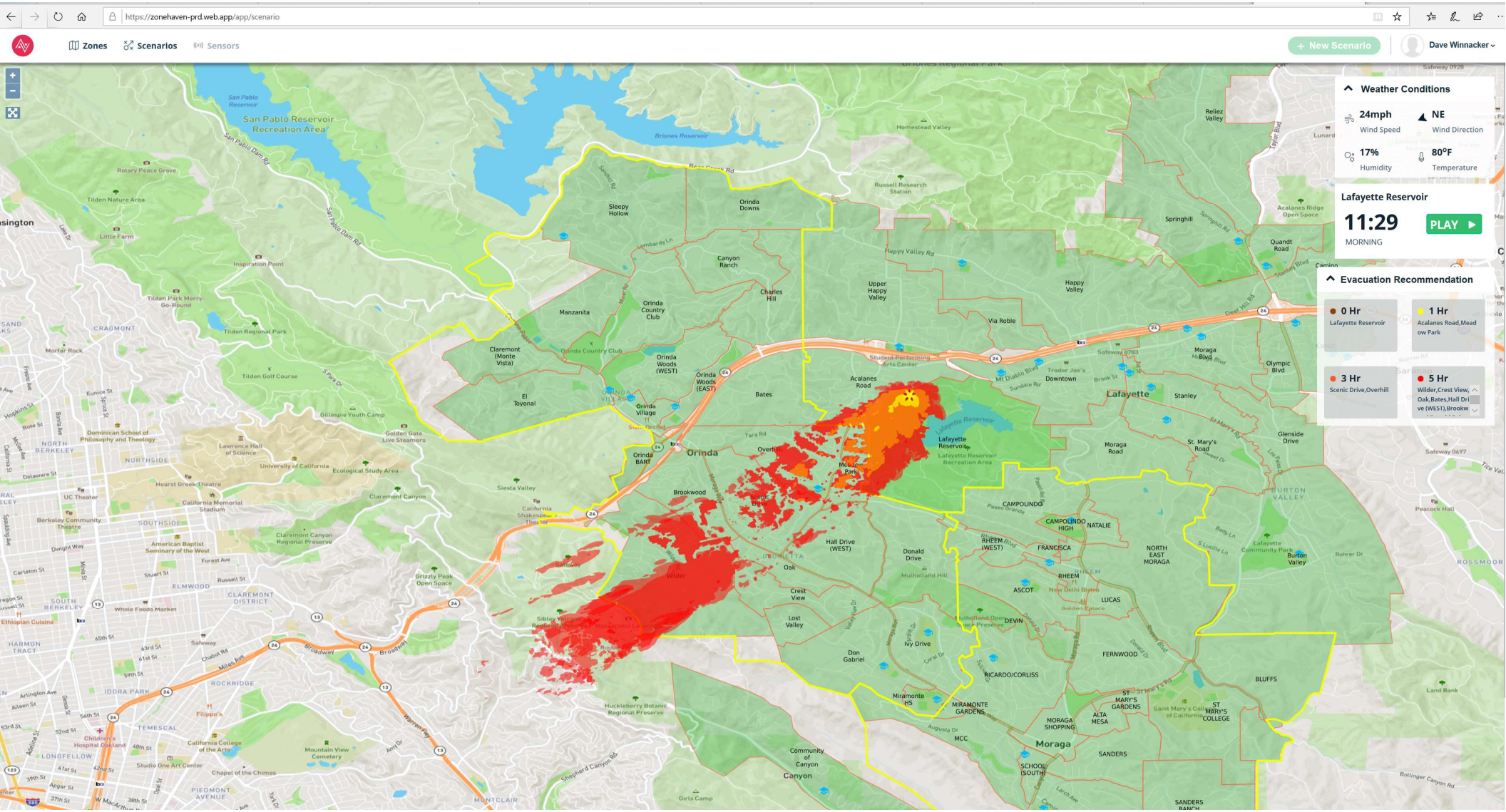
# Wildfire Risk Mitigation
# &
# Reporting

Dave Winnacker
CALChiefs WUI Task Force

# Why Are We Here

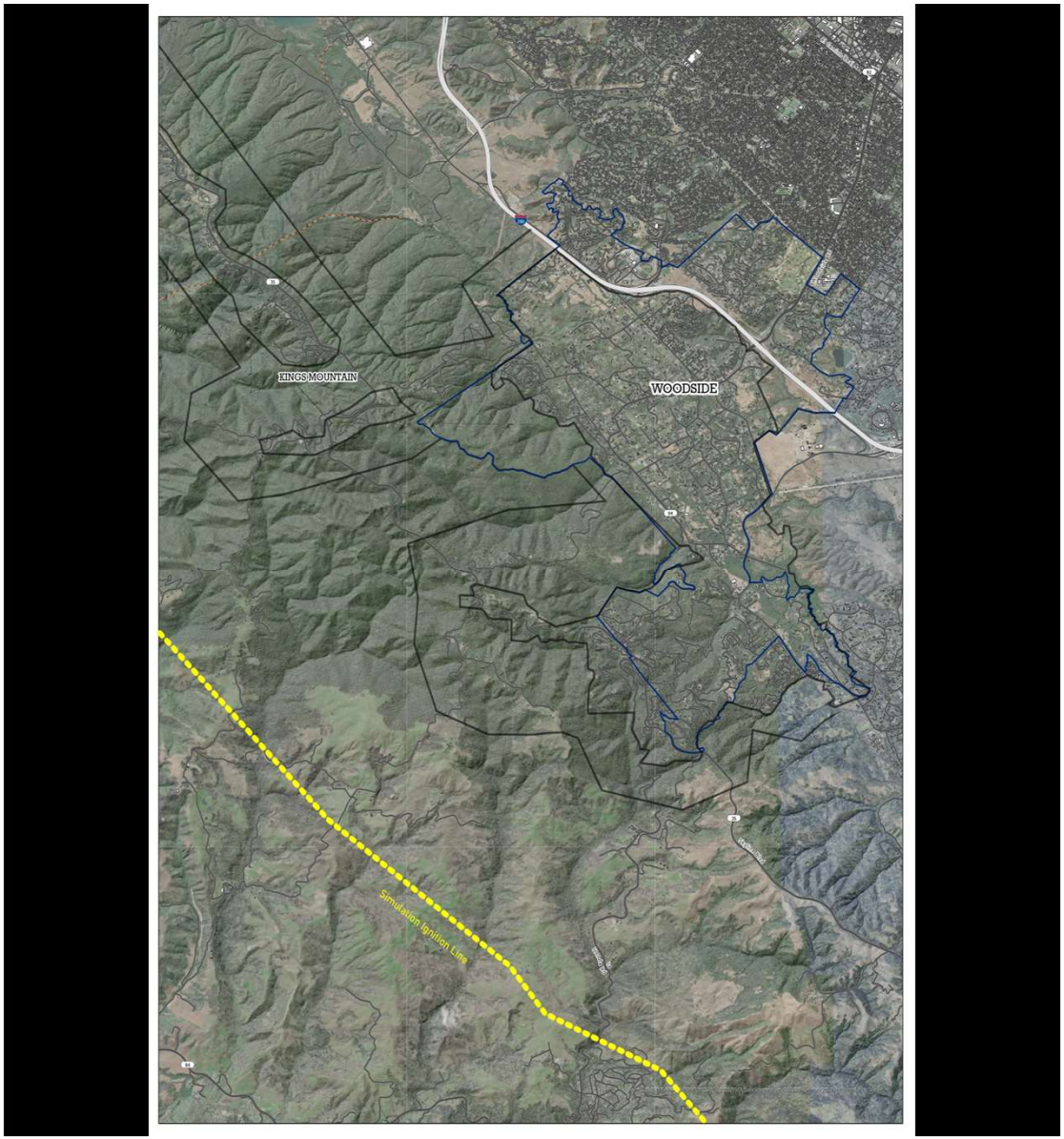
- 1.5-3.5 Million Acres Burned in California per Year Pre-European Period
  - 3-5 Year Grass/Brush Fire Cycle
  - 25 Year Forest Fire Cycle
- 2017/2018 and 2020/21 Approached Lower End Historical Average Acres Burned
- 3 Million Homes with 11 Million Occupants built in the WUI
  - 1.7-2 Million of These are in Very High or High Hazard Areas
  - 20,000 Homes Burned in 2018
  - 100+ Deaths
  - Few are built to 2008 Ember Resistant Construction Standards
- Climate Change has Compressed the Historical Rainy Season


