BOARD OF DIRECTORS
APRIL 9, 2024

- Subdivision Review Program
- Fire Hazard Severity Zones
- Wildfire Risk Mitigation and Reporting

TERMINOLOGY

- FHSZ- Fire Hazard Severity Zones
  - Moderate, High, Very High
- Primary Fiscal Responsibility for Fire
  - LRA- Local Responsibility Area
  - SRA- State Responsibly Area
  - FRA- Federal Responsibility Area

SUBDIVISION REVIEW PROGRAM

1. AB 2911 (2018)- Adds 4290.5 to Public Resources Code

2. Identify subdivisions with 30 more dwelling units.

3. Makes Recommendations such as:
   - Create Secondary Access
   - Improvements to the existing access road
   - Other additional fire safety measures

https://calfire-forestry.maps.arcgis.com/apps/webappviewer/index.html?id=a045e9e9c01c4dd7abdf14ad30646eaf

Fire Hazard Severity Zones

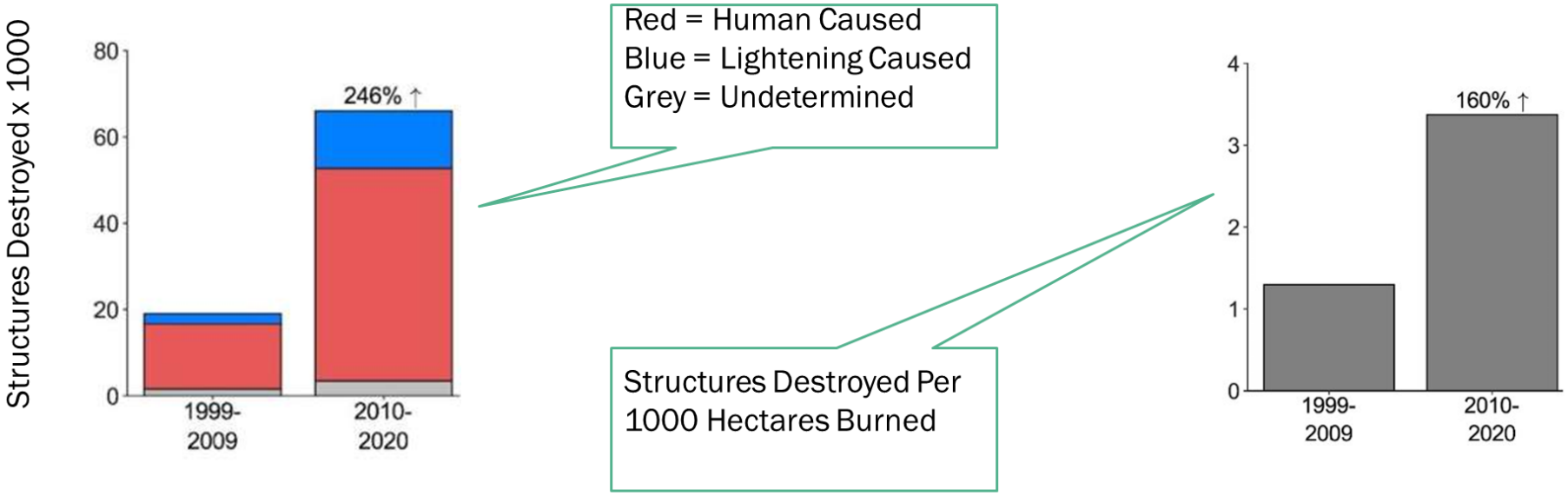
- SRA Zones
  - Published September 2023
  - Moderate - High – Very High
- LRA - Local Responsibility Area
  - In development
  - No ETA

https://calfire-forestry.maps.arcgis.com/apps/webappviewer/index.html?id=988d431a42b242b29d89597ab693d008

Wildfire Risk Mitigation
&
Reporting

Dave Winnacker
CALChiefs WUI Task Force

We are Responding to Unprecedented Environmental and Property Losses



Source: https://phys.org/news/2023-02-western-wildfires-destroyed-homes-decade.html

CAL POLY
WUI Fire Institute
COLLEGE OF AGRICULTURE, FOOD & ENVIRONMENTAL SCIENCES

Why Are We Here

- Aprox 4.4 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 homes in the WUI are built to 2008 Ember Resistant Construction Standards
    - 52% of these homes survived the Camp Fire
- Climate Change has Compressed the Historical Rainy Season

Prehistoric fire area and emissions from California's forests, woodlands, shrublands, and grasslands

