

# The Path Ahead for Optimized Risk Reduction in WUI Communities



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RANGE MANAGEMENT ADVISORY COMMITTEE MEETING

CALIFORNIA BOARD OF FORESTRY

5/21/24



**CAL POLY**

WUI Fire Institute

COLLEGE OF AGRICULTURE, FOOD  
& ENVIRONMENTAL SCIENCES

# A MESSAGE FROM OUR DIRECTOR

"The mission of the Cal Poly WUI Fire Institute is to help create the most fire resilient communities in the world.

We are experiencing the leading edge of a perfect storm created by unsustainable vegetative fuel loading, climate change, and expanded development in the wildland-urban interface (WUI). Failure to prepare for what is approaching will, at best, result in avoidable loss of life and unfathomable financial ramifications from property and utility loss that will devastate insurance, reinsurance, municipal bond, mortgage, and construction industries. At worst, we face an existential threat through irreparable damage to ecosystems in the Western US. Returning beneficial fire to these ecosystems is essential, but will remain politically unacceptable, unless we can concurrently and confidently induce fire resilience in our WUI communities.

It is a profound honor to join Cal Poly and contribute to the good work that faculty and staff have been doing for years in this space. The combined expertise of Cal Poly's six colleges brings a unique and synergistic capability to solve "wicked" problems of the WUI. The foundational support of our utility partners has been invaluable; my intent is to develop additional support and collaboration with the full spectrum of stakeholders needed to fulfill the Institute's mission."

