

Flagstaff Adaptation and Resilience Resource Document



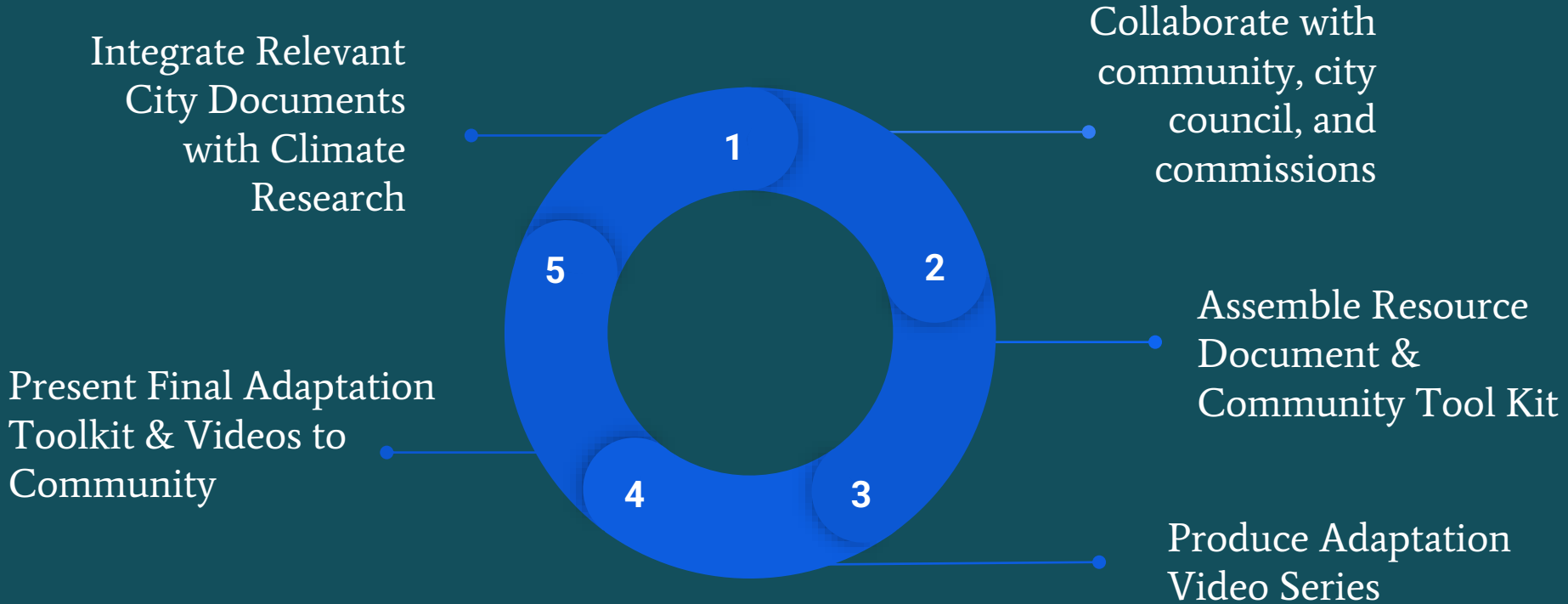
Climate Science & Solutions Master's Program at NAU
Fall 2021

Project Goals

To create a working resilience resource document that:

- **Engages the community and local government** to generate a dialog on climate adaptation in Flagstaff.
- **Consolidates information from existing city documents** for a comprehensive and easily accessible climate resilience resource document.
- **Provides strategic tools** that local residents can actively utilize to increase their resilience and practice adaptation.

Project Milestones



Commission and Council Participation

City Council

Local Commissions:

- Sustainability Commission
- Diversity Awareness Commission
- Inclusion and Adaptive Living



Public & Community Outreach

Public Forum Results:

- Consensus for great concern concerning wildfires, flooding, and population growth
- Suggestions for
 - The Neighborhood Sustainability Toolkit
 - Recognition and integration for the relevant scientific research conducted at NAU
 - Improving education and strengthening communities to improve resilience in Flagstaff



Survey Results:

- Nearly everyone stated they were “very concerned” about
 - Wildfire, floods
 - Drought & water scarcity
 - Cost of living
- Participants were:
 - most familiar with the Rio De Flag Project
 - least familiar with the Resilient Neighborhoods Network
 - most likely to remove dead plants, install AC, support local businesses, & advocate for more green space