https://zonehaven-prd.web.app/app/scenario
Zones
Scenarios
Sensors
+ New Scenario
Dave Winnacker
Weather Conditions
24mph
Wind Speed
NE
Wind Direction
17%
Humidity
80°F
Temperature
Lafayette Reservoir
11:29
MORNING
PLAY
Evacuation Recommendation
0 Hr
Lafayette Reservoir
1 Hr
Acalanes Road,Meadow Park
3 Hr
Scenic Drive,Overhill
5 Hr
Wilder,Crest View,Oak,Bates,Hall Drive (WEST),Brookw
San Pablo Reservoir Recreation Area
Briones Reservoir
Orinda
Lafayette
Moraga
Canyon
Sleepy Hollow
Orinda Downs
Canyon Ranch
Charles Hill
Upper Happy Valley
Happy Valley
Manzanita
Orinda Country Club
Orinda Woods (WEST)
Orinda Woods (EAST)
Claremont (Monte Vista)
El Toyonal
Bates
Acalanes Road
Via Roble
Springhill
Reliez Valley
Homestead Valley
Russell Research Station
Quandt Road
Acalanes Ridge Open Space
Olympic Blvd
Moraga Blvd
Stanley
Glenside Drive
Moraga Road
St. Mary's Road
Lafayette Reservoir
Lafayette Reservoir Recreation Area
Orinda Village
Orinda BART
Overhill
Meadow Park
Brookwood
Siesta Valley
Hall Drive (WEST)
Donald Drive
Mulholland Hill
Oak
Crest View
Lost Valley
Don Gabriel
Ivy Drive
Wilder
Scenic Dr
Tara Rd
Moraga Way
CAMPOLINDO
CAMPOLINDO HIGH
NATALIE
FRANCISCA
RHEEM (WEST)
RHEEM
ASCOT
LUCAS
DEVIN
FERNWOOD
RICARDO/CORLISS
NORTH EAST MORAGA
BURTON VALLEY
Burton Valley
Lafayette Community Park
Peacock Hall
Safeway 0697
Safeway 0783
Safeway 0928
Student Performing Arts Center
Trader Joe's Downtown
Mt Diablo Blvd
Sundale Rd
Brook St
Miramonte HS
MIRAMONTE GARDENS
MORAGA SHOPPING
ALTA MESA
ST MARY'S GARDENS
ST MARY'S COLLEGE
SCHOOL (SOUTH)
SANDERS
MCC
BLUFFS
Community of Canyon
Girls Camp
Shepherd Canyon Rd
Bollinger Canyon Rd
Huckleberry Botanic Regional Preserve
Sibley Volcanic Regional Preserve
Mountain View Cemetery
Chapel of the Chimes
Studio One Art Center
California College of the Arts
Children's Hospital Oakland
Filippo's
Whole Foods Market
Safeway
Ethiopian Cuisine
Claremont Canyon Regional Preserve
Grizzly Peak Open Space
Claremont Canyon
California Memorial Stadium
Hearst Greek Theatre
University of California
Ecological Study Area
Lawrence Hall of Science
Golden Gate Live Steamers
Gillespie Youth Camp
Tilden Golf Course
Tilden Regional Park
Tilden Park Merry-Go-Round
Inspiration Point
Tilden Nature Area
Rotary Peace Grove
Little Farm
San Pablo Dam Rd
Briones Regional Park
Dominican School of Philosophy and Theology
American Baptist Seminary of the West
UC Theater
Berkeley Community Theatre
California Shakespeare Theater
NORTH BERKELEY
NORTHSIDE
SOUTHSIDE
ELMWOOD
CLAREMONT DISTRICT
SOUTH BERKELEY
HARMON TRACT
IDORA PARK
ROCKRIDGE
TEMESCAL
LONGFELLOW
PIEDMONT AVENUE
MONTCLAIR
CRAGMONT
ROSSMOOR

# Risk Reduction Measures

- Fuel Breaks
- SPLATS
- Roadside Fuel Reduction
- WUI Fuel Reduction Zones/Extended Defensible Space
- Defensible Space and Home Ignition Zone mitigations/enforcement
  - Zone Zero/ IBHS Wildfire Prepared Home/ CDI Safer From Wildfire Framework
- Home Hardening Retrofits
  - Vents/ IBHS Wildfire Prepared Home/ CDI Safer from Wildfire Framework

