

WILDFIRE READY ACTION PLANS

LOCAL POST-FIRE
SUCEPTIBILITY &
MITIGATION



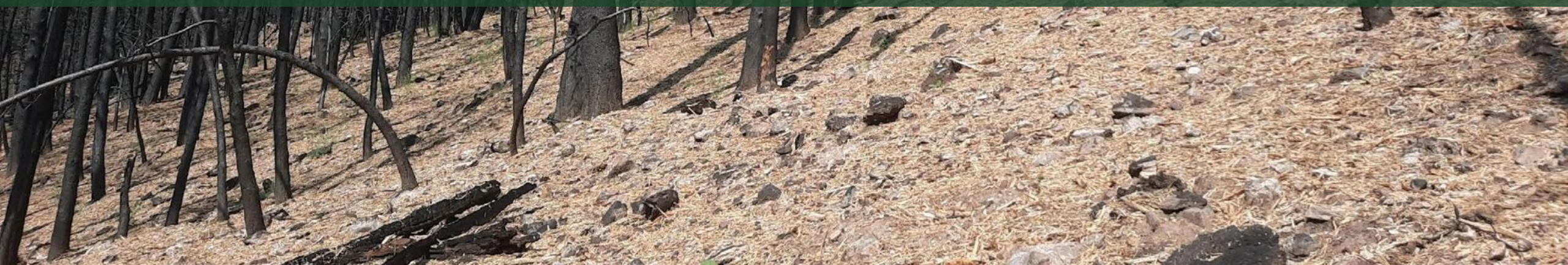
COLORADO
Colorado Water
Conservation Board

Department of Natural Resources



Wildfire Ready Action Plans

WHAT – is a Wildfire Ready Action Plan?
WHY – are resilient watersheds important?
HOW – can a WRAP help you?





Wildfire Ready Action Plans

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Wildfire Ready Action Plans

Post-Fire Risk

Statewide relative risk for all values and post-fire hazards.

Map represents overall average susceptibility.

Wildfire Ready Watersheds Statewide Post-Fire Susceptibility Assessment

Average Susceptibility of Values-at-Risk to Hazards

Legend

- HUC12 Subwatersheds*
- Major Waterbodies
- Major Rivers
- Basin Roundtable Delineations
- Highways
- Counties

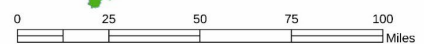
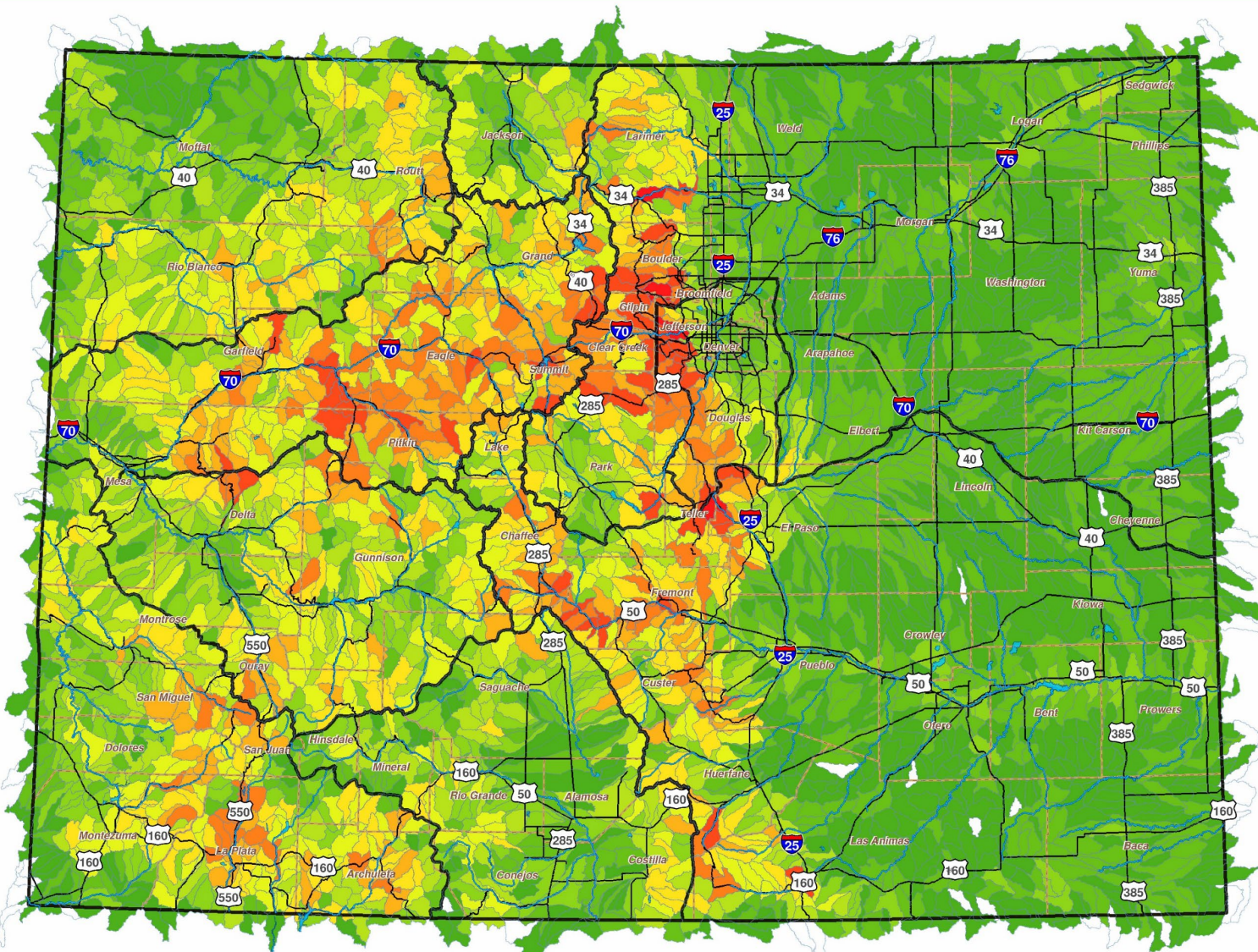
Susceptibility of Values-at-Risk to Hazards

- 1 - 7
- 8 - 13
- 14 - 19
- 20 - 25
- 26 - 31
- 32 - 36
- 37 - 42
- 43 - 48
- 49 - 54
- 55 - 60

Numeric values above represent progressively increasing relative (watershed by watershed comparison) susceptibility of Values-at-Risk to Post-Fire Hazards. The values shown represent the average of all analyzed values each calculated on a per HUC12 basis. Basins with no estimated risk are shown as blanketing. The maximum possible value of 100 would represent the highest presence of Values-at-Risk and the highest likelihood of Post-Fire Hazard occurrence.



