

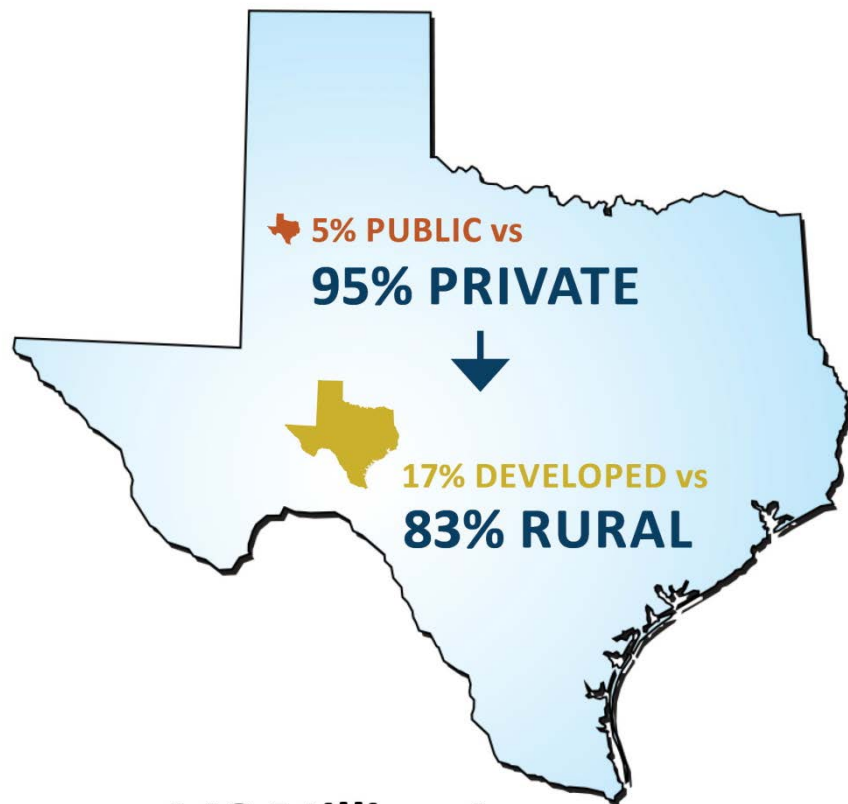


Assessing Natural Resource and Water Challenges



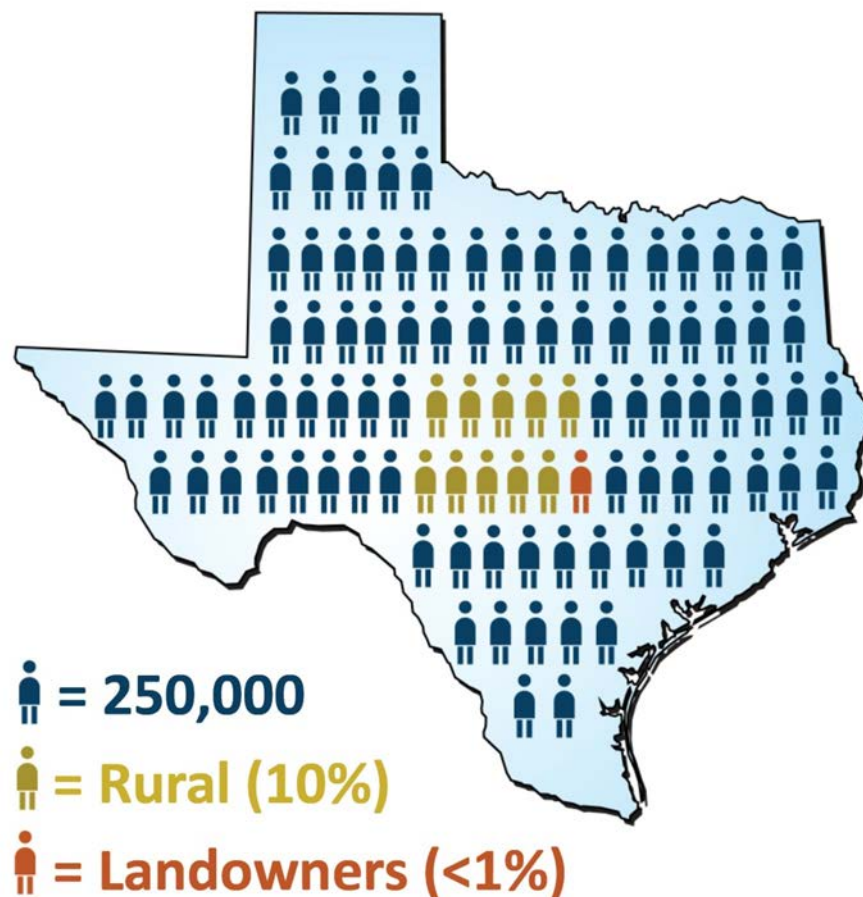
Changing Texas

171 Million Acres...

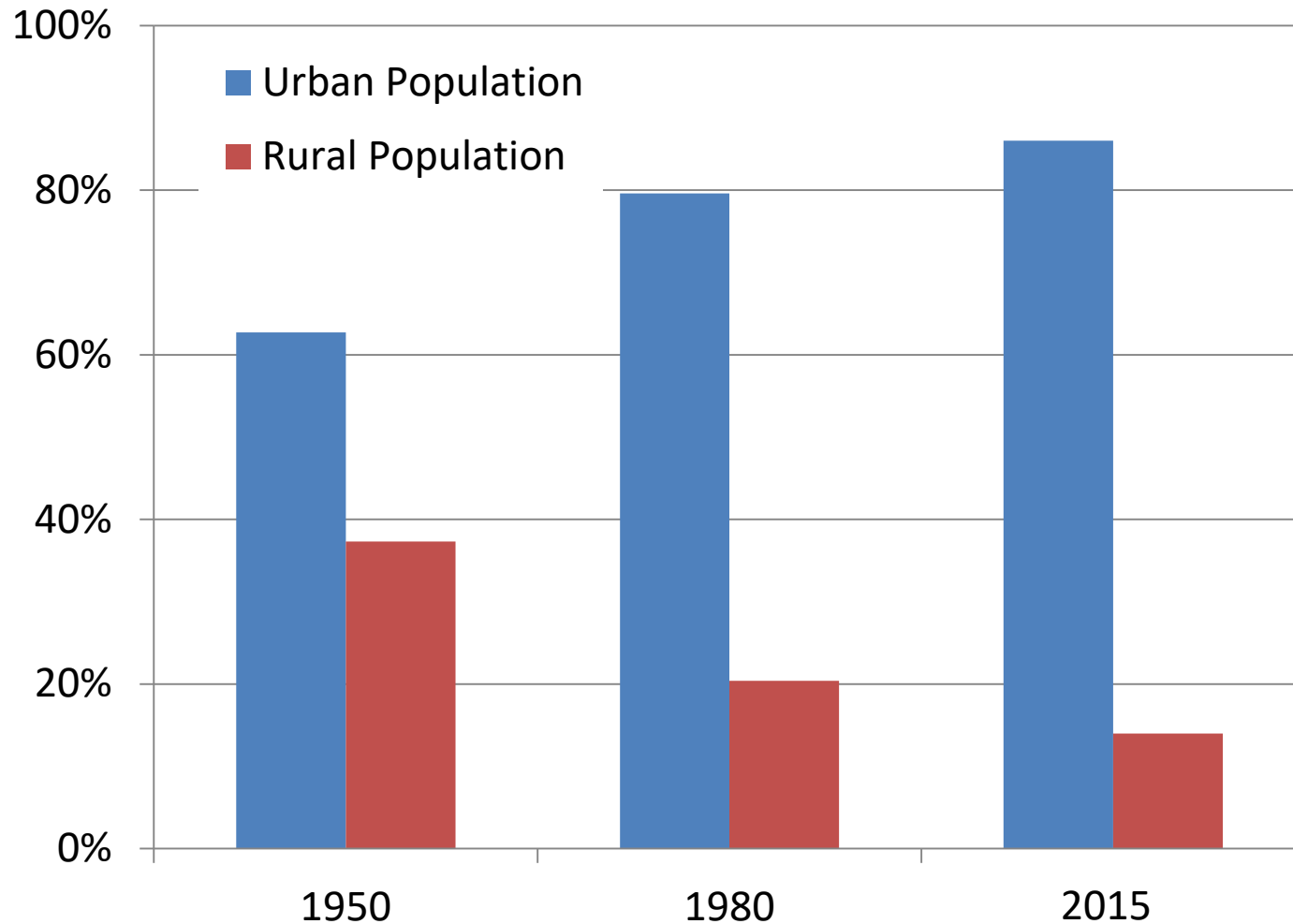


...142 Million Acres
Private Working Lands

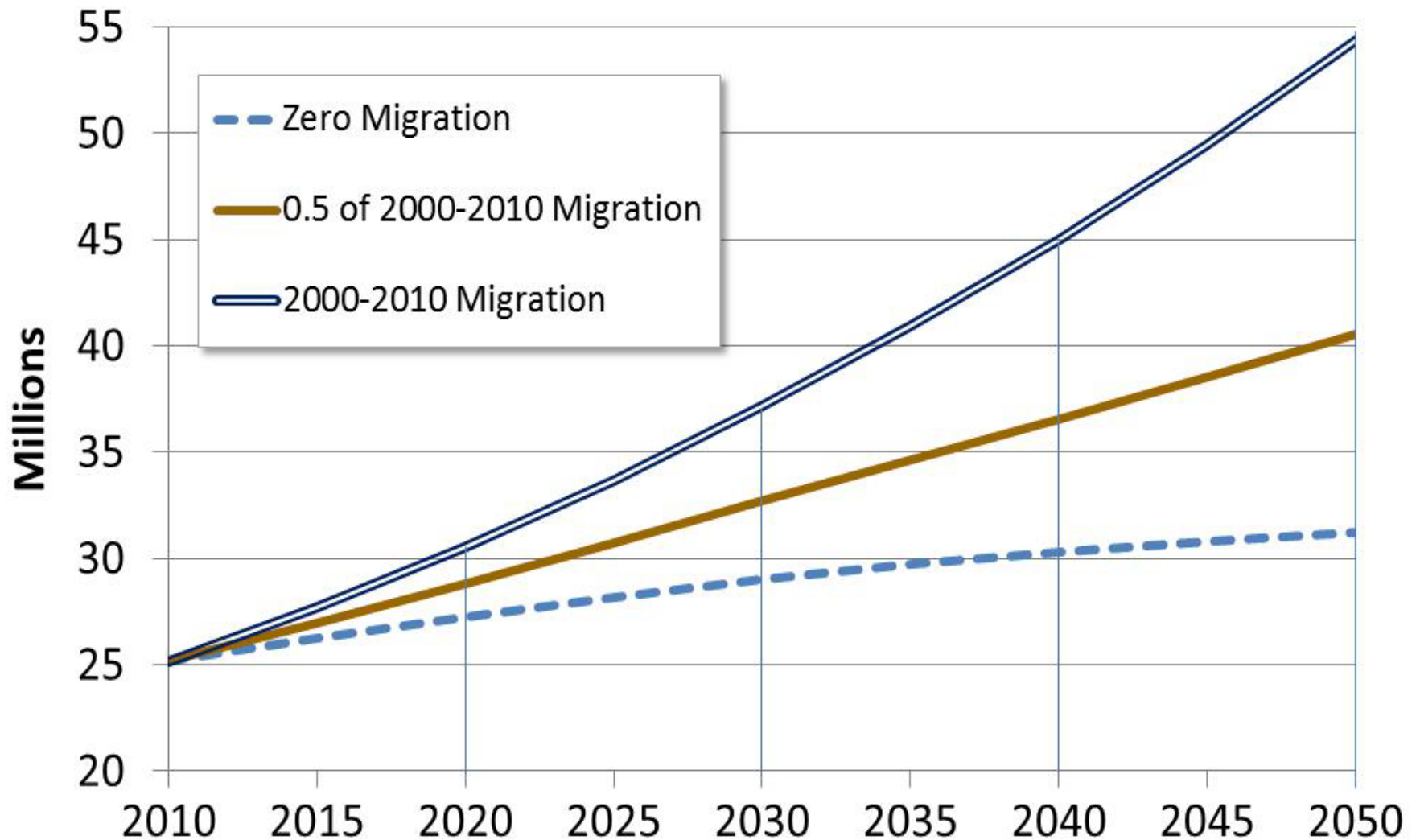
Population: 27 Million...



Texas Rural and Urban Populations



Texas Projections (2010–2050)



Project Objectives

- Background – Texas Collaborative of Rural Funders
- Engage with rural community leaders to understand needs and specific challenges
- Compile geospatial information to illustrate factors influencing changes in rural communities or landscapes based on their identified needs and challenges.
- Share work collectively to foster a broader dialogue of challenges and opportunities for rural communities over the next several decades.
- Characterize rural community challenges and opportunities in a summary report with an emphasis on *natural and water resources*.

Assessment Process

- County Commissioner Survey
 - Survey results to inform geospatial analyses
- Use of Existing Datasets
 - Land Trends (Agriculture)
 - Landowner Demographics
 - Energy Trends
 - Water Needs
 - Others?
- Analyses and Summary
 - Compile geospatial information
 - Identify regional differences
- Use of information for policy need areas



County Commissioner Survey

85 Counties
33% of 254 Counties

General Needs

- What do you consider to be your county's top 3 general needs and challenges?

Natural Resource Needs

- What do you consider to be your county's top 3 natural resource needs and challenges?