Well understood and established- Implementation is the greatest challenge

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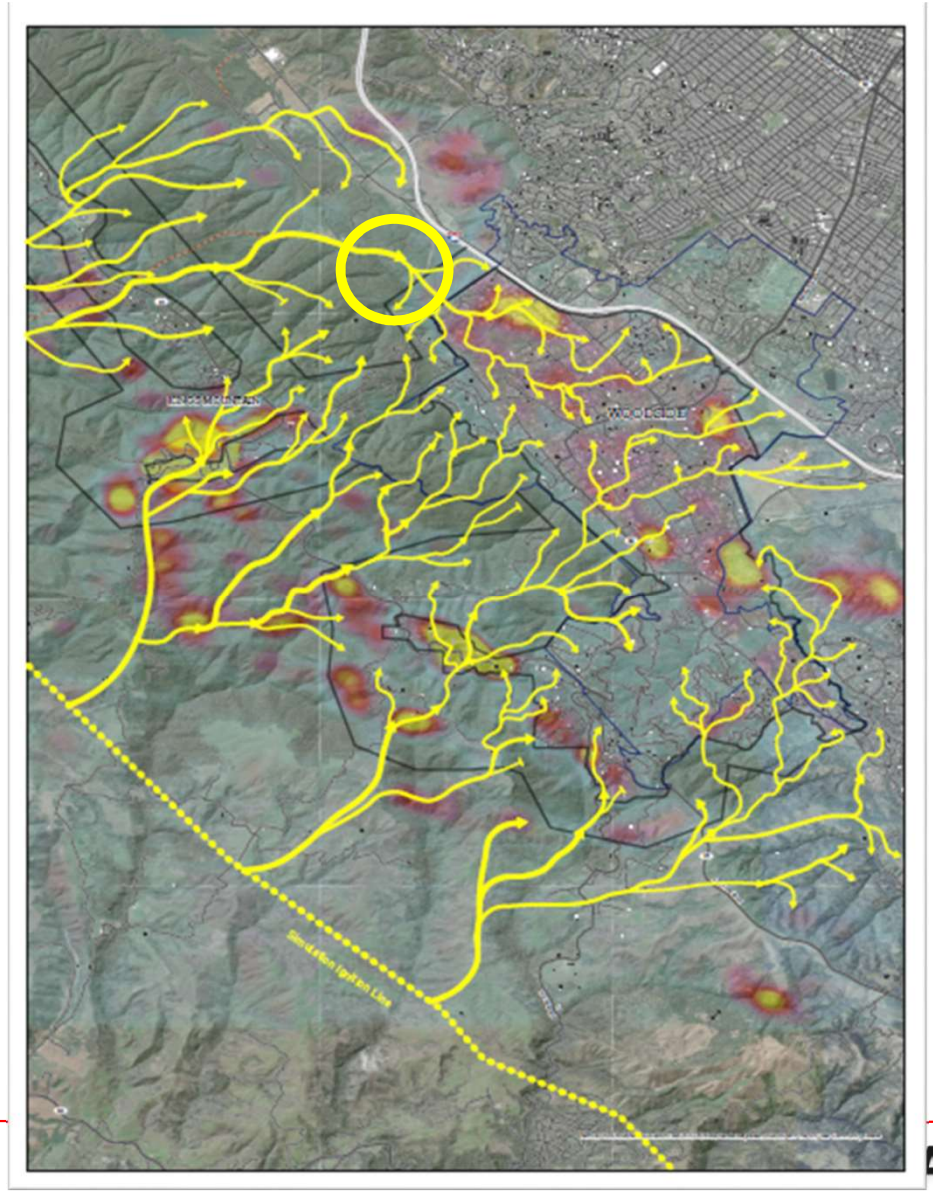

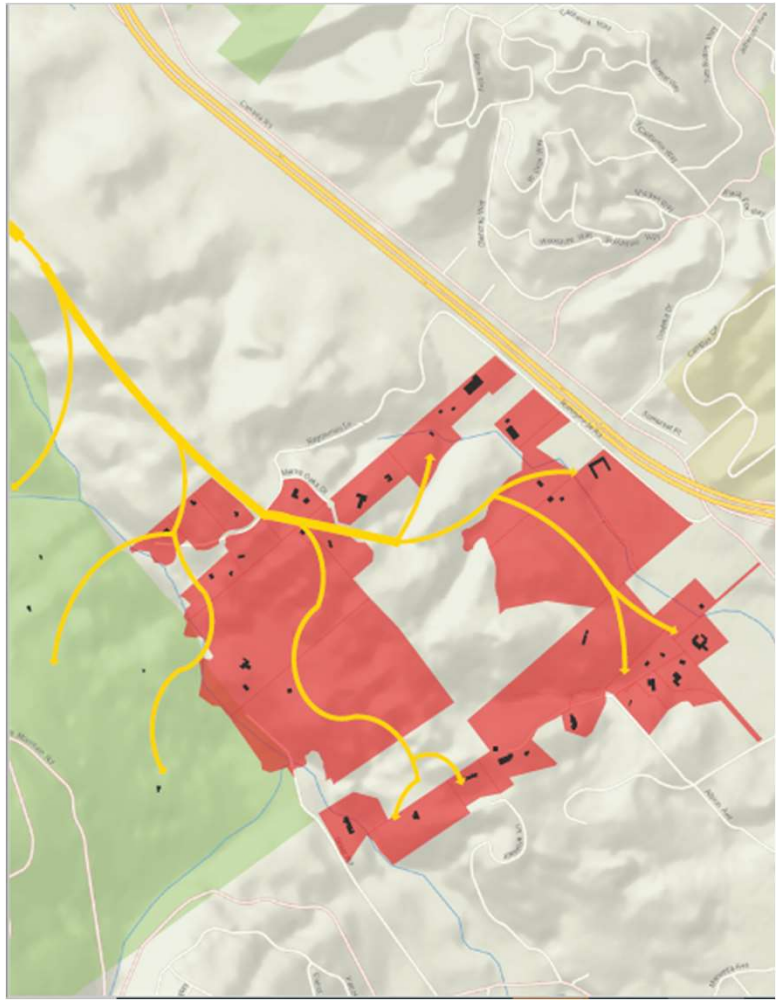

A FIRE DISTRICT

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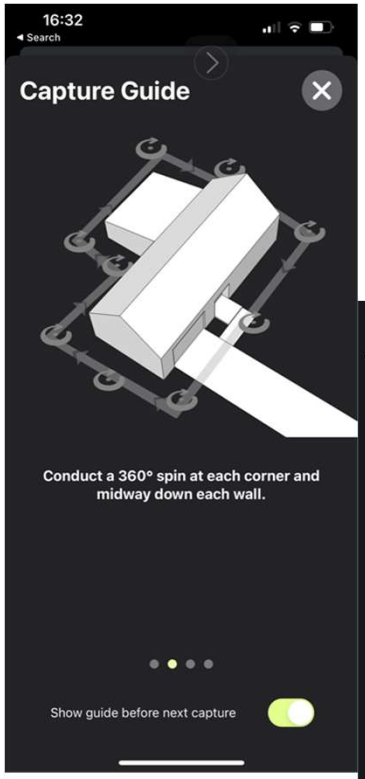