* HUCs are described at: <https://water.usgs.gov/GIS/huc.html>

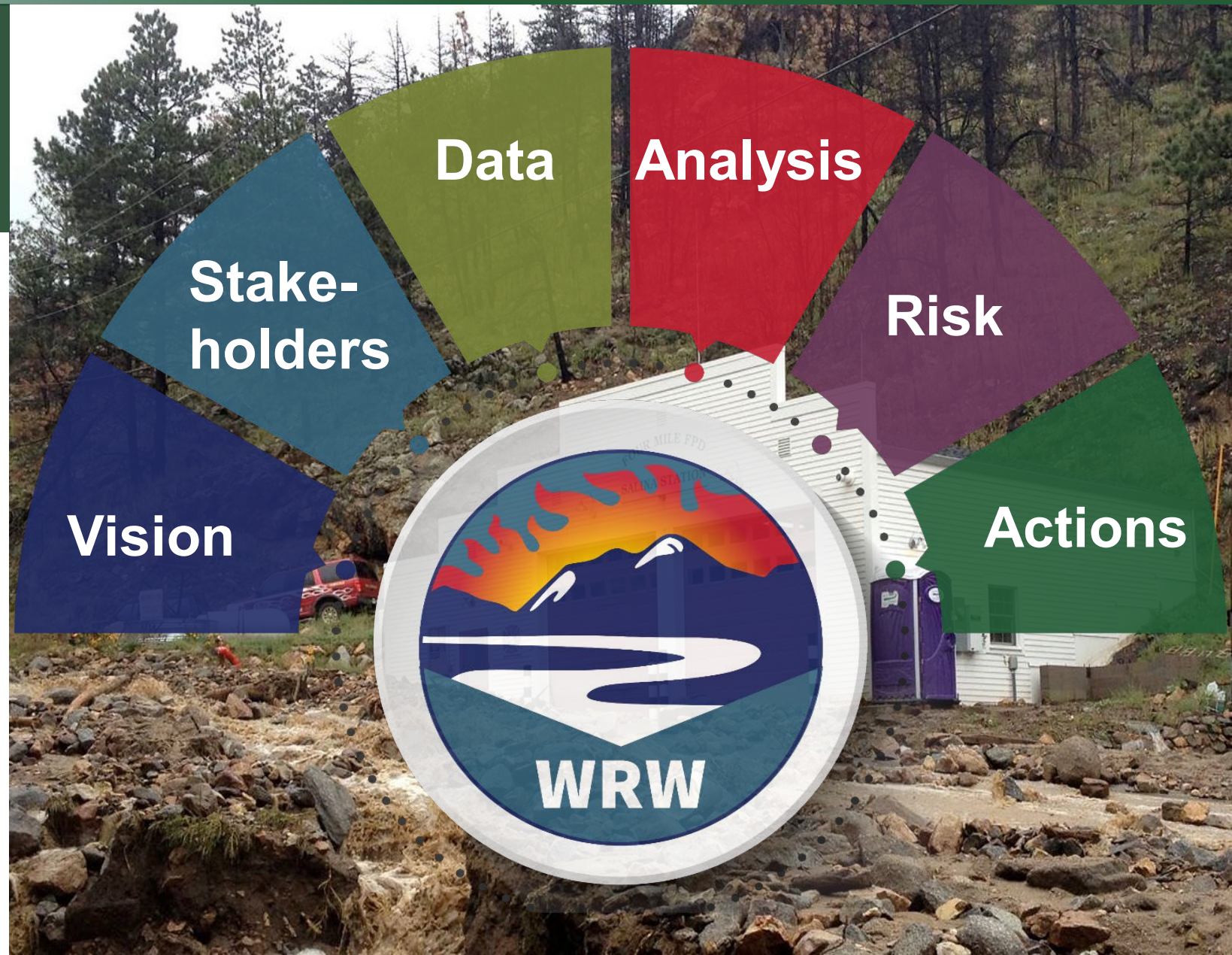




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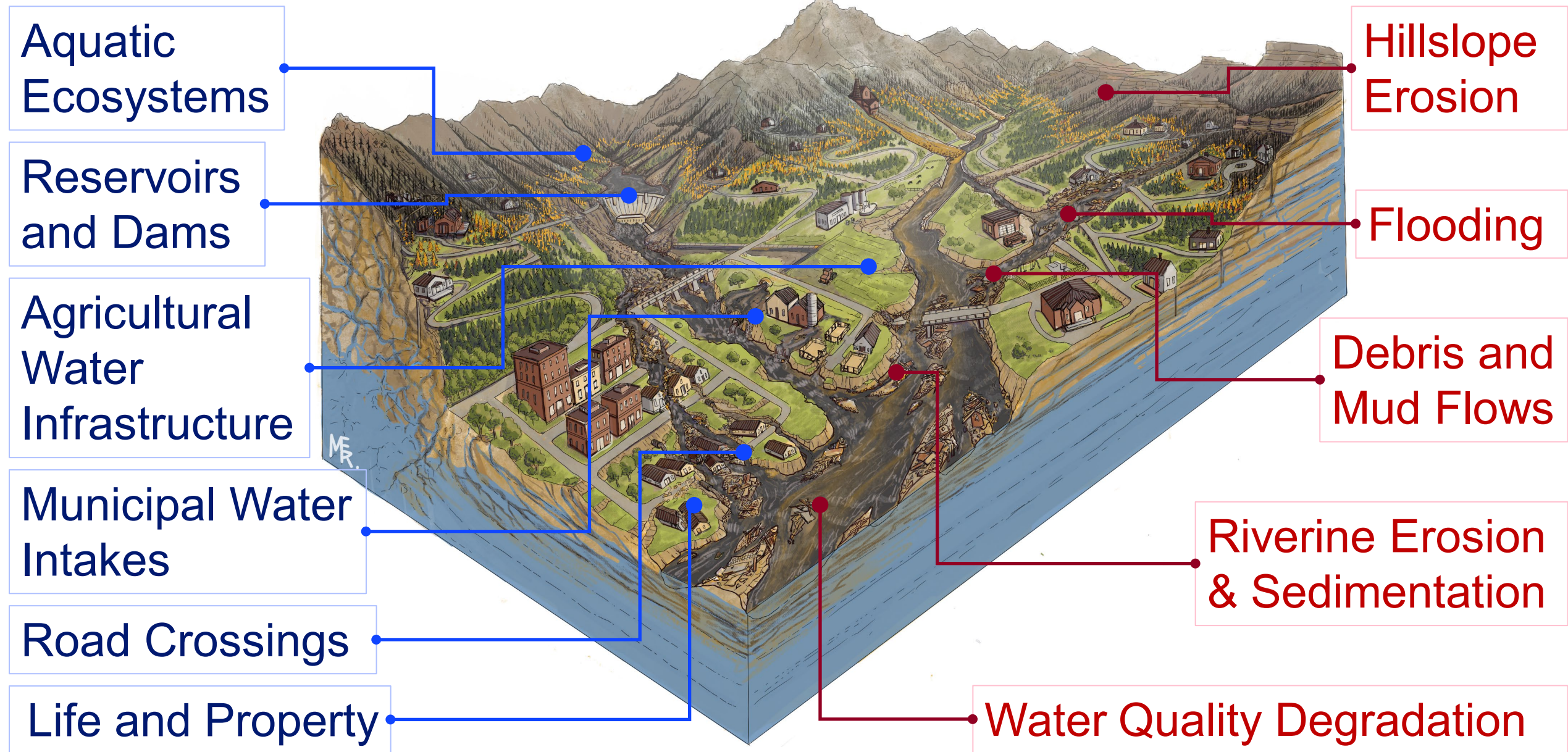
Wildfire Ready Action Plan