Sincerely,

Frank L. Frievalt



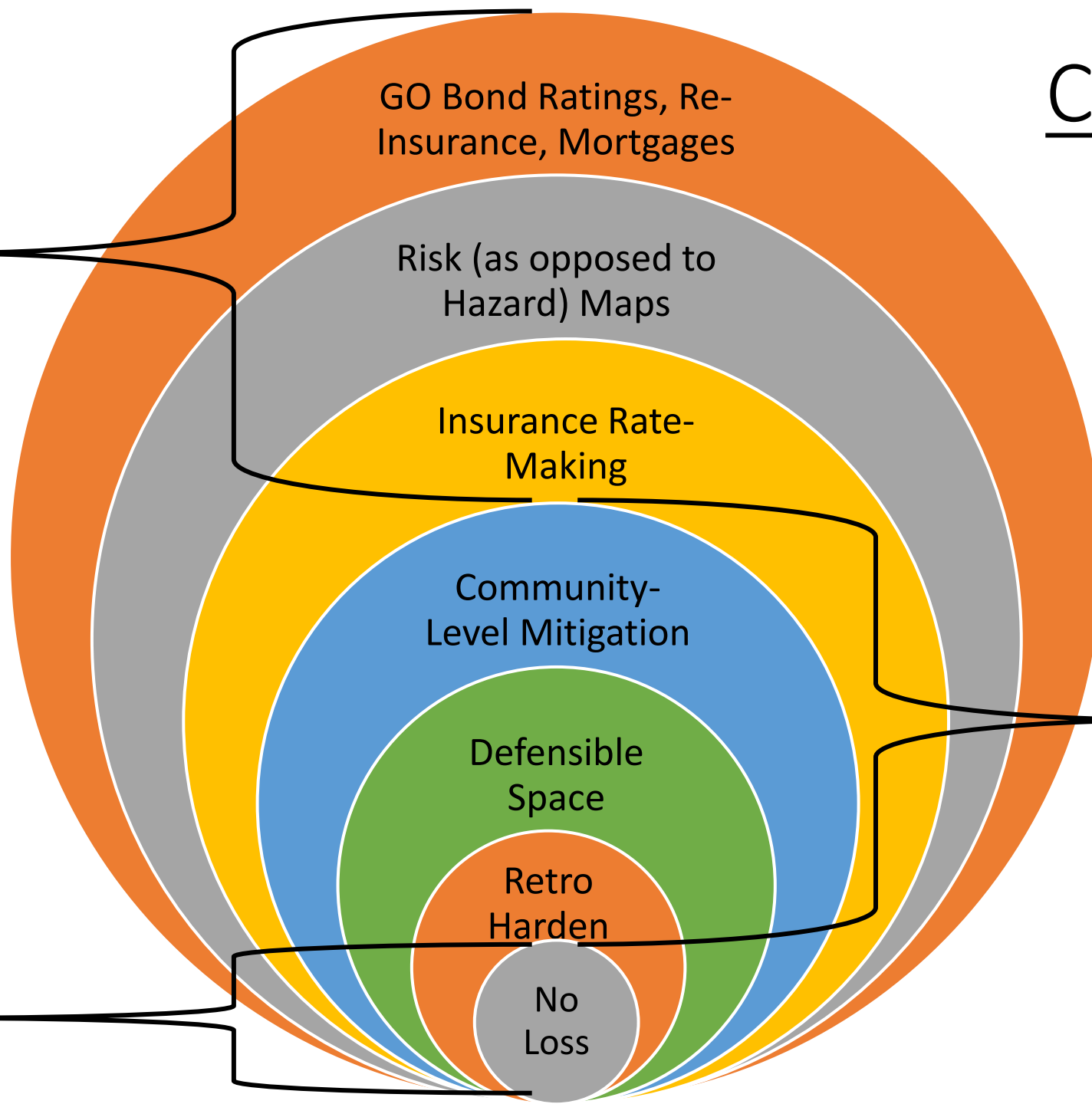
# Coordinated

## Policy:

The WUI issue viewed as a Nested Policy Construct

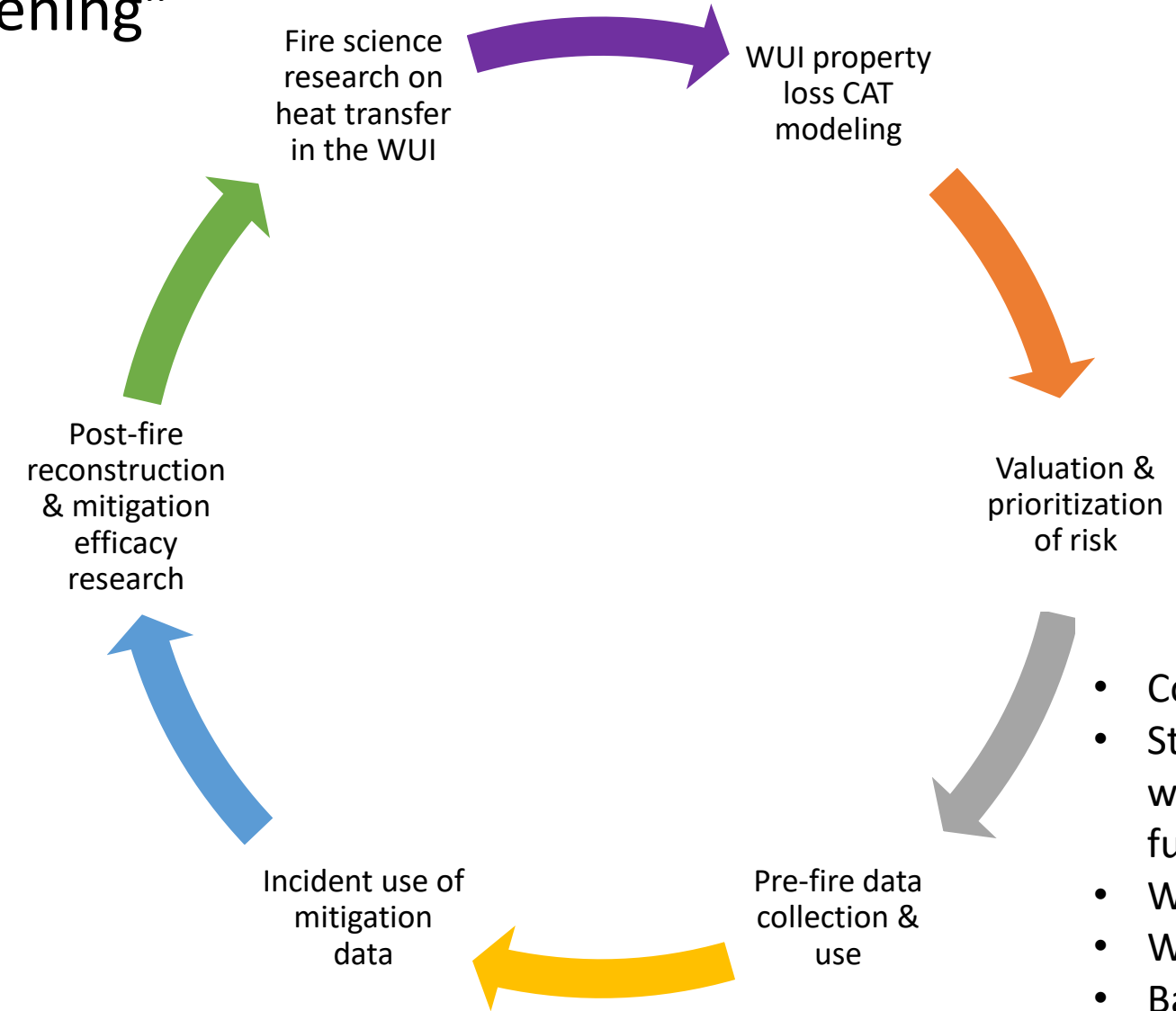
**Risk Policy Focus**

**Policy Outcome Focus**



**Mitigation Policy Focus**

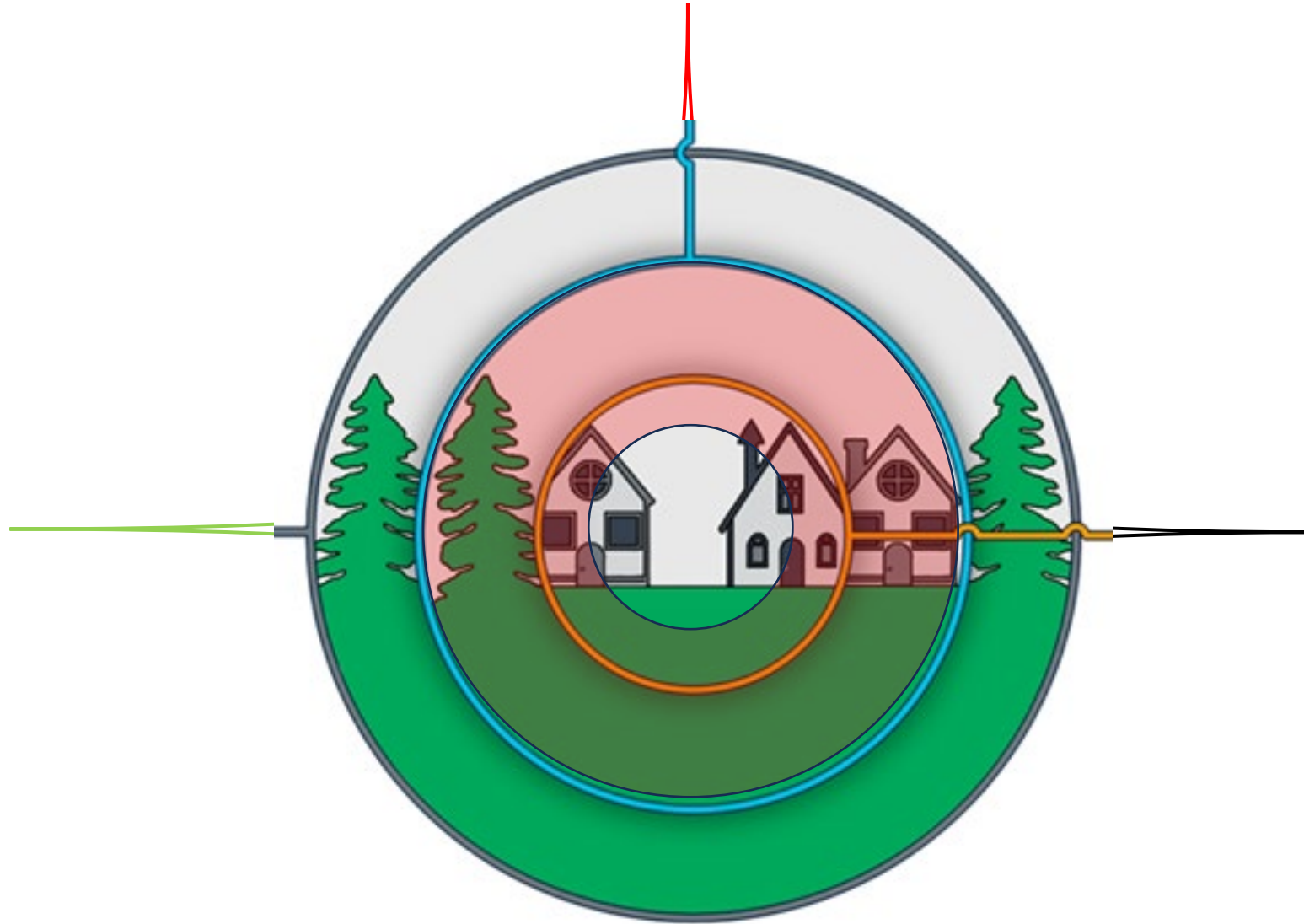
# Ideal State for Sustained WUI Mitigation from “The Convening”



### Five Enabling Tasks:

- Core set of “mitigations-that-matter”
- Structure to structure spread modeling with structures as a new and distinct fuel type
- WUI Response rating
- WUI data commons
- Barriers to social support for implementation and maintenance of parcel level mitigations

“Interface” = band within 100’ of WUI Community boundary to 2<sup>nd</sup> layer of structures with SSD < 70’



“Minimum Travel Time Fire Pathway SOI” = 1/2 to 1/4 mile of interface in vegetation landscapes capable of carrying fire.

“WUI Community” =  $\geq 100$  structures where 50% or more have SSD < 70’

# WUI Fire Pathway Taxonomy



# Domains for Simultaneous Disruption of the 3 Fire Pathways

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## Required Components for Fire

- Heat
- Fuel
- Oxygen
- Chemical Chain Reaction

## Propagation Routes

- Convection
- Conduction
- Radiation
- Direct Flame Contact

## Efficiency (Alignment) Elements

- Fuel
- Weather
- Topography



# We can do this....

- 1968 - The National Commission on Fire Prevention and Control was created.
- 1973 - It publishes its landmark America Burning report in 1973 ...a major national effort to reduce our shameful loss of life and property resulting from fires.”
- Fifty years later, through science, codes, and commitment “structure fires” represent less than 1% of call volume.
- 2021 – The Wildland Fire Mitigation and Management Commission is created.
- 2023 – It publishes On fire: The report of the Wildland Fire Mitigation and Management Commission.
- We must meet this moment in history with similar resolve for five decades.