



Resiliency in Flagstaff, Arizona: A Community Commitment

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Flagstaff, Arizona

Founded in 1882

Population 67,500

Elevation 7,000 ft / 2,130 m

Largest contiguous
Ponderosa Pine forest in the
world

Tourism, education, and
government based economy



Climate Projections

Rising temperatures

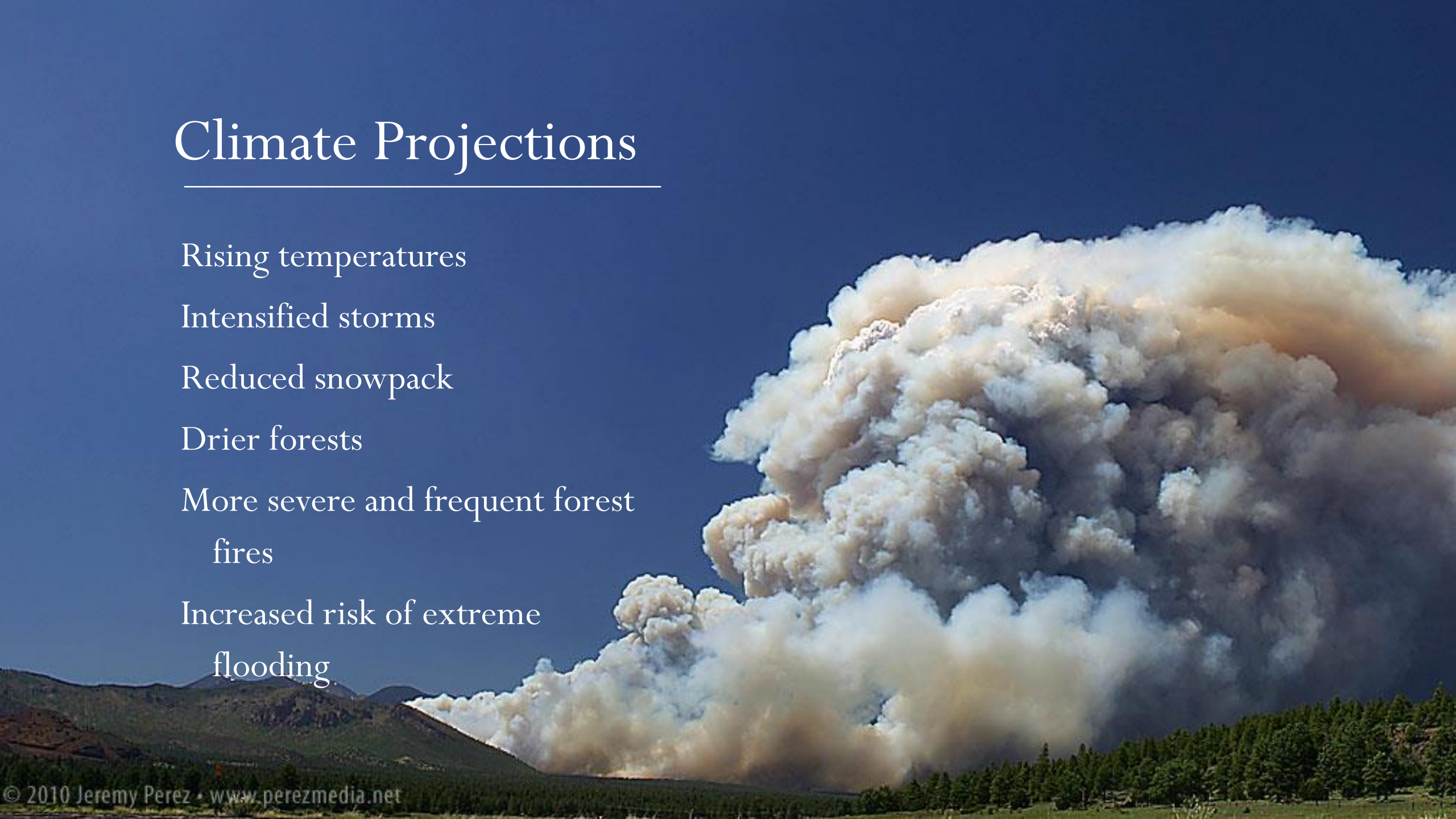
Intensified storms

Reduced snowpack

Drier forests

More severe and frequent forest
fires

Increased risk of extreme
flooding



Flagstaff Climatic Extremes - 2010

Cold

Snow

Wind

Drought

Tornados

Heat

Forest fires

Floods



Resiliency and Preparedness

WHAT WE ASKED OURSELVES

1. How vulnerable are our operations, infrastructure, and economy to climate related disasters?
2. Where does the City lack sufficient capacity to adapt to climate variability?
3. What are the risks if we do not act?