- Goals and Objectives
- Collaboration & Outreach
- Data Collection, Gap Analysis, & Development
- Post-wildfire Hazard Analysis
- Susceptibility Analysis to evaluate risk
- **Pre and Post-wildfire mitigation activities**





Wildfire Ready Action Plans

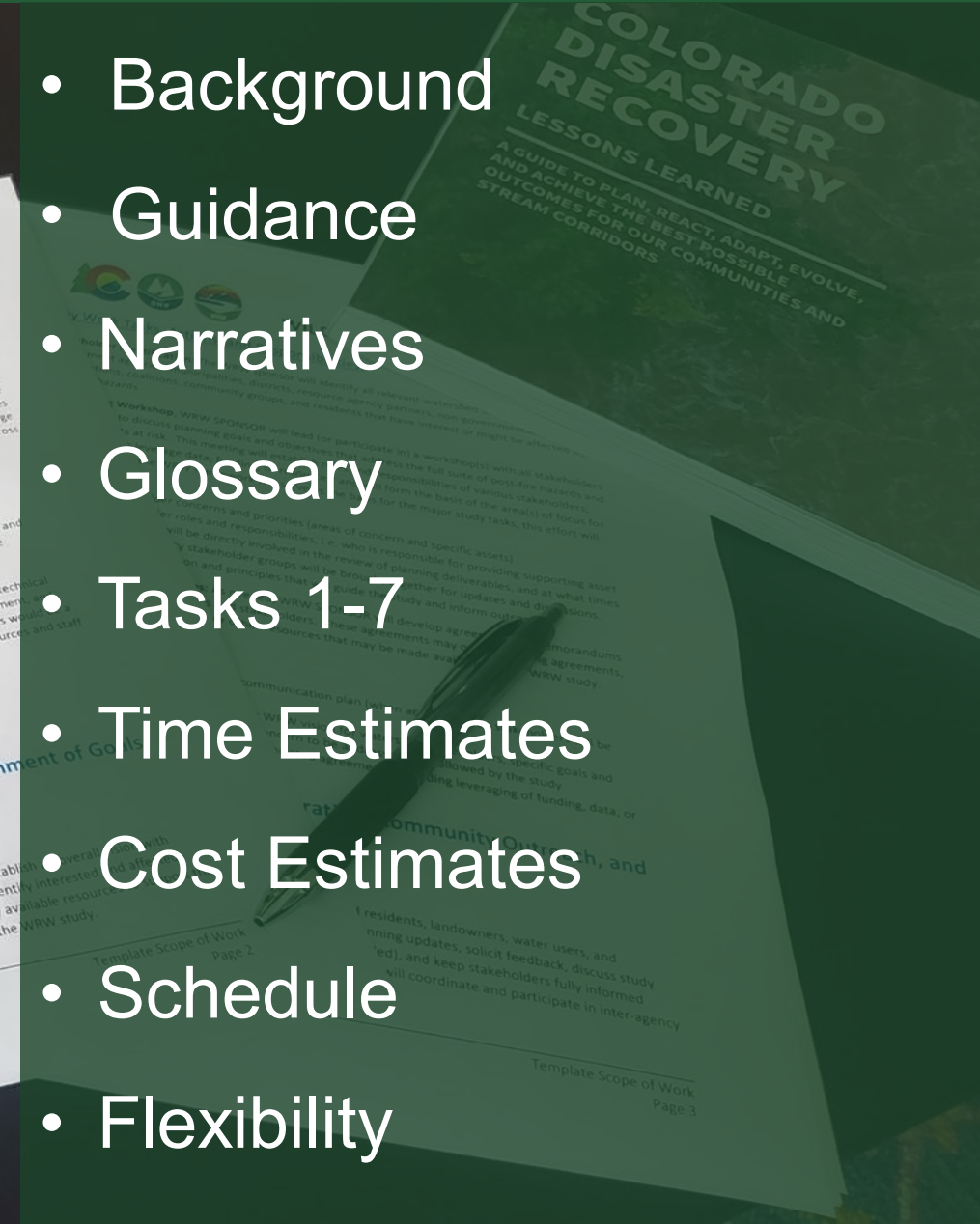
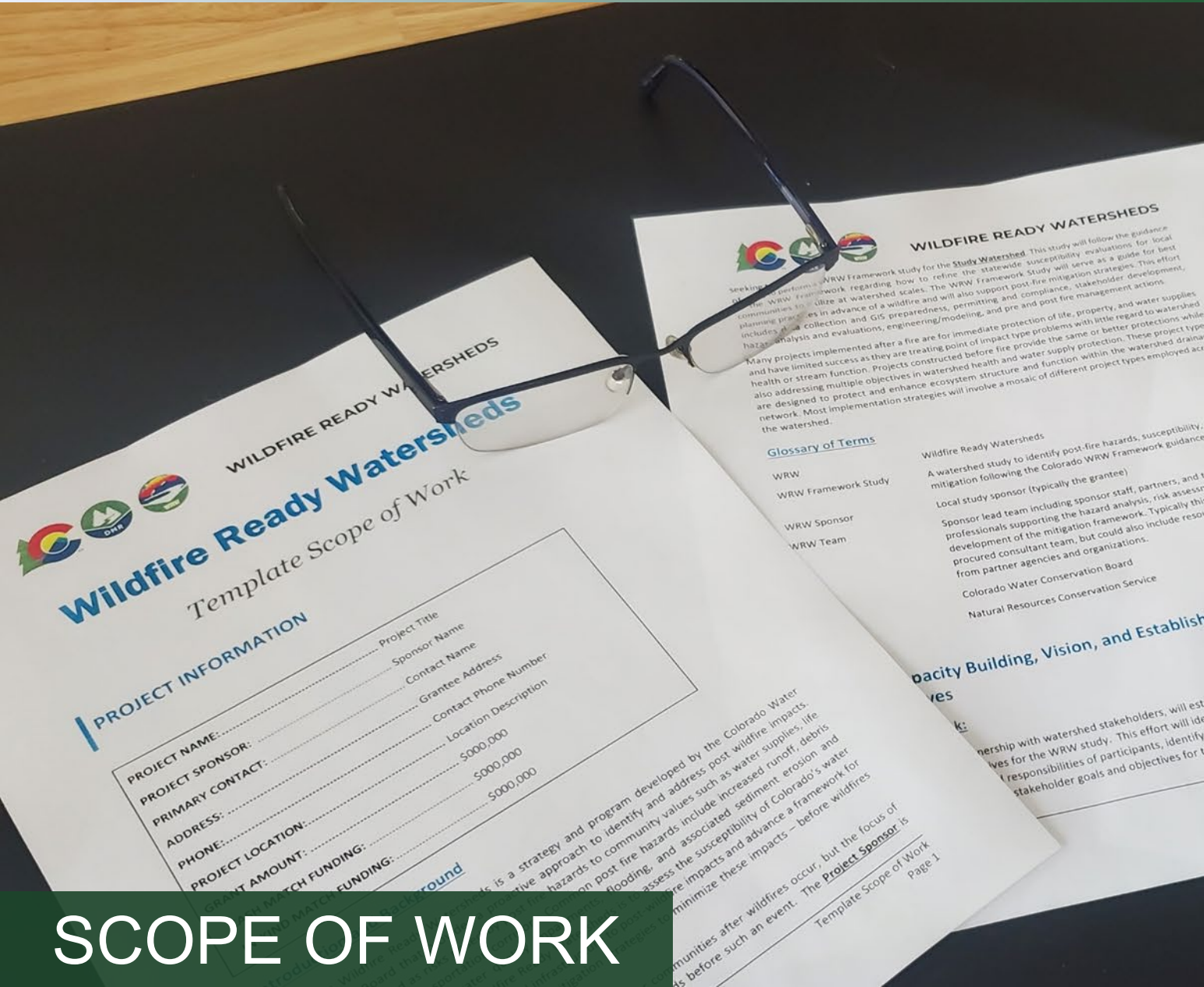