Land Management Needs

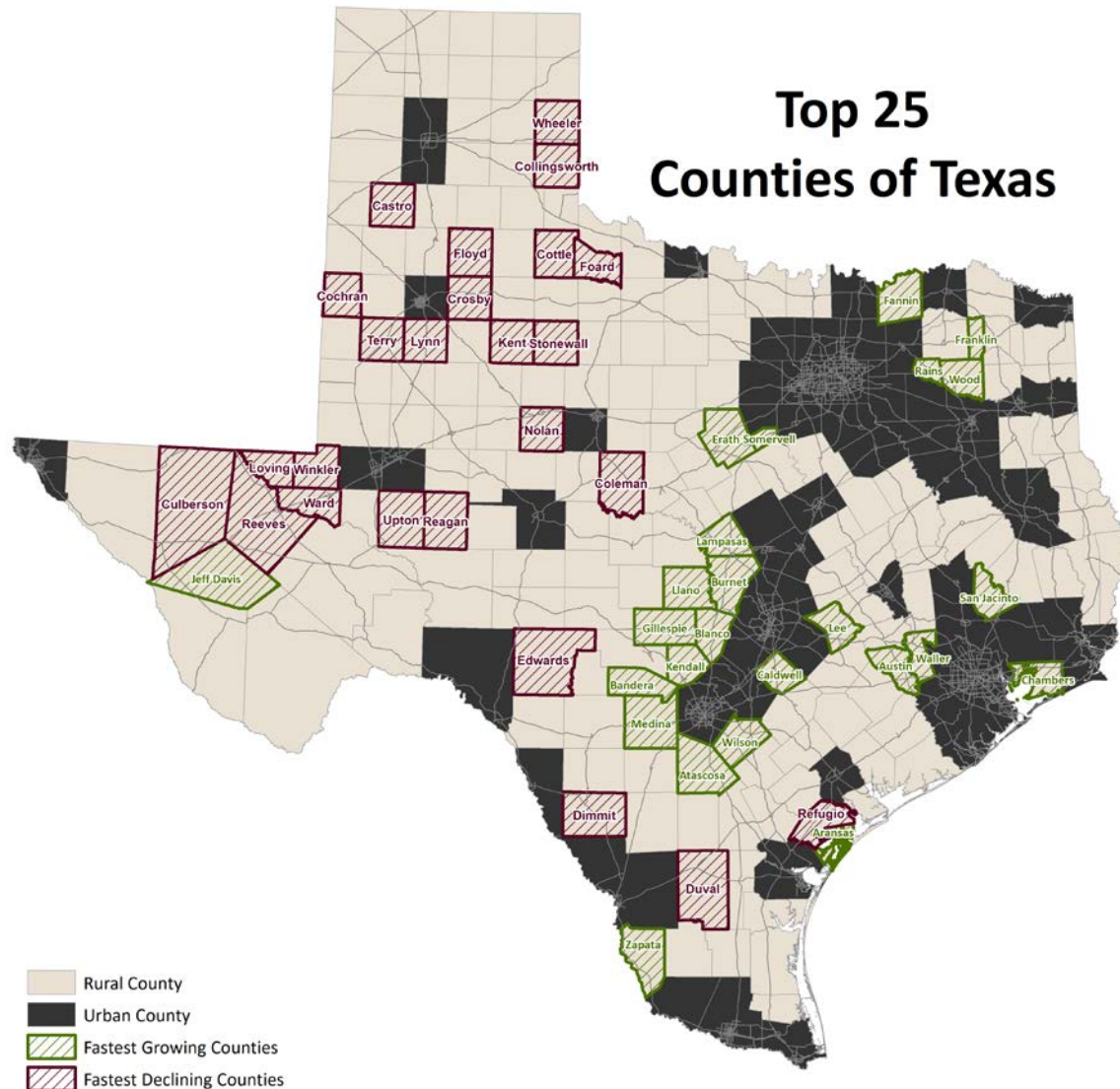
- What do you consider to be your county's top 3 land management needs and challenges?

Water Needs

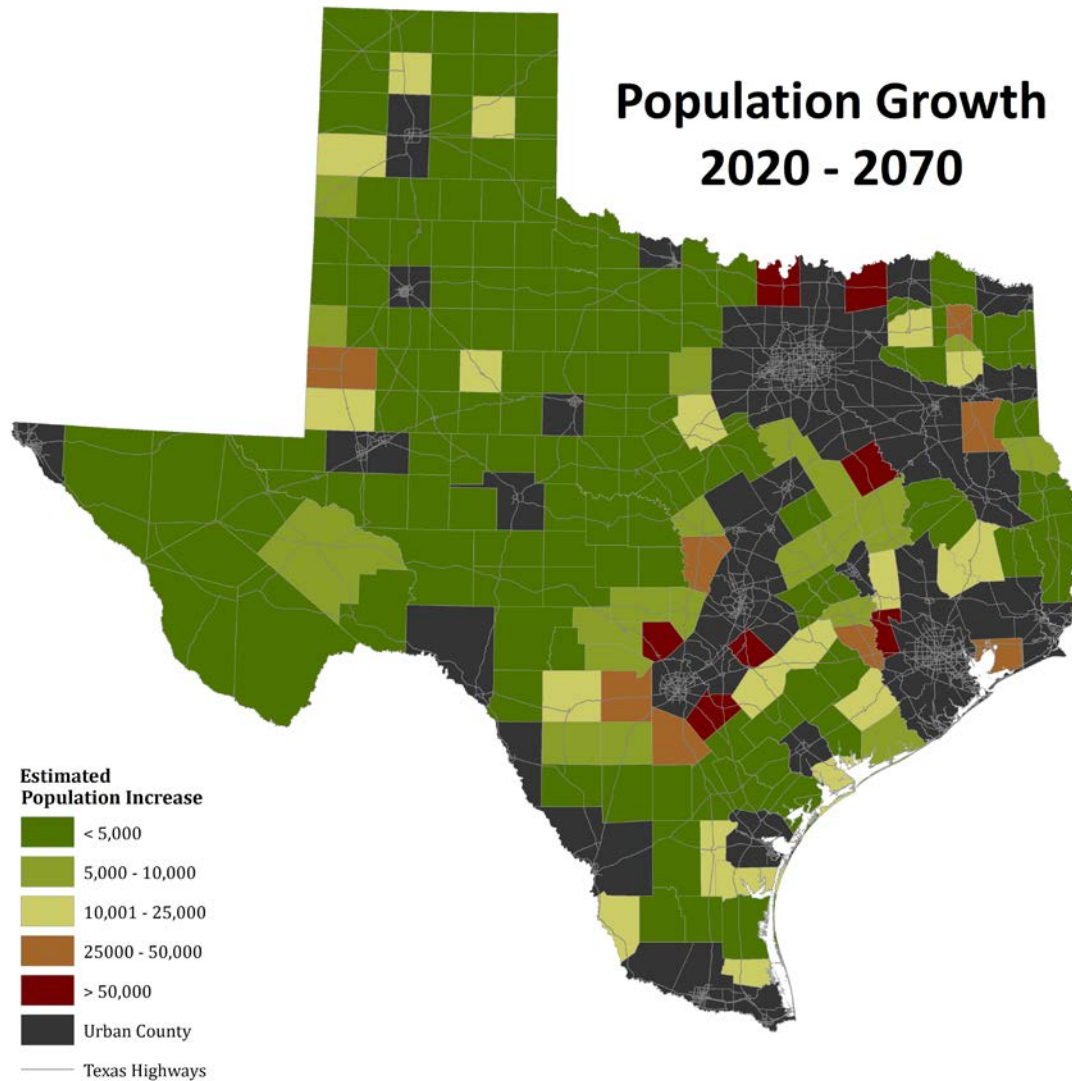
- What do you consider to be your county's top 3 water needs and challenges?