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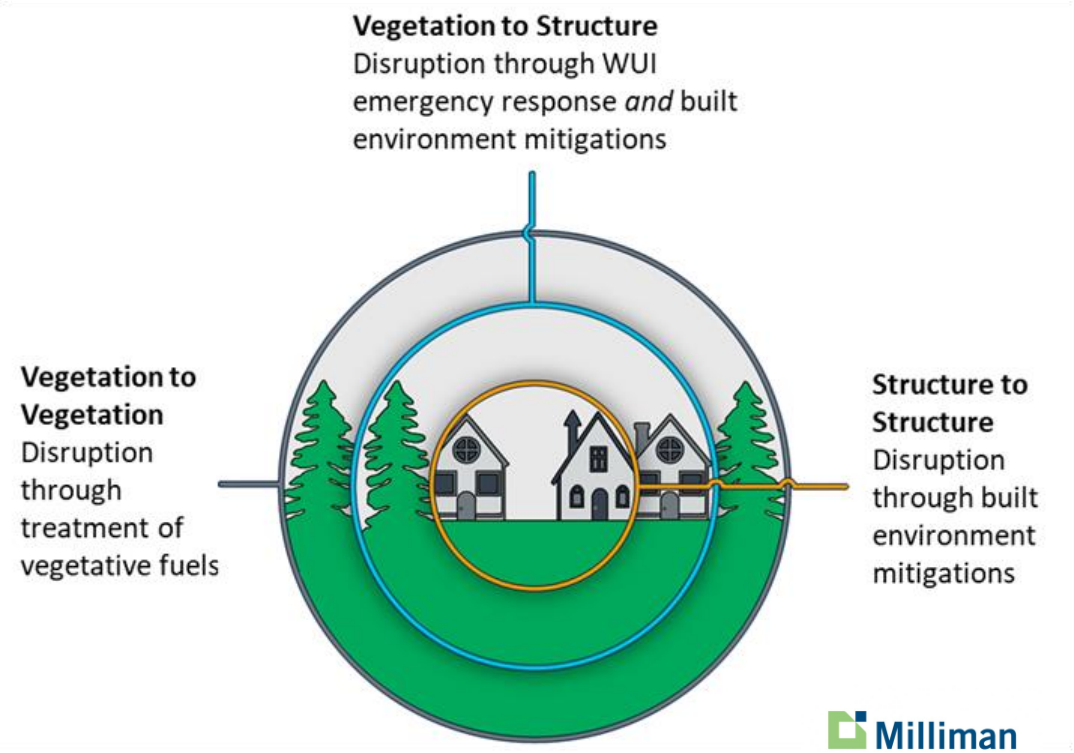
Abstract

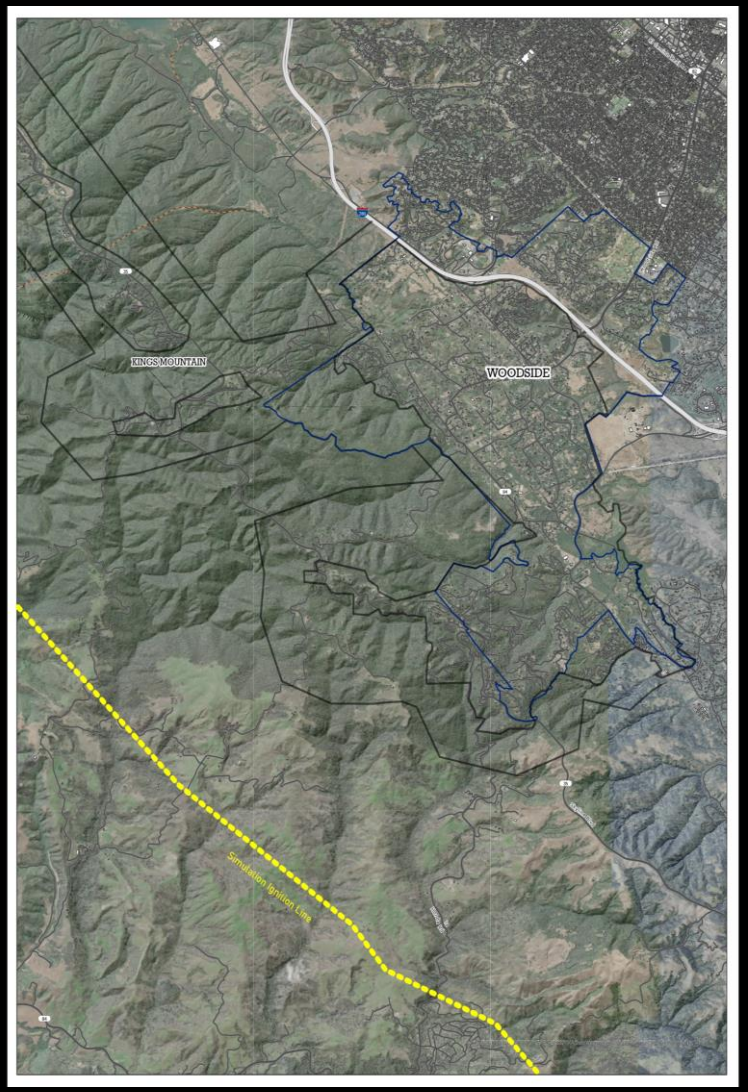
In the majority of US political settings wildland fire is still discussed as a negative force. Lacking from current wildfire discussions are estimates of the spatial extent of fire and their resultant emissions before the influences of Euro-American settlement and this is the focus of this work. We summarize the literature on fire history (fire rotation and fire return intervals) and past Native American burning practices to estimate past fire occurrence by vegetation type. Once past fire intervals were established they were divided into the area of each corresponding vegetation type to arrive at estimates of area burned annually. Finally, the First Order Fire Effects Model was used to estimate emissions. Approximately 1.8 million ha burned annually in California prehistorically (pre 1800). Our estimate of prehistoric annual area burned in California is 88% of the total annual wildfire area in the entire US during a decade (1994–2004) characterized as "extreme" regarding wildfires. The idea that US wildfire area of approximately two million ha annually is extreme is certainly a 20th or 21st century perspective. Skies were likely smoky much of the summer and fall in California during the prehistoric period. Increasing the spatial extent of fire in California is an important management objective. The best methods to significantly increase the area burned is to increase the use of wildland fire use (WFU) and appropriate management response (AMR) suppression fire in remote areas. Political support for increased use of WFU and AMR needs to occur at local, state, and federal levels because increasing the spatial scale of fire will increase smoke and inevitability, a few WFU or AMR fires will escape their predefined boundaries.

*chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.sierraforestlegacy.org/Resources/Conservation/FireForestEcology/FireScienceResearch/FireHistory/FireHistory-Stephens07.pdf

Pathways

- Wildfire enters communities via (3) pathways
  - Veg to veg
  - Veg to structure
  - Structure to structure
- Our goal is to disrupt these pathways in verifiable ways
  - Fuel Treatments
  - Defensible Space
  - Home Hardening
  - WUI Suppression Response





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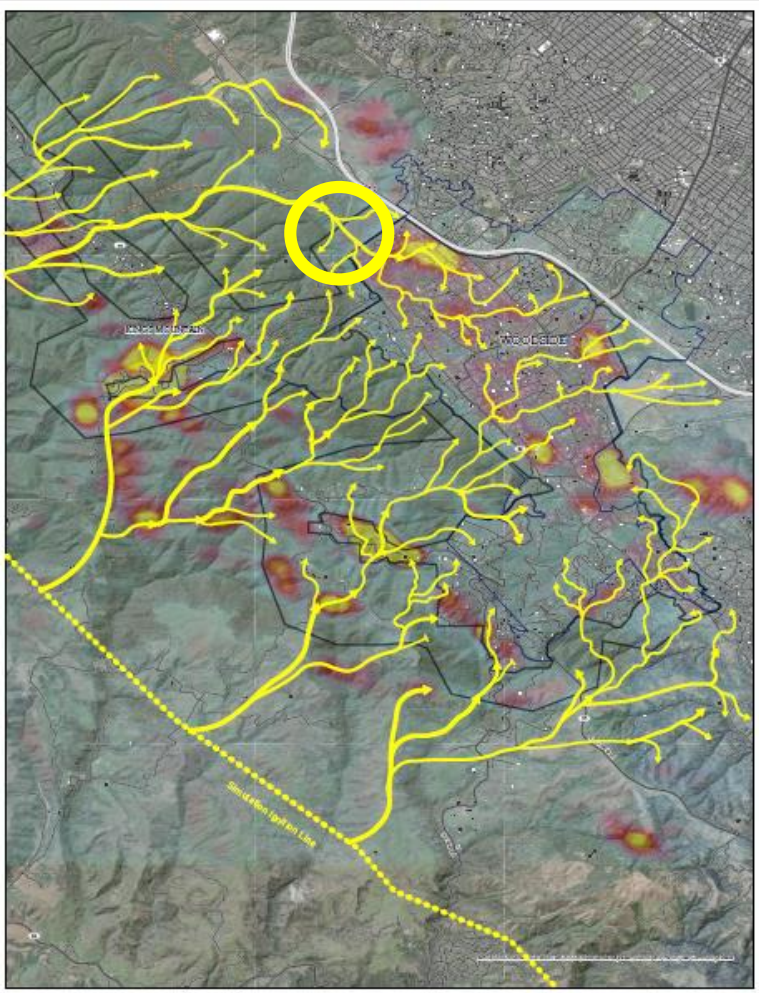
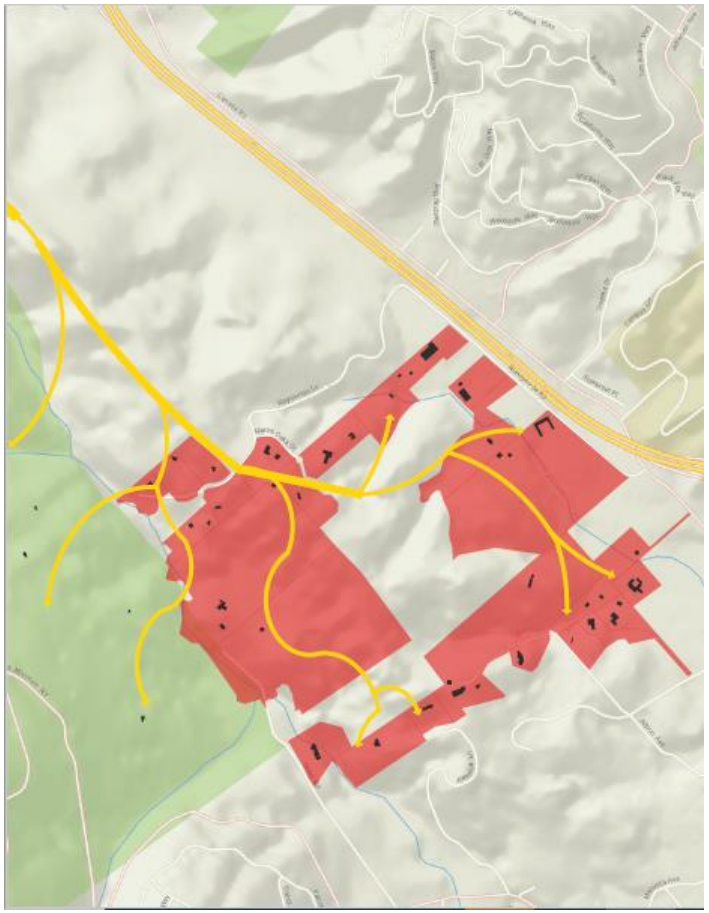