Wildfire Ready Action Plans

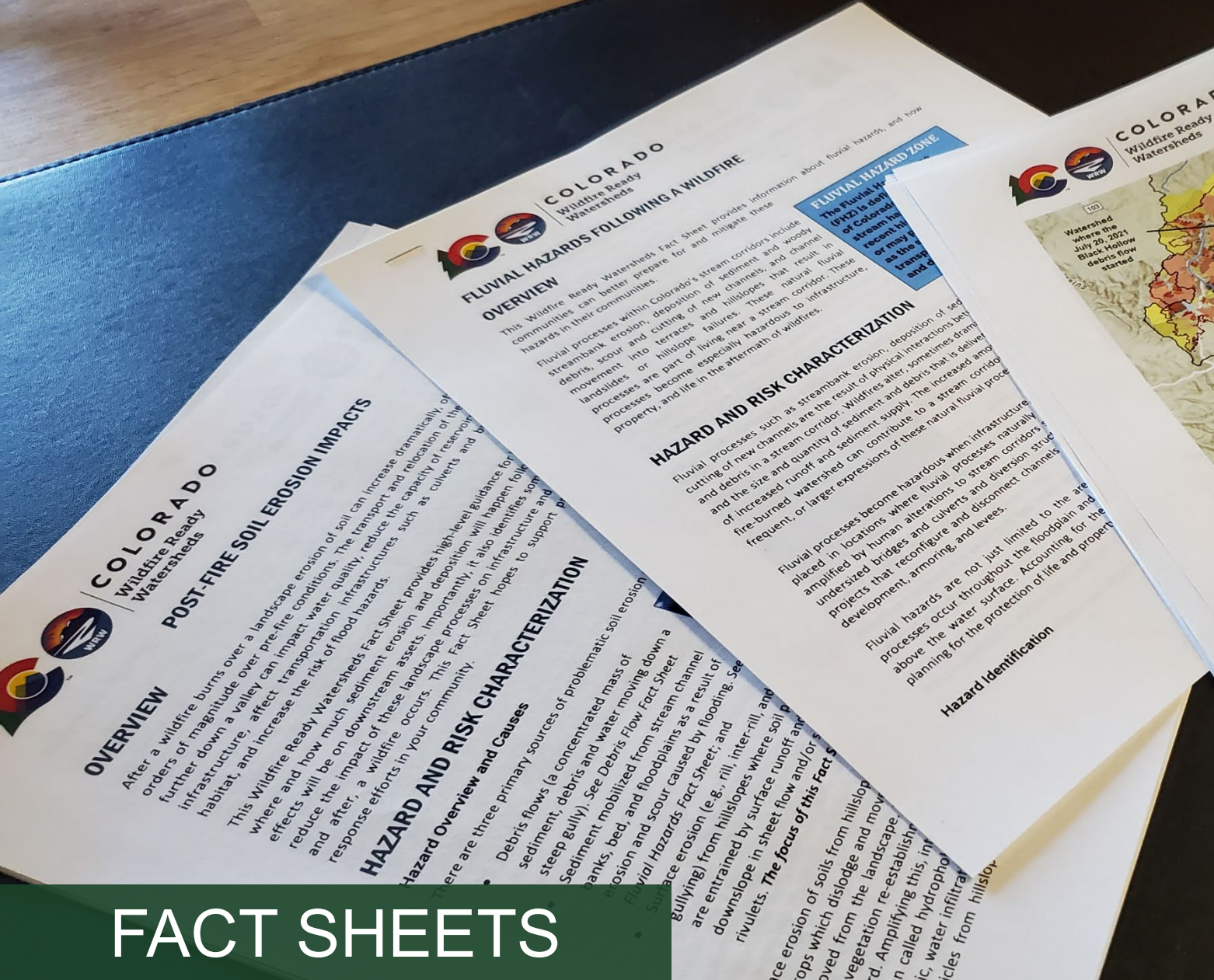
- Background
- Guidance
- Narratives
- Glossary
- Tasks 1-7
- Time Estimates
- Cost Estimates
- Schedule
- Flexibility