Rural Counties



Population Growth



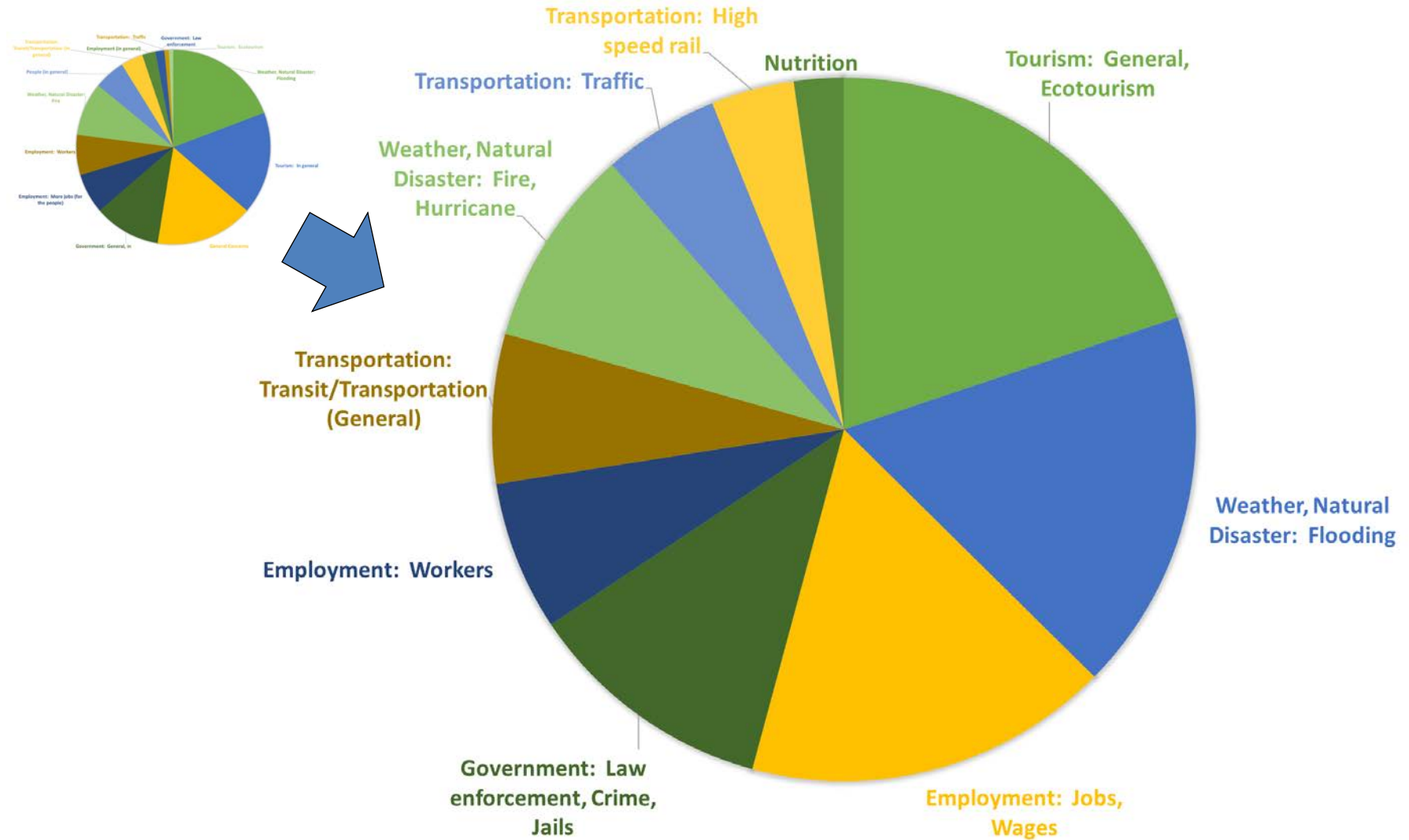
Disclaimer



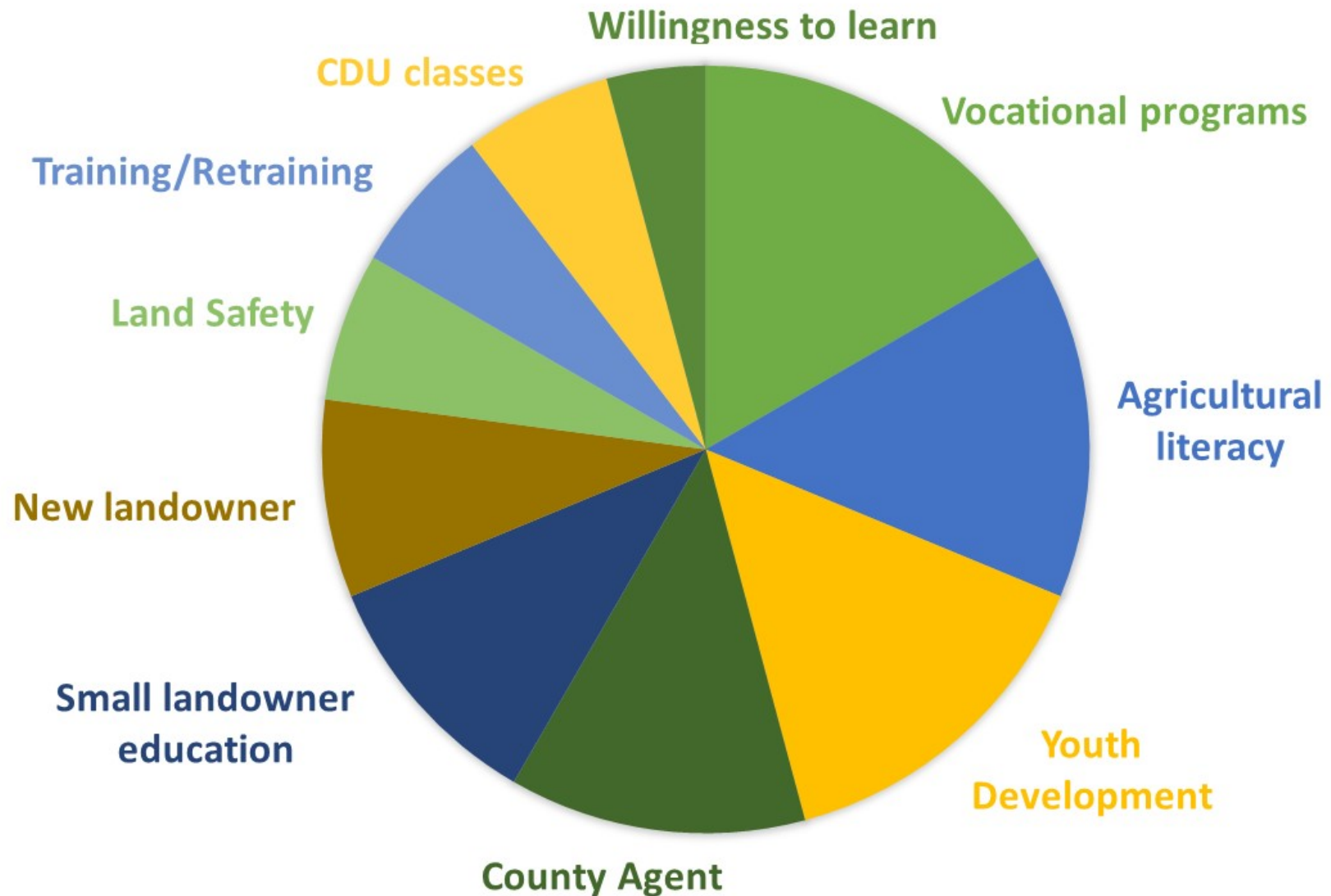
General – *Rural “Voices”*



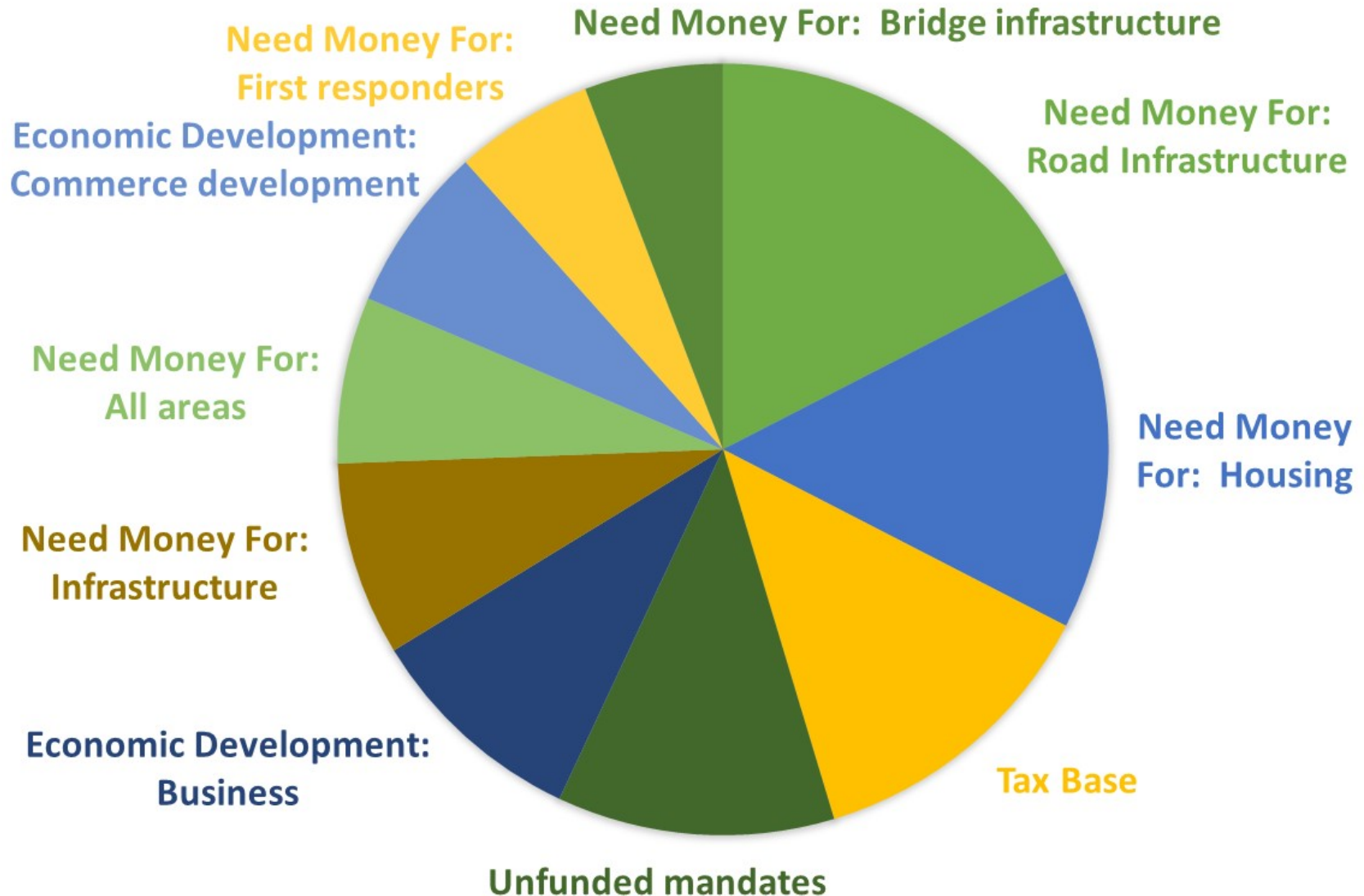
General – *Top 10*



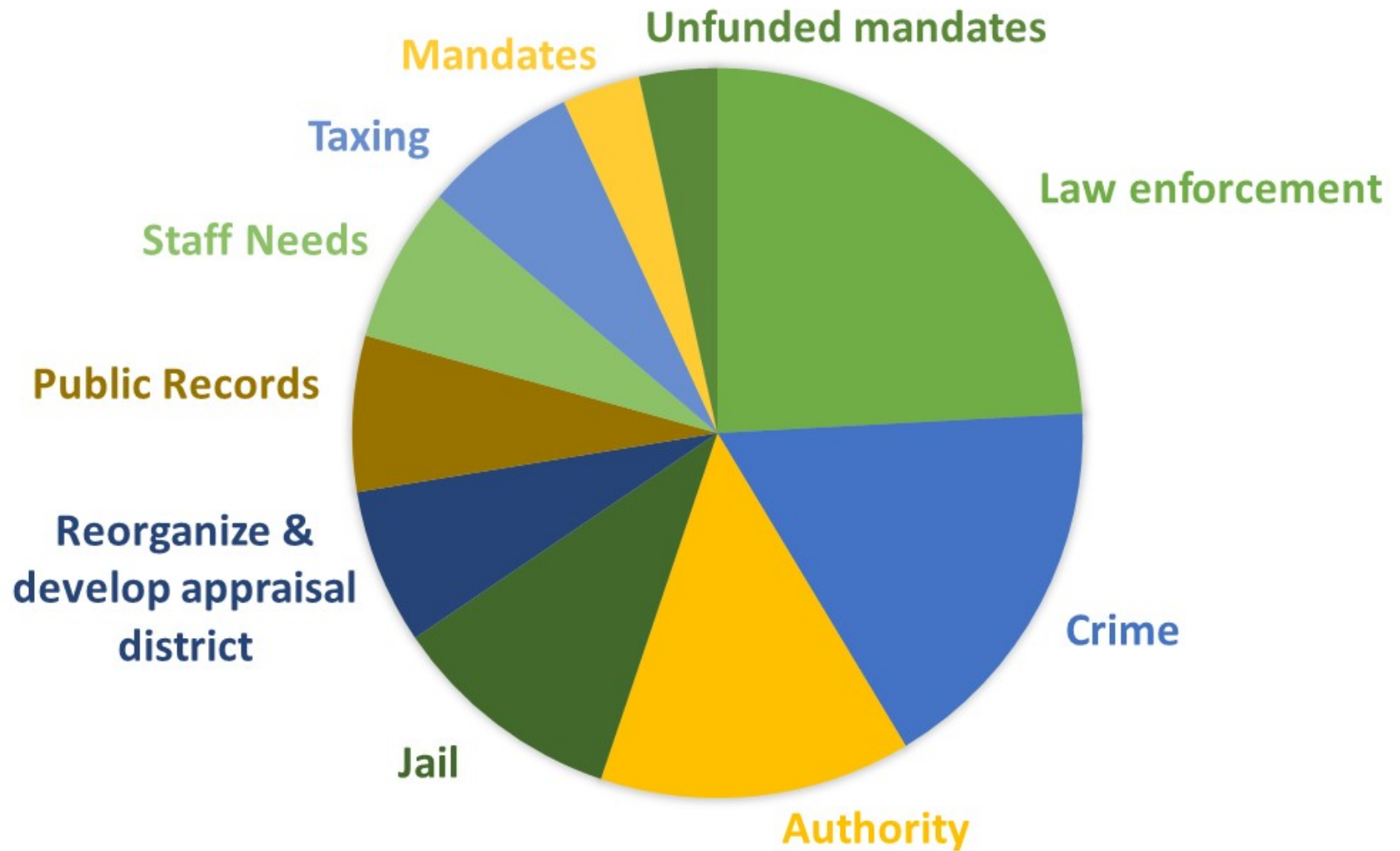
Education – *Top 10*



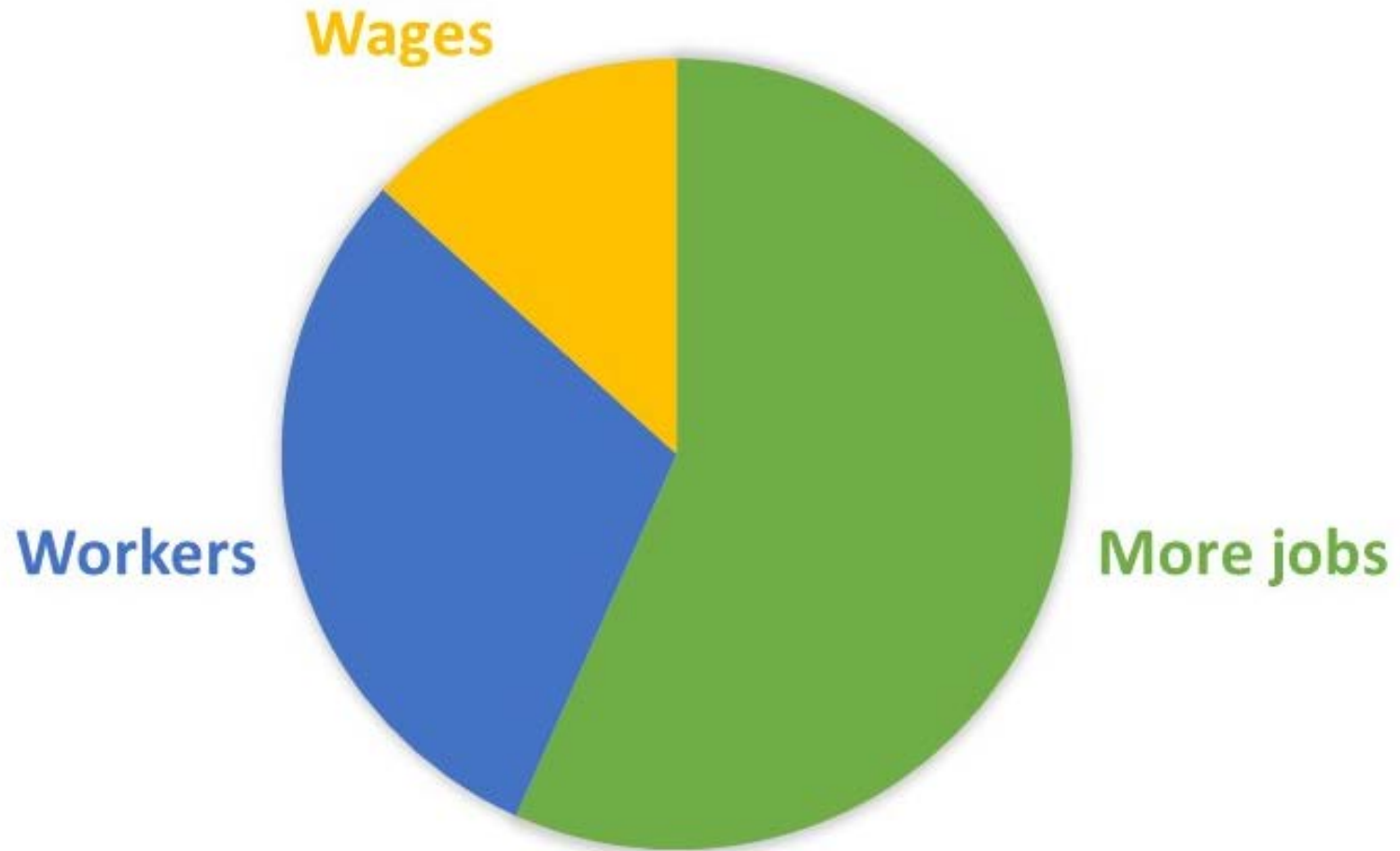
Funding – *Top 10*



Government – *Top 10*



Employment



Land Management – *Rural “Voices”*

Manage Quarry Activity

Abandoned Mobile Homes & Vehicles

Drought

Authority to Manage Growth

Chronic Wasting Disease

Regulate/Permit Commercial

Forestry Production

Conservation Reserve Program Wildfire Fuel Sources

Rezone Ag Land

Farming & Oilfield Waste

Zoning Land for Oilfield Waste

Tourism

Subdividing Rules & Regulations