WHAT WE ASSESSED

1. Our level of vulnerability to local climate variability
2. The degree of risk to local climate variability
3. What are the potential impacts to local climate variability
4. What do we need in order to reduce vulnerability and risk

We must take a systems approach in preparing for the changing climate.

System	Key Planning Area	Vulnerability Ranking	Risk Ranking
Water			
	Water Treatment Quality	Medium	High
	Water Resources	High	High
	Water Infrastructure	High	High
Forest Health			
	Forest Management	High	High
	Wildlife and Vegetation	High	Low
	Public Infrastructure	Medium - High	High
Emergency Services			
	Police and Fire Services	Medium - High	Medium
	Emergency Medical Services	Medium - High	Medium
	Disaster Response	High	Medium
	Public Works	High	High
Energy			
	Energy Assurance and Delivery	Medium	Medium
	Energy Demand and Costs	Medium - High	High
Stormwater			
	Infrastructure	Medium - High	High
	Buildings	Low - Medium	Medium
Public Health			
	Public Health Infrastructure	Low	Medium
	People	Low - Medium	Medium
	Public Services	Medium	High
Transportation			
	NAIPTA – Public Transportation	Low Vulnerability	Low
	Transportation Infrastructure	Medium - High	High
	Public Access	Low Vulnerability	Medium
	BNSF	Low Vulnerability	Low
	Airport	Medium - High	Low

Volatility of Change

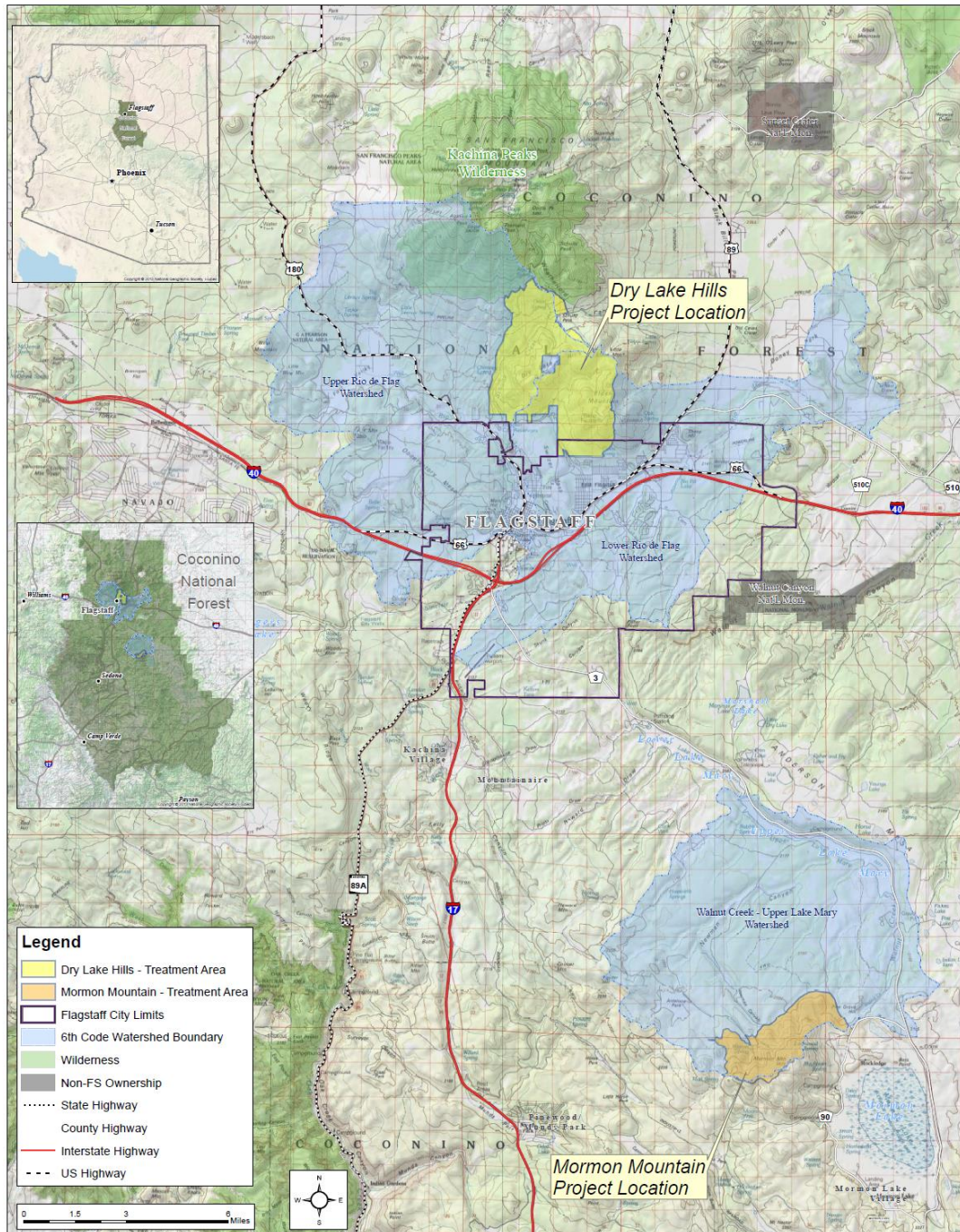
- Must design and redesign systems to better absorb disruption
- Must operate under a wider variety of conditions
- Must be able to shift more fluidly from one circumstance to the next

