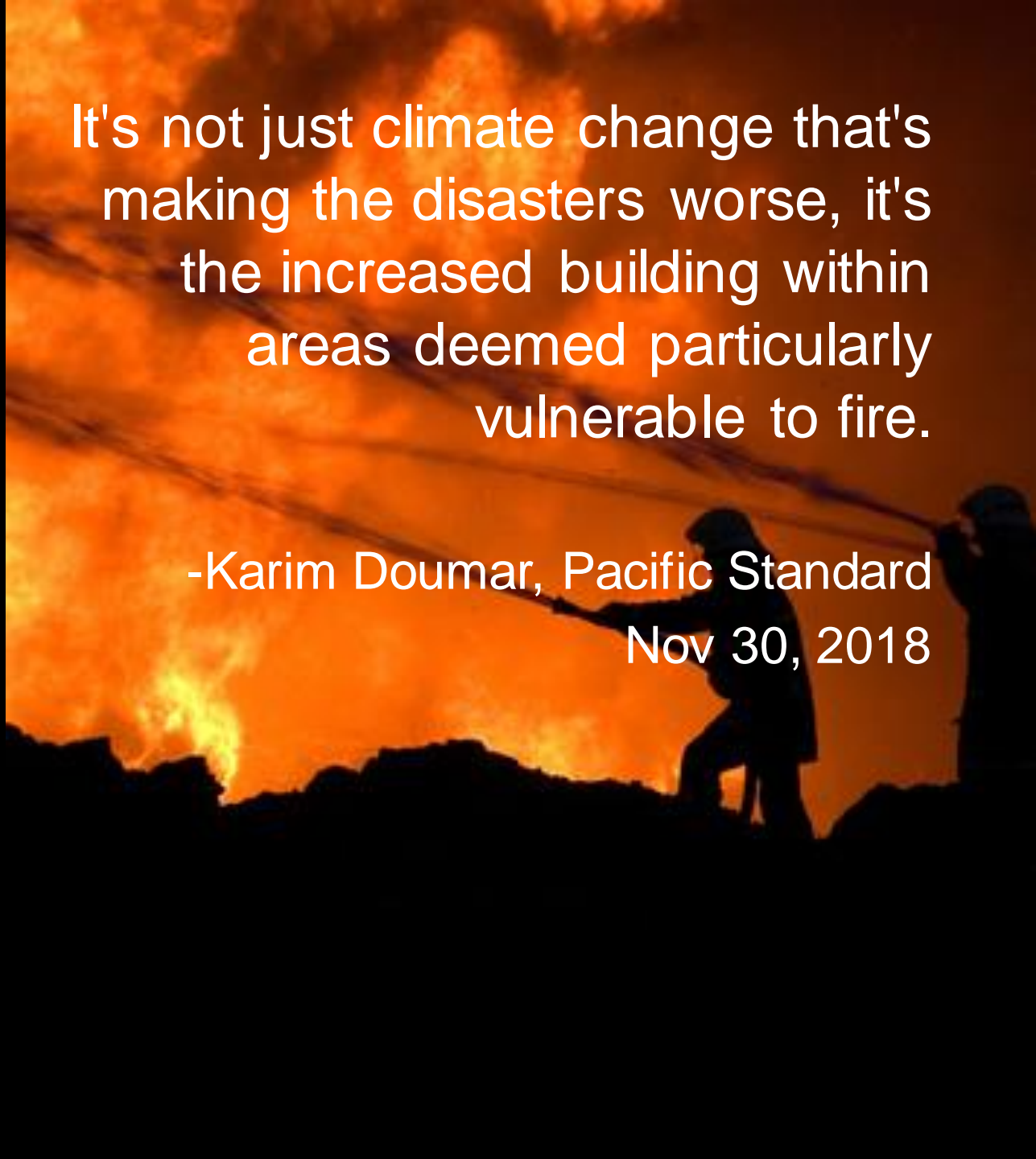




Climate Crisis: The Burntfields™ Reality

→ Roy Thun

Senior Environmental Specialist

The background of the right side of the slide is a dramatic photograph of a large fire. The sky is filled with bright orange and yellow flames. In the foreground, the dark silhouettes of two people are visible, one of whom appears to be holding a hose, suggesting firefighting efforts. The overall atmosphere is one of intense heat and danger.

