



CITY OF FLAGSTAFF RESILIENCY AND PREPAREDNESS INITIATIVE



Climate Change and America's Infrastructure



A BILLION DOLLAR QUESTION

How can the City of Flagstaff reduce its vulnerability and build local resilience to climate variability and climate related disasters?





CITY RESILIENCY AND PREPAREDNESS STUDY

- How vulnerable is the City's operating efficiency, infrastructure and economic competitiveness?
- Where does the City lack sufficient capacity to adapt?
- What are the risks if we do not act?





CITY RESILIENCY AND PREPAREDNESS STUDY

- City Manager assigned Core Team
- Diverse perspectives and skills – Finance, Police, Utilities, Long-term Planning, etc.
- Team included County and local NOAA partners.
- Internal operations and impacts – focused
- Local climate projections
 - warmer, drier, extreme weather





Vulnerability = Exposure + Preparedness

- What non-climate and climate factors currently impact the City's operations? How will these impacts change?
- How prepared is the City for the impacts?

Risk = Function + Degree of Impact + Probability

- What is the size of the population affected? Are the impacts life threatening? What are the estimated costs?



Exposure

Who or what could be impacted	How do weather and / or climate currently affect this system	Description of Potential Climate Change Impact
Surface water diminished	Lake Mary no more (100% dependent on groundwater)	Increased demand for more wells
More intense/severe but less frequent precipitation events	Stormwater infrastructure built for peak/flood	Increased localized flooding, expanded flood plain, more potholes
Soil/forests/drought	More extreme wildfire events	Reduced run off=dry forests=more fires
Economy - dependence on forest	Forest closures can result in decline in tourism and View-shed	Impacted quality of life, economic vitality

Temperature: 5-8 °F increase
 Precipitation: 5% decrease

Primary System	Key Planning Areas
Emergency Services	Police and Fire Services, EMS, Disaster Response, Public Works
Energy	Energy Delivery and Assurance, Energy Demand and Cost
Forest Health	Forest Management, Wildlife and Vegetation, Public Infrastructure
Public Health	Public Health Infrastructure, People, Public Services
Stormwater	Buildings, Infrastructure
Transportation	Public Transportation, Transportation Infrastructure, Public Access, Rail, Airport
Water	Water Treatment Quality, Water Resources, Water Infrastructure



POTENTIAL IMPACTS TO CITY OPERATIONS

- Impact to infrastructure by drought and flood.
- Increased severity and frequency of wildfires.
- Reduction of surface water resources.
- Reduced highway and road accessibility.
- Increased cost to produce and treat water.
- Increased use at public facilities.





COUNCIL ADOPTED POLICY

- Build, sustain and leverage partnerships.
- Identify vulnerable populations.
- Institutionalize resiliency into City decisions.
- Incorporate into infrastructure development needs.
- Prioritize proactive education.
- Develop criteria for City planning efforts.
- Allocate municipal resources necessary to adapt.





LESSONS LEARNED

- Follow a team approach with broad representation.
- The benefits of not creating a plan.
- Focus internally on things you can control first.
- Adapt the process as you go along.
- Stay implementation focused.
- Focus on the opportunity to prepare.
- Focus on the impacts – not why the climate changes.





FLAGSTAFF WATERSHED PROTECTION PROJECT

- Economic impact of fire and floods in Flagstaff.
- Watershed – Water Supplies – Forest Health – Public Infrastructure
- Voters approved a \$10 Million bond to mitigate fire/flood threats and reduce risk.
- Value added to existing Federal work.
- City funds leverage Federal funds.



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