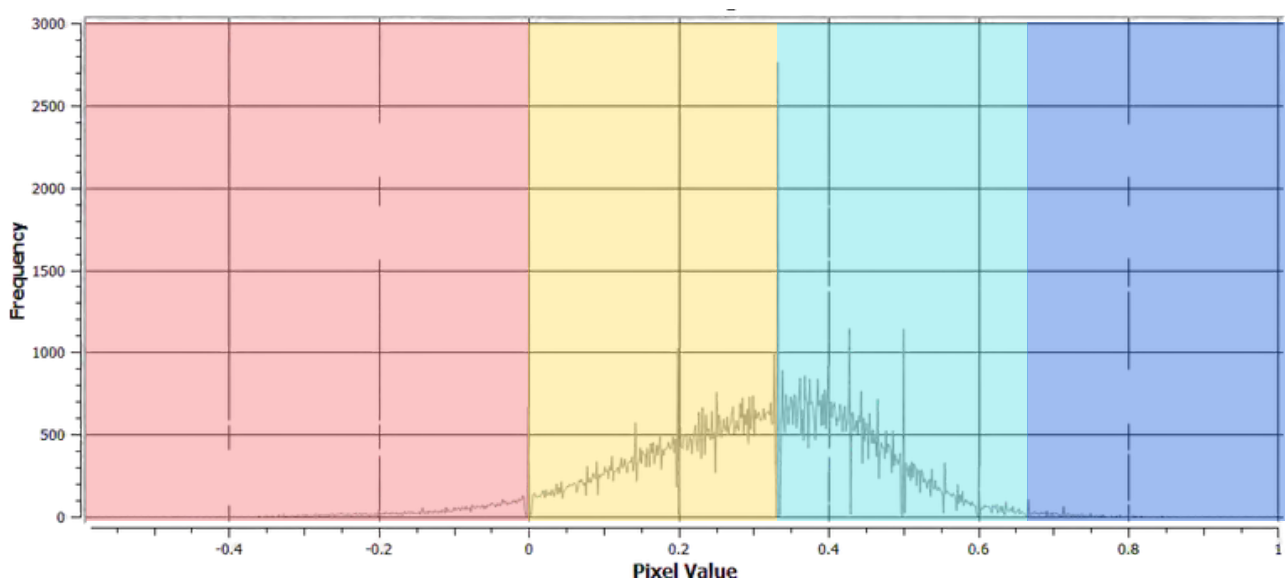


Medium level of
water content



High level of
water content

GNDVI Distribution Chart



GNDVI, or Green Normalized Difference Vegetation Index, is a vegetation index similar to NDVI but it uses the green band instead of the red band. It is particularly sensitive to chlorophyll content in leaves and is often used for assessing plant water stress, nitrogen content, or overall plant vigor, especially in crops with high chlorophyll concentrations.

The output values range from -1 to +1, just like NDVI. Higher values indicate high level of moisture in plants, while lower or negative values suggest sparse and water stressed vegetation. Compared to NDVI, GNDVI may be more sensitive to early signs of water or nitrogen deficiency, since green reflectance changes earlier in response to plant stress.