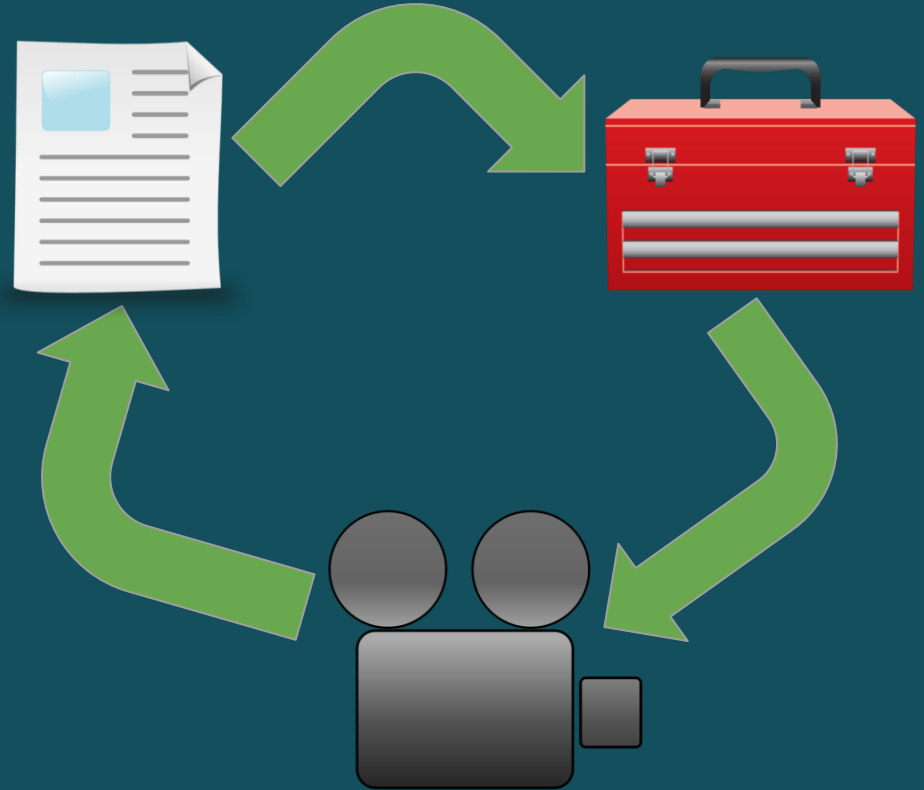


Three-Pronged Approach

1) Resource Document

1) Toolkit/Action Items

1) Video Outreach Series



Introduction and Document Structure

Introduction

- Acknowledgements
- Definitions
- Climate & Physical Science
- Justice & Equity
- Project Methodology & Content Breakdown

Content Groups

- Public Health
- Infrastructure and Housing
- Natural Environment
- Water Supply and Resources
- Tourism and Recreation

Content Breakdown

- Physical science background
- Social impacts
- Economical costs of climate change impacts
- Solutions: Toolkit

Sector	
	Public health, safety, and emergency services
	Land use, infrastructure, and cost of living
	Forest health and wildfire
	Water supply, quality, and infrastructure
	Tourism and recreation

Introduction



Flagstaff's Climate Vulnerability Assessment



Existing Internal Documents and Resources

- The Climate Profile for the City of Flagstaff
- The Flagstaff Vulnerability Assessment
- The City of Flagstaff Resiliency and Preparedness Study
- The 2018 Flagstaff Climate Action and Adaptation Plan (CAAP)

Outside Resources

- Updated (AR6) IPCC Report
- Scientific Journal Articles
- Other Scientific Resources

Public Health


- Flagstaff will need to focus on:
 - Increasing capacity to address mental health issues
 - Health care and emergency response systems
 - Climate migration to and within Flagstaff
- Disproportionate impacts on vulnerable communities
 - Exposure to poor air quality / extreme temperatures & events
 - Cost & access to healthcare
 - Expense of increased need for cooling

Toolkit

Neighborhood Help Map

Planting trees to reduce exposure to heat-related illness

Emergency Plans and Preparedness Kits

Sector	Low climate change vulnerability to/for:	Medium climate change vulnerability to/for:	High climate change vulnerability to/for:
 Public health, safety, and emergency services	People with: <ul style="list-style-type: none">• Allergies• Mental health issues• Other diseases	People sensitive to: <ul style="list-style-type: none">• Poor air quality• Heat- and cold-related illnesses	