Flagstaff Watershed Protection Project

Schultz Fire a Reality

- Continual flooding damage despite fire containment success
- High-severity burn impacted the hydrologic behavior of the landscape
- Widespread flooding, large flood and debris flows – impacting areas four miles from the burn area
- High fire risk on steep slopes near downtown Flagstaff
- Catastrophic flooding risk throughout town
- Risks to 50% of municipal water source





FWPPP

- 2012 \$10M bond initiative (74% approval)
- 1st payment for Ecosystem Services project to result from a citizen vote
- Multi-agency partnership:
 - USFS
 - State of Arizona
 - Navajo Nation
 - City of Flagstaff
 - Northern Arizona University
 - Four Forest Restoration Initiative
 - Greater Flagstaff Forest Partnership

FWPP

- 2012: Planning
- 2013-2015: NEPA process
- Today: Thinning in forests
- Future: Steepest slopes
- Future: Identify sustained funding mechanism



What made it work?

- Enhanced public awareness of fire and water nexus
- Prior education on forest health and fire threat
- Alignment with concurrent projects
- Investing in community assets
- Focus on cost avoidance
- Community identity with forest



Climate Action and Adaptation Plan

Climate Action and Adaptation Plan

1. Set a goal to reduce community greenhouse gas (GHG) emissions
2. Outline the specific steps that the Flagstaff community will take to reduce GHG emissions (**mitigation**)
3. Outline actions to prepare for climate changes (**adaptation**)



Climate Action and Adaptation Plan

ELEMENTS – WHAT WE WANT TO SEE

Climate impacts and projections

Vulnerability assessment

Strategies

- Mitigation and adaptation strategies

- Scenario development

- Emissions forecast

Action and implementation plan

- Return on investment analysis

- Community Action Toolkit

GOALS – HOW WE’LL GET THERE

Obtain broad community input and ownership

Address vulnerable populations and recognize Flagstaff’s history, diversity, unique strengths, and challenges

Hold asset-based conversations

Use multiple channels of outreach

Resiliency and Preparedness: Existing Efforts

- GHG municipal and community tracking
- Renewable energy installations
- Municipal and community wide education
- Municipal projects
 - Asphalt engineering
 - Flagstaff airport
 - Water services
- Regional partnerships
 - Western Adaptation Alliance
- Residential energy efficiency
 - Rebates
 - Do-it-yourself training and supplies

Thank you

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