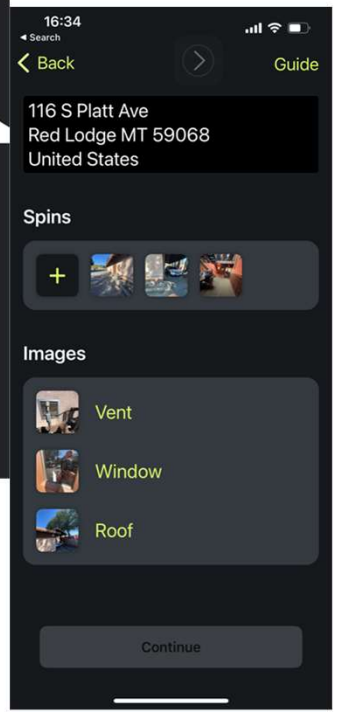


**Wildfire Risk Intelligence Report**
2023-04-15

65260 Gerking Market Rd
Bend OR 97703
United States

# Summary of identified conditions

| | Within HIZ | Count |
|---|---|---|
| **Priority 1** | | **30** |
| Combustible vegetation within Home Ignition Zone | • | 16 |
| Combustible dead organic material within Home Ignition Zone. | • | 4 |
| Combustible items or materials in Home Ignition Zone. | • | 10 |
| **Priority 2** | | **6** |
| Vents not corrosion-resistant and/or not ember-resistant. | • | 2 |
| Combustible siding within 6 inches of the grade. | • | 4 |
| **Priority 3** | | **2** |
| Bushes present under tree canopy. | | 2 |

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## Combustible vegetation within Home Ignition Zone

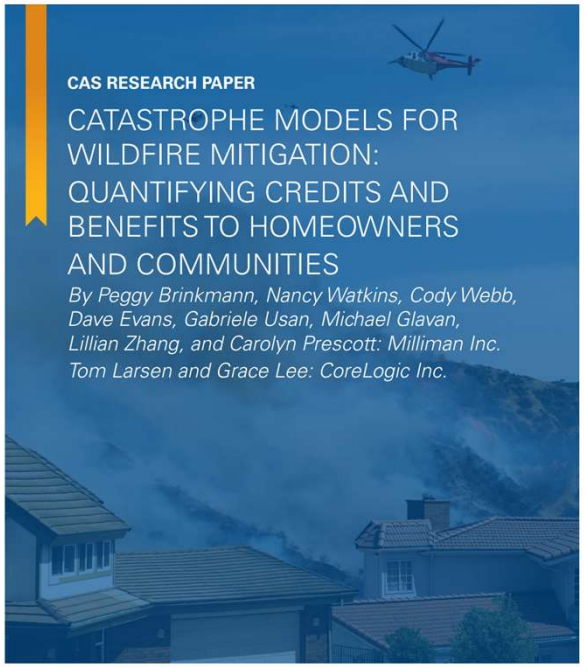
Remove any vegetation on or within 5 feet of the structure to disrupt the continuity of receptive fuel beds which are capable of supporting fire spread. This includes bushes and shrubs as well as low groundcover plants. Combined with the removal of non-living organic material such as bark chips and leaves, this is the highest impact, lowest cost measure residents can take to protect their lives, homes, and community from both ground fire and ember cast.

**Priority 1**

**Remove vegetation from Home Ignition Zone**

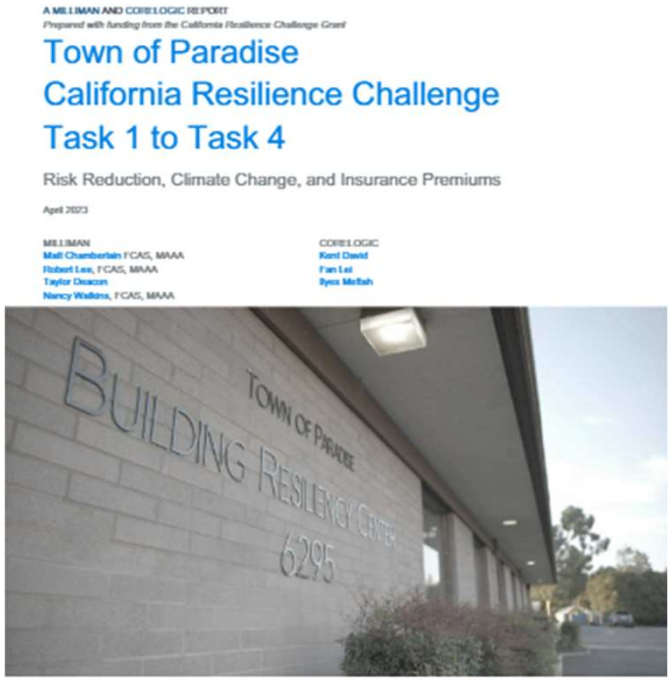

# Wildland Suppression Scoring

| | | | Ability | | | Capacity | | |
|---|---|---|---|---|---|---|---|---|
| Variable | Source | Item Detail | Vegetation to Vegetation | Vegetation to Structure | Structure to Structure | Vegetation to Vegetation | Vegetation to Structure | Structure to Structure |
| Type 1 Fire Engine | 3.2 | 6 Type 1 Fire Engines | 1.00 | 1.00 | 1.00 | 6.00 | 6.00 | 6.00 |
| Type 2 Fire Engine | 3.3 | 6 Type 2 Fire Engines | 1.00 | 1.00 | 1.00 | 6.00 | 6.00 | 6.00 |
| Type 3 Fire Engine | 3.4 | 4 Type 3 Fire Engines | 1.25 | 0.75 | 0.75 | 4.00 | 4.00 | 4.00 |
| Type 4 Fire Engine | 3.5 | 6 Type 4 Fire Engines | 1.50 | 0.75 | 0.75 | 6.00 | 6.00 | 6.00 |
| Type 5 Fire Engine | 3.6 | 6 Type 5 Fire Engines | 1.75 | 0.50 | 0.50 | 6.00 | 6.00 | 6.00 |
| Type 6 Fire Engine | 3.7 | 4 Type 6 Fire Engines | 2.00 | 0.25 | 0.25 | 4.00 | 4.00 | 4.00 |
| Type 7 Fire Engine | 3.8 | 6 Type 7 Fire Engines | 2.25 | 0.25 | 0.25 | 6.00 | 6.00 | 6.00 |
| Type 1 Dozer | 3.9 | 2 Type 1 Dozers | 2.00 | 2.00 | | 1.00 | 1.00 | |
| Type 2 Dozer | 3.10 | 2 Type 2 Dozers | 1.75 | 1.75 | | 1.00 | 1.00 | |
| Type 3 Dozer | 3.11 | 0 Type 3 Dozers | 0.00 | 0.00 | | 0.00 | 0.00 | |
| Type 4 Dozer | 3.12 | 0 Type 4 Dozers | 0.00 | 0.00 | | 0.00 | 0.00 | |
| Support Type 1 Water Tender | 3.13 | 1 Support Type 1 Water Tender | 0.50 | 0.50 | 0.50 | 5.00 | 5.00 | 5.00 |
| Support Type 2 Water Tender | 3.14 | 0 Support Type 2 Water Tenders | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Support Type 3 Water Tender | 3.15 | 1 Support Type 3 Water Tender | 0.50 | 0.50 | 0.50 | 1.00 | 1.00 | 1.00 |
| Tactical Type 1 Water Tender | 3.16 | 0 Tactical Type 1 Water Tenders | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Tactical Type 2 Water Tender | 3.17 | 0 Tactical Type 2 Water Tenders | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Assigned Portable Radio | 3.18 | Yes | 1.00 | 2.00 | 1.00 | | | |
| Radio - Interoperability - Auto Aid | 3.19 | Programmable w/ Auto-Aid Mobile | 1.30 | 1.30 | 0.70 | | | |
| Radio - Interoperability - Cross Group Scan | 3.19 | Interoperability with Cross Group Scan | | | | 3.00 | 3.00 | 3.00 |
| Crew Size - Type 1 IHC | 3.20 | 18 - 22 Type 1 IHC Crew Members | 4.00 | 4.00 | 4.00 | 5.00 | 5.00 | 5.00 |
| Crew Size - Type 2 IA | 3.21 | 24 - 26 Type 2 IA Crew Members | 2.00 | 2.00 | 2.00 | 15.00 | 15.00 | 15.00 |
| Crew Size - Type 2 | 3.22 | 21 - 23 Type 2 Crew Members | 1.00 | 1.00 | 1.00 | 10.00 | 10.00 | 10.00 |
| Basic Training | 3.23 | (Page 10) | 0.25 | 0.20 | 0.20 | | | |
| Supervisory Training | 3.24 | (Page 11) | 2.56 | 2.56 | 2.36 | | | |
| Risk Reduction Programs | 3.25 | (Page 12) | 4.00 | 4.00 | 4.00 | | | |
| **Self Component Rating** | | | **31.61** | **26.31** | **20.76** | **79.00** | **79.00** | **77.00** |