Sand Mines

Waste Management

Agricultural Land Productivity

County Zoning Ordinance Authority

Aging Landowners

Minerals

Ecotourism

Forest Lands

Land Rights

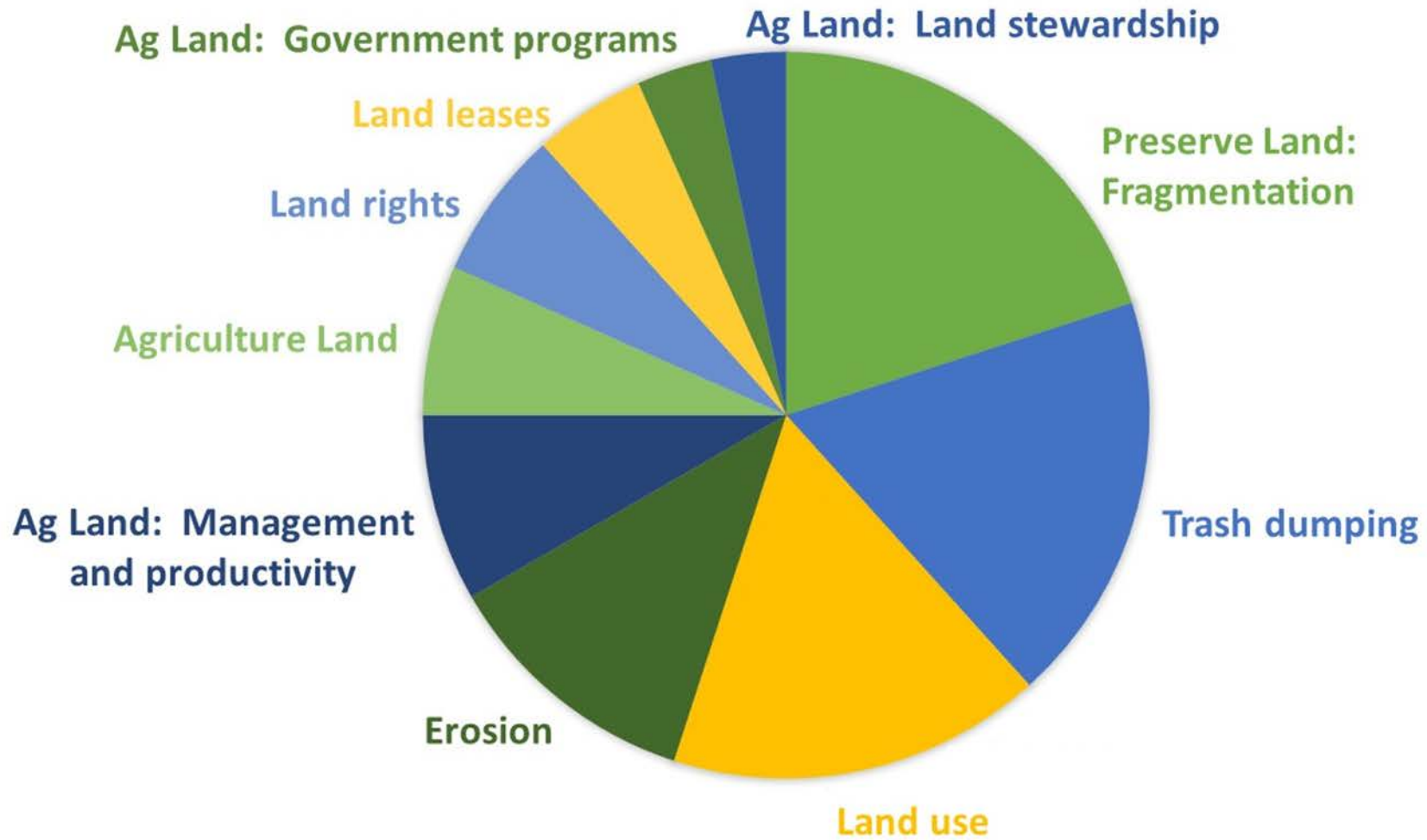
Road Improvement

Water Runoff

Ground Water Restoration and Protection Strategies

Wind Farms

Land Management – *Top 10*



Growth – *Top 10*

Spatial Growth: Ordinance authority

Spatial Growth: Staff

Spatial Growth: Encroachment

General Growth:
Urban, Rural

Spatial Growth: Zoning

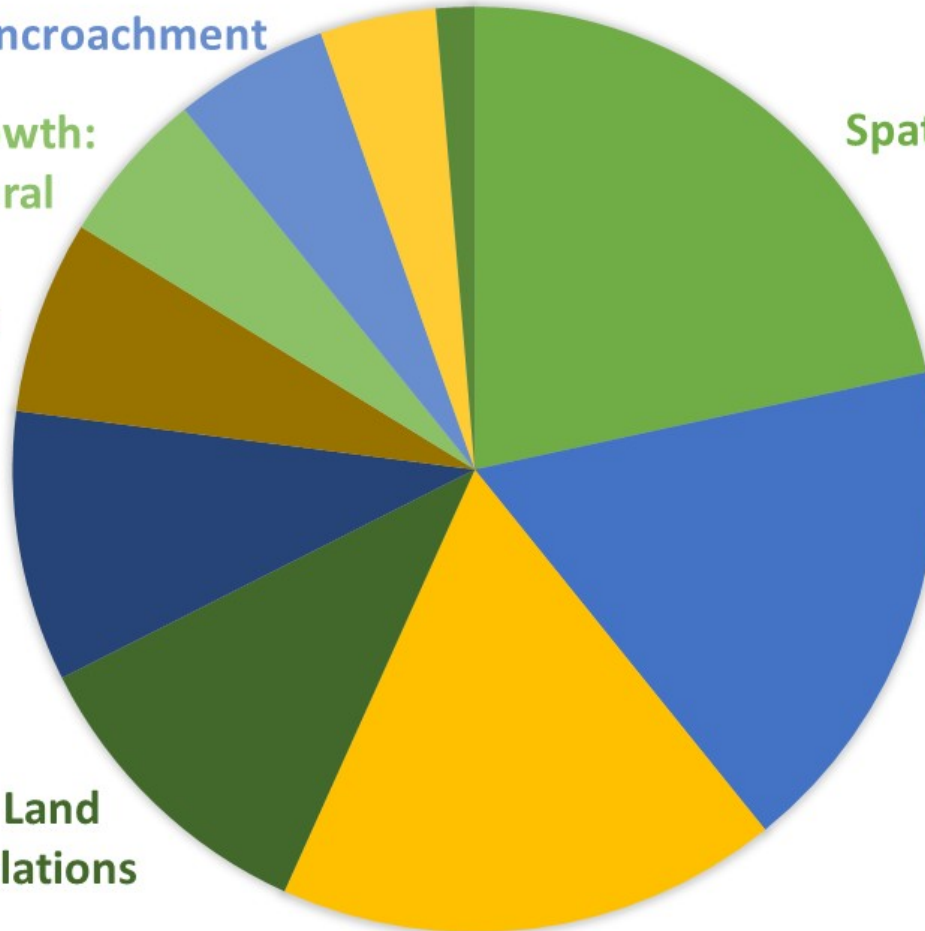
Spatial Growth:
Development

General Growth:
Strategic plan

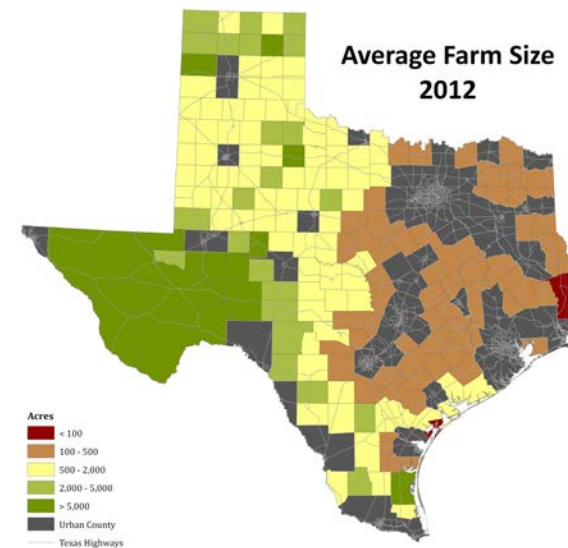
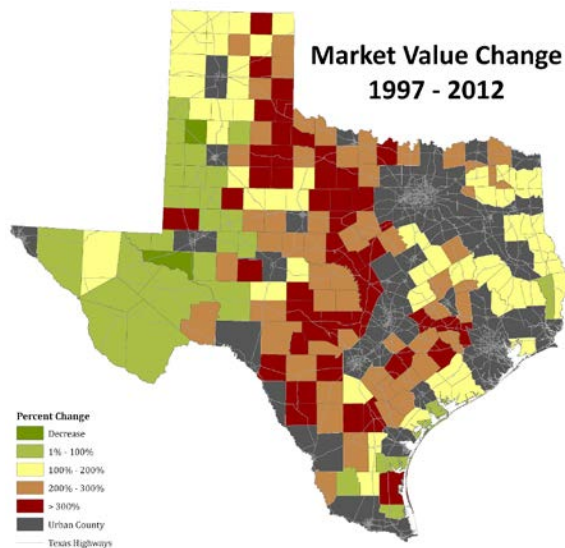
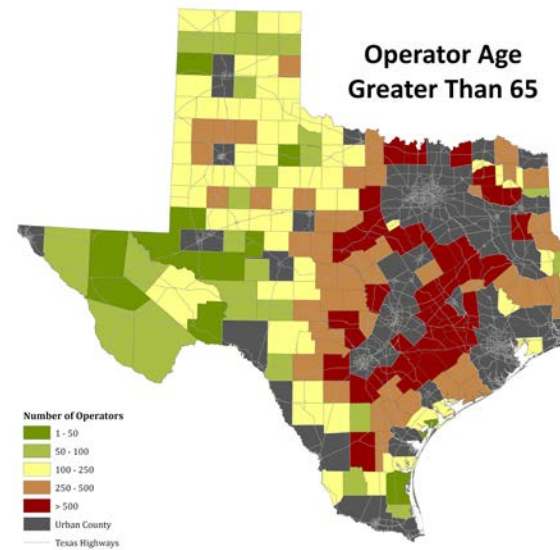
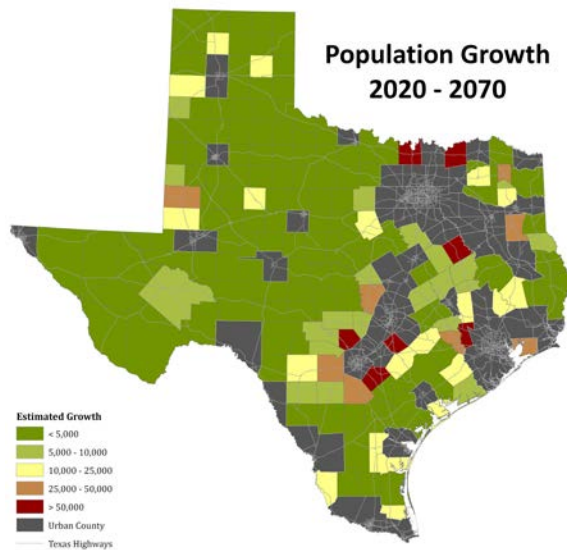
Population Growth

