WILDFIRES IN AUSTIN, TEXAS

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INTRODUCTION

- Ranked 5th nationally, Austin is vulnerable due to its:
  - CLIMATE: Extreme drought and climate change
  - GEOGRAPHY: Wildlands and invasive species
  - URBAN DEVELOPMENT: Strain and concentration of infrastructure; Urban sprawl and deforestation
- Addressing wildfires is vital for progress and sustainability
  - Requires preventative measures and solutions incorporated into the urban landscape

PROPOSED SOLUTIONS

- Removal of invasive species
  - Tree of Heaven, Silk Tree, Paper Mulberry Tree, Giant reed
- Collection of rainwater
  - Reduce strain on municipal water sources
- Anthropogenic ground cover replacement with more porous material
  - Increase replenishment of groundwater

FINDINGS

- Increased risk of wildfire comes from root problems in the community:
  - Water misuse
  - Non native plants
  - Lack of groundwater
- Community members can address these root problems through:
  - Removal of invasive species in their gardens/lawns
  - Collection of rainwater for their homes
  - Implementation more porous ground materials.
- Austin can lower the risk of wildfire in their area.

FUNDING MECHANISMS

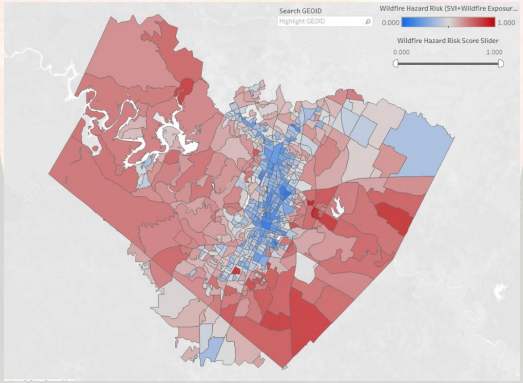
- Invasive species removal: *Youth Engagement, Education, and Employment program* **($250,000)**
- Rainwater harvesting systems: *WaterSMART Environmental Water Resources Projects* **($500,000)**
- Ground cover replacement: *WaterSMART Water and Energy Efficiency Grant* **(~$2 MILLION)**

FEASIBILITY

- Invasive species removal:
  - Most, due to ease of participation
- Rainwater harvesting systems:
  - Next most, due to ease of implementation and adjustable costs for different households
- Ground cover replacement with porous material:
  - Least, due to cost and construction time

Figure 1

Wildfire Risk + Social Vulnerability in the City of Austin



Note: Includes probability of wildfires, fire line intensity, and spotting distance. (Red = High Risk)

COST/BENEFIT ANALYSIS

Rainwater Harvesting Systems

COST: high up-front costs → 18 years to pay off

BENEFIT: Use stipends and fees to expedite the payback period

Invasive Species Removal

COST: Prescribed burns→ $PM_{2.5}$ emissions→ various health & environmental effects & mechanical and chemical more expensive

BENEFIT: Prescribed burns are most cost effective although Mechanical and Chemical removals are most sustainable

Ground Cover Replacement with Porous Material

COST: Austin's climate is not conducive; it is very expensive.

BENEFIT: Effective if Austin has a heavy rain season.

CONCLUSIONS

- Wildfires will continue to pose problems for Austin's environment and residents until action is taken.
- Our proposal seeks **$2,514,998** to cover each solution.
  - **$250,000** for prescribed burns and volunteer events to remove invasive species
  - **$500,000** for the rebate program and flyers about rainwater collection
  - **$1,764,998** for replacement of **25%** of anthropogenic ground cover
- Active participation in these wildfire mitigation solutions will enhance citizens' peace of mind and overall well-being.

REFERENCES

The University of Texas at Austin. (n.d.). [Social Vulnerability Index + Wildfire Risk Index]. Retrieved June 5, 2023, from https://www.austinindicators.org/project/climate-and-community-resilience/