SCOPE OF WORK





Wildfire Ready Action Plans



- WRAP Quick Start Guide
- Hydrology / Hydraulics
- Debris / Mud Flow
- Fluvial Hazard Zone
- GIS Preparedness
- Outreach / Communication
- Hillslope Erosion
- Water Quality
- Water Infrastructure

FACT SHEETS



Wildfire Ready Action Plans

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WHY – are resilient watersheds important?

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Wildfire Ready Action Plans

Healthy Watersheds...



- Maintain flow regimes at historic conditions
- Can resist, absorb, and recover from natural hazards (Resilience)
- Provide high quality water supply for agriculture, municipal, and environment
- Provide diverse and complex habitat features in upland and riverine environments



Wildfire Ready Action Plans

Climate Change in Colorado

A report for the Colorado Water Conservation Board

climatechange.colostate.edu

| Climate variable/event | Recent trend | Projected future change | Confidence in change |
|------------------------|-----------------------|-------------------------|----------------------|
| Heat waves | More frequent/intense | More frequent/intense | Very High ● |
| Cold waves | Fewer | Fewer | Medium ○ |
| Droughts | More frequent/intense | More frequent/intense | High ● |
| Wildfires | More and larger | More and larger | High ● |
| Extreme precipitation | More intense | More frequent/intense | Medium ○ |
| Flooding | Mixed | Higher | Medium ○ |
| Windstorms | Uncertain | Uncertain | Low ● |
| Severe thunderstorms | Uncertain | More frequent | Low ● |
| Hail | Uncertain | More large hail | Low ● |
| Tornadoes | Uncertain | Uncertain | Low ● |
| Winter storms | Uncertain | Larger storms | Low ● |
| Dust on snow events | Greater dust levels | Greater dust levels | Medium ○ |



Wildfire Ready Action Plans

| | | | |
|------------------------------|------------------------------|------------------------------|-----------------|
| Droughts | More frequent/intense | More frequent/intense | High 🟢 |
| Wildfires | More and larger | More and larger | High 🟢 |
| Extreme precipitation | More intense | More frequent/intense | Medium 🟡 |
| Flooding | Mixed | Higher | Medium 🟡 |