Spatial Growth: Land
development regulations

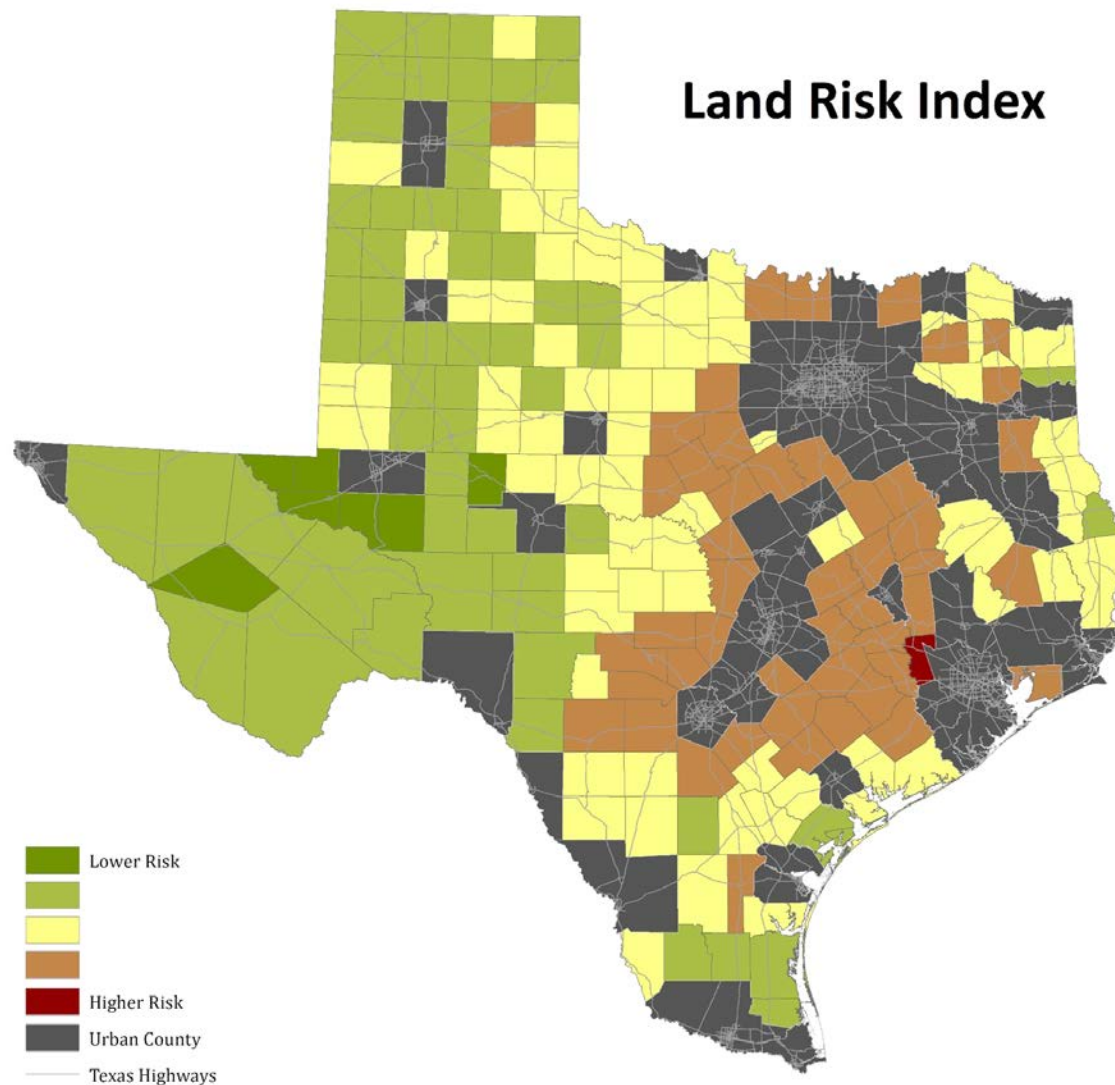
Spatial Growth: Subdivision



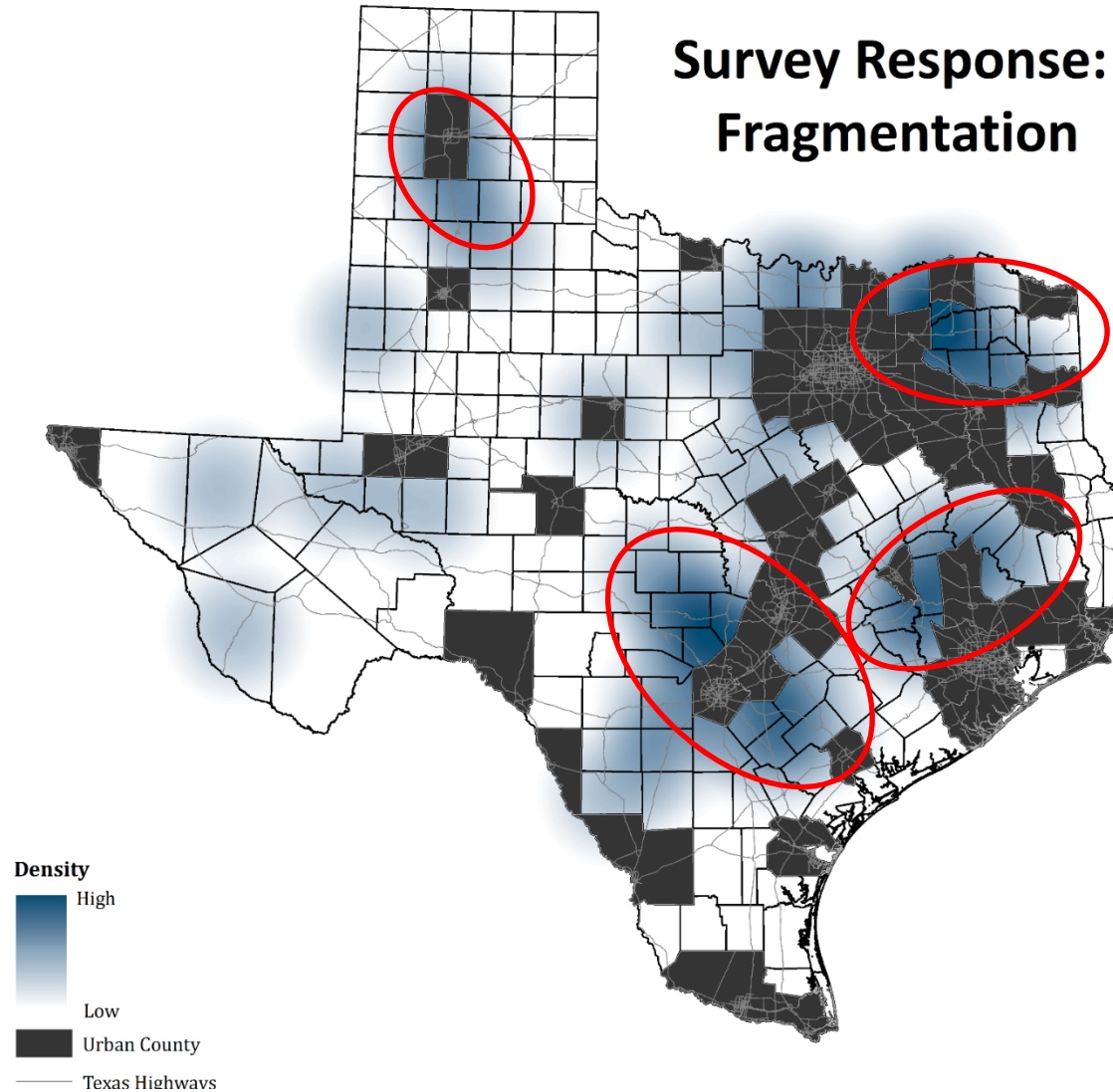
Land Fragmentation



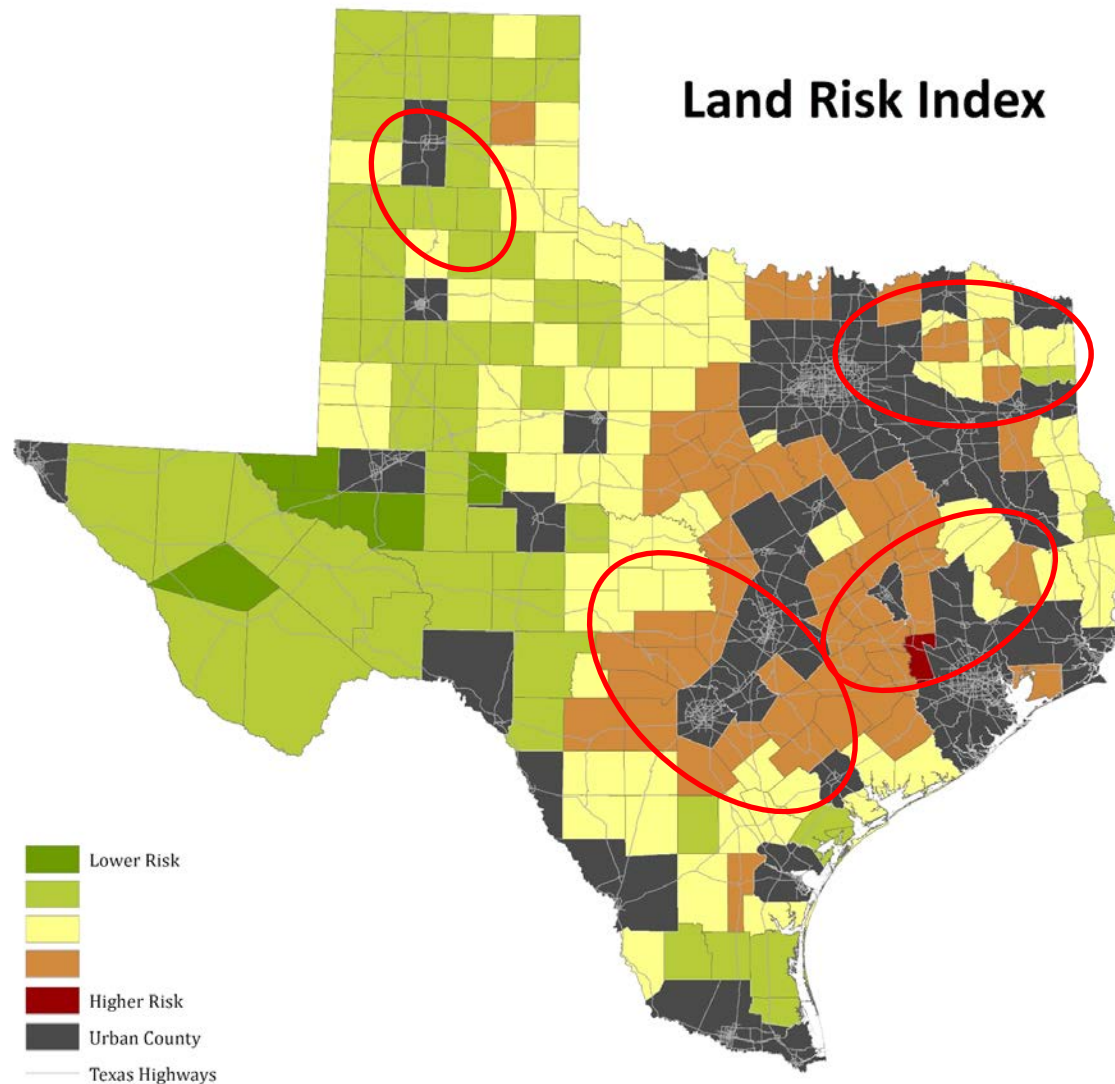
Land Fragmentation



Land Fragmentation

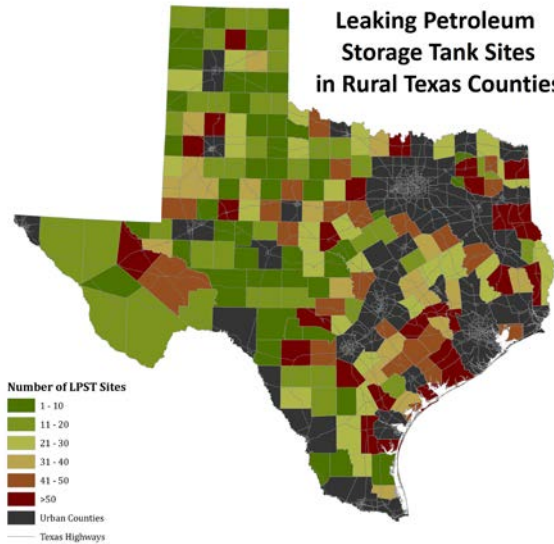


Land Fragmentation

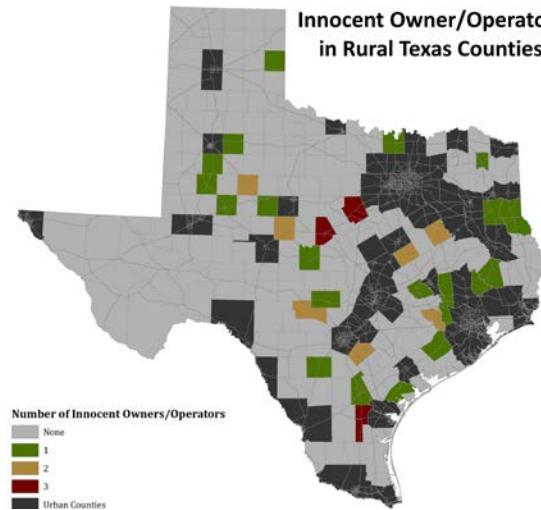


Waste Mgmt-Industry

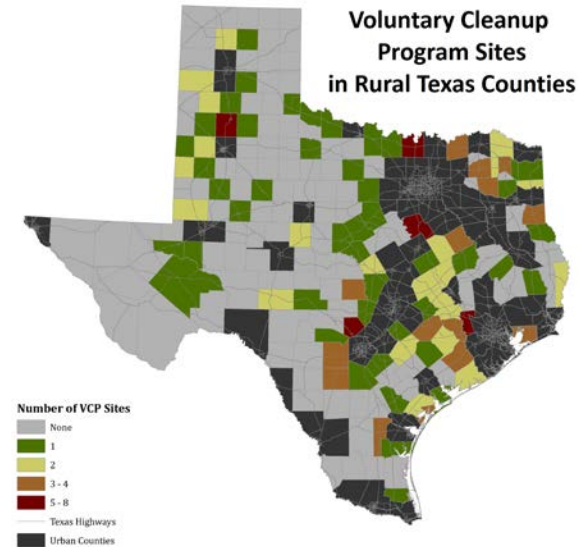
**Leaking Petroleum
Storage Tank Sites
in Rural Texas Counties**



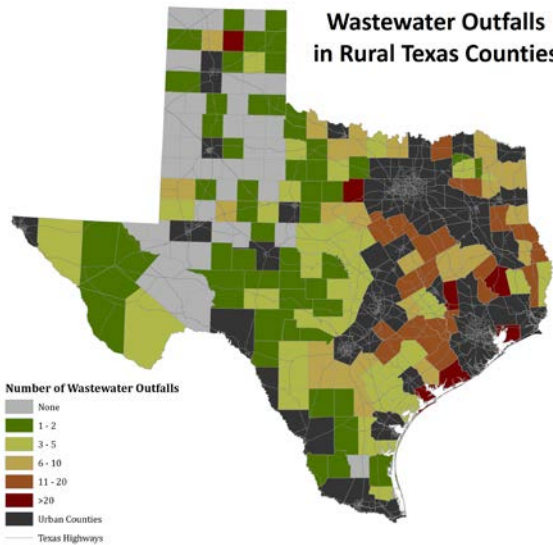
**Innocent Owner/Operators
in Rural Texas Counties**