CAS CoreLogic Milliman

Report Here:




Milliman CoreLogic

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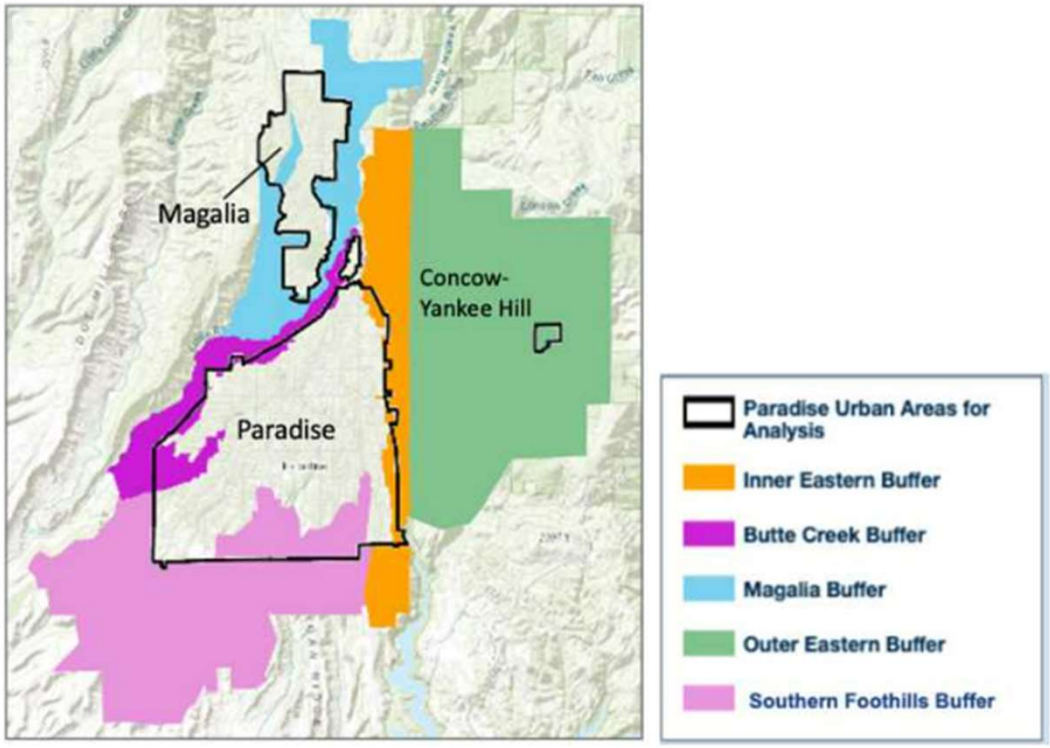
# Market Forces



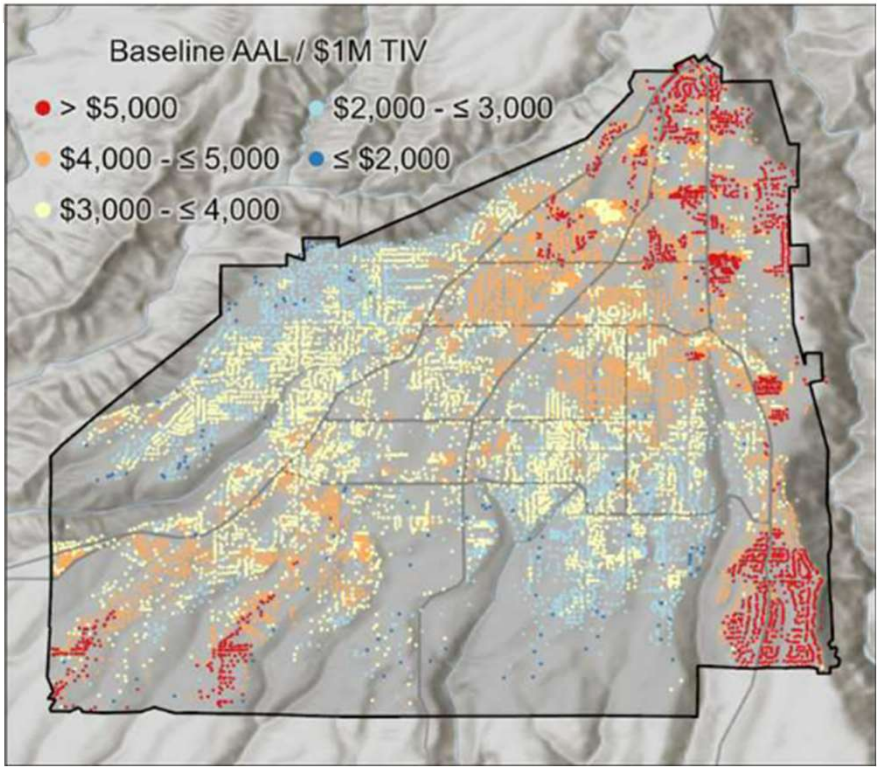
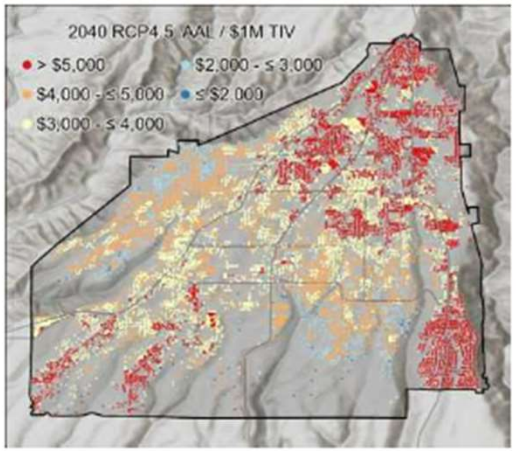
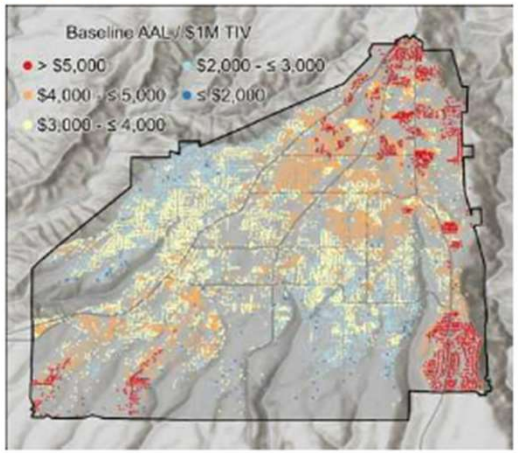