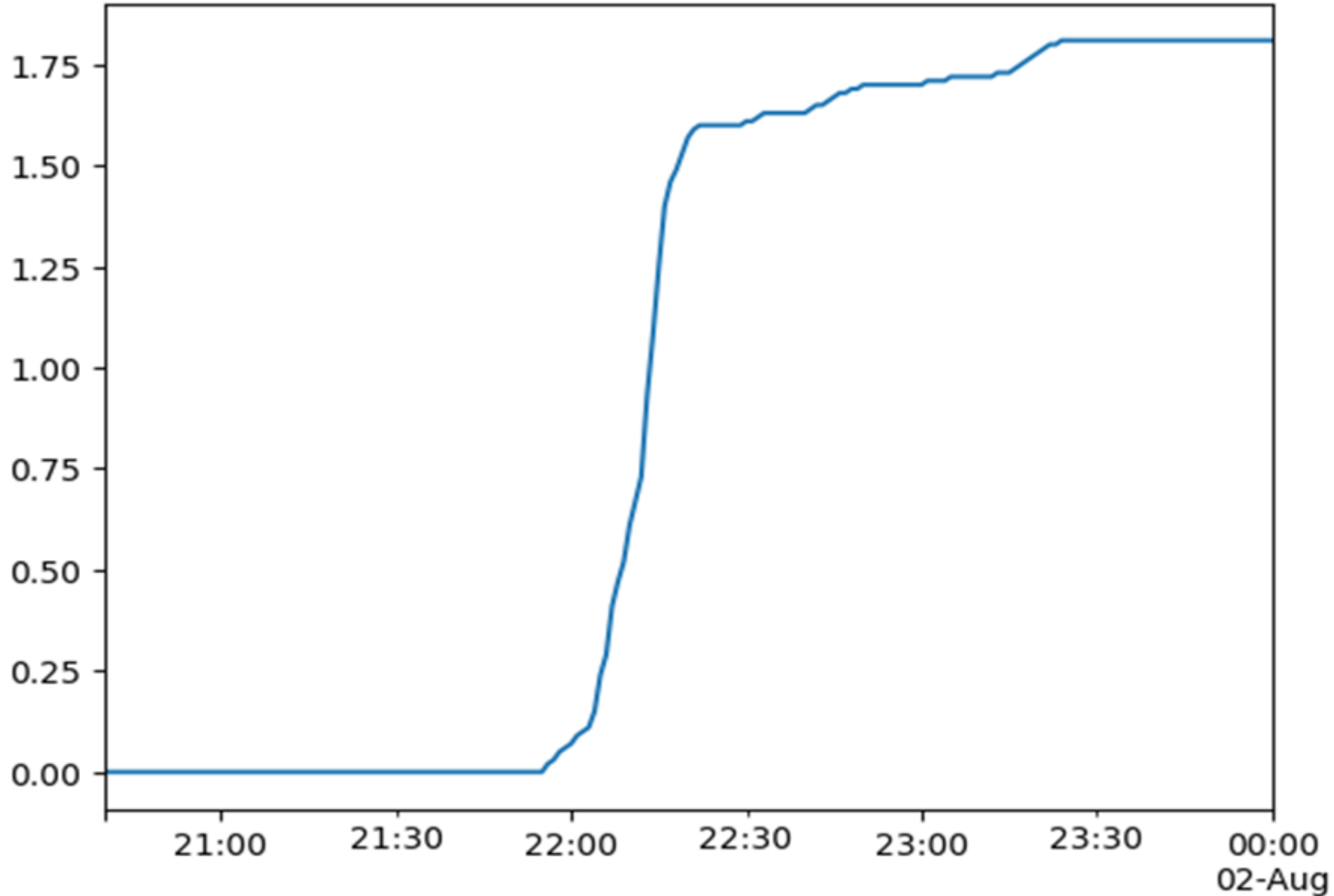
Wildfire Ready Action Plans

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Wildfire Ready Action Plans

LXV ASOS rainfall, 1 August 2023

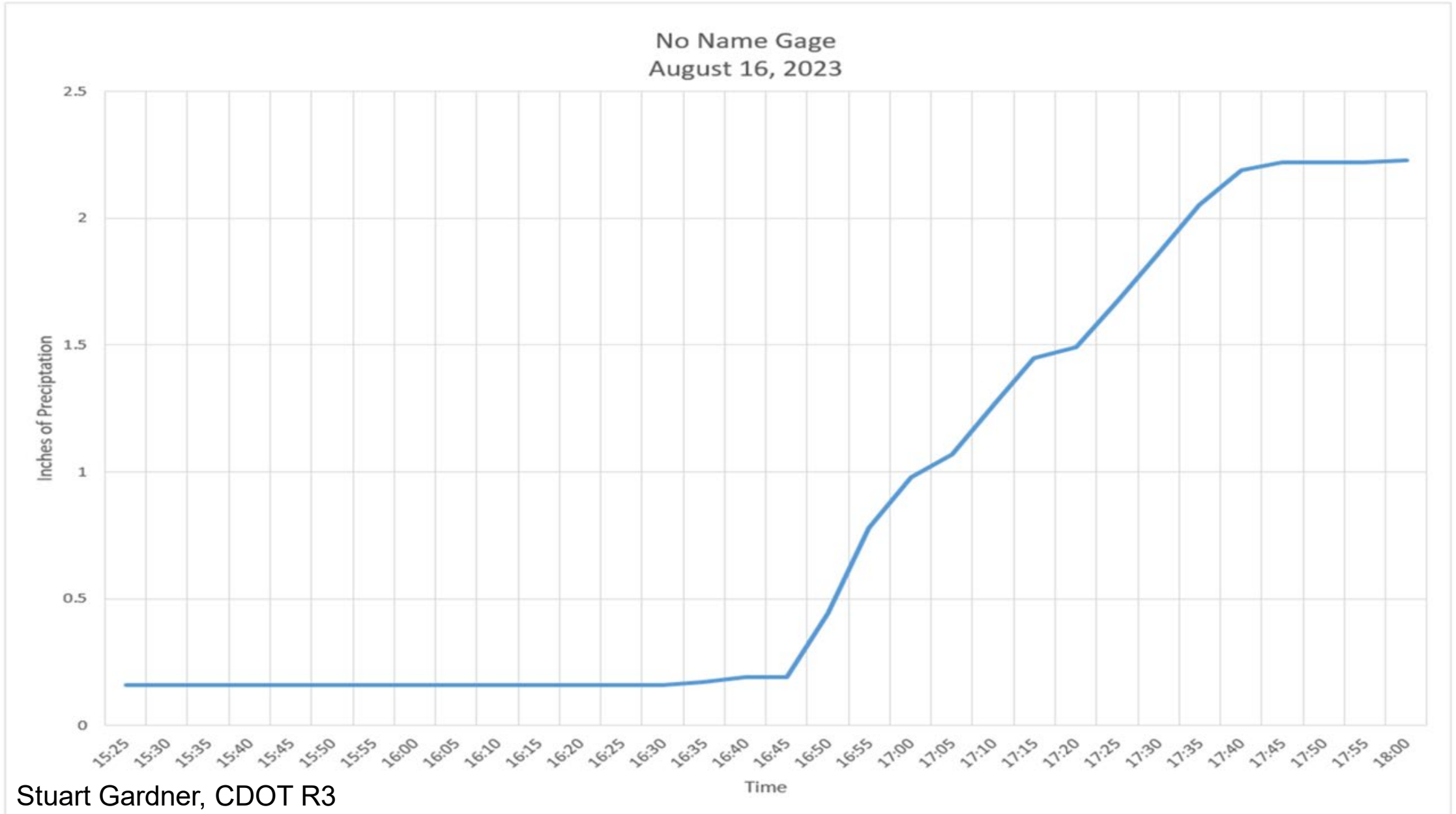


Source: Russ Schumacher, Colorado Climate Center

valid(UTC)



Wildfire Ready Action Plans



Source: Stuart Gardner, CDOT R3



2013 Front Range Flooding

Design Rainfall Totals

- 1-Day, 100-Year 4.66"
- 1-Day, 500-Year 6.15"
- 1-Day, 1000-Year 6.83"
- 7-day, 100-Year 6.16"
- 7-day, 500-Year 7.86"
- 7-day, 1000-Year 8.62"
- Note: Average Annual Precipitation 14.30"

Sept 9-16 Rainfall Totals

- Boulder 3.3 SE 18.13"
- Aurora 4.0 N 15.68"
- Boulder Justice Center 15.32"
- Pinewood Springs 13.83"
- Gold Hill 12.6"
- Bellvue 6.2 W 12.44"
- Denver International Airport 4.65"



Wildfire Ready Action Plans

2013 Front Range Flooding

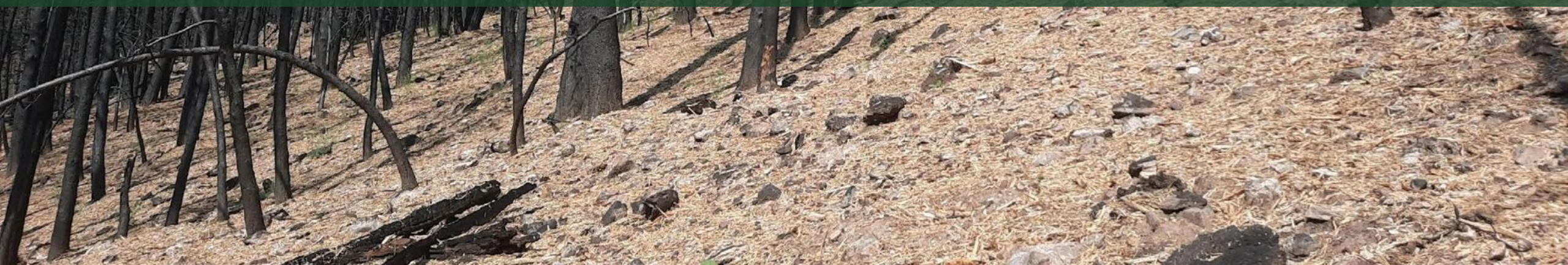
- Deaths -10
- Damages ~ \$4B
- 207 dams impacted
- 9 low hazard dams lost
- \$540K streamgauge replacement cost
- 215 diversion structures damaged/destroyed
- Courtesy of Division of Water Resources