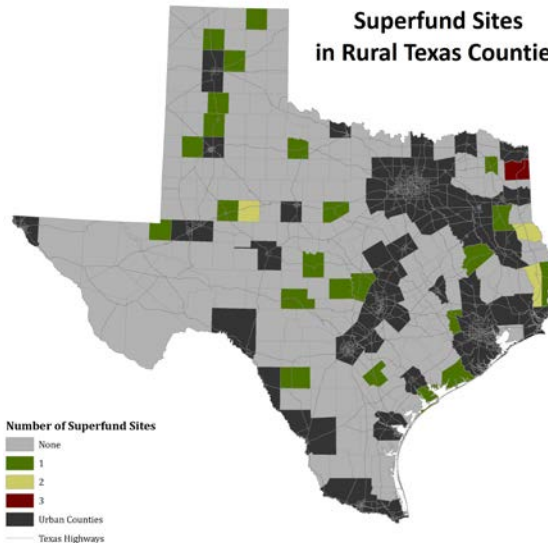
**Voluntary Cleanup
Program Sites
in Rural Texas Counties**



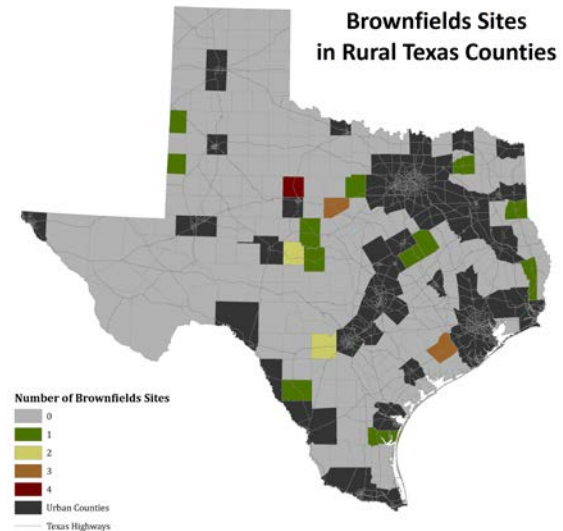
**Wastewater Outfalls
in Rural Texas Counties**



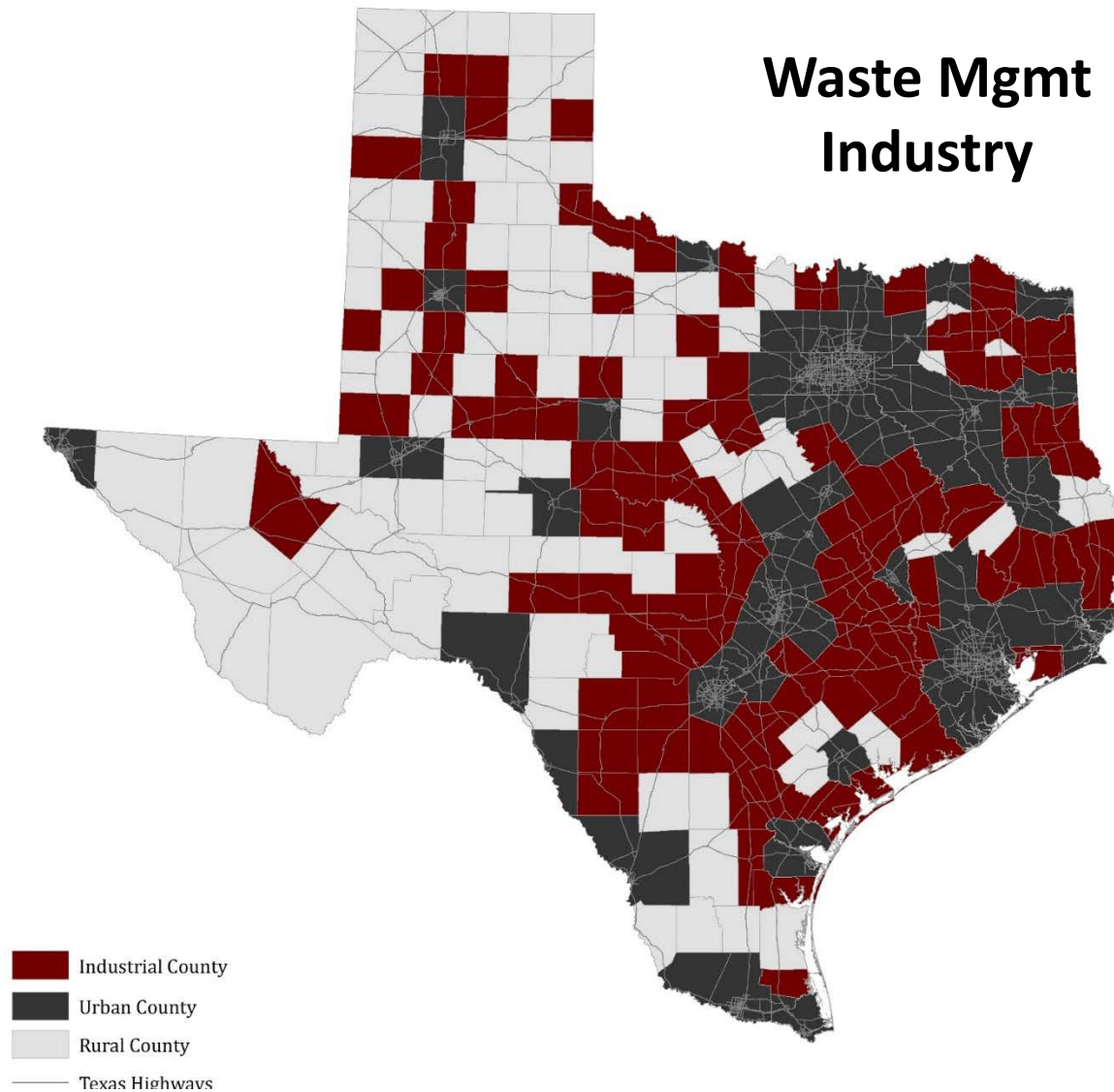
**Superfund Sites
in Rural Texas Counties**



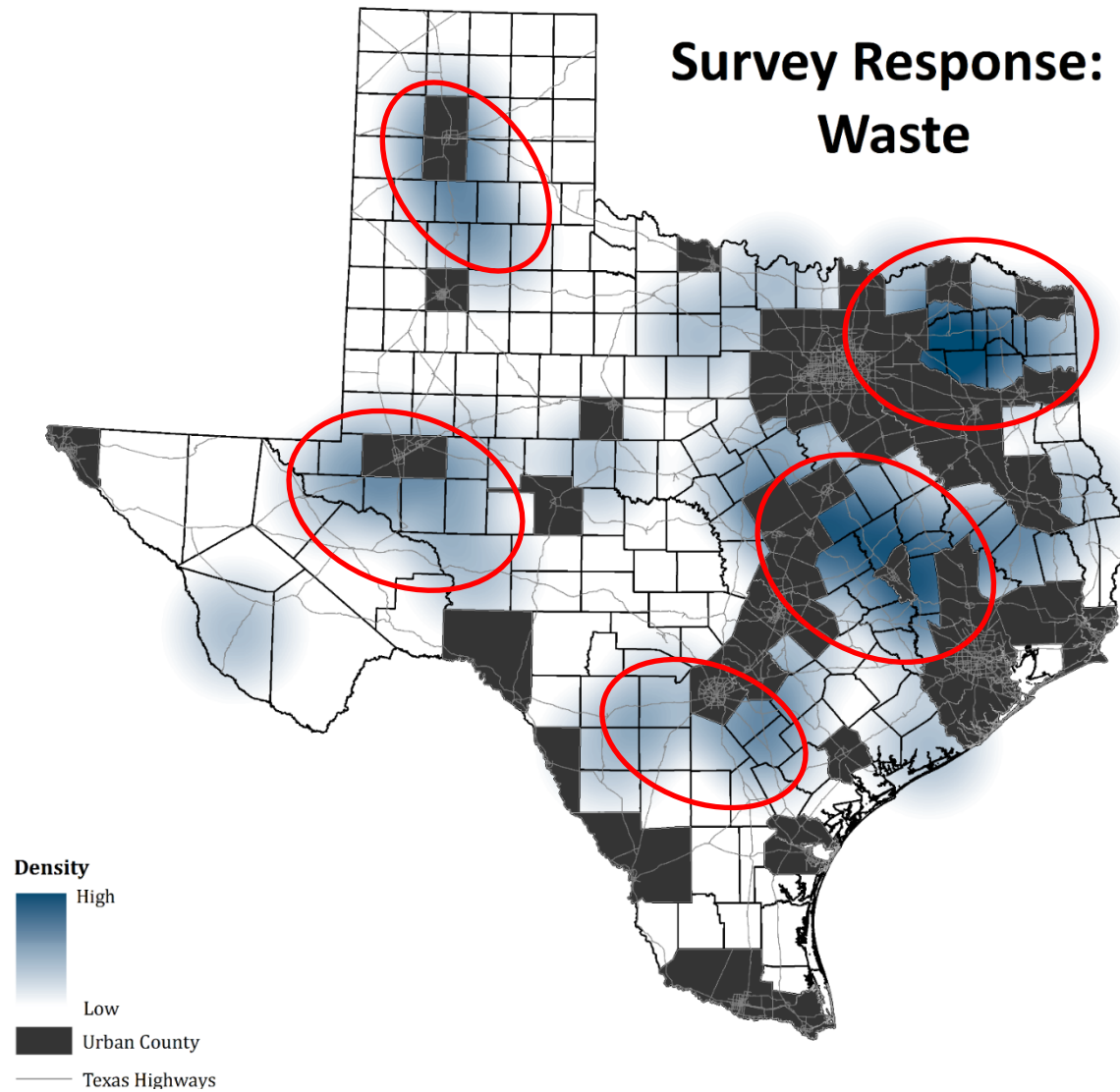
**Brownfields Sites
in Rural Texas Counties**