Infrastructure & Housing

- Flagstaff's infrastructure is susceptible to:
 - Deterioration due to higher temperatures
 - Damage from wildfires and floods
- Impacts on vulnerable communities
 - Low income neighborhoods are disproportionately affected by wildfires and floods
 - Increasing energy and housing costs

Toolkit

Improve roads with permeable, high temperature resistant materials

Utilize retrofitting programs to increase energy efficiency

Maintain bike lanes and pedestrian pathways to encourage active transportation



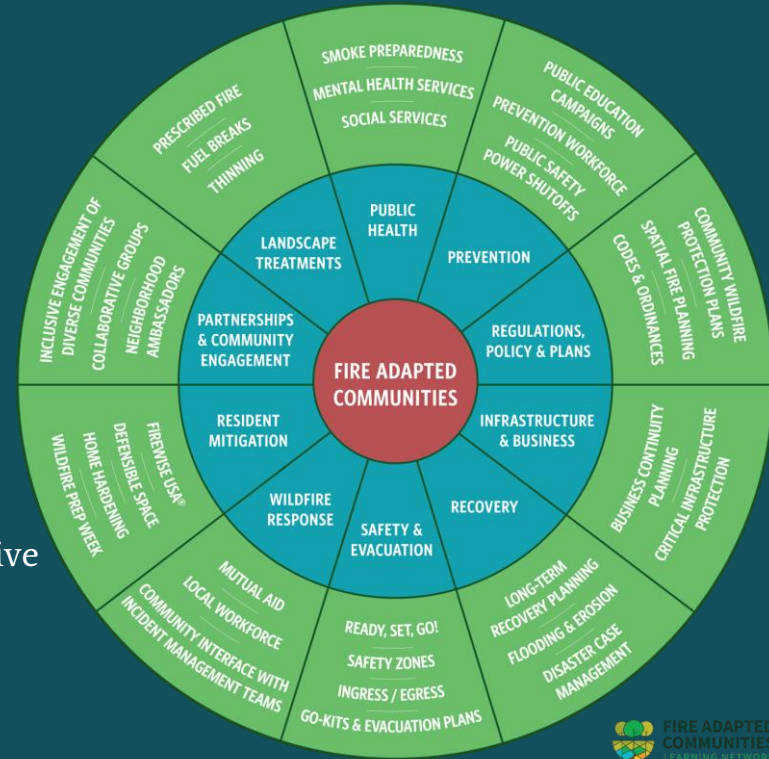
Natural Environment

Flagstaff's forests are vulnerable to:

- Climate change intensified wildfires
- Post fire monsoon flooding
- Plant and animal biodiversity loss due to increasing temperatures and drought
- Increasing bark beetle outbreaks

Tool kit solutions to support Flagstaff's natural environment:

- **Increase local biodiversity** with a neighborhood native plant garden
- **Organize a community campaign** to make your neighborhood more resilient to wildfire
- **Creating rain gardens** and installing rain barrels



Water Supply & Resources

- **Flagstaff's Water Vulnerability**
 - Flagstaff is currently facing moderate drought due to reduction in snowfall.
 - Disproportionate effects to vulnerable communities



Toolkit Actions

1. Participate in the “Water Wise Business Certification Program” for business owners in Flagstaff
2. Practice water conservation techniques at home including use of rain barrels and conscious water usage
3. Participate in the City of Flagstaff Energy Efficiency Home Workshops and install the free water efficiency tools provided
4. Choose drought-tolerant plants for gardening options

Tourism & Recreation

A key economic driver impacted by the following climate-driven impacts:

- Decrease in snowpack
 - Decrease in winter recreation
- Increase in drought, extreme heat, and wildfires
 - Shifts in summer recreation patterns
- Decrease in recreation
 - Decrease in employment opportunities

Toolkit:

- **Increase economic resiliency**
 - Diversify economy and job opportunities
- **Expand options in tourism and recreation**
 - Reduce reliance on vulnerable activities
- **Support Business Attraction and Retention efforts**
 - Promote further growth



Introduction to Video Series



To Conclude...

Thank you for your time and feedback throughout this process!

We plan to have all resources available on the city website upon completion of the project

- Resource Document
- Video Series
- Toolkit Document