MORAGA-ORINDA FIRE DISTRICT

Animation Here:

Ember Resistant Construction

- State law requires the use of ember resistant construction in LRA VHFSZs
- MOFD enhanced this requirement through designation of WUI-Fire Areas by board action
- MOFD home hardening grant program encourages home hardening retrofits which cannot be required under the building code
  - Vents
  - Gutter guards
- NIST TN 2205
  - 1. Structure Construction
  - 2. Local Fire Intensity and Duration
  - 3. Ember Exposures

Removal of mulch and combustible vegetation within 2’ of a home is intended to make our community like the right side of this example

Full videos showing ember caused fire in mulch:
https://ibhs.org/wildfire/wildfire-demo-2019/
https://vimeo.com/79340385

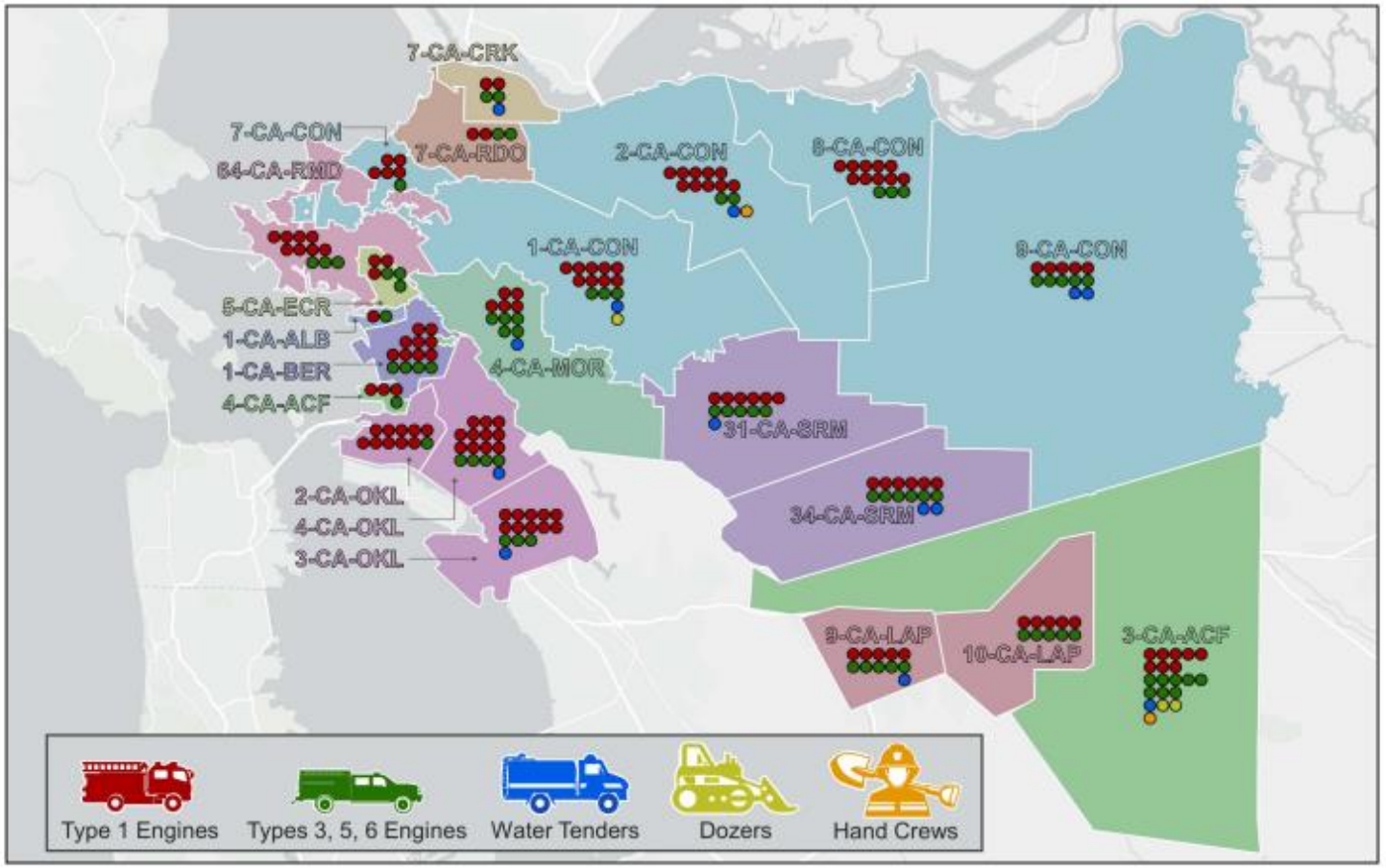
Pathway Disruption Measures

- 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
- Integrated WUI Suppression Response

Well understood and established- Implementation is the greatest challenge

Fire Battalion Equipment Availability
Contra Costa County

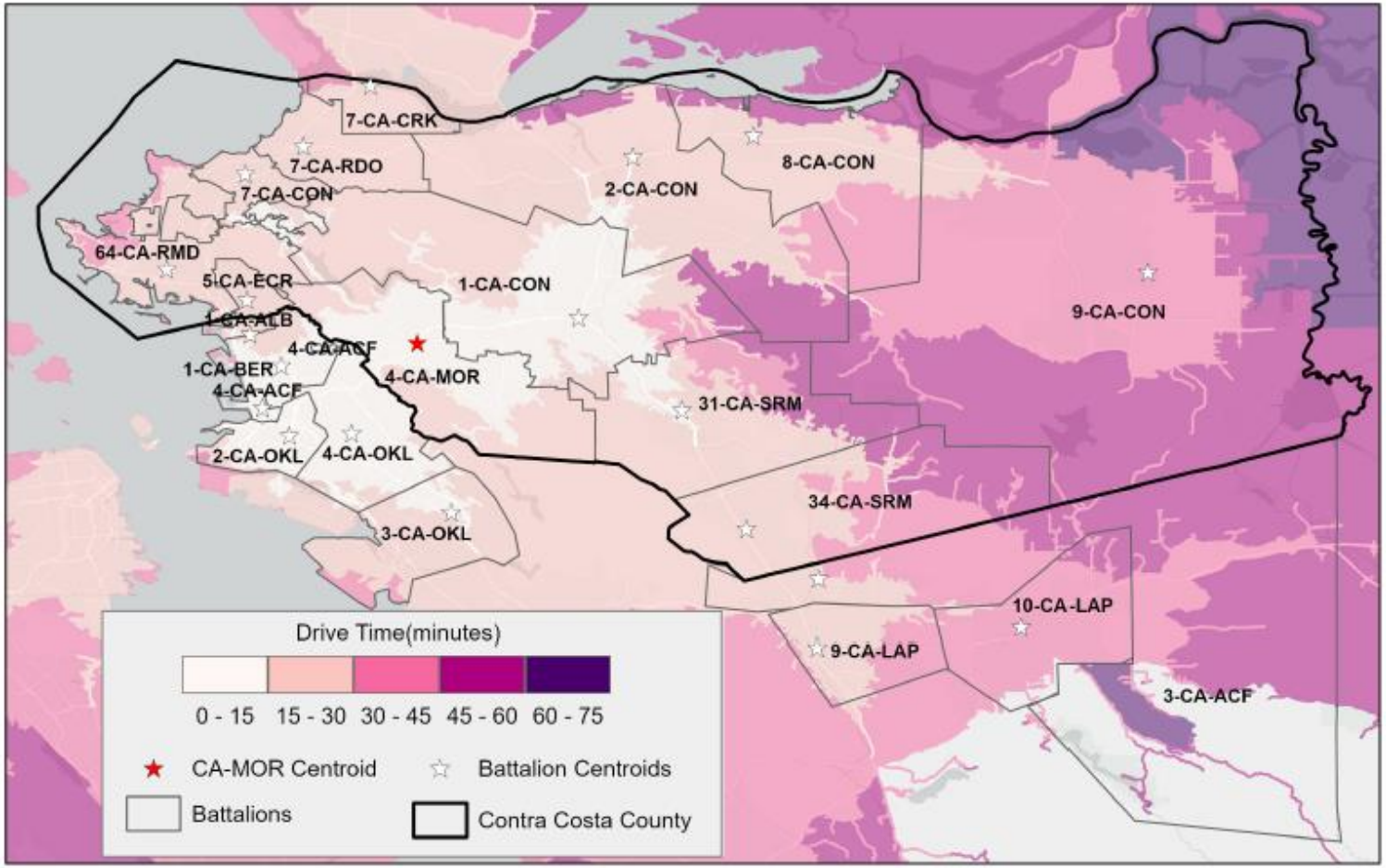
Map 3



1. Colored circles on the map represent the total number of specific equipment as shown in the legend. Orange circles denote that hand crews are available for a given battalion, but do not show the total crew size. Battalions 3-CA-ACF and 2-CA-CON were both reported to have a total of 12 hand crew members available.
2. Fire engine totals represent staffed engines. Dozer and water tender totals represent total available equipment.