Wildfire Ready Action Plans

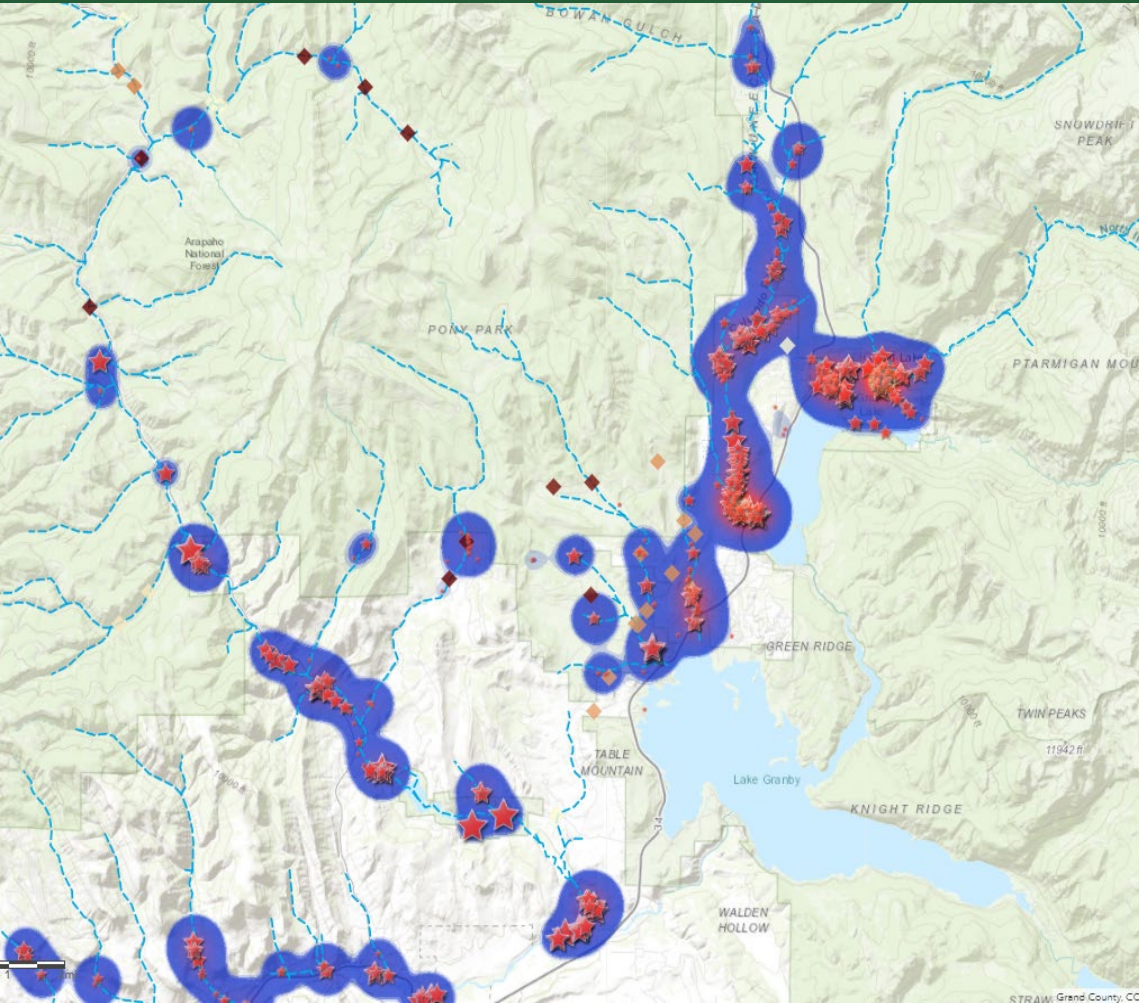
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Wildfire Ready Action Plans