It's not just climate change that's making the disasters worse, it's the increased building within areas deemed particularly vulnerable to fire.

-Karim Doumar, Pacific Standard
Nov 30, 2018

US wildfire stats (2017-2021)

*NOAA billion-dollar weather and climate disasters 2017-2021

59,000 wildfires
per year
average

8 million acres
burned per year
average

12,600
structures lost
per year
average

217 related
deaths*

\$16B damages
per year
average*

\$130B - \$150B
economic loss
western wildfires
2020

Understanding Burntfields™



Brownfields: property where expansion, redevelopment, or reuse may be complicated by the presence or potential presence of contamination.

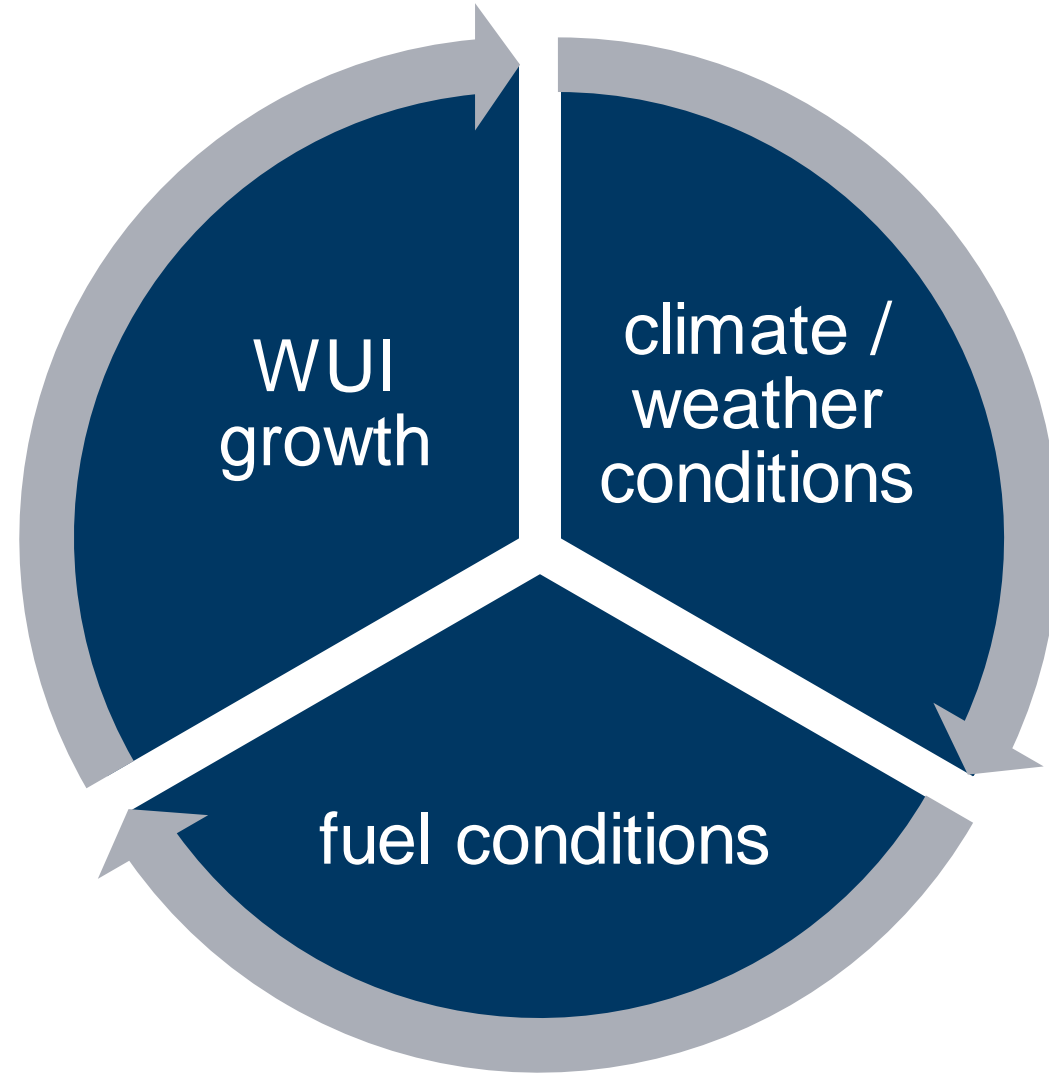


Greenfields: land that has not yet been built on, or buildings built on land that had never been used before for building.