Drive Time Analysis to Moraga-Orinda FPD Battalion Centroid
Contra Costa County

Map 3

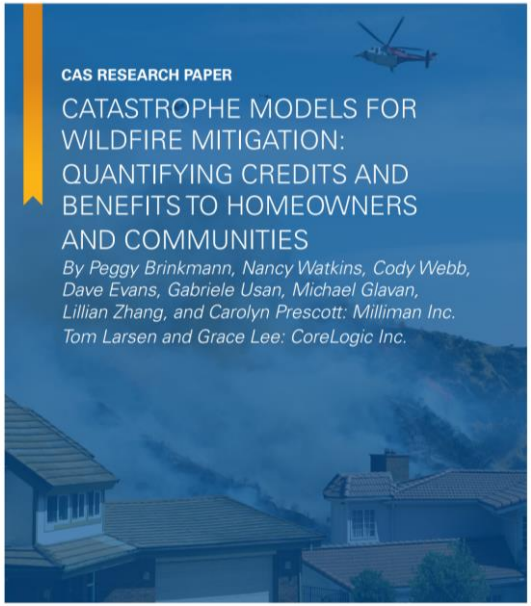


Market Forces

- Insurance
  - Wildfire is largely abstract, but insurance is annual
  - Insurance risk is actually held by unregulated reinsurers
    - The market is under pressure
  - FAIR plan TIV increased 5x 2019-2022
- Mortgage Holders
  - Have 30 year investment in a parcel
  - Traditional indifference is changing
    - http://faculty.haas.berkeley.edu/stanton/pdf/fire.pdf
- Muni Bond Rating
  - Wildfire risk ~~can~~ will increase borrowing costs

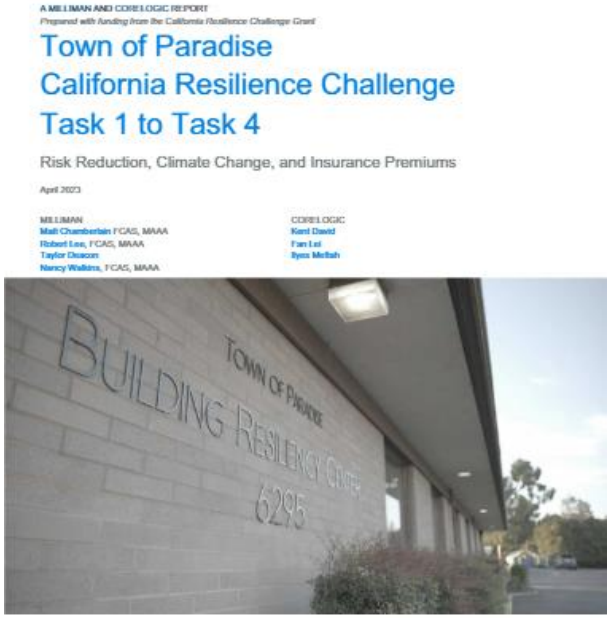
- https://www.hoover.org/news/hoover-veteran-fellows-headline-program-mitigating-california-wildfire-risk

Market Forces



CAS CoreLogic Milliman

Report Here:



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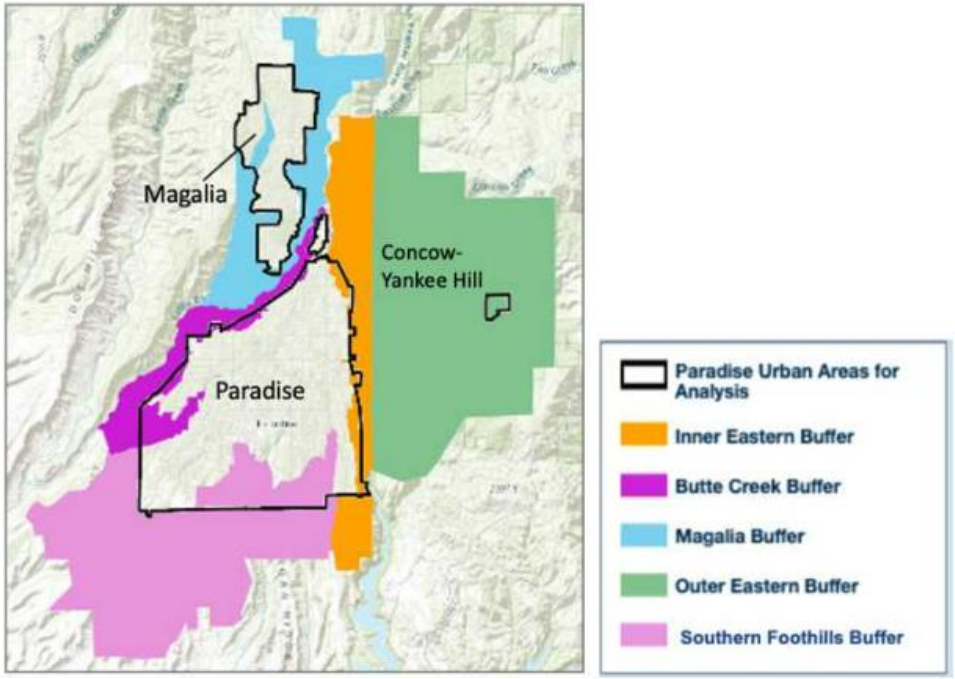
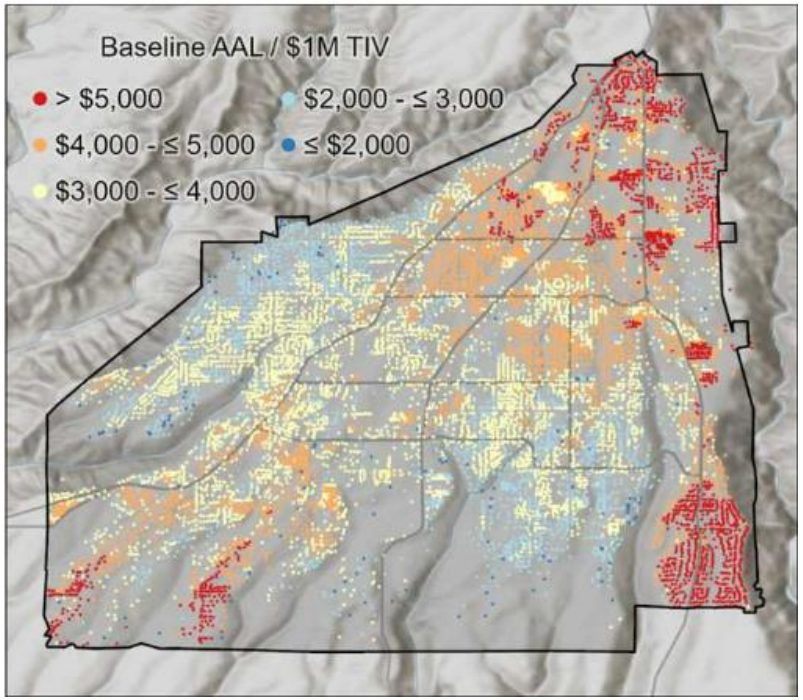
Market Forces