Waste Mgmt-Industry



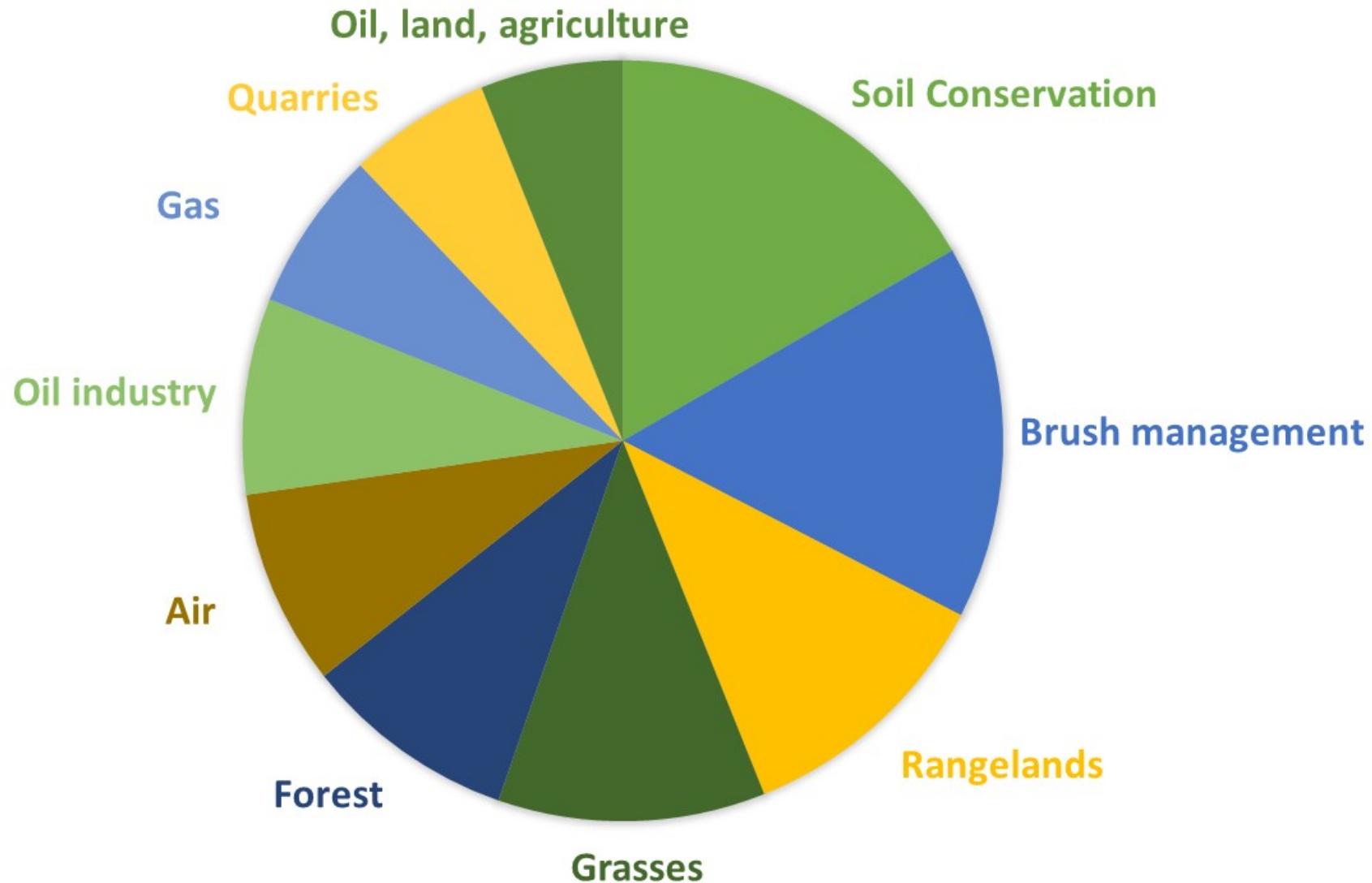
Waste/Industrial



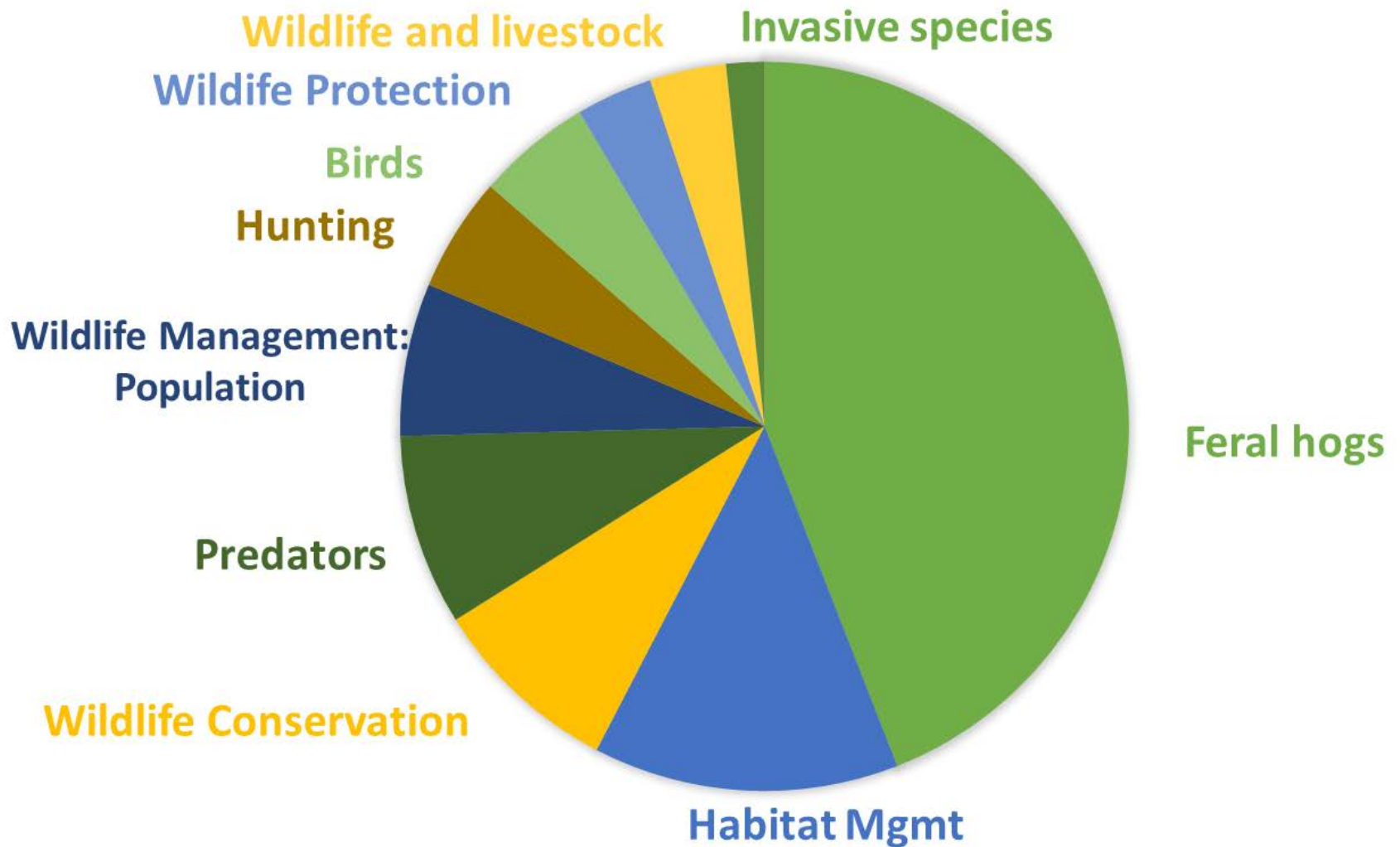
Natural Resources – *Rural “Voices”*



Natural Resources – *Top 10*



Wildlife – *Top 10*



Infrastructure – *Top 10*

**“Relevant to
upcoming topics”**

Roads: Growing population

For growing population

Roads: Issues

Roads: Damage

Roads:
Maintenance

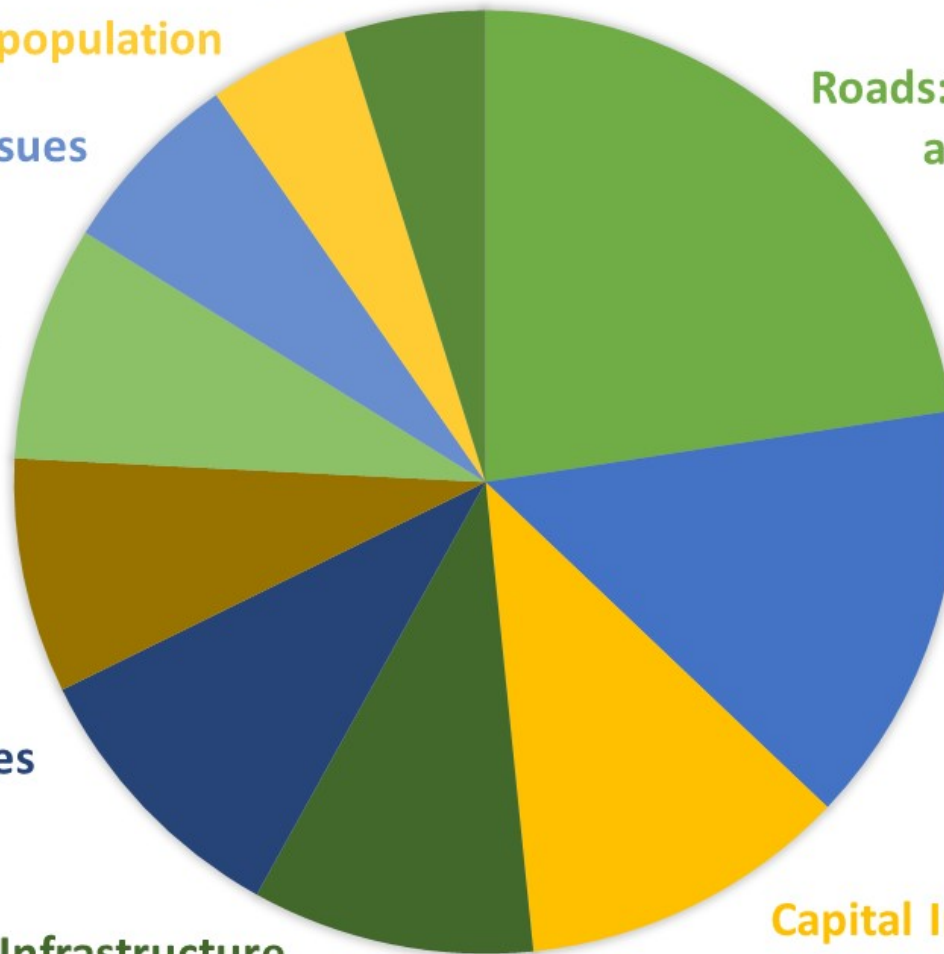
Utilities

Infrastructure

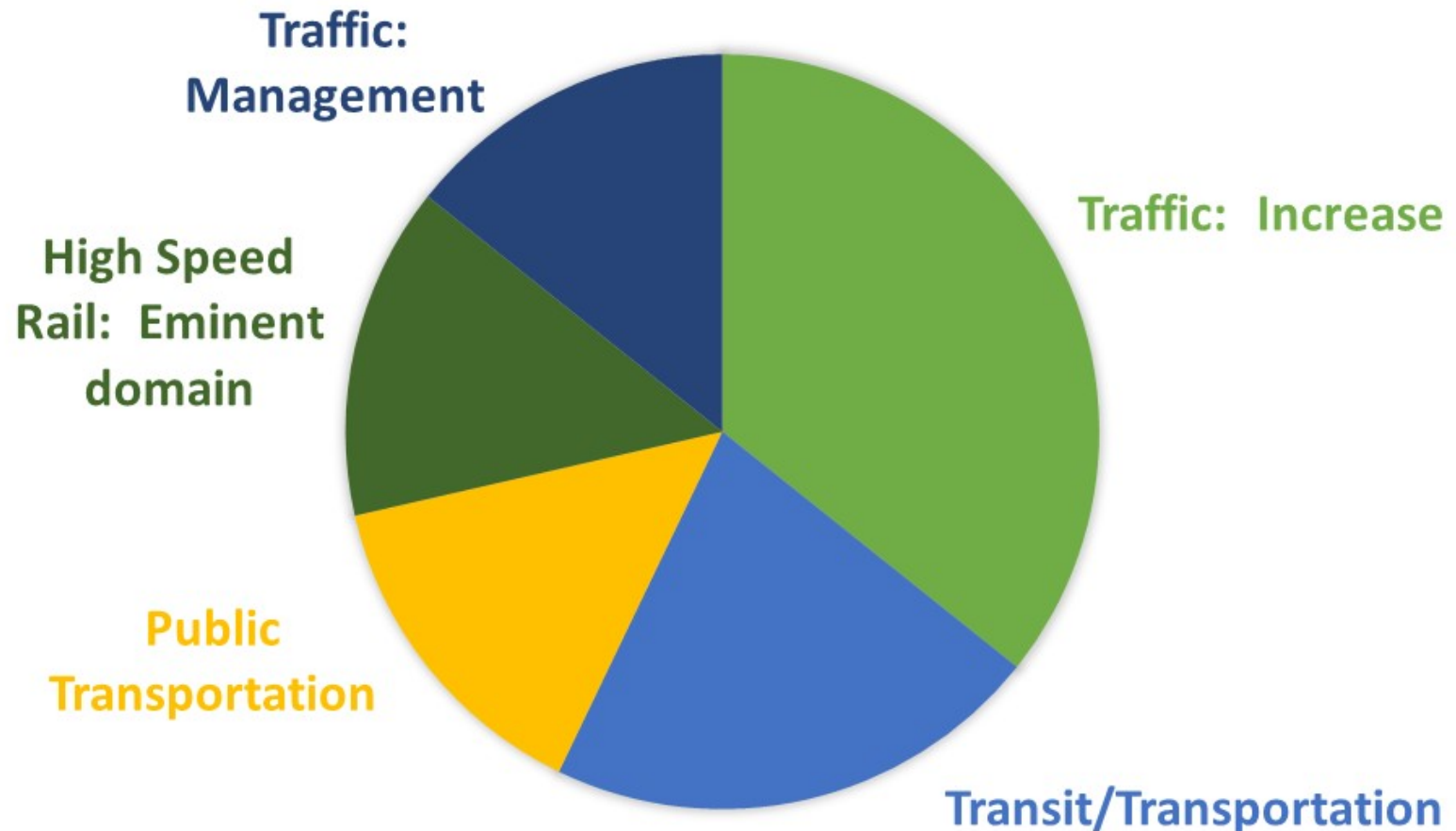