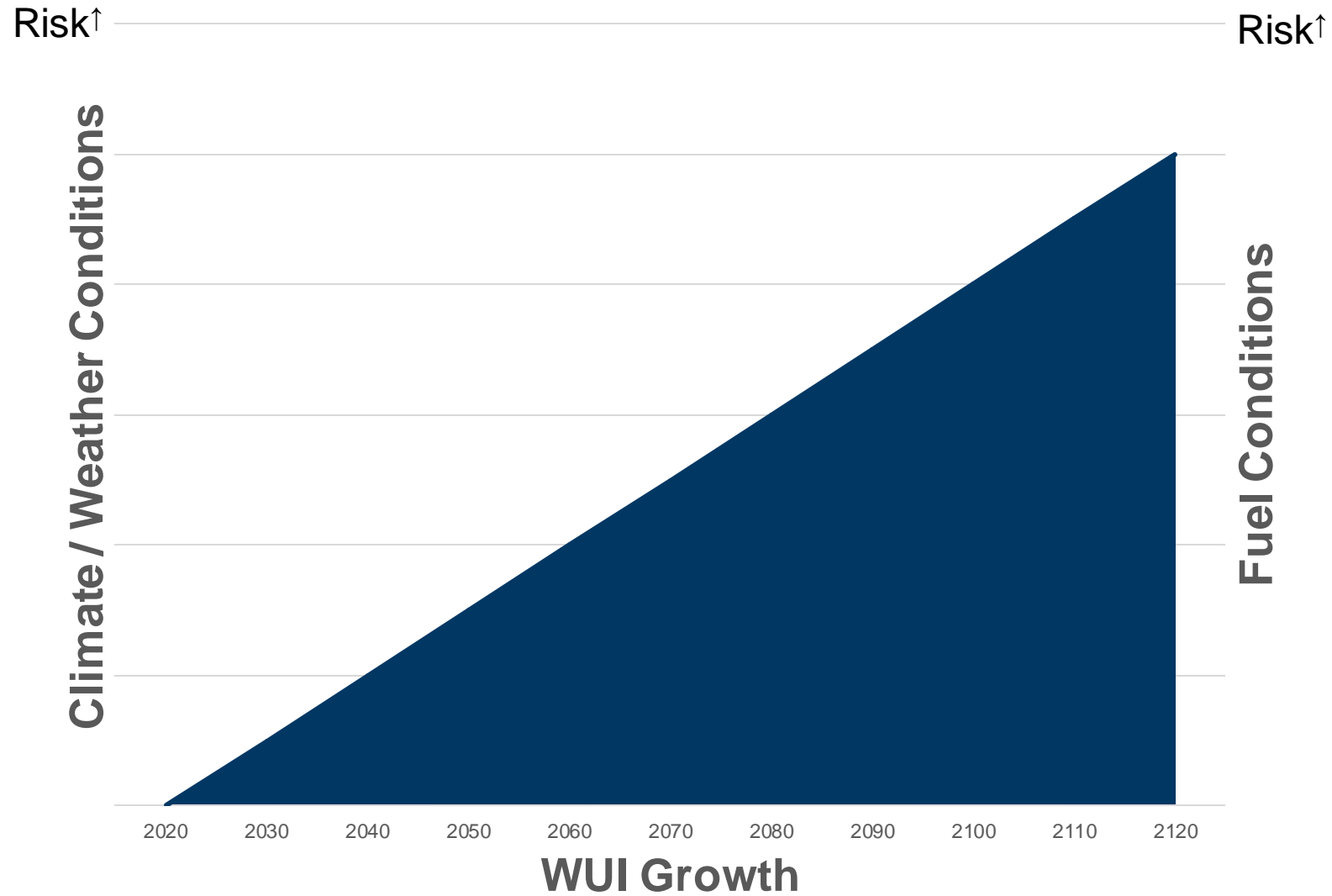


Burntfields™: wildland urban interface (WUI) areas and properties that have been or could be environmentally, socially and economically harmed by wildfire.

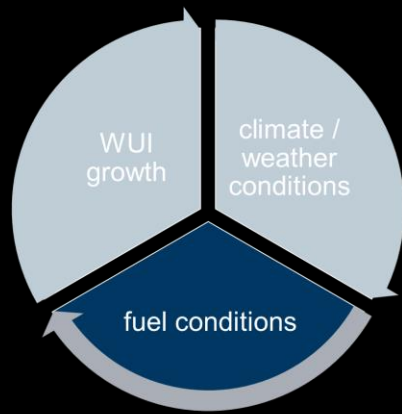
The Burntfields™ lifecycle



The Burntfields™ lifecycle increasing risk



Camp Fire, Northern California 2018



Dense, dry,
vegetation



240 sq. miles burned

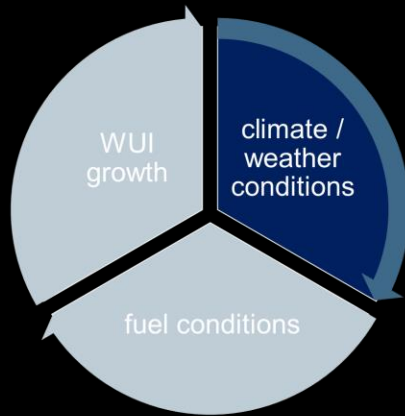
52,000 people ordered to
evacuate

18,804 structures lost

85 related deaths

\$12.5B insured losses

Marshall Fire, Colorado 2021/22



100 MPH
wind gusts



6,200 acres burned

35,000 people ordered to
evacuate

1000 homes and businesses
destroyed or damaged

1 related death

\$1B estimated insured losses

Burntfields™ realities

Environmental, Social and Economic Impacts

- Loss of life (family / pets / livestock)
- Displacement (loss of property / jobs)
- Contaminated soil and water
- Human health effects
- Ecological losses
- Mass movement (landslides, mudslides)



Wildfires are growing faster than public resources

- US averages 50,000 – 60,000 wildfires per year
- 1M people ordered to evacuate in California during 2017 - 2019 fire seasons
- FEMA short staffed
- ~1.1M avg year-over-year US firefighters (~330K career)