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

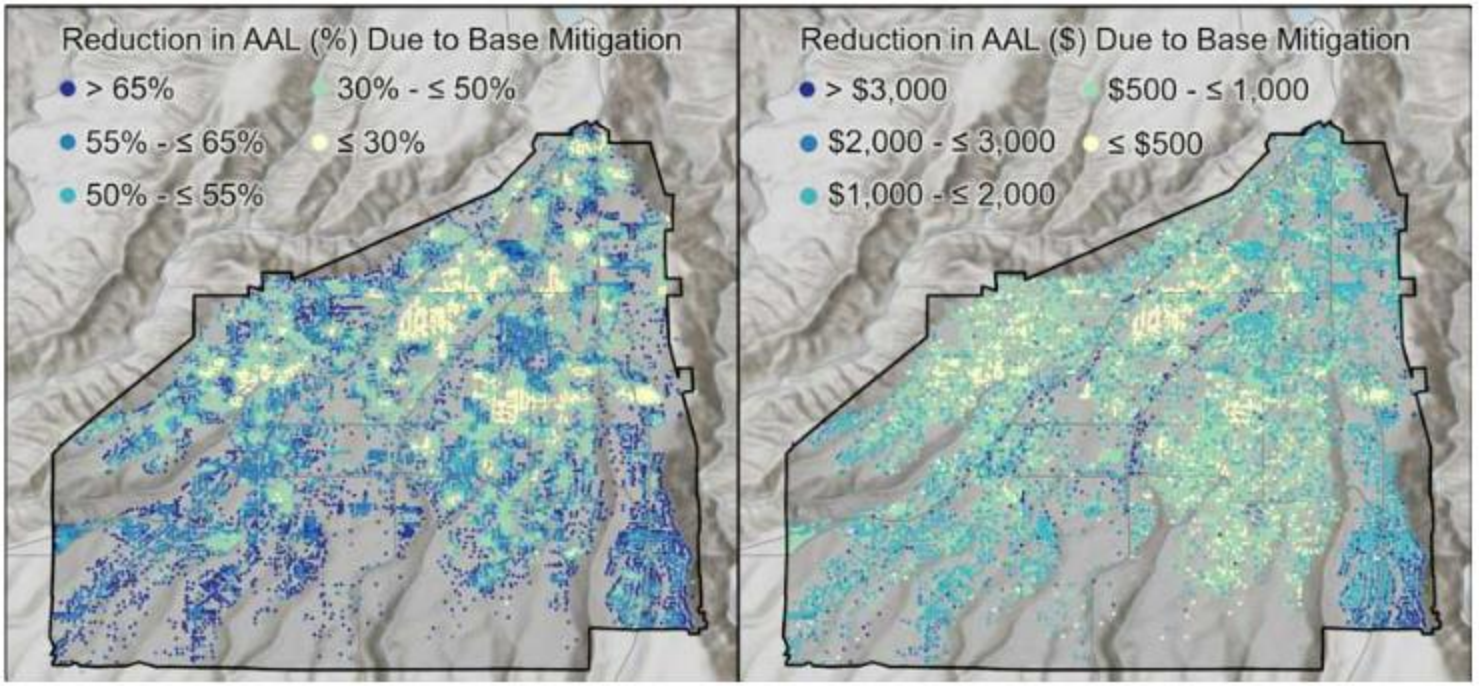
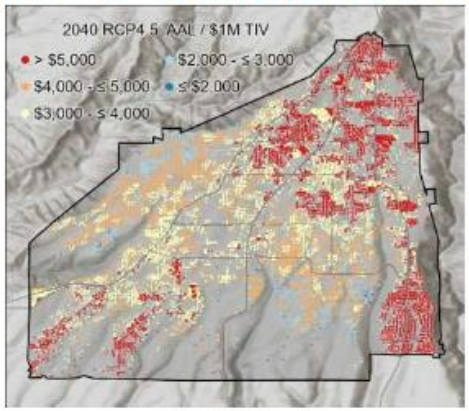
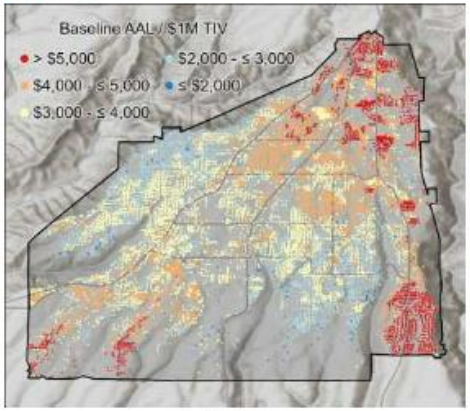


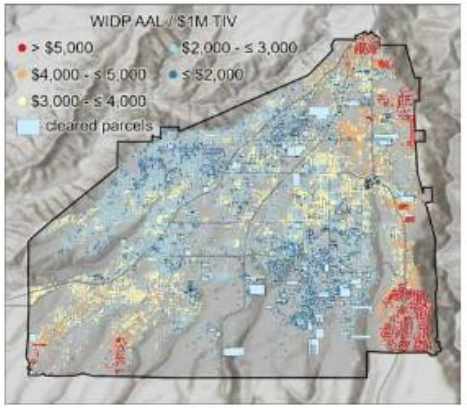
FIGURE 12: CORELOGIC V22.1 AAL / $1M TIV FOR SELECTED SCENARIOS



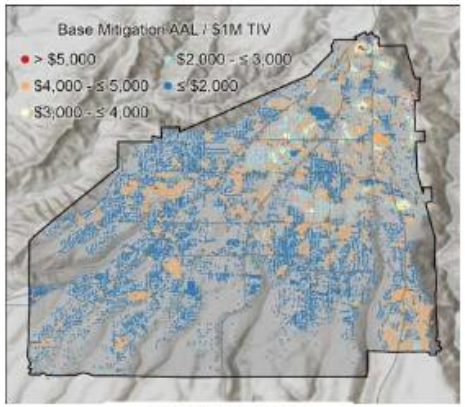
2040 RCP4.5 Scenario



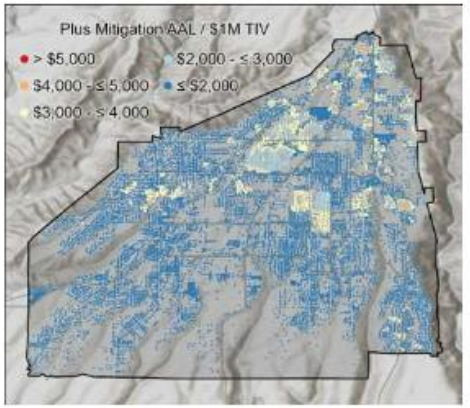
Baseline Scenario



WIDP Scenario



Base Mitigation Scenario



Plus Mitigation Scenario

QUESTIONS ?