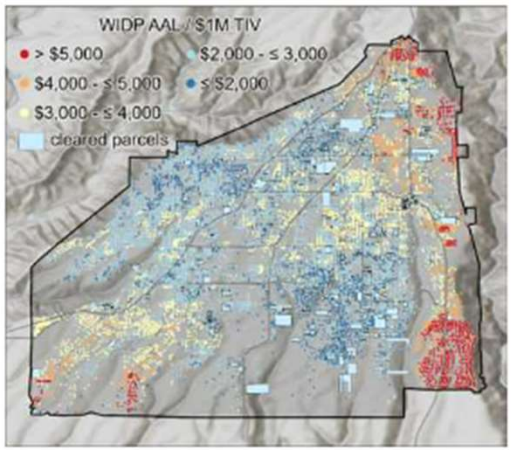
**FIGURE 12: CORELOGIC V22.1 AAL / $1M TIV FOR SELECTED SCENARIOS**



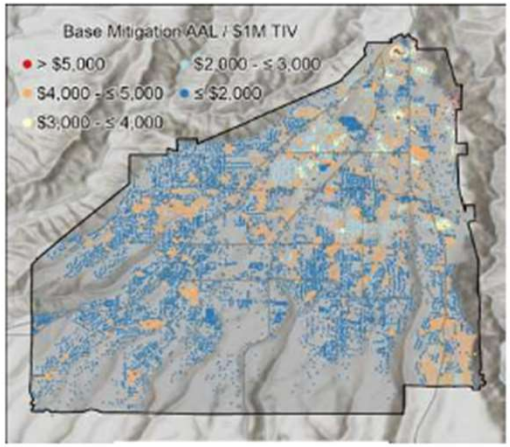

2040 RCP4.5 Scenario



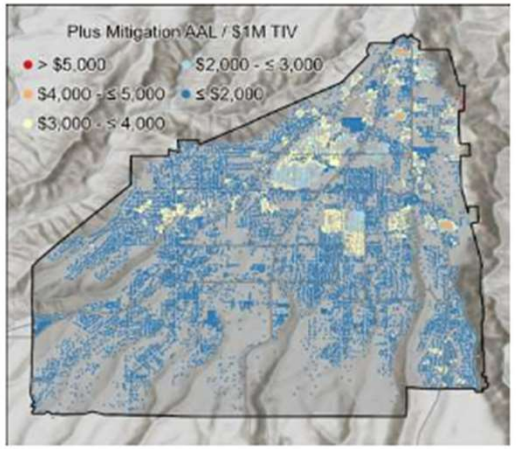

Baseline Scenario




WIDP Scenario




Base Mitigation Scenario




Plus Mitigation Scenario

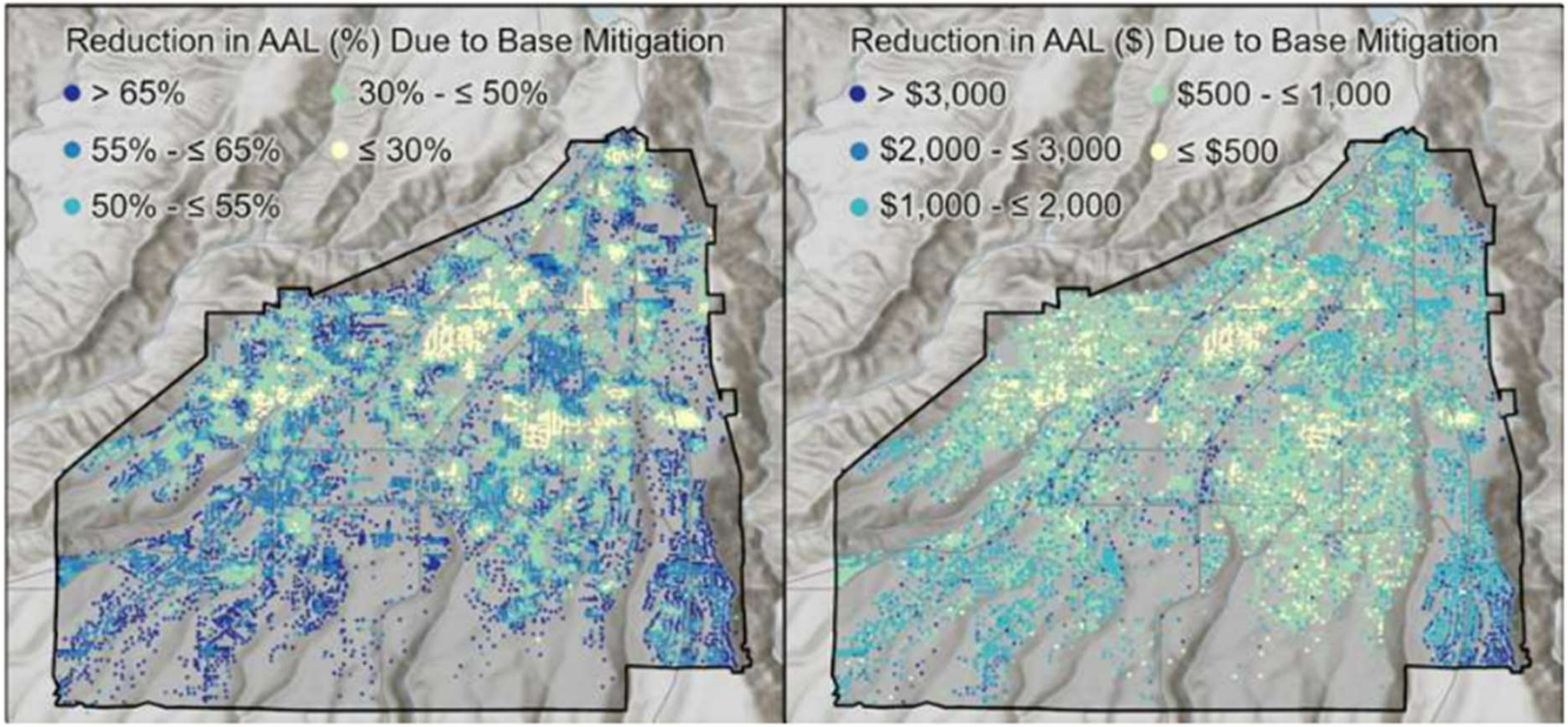

**MORAGA-ORINDA FIRE DISTRICT**

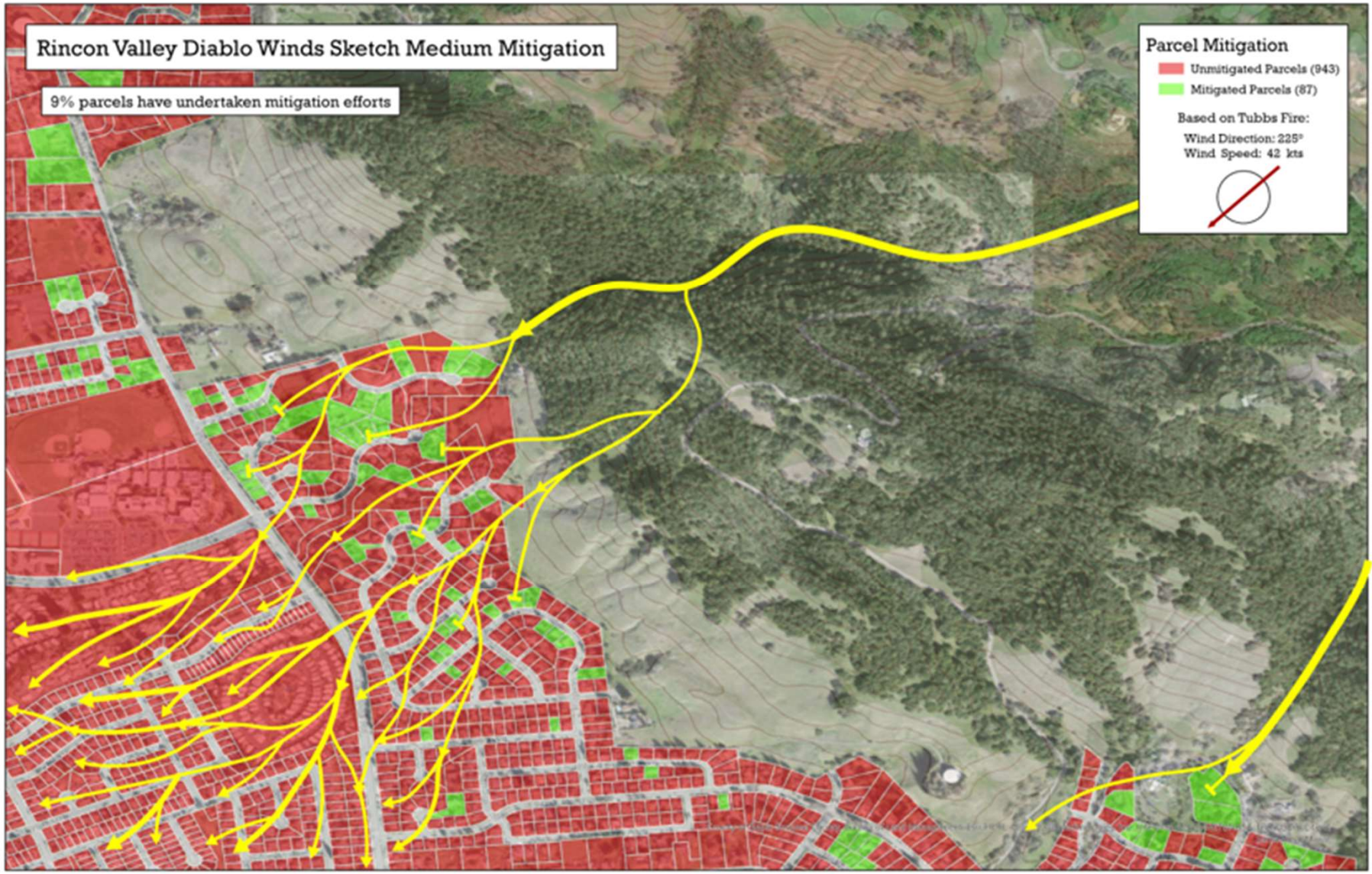
# Wildland Fire Suppression vs Mitigation

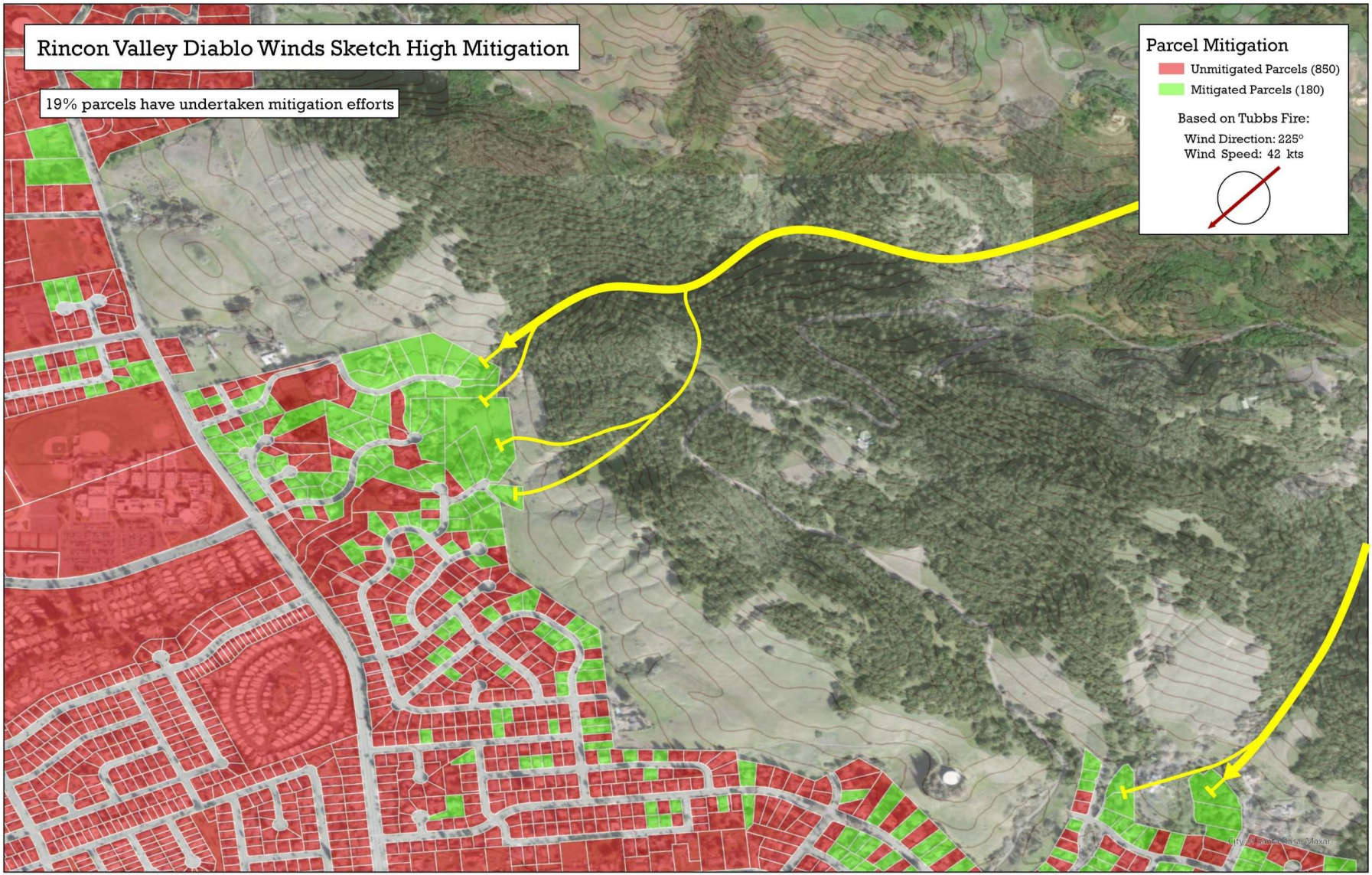
- Suppression is effective until quantity, intensity, and speed of fire exceeds resources – Jack Cohen's WUI Fire Disaster Sequence
  - Fire is controlled when
    - Conditions improve
    - Suppression resources expand
- Prevention improves conditions
- When conditions will not support fire spread, fires do not spread
- When conditions around values at risk do not support fire spread, we do not lose lives and structures….setting conditions for managed fire
- Parcel level prevention is low cost, high impact with few barriers to execution
- Mitigation reduces risk, Fire Suppression can address residual risk