Photo courtesy of Firefighter Garrett Thun

Private sector expertise, an underutilized resource

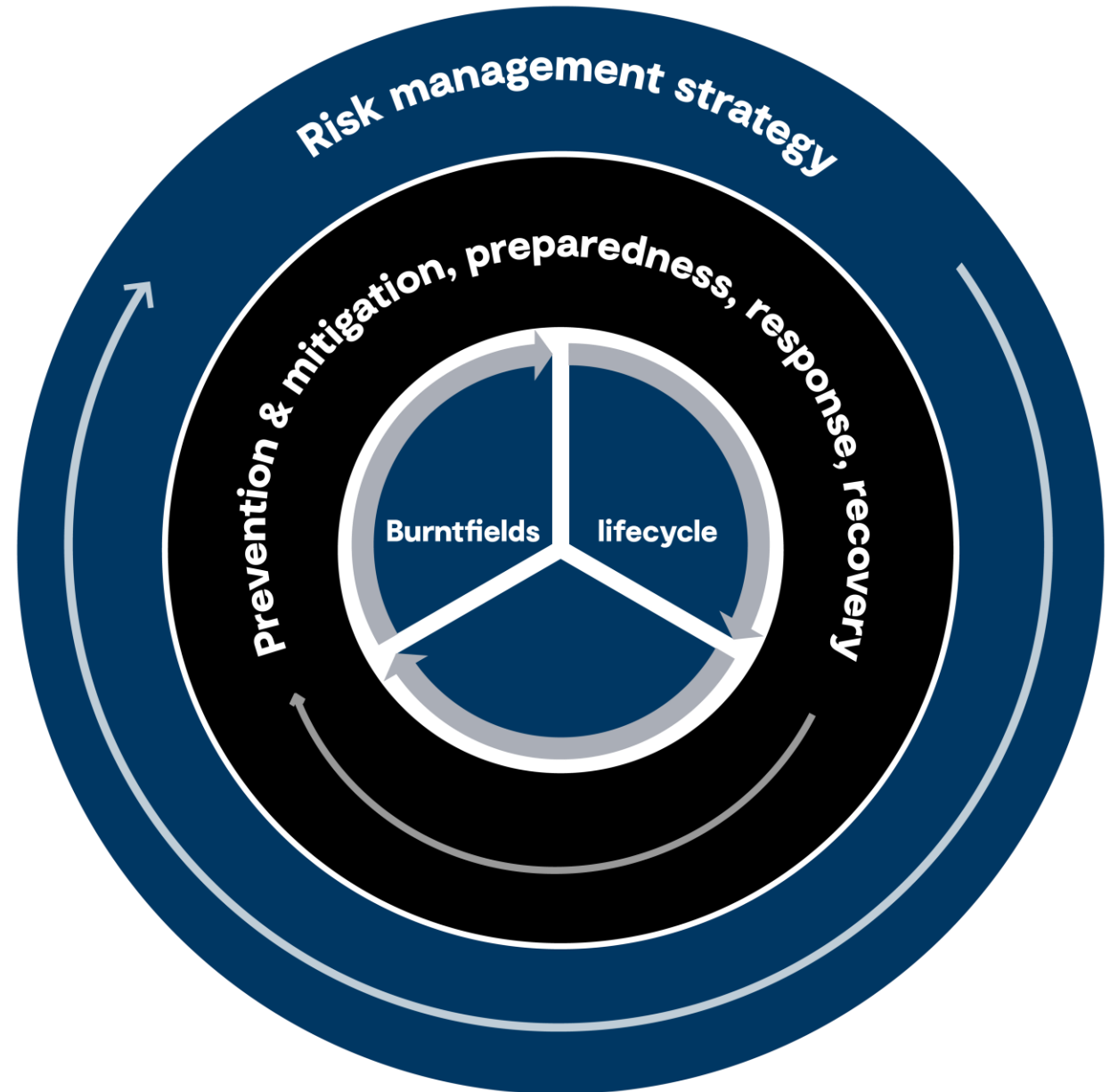
- Private sector resources are diverse
- 10M professional, scientific, and technical services sector*
- Private-Public partnerships (P3) supported by FEMA
- P3 teams can support all emergency management phases



*NAICS 54

Burntfields™ risk management approach

An integrated wildfire risk management solution that incorporates skilled private sector resources into Prevention & Mitigation, Preparedness, Response and Recovery roles to address every phase of the Burntfields™ lifecycle



Burntfields™ risk management - What does private sector integration look like?