Roads: Improvement
and Repair

Roads

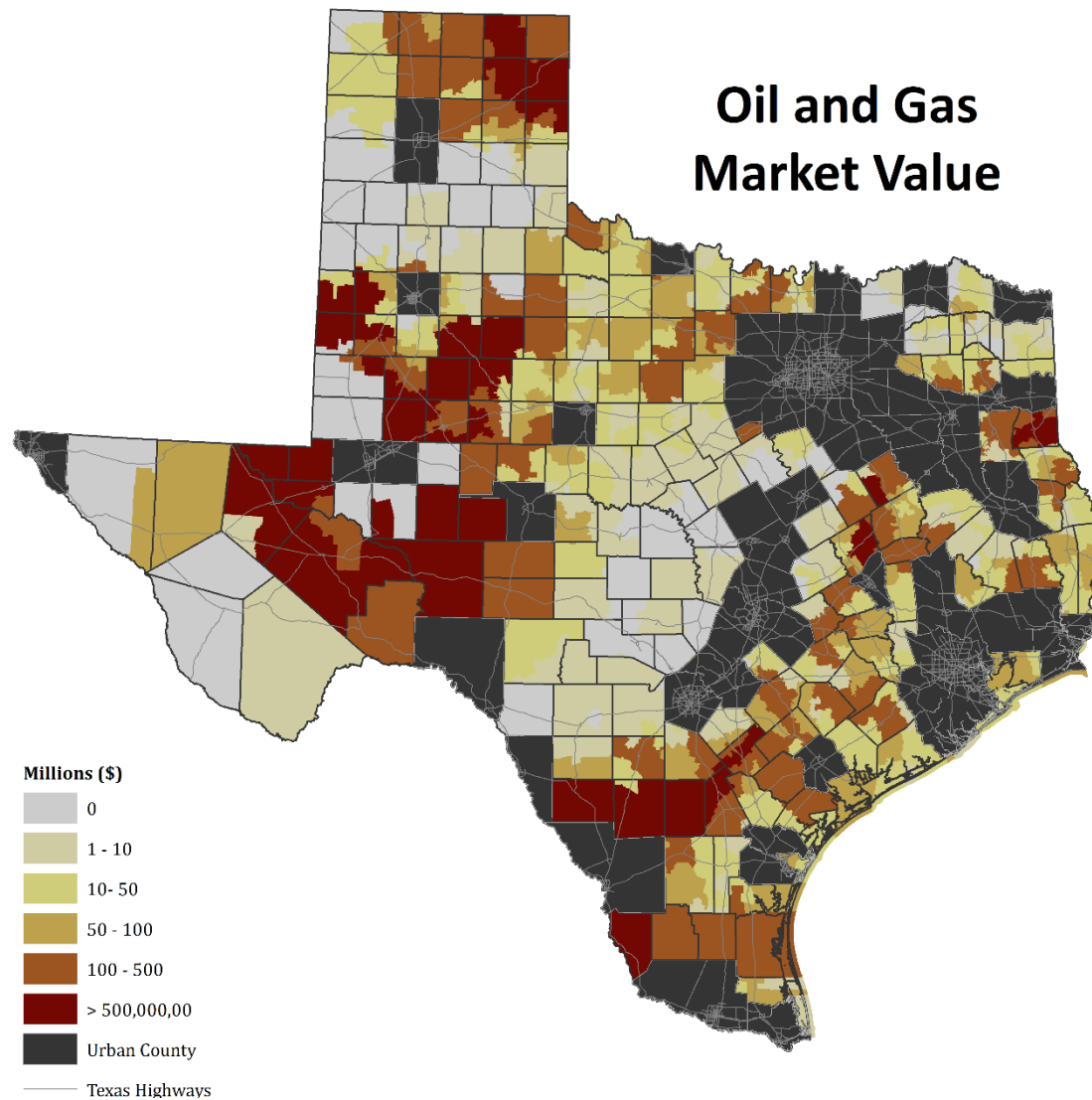
Capital Infrastructure: Jail



Transportation – *Top 5*

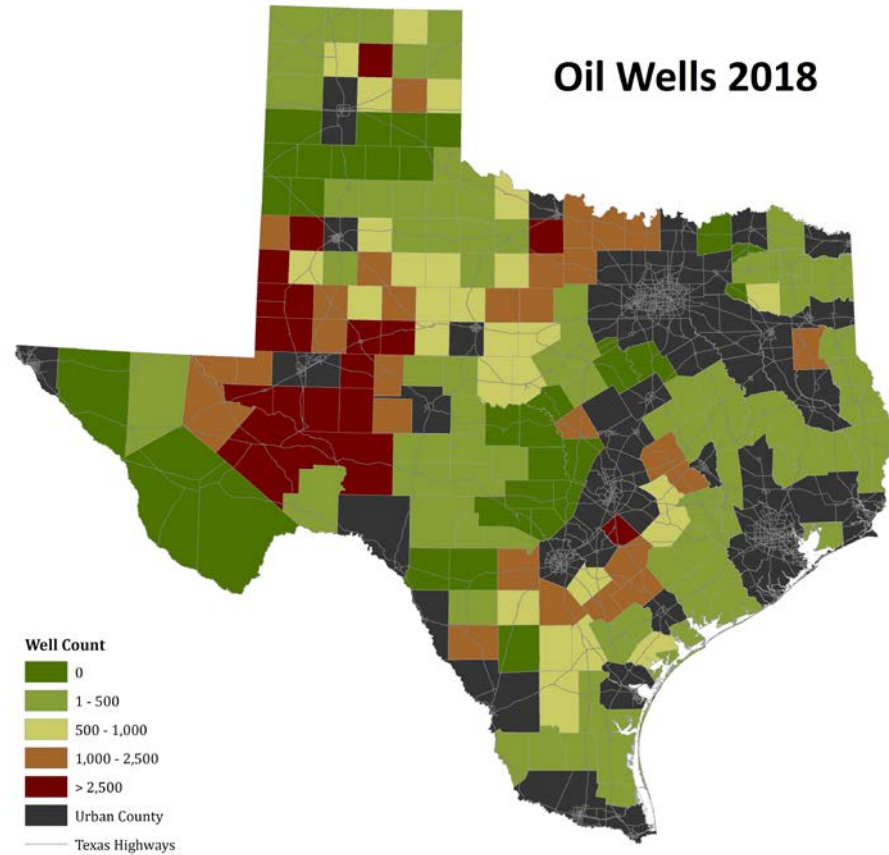


Oil and Gas Market Value

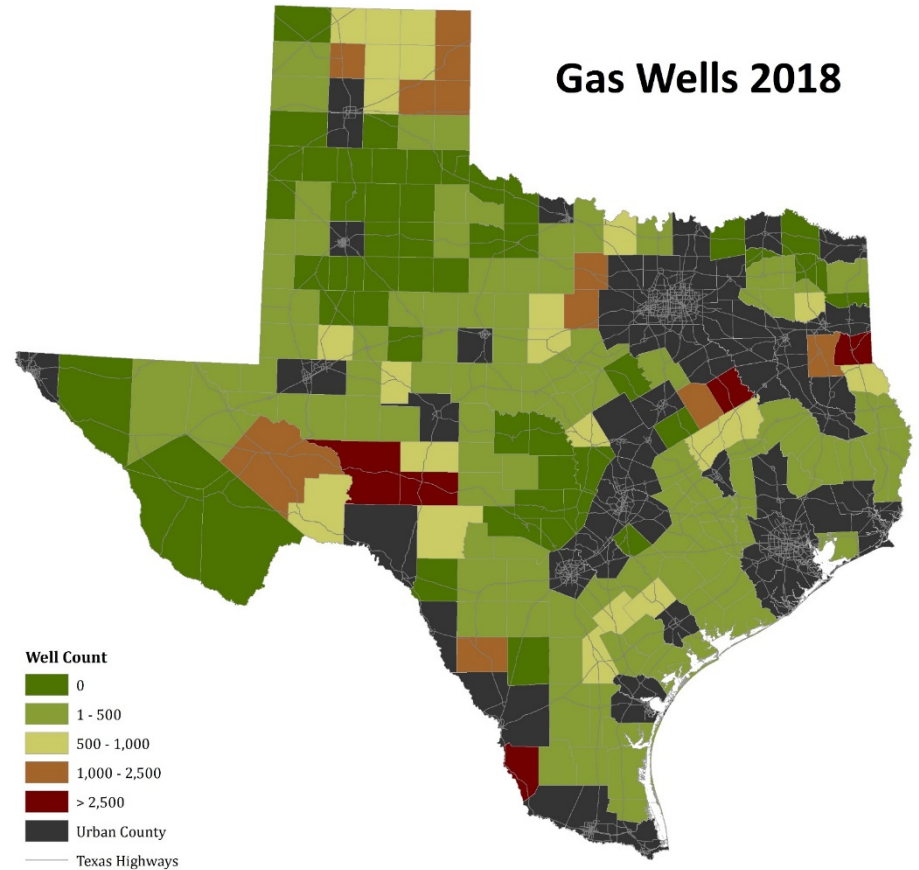


Oil and Gas

Oil Wells 2018

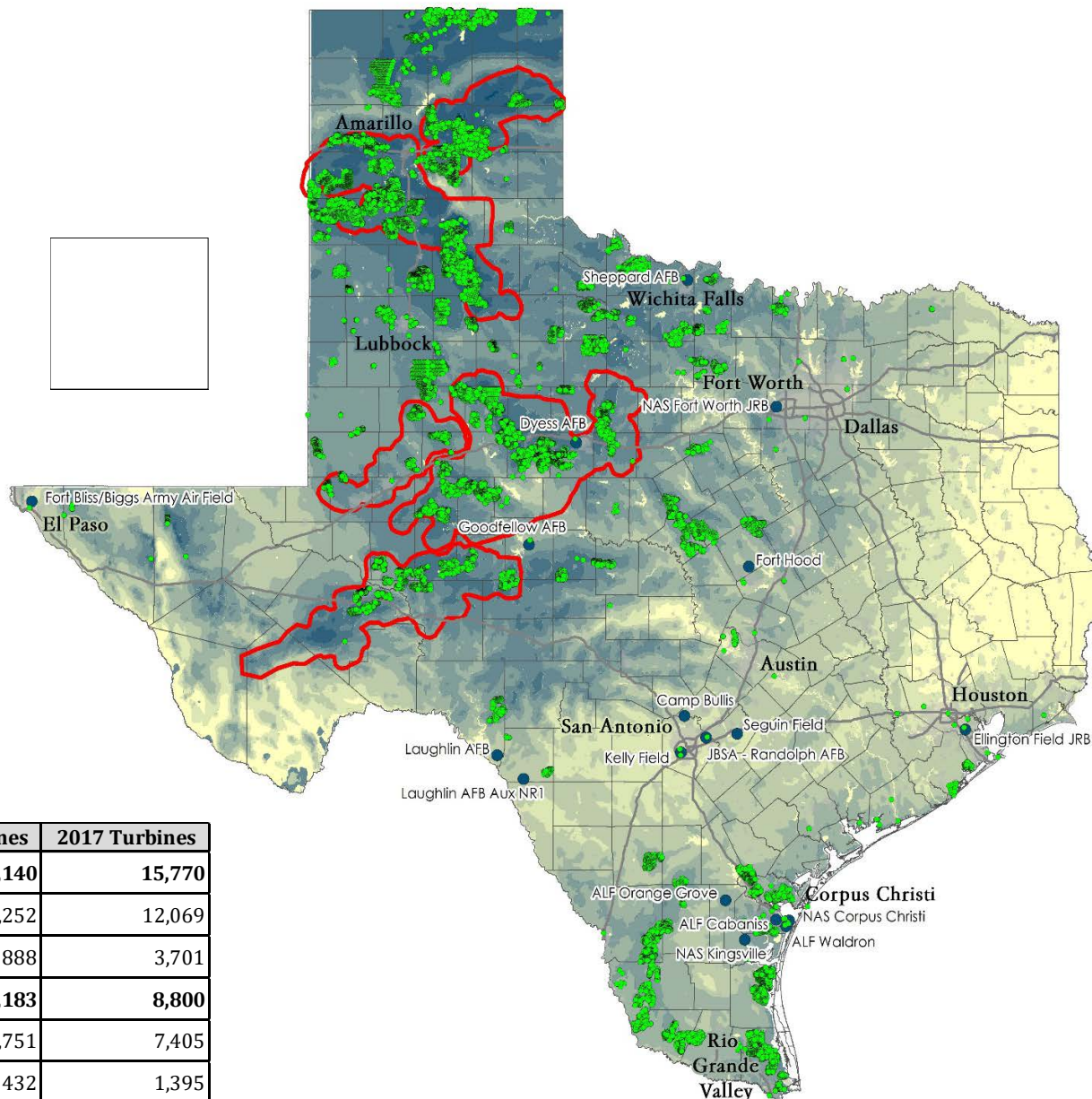


Gas Wells 2018



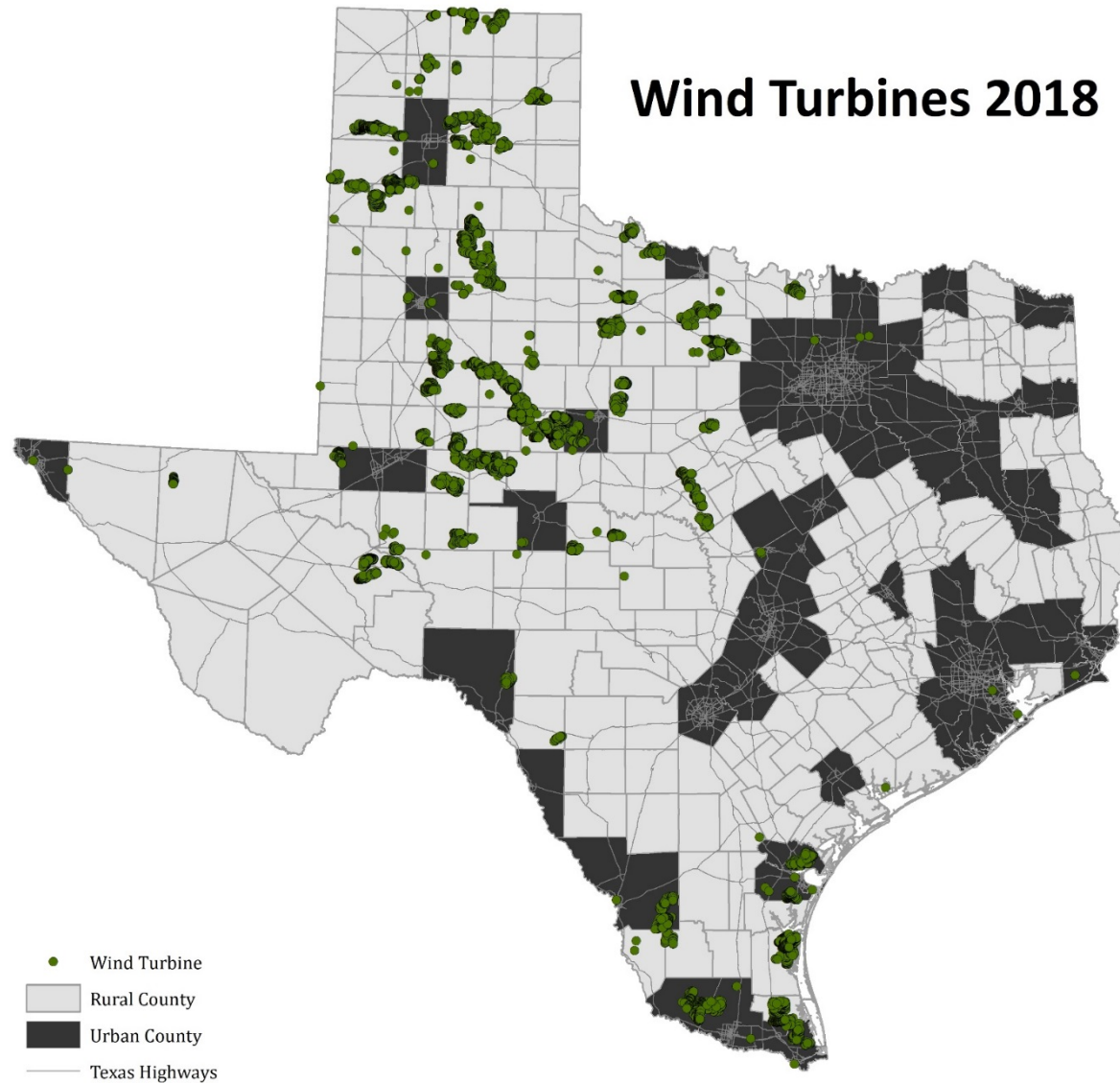
Wind Energy

- Wind Energy
 - Largest producer in nation
 - 12,000 existing turbines
 - 3,700 proposed turbines