East Troublesome Fire 192,560 acres Fall 2020





Wildfire Ready Action Plans

Aquatic
Ecosystems

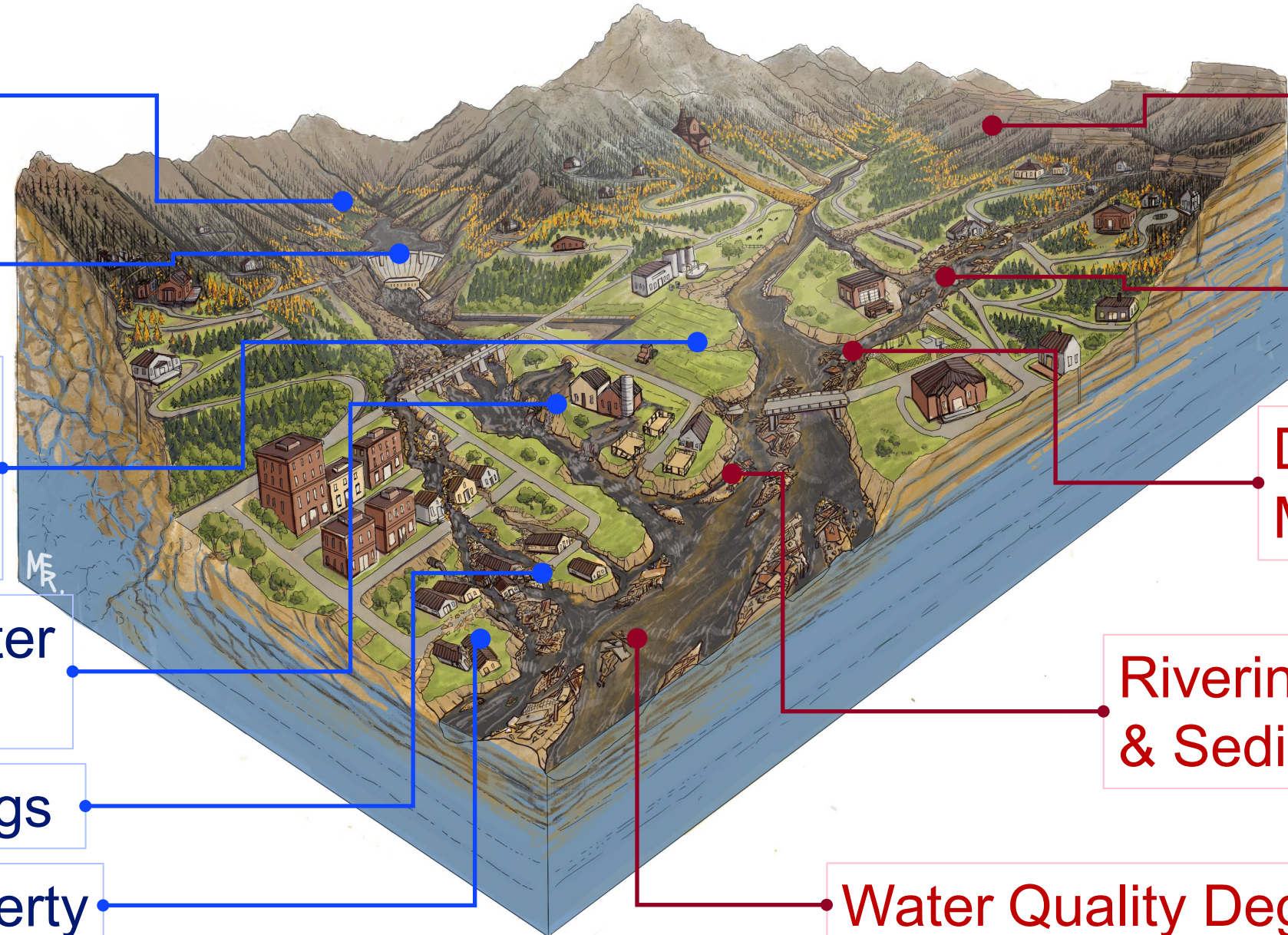
Reservoirs
and Dams

Agricultural
Water
Infrastructure

Municipal Water
Intakes

Road Crossings

Life and Property



Hillslope
Erosion

Flooding

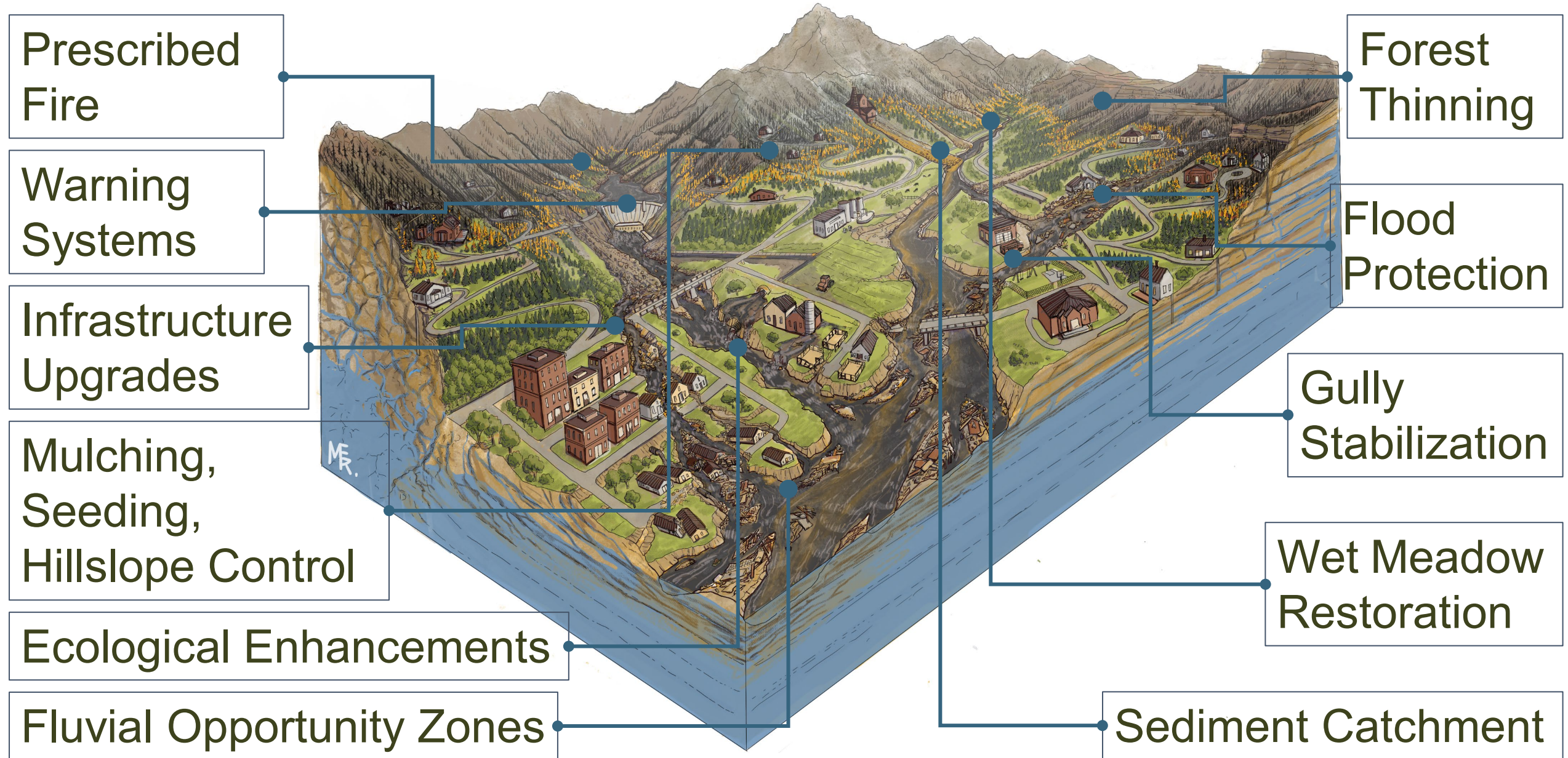
Debris and
Mud Flows

Riverine Erosion
& Sedimentation

Water Quality Degradation



Wildfire Ready Action Plans





Wildfire Ready Action Plans

Protect and Restore Natural Infrastructure





Wildfire Ready Action Plans

Protect and Enhance Built Infrastructure





Wildfire Ready Action Plans

Restoration *and* Mitigation in the Age of Climate Change

Stationarity is dead

Expect the extremes

Learn from the past, adapt for the future

Be proactive

Plan at a landscape level

Foster collaboration
Leverage partnerships
Leverage funding



Wildfire Ready Action Plans

Website

wildfirereadywatersheds.com



Questions?

Steven Reeves, CWCB
steven.reeves@state.co.us



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Working to understand the susceptibility of Colorado's watersheds to post-wildfire impacts and to plan and prepare for them- ***before fires occur.***