

# Sustainability of The Urban Forest in Albuquerque

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# We Know We Need Trees

- Environmental benefits:
  - Shading, cooling
  - Stormwater reduction
  - Carbon sequestration
- Social Benefits:
  - Enhanced wellbeing
  - Lower crime rates
- Economic Benefits:
  - Reduced heating costs
  - More spending at stores



# ...but they don't always work out...



- Too little water into...
- Too little soil volume
- Soil compaction
- Heat stress
- Poor species choice
- Lack of ongoing maintenance
- Becomes a liability, not an asset



# Well-planned Tree Planting

- To be sustainable, must have:
  - Environmental fit
  - Social buy-in
  - Economic support
    - \$ for trees
    - \$ for water
    - \$ for maintenance
- Albuquerque is NOT natural tree country!!!



# Environmental Fit

- The tree:
  - Heat tolerant
  - Cold tolerant
  - Alkaline tolerant
  - Wind tolerant
- The site:
  - Large enough surface area = large soil volume
  - Irrigation
  - Not compacted soil



# Social Buy-in

- Detroit planting project met resistance due to long standing grievances the residents felt toward the city
- Low-income communities may also be worried about ongoing costs
- Government funds will be needed (= taxes)
- Philanthropic donations can be very important
- Community “skin in the game” costs may help promote longevity
- Real strength is in local organizers and community members



# Economic Support

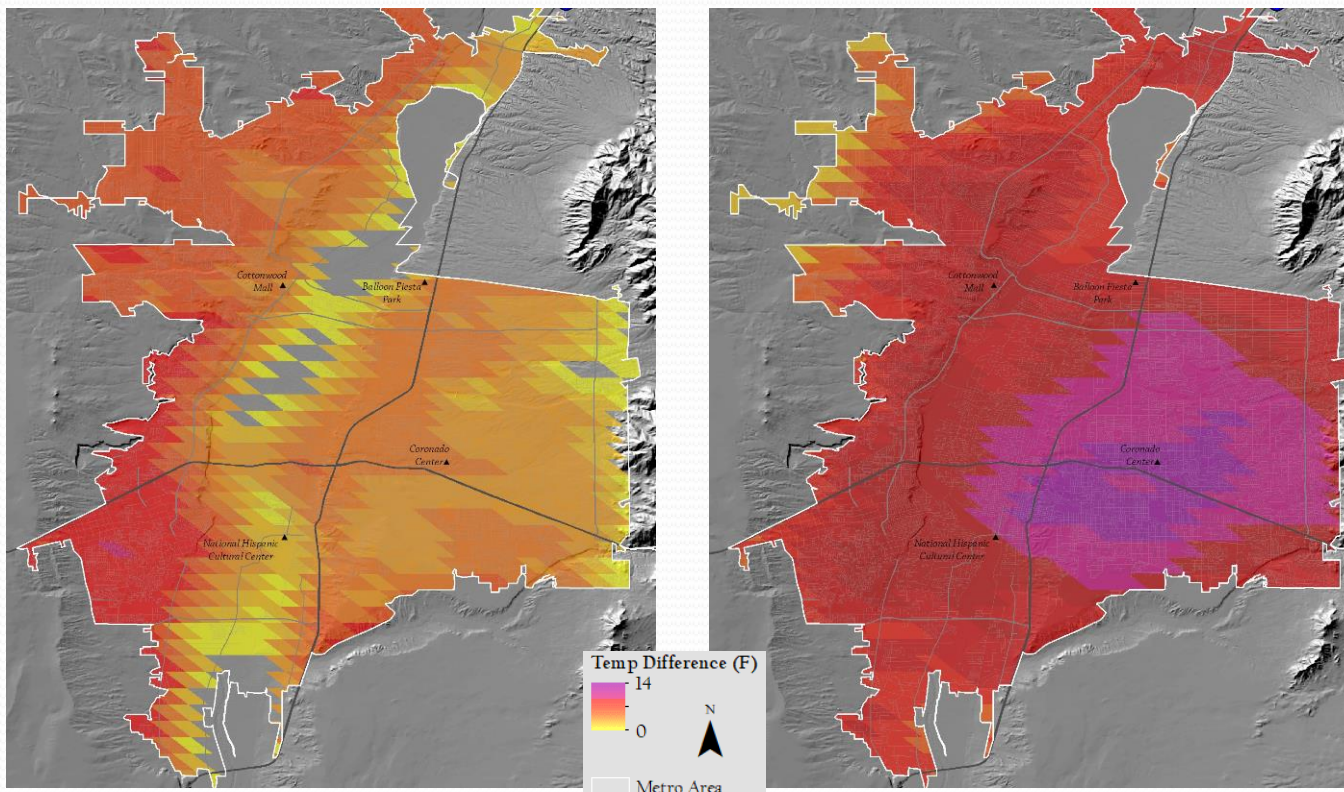
- Initial costs:
  - Trees, mulch
  - Labor (volunteers?)
  - Site remediation?
  - Irrigation installation?
- Ongoing costs:
  - Water
  - Pruning as needed
  - Mulch
- Removal costs



# Urban Heat Island Impacts

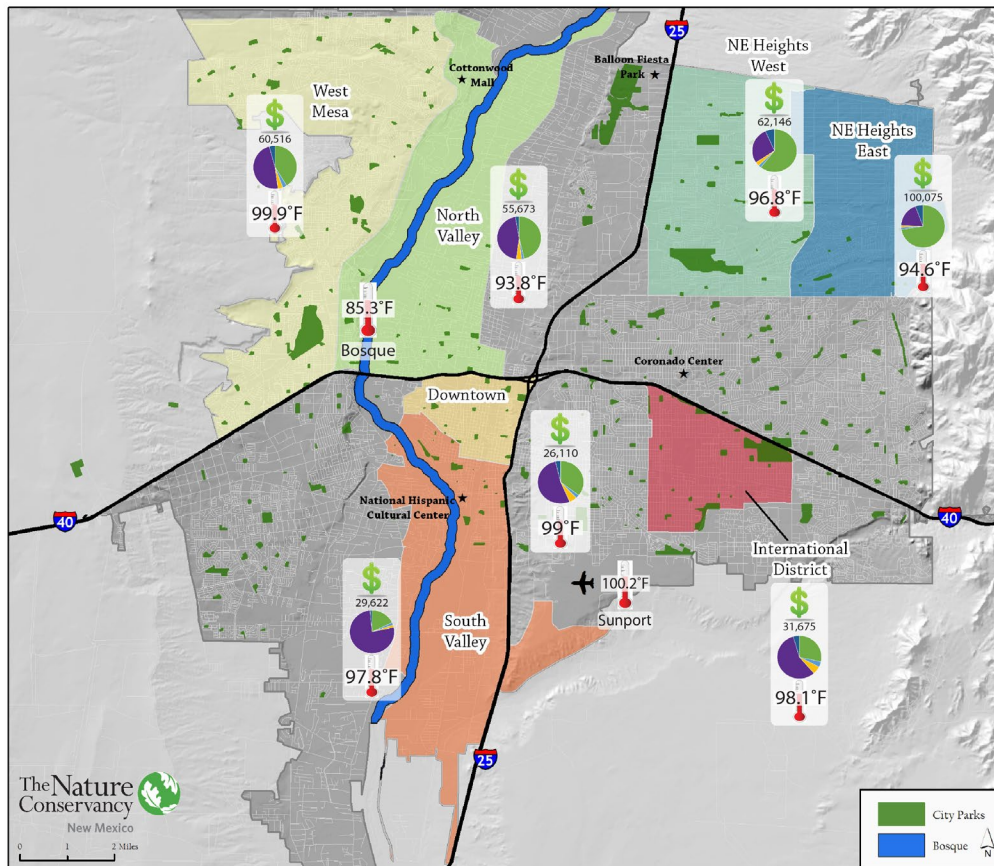
Daytime core 5.5°F

Nighttime core 8.1°F





# Socioeconomic Differences



Median Income



Neighborhood Racial Demographics

- % White
- % African American
- % American Indian
- % Latino
- % Other



Average Temp

## Neighborhood Details

# Criteria Scoring

Soil type tolerance

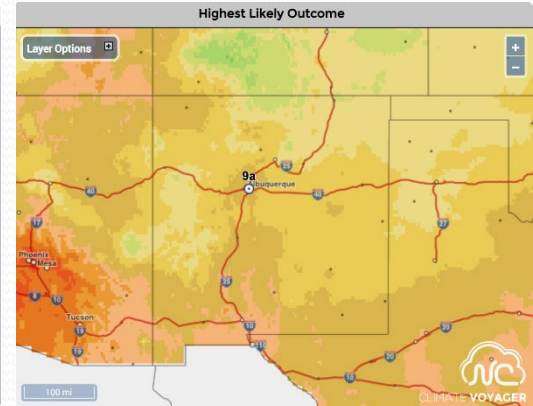
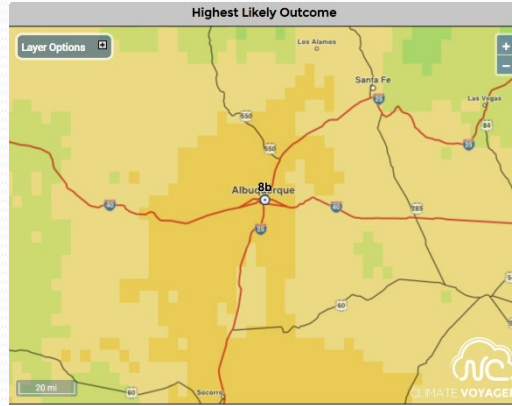
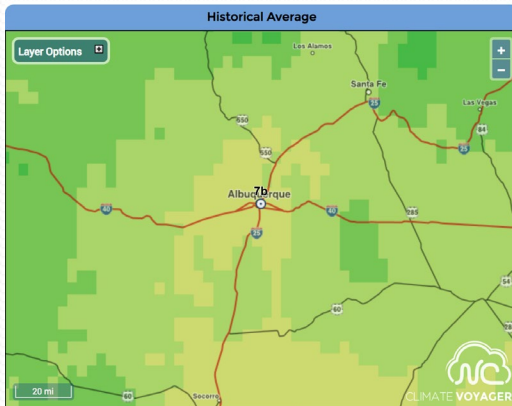
Drought Tolerance

Heat Tolerance – Next 30 Years – El Paso

Cold Tolerance – Next 30 Years – ABQ now

2060-2099 – Tucson

2060-2099 – El Paso now



# Top 35 Climate Ready Trees

## Native Trees

Redbud (*Cercis mexicana, reniformis or texicana*)  
Desert Willow (*Chilopsis linearis*)  
New Mexico Olive (*Forestiera neomexicana*)  
Yaupon Holly (*Ilex vomitoria*)  
Golden Ball Lead Tree (*Leucaena retusa*)  
Osage Orange (*Maclura pomifera*)  
Little Leaf Mulberry (*Morus microphylla*)  
Mexican Sycamore (*Platanus mexicana*)  
Honey Mesquite (*Prosopis glandulosa*)  
Arizona White Oak (*Quercus arizonica*)  
Escarpment Live Oak (*Quercus fusiformis*)  
Chinquapin Oak (*Quercus muhlenbergii*)  
Texas Red Oak (*Quercus texana*)  
Southern Live Oak (*Quercus virginiana*)  
Mexican Elder (*Sambucus mexicana*)  
Western Soapberry (*Sapindus saponaria var. drummondii*)  
