

# Summary of Oklahoma City Group

Team Members:

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# Integrative Research Question(s)

**Overarching Focus:** Climate and Human drivers of water demands: effects on ecosystems and land use

## **Research Questions:**

- What affects urban water use?
- How does climate variability affect water use, landscape greenness/vegetation indices, and ultimately human wellbeing?
- How does water use, availability, and zoning affect urban sprawl?

# Identified Data Needs

Have

Integrated Decision Units (IDUs) =  
tax parcels

Land cover

- Pavement/  
impermeable surfaces
- Vegetation type

Population

Public greenspace composition and condition

Household water use

Census data, American Communities Survey)

Tiger data (e.g.  
roads, political boundaries, etc)

Soil classification

Flood maps

Fish abundance (Close to Home Fishing Program)/visitation

Need  
(from  
EPSCoR)

EVI/other greenness metrics

Xiangming

Climate, especially precipitation  
(OKC mesonet, micronet)

Soil moisture

Need to get (with help from Tyson)

Hydrological variables

# Identified Data Needs

Need  
(from  
outside  
of  
EPSCoR)

Parks/Green space boundaries

(City of OKC, Tracy will find)

MLS data on actual sales to match with parcels over time

Zoning

Will get (Tracy)

Crime statistics

Water distribution infrastructure

Water Quality metrics

Will get (Water portal?)

disabled animal data

Need to get (Wildcare? Rachel will pursue)

Bird counts

Need to get (Heather will look into)

# Identified Actors/Influencers

## Water users

- Households (with different demographics, socio-economic status, etc)
- Businesses
  - Golf course managers
- Park managers (Parks Department)

## Water providers (municipal, regional)

## Community Groups, HOA's , nonprofits

# Identified Policies/Scenarios

- Watering rules (non price and price mechanisms)
  - Every other day watering
  - IBR pricing
- Conservation adoption
  - (low water use/drought resilient landscapes, smart meters, etc)
- Future demands for water
  - with increased populations
  - with climate change

# Identified Process-Based Models

- Vegetation impacts on microclimate (urban heat island mitigation)
- Water demand/elasticity
- Land use change
- Population growth
- Evapotranspiration
- Plant water demand
- Tree mortality
- Ecosystem services

# Identified Evaluative Models

- Total water per capita water use per season for different groups
  - household
  - industry
  - municipal
- Greenness index
- Wellbeing (must define better)
- energy use per capita or as expenditure share of household
- Household budget at under climate scenario



# Identified Stakeholders

- Municipal water managers
- Commercial water managers
- Residents
  - by demographic and socio-economic groups
- Community groups/non-profits

# Data/Personnel Gaps

- Expertise gaps: epidemiology/environmental health
- Most urgent data needs
  - deciding on and bringing in most appropriate remote sensing products (representing landscapes)
  - climate data (accounting for urban heat island effects)
  - urban hydrology