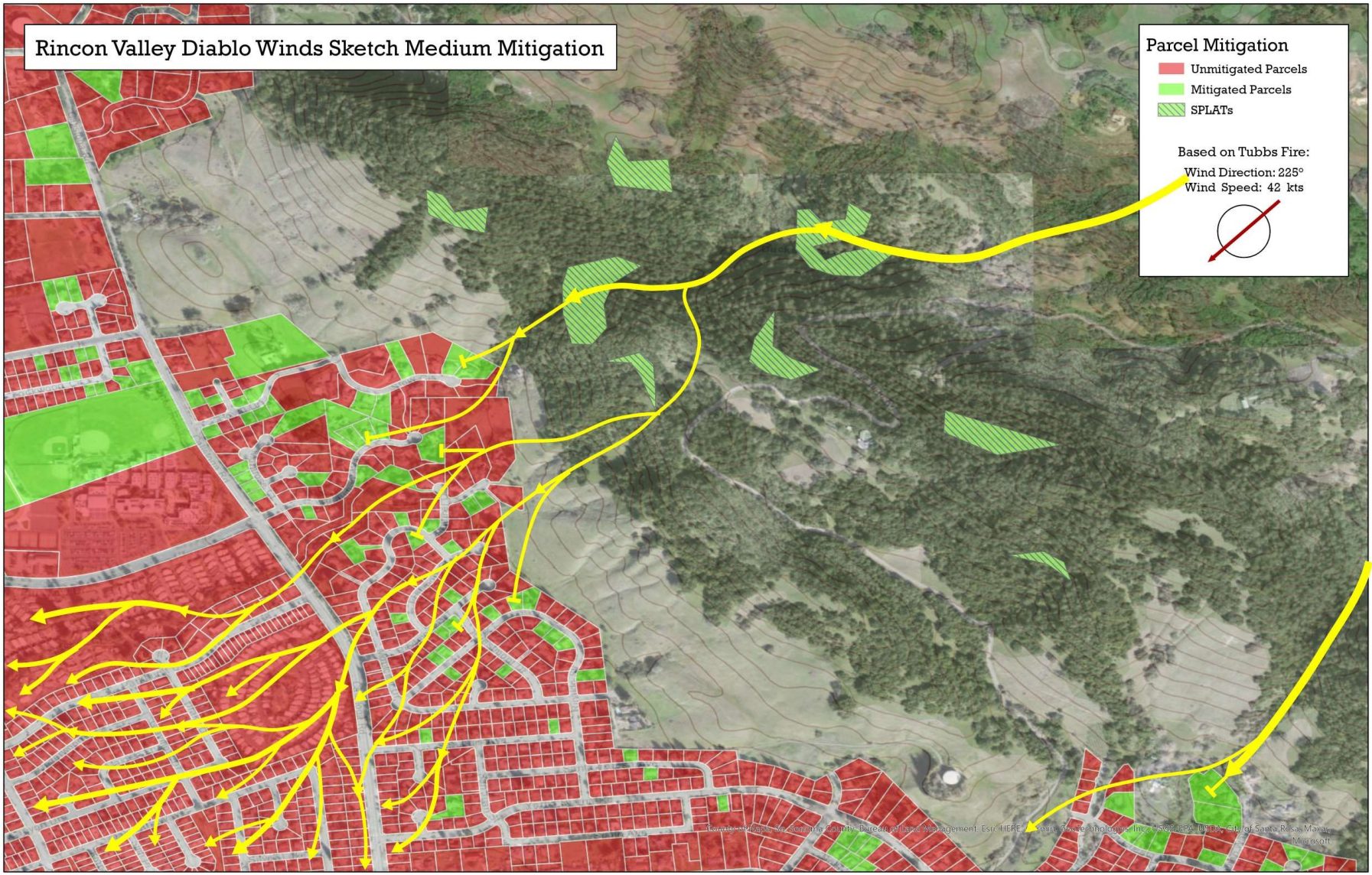
# Market Forces

**FIGURE 9A (LEFT): CHANGE IN AAL DUE TO BASE MITIGATION, IN PERCENTAGE OF BASELINE AAL**
**FIGURE 9B (RIGHT): CHANGE IN AAL DUE TO BASE MITIGATION, IN DOLLARS**




Rincon Valley Diablo Winds Sketch Medium Mitigation
9% parcels have undertaken mitigation efforts
Parcel Mitigation
Unmitigated Parcels (943)
Mitigated Parcels (87)
Based on Tubbs Fire:
Wind Direction: 225°
Wind Speed: 42 kts


Rincon Valley Diablo Winds Sketch High Mitigation
19% parcels have undertaken mitigation efforts
Parcel Mitigation
Unmitigated Parcels (850)
Mitigated Parcels (180)
Based on Tubbs Fire:
Wind Direction: 225°
Wind Speed: 42 kts


Rincon Valley Diablo Winds Sketch Medium Mitigation
Parcel Mitigation
Unmitigated Parcels
Mitigated Parcels
SPLATs
Based on Tubbs Fire:
Wind Direction: 225°
Wind Speed: 42 kts