Texas Mountain Laurel (*Sophora secundiflora*)  
Cedar Elm (*Ulmus crassifolia*)

## Fruit & Nut Trees

Texas Persimmon (*Diospyros texana*)  
Black Mission Fig (*Ficus carica*)  
Pistachio (*Pistacia vera*)  
Pomegranate (*Punica granatum*)  
Jujube (*Zizyphus jujuba*)

## Ornamental Trees

Mimosa/Persian Silk Tree (*Albizia julibrissin*)  
Ginkgo (*Ginkgo biloba*)  
Chinese Pistache (*Pistacia chinensis*)  
Chaste Tree (*Vitex agnus castus*)  
Golden Rain Tree (*Koelreuteria paniculata*)  
Crape Myrtle (*Lagerstroemia indica*)  
Lacebark/Chinese Elm (*Ulmus parvifolia*)

## Conifers & Evergreens

Atlas Cedar (*Cedrus atlantica*)  
Deodar Cedar (*Cedrus deodar*)  
Eastern Red Cedar (*Juniperus virginiana*)  
Afghan Pine (*Pinus eldarica*)  
Italian Stone Pine (*Pinus pinea*)

[Nature.org/newmexicotrees](https://www.nature.org/newmexicotrees)





Can Green  
Stormwater  
Infrastructure help  
support trees in our  
arid landscape?

# Slow it, Spread it, Sink it!





# Which sidewalk would you use?





# Closing Thoughts

- Tree serve two roles + Benefits
  - Mitigation
  - Adaptation
- Looking for longevity
  - Maintain existing canopy
  - Prepare for future canopy
  - Right tree in the Right Place
  - Link to Green Stormwater Infrastructure
- Non-tree heat moderation
  - Shade target
  - Cooling stations