Prevention & Mitigation

- Primary & secondary road improvements
- Defensible space enforcement
- Forest / vegetation management
- Alternative technology applications

Preparedness

- Hazard Mitigation Plan development or review
- Community hazard awareness and response training
- Structural / Infrastructure assessments
- Land use policy considerations

Response

- Monitoring (air, water, traffic)
- Hazard waste management
- Community outreach
- Control center support

Recovery

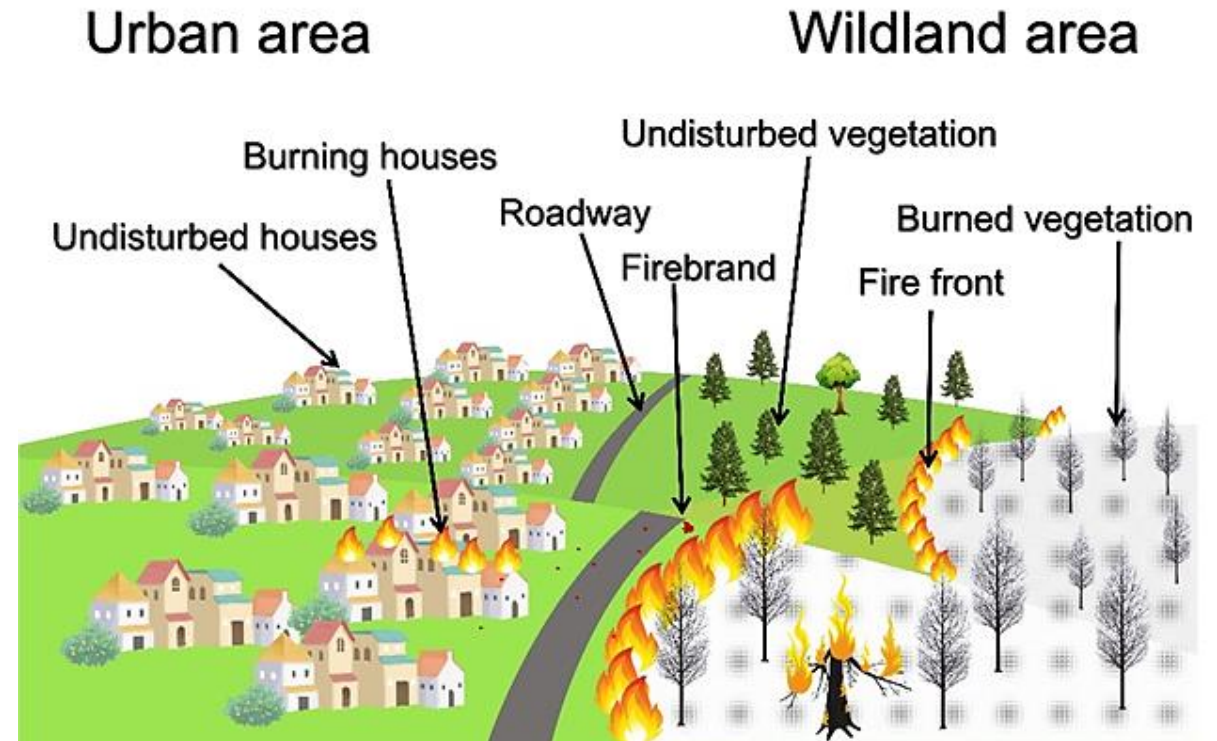
- Environmental assessments:
- Damage estimates
- Waste handling
- Engineering & construction

Thinking creatively – Roxborough, Colorado evacuation simulation

Sensitivity of
outcomes to
decisions

Influence of
variable
conditions

Effectiveness
of measures



Graphic from GHD WUI-NITY project

Burntfields™ Summary



- Driven by climate change and drier vegetation Burntfields™ have become a reality of the wildland urban interface
- Wildfires are increasing in frequency and severity
- Firefighters and other public sector resources are stretched to the limit
- FEMA supports public-private partnerships (P3) to help design, implement and manage disaster risks
- Skilled private sector resources can help agencies, communities and businesses prepare and protect themselves against devastating wildfires



* Thank You

For additional information on Burntfields™
risk management please contact:

Roy Thun
Senior Environmental Specialist

roy.thun@ghd.com

661-287-3855

→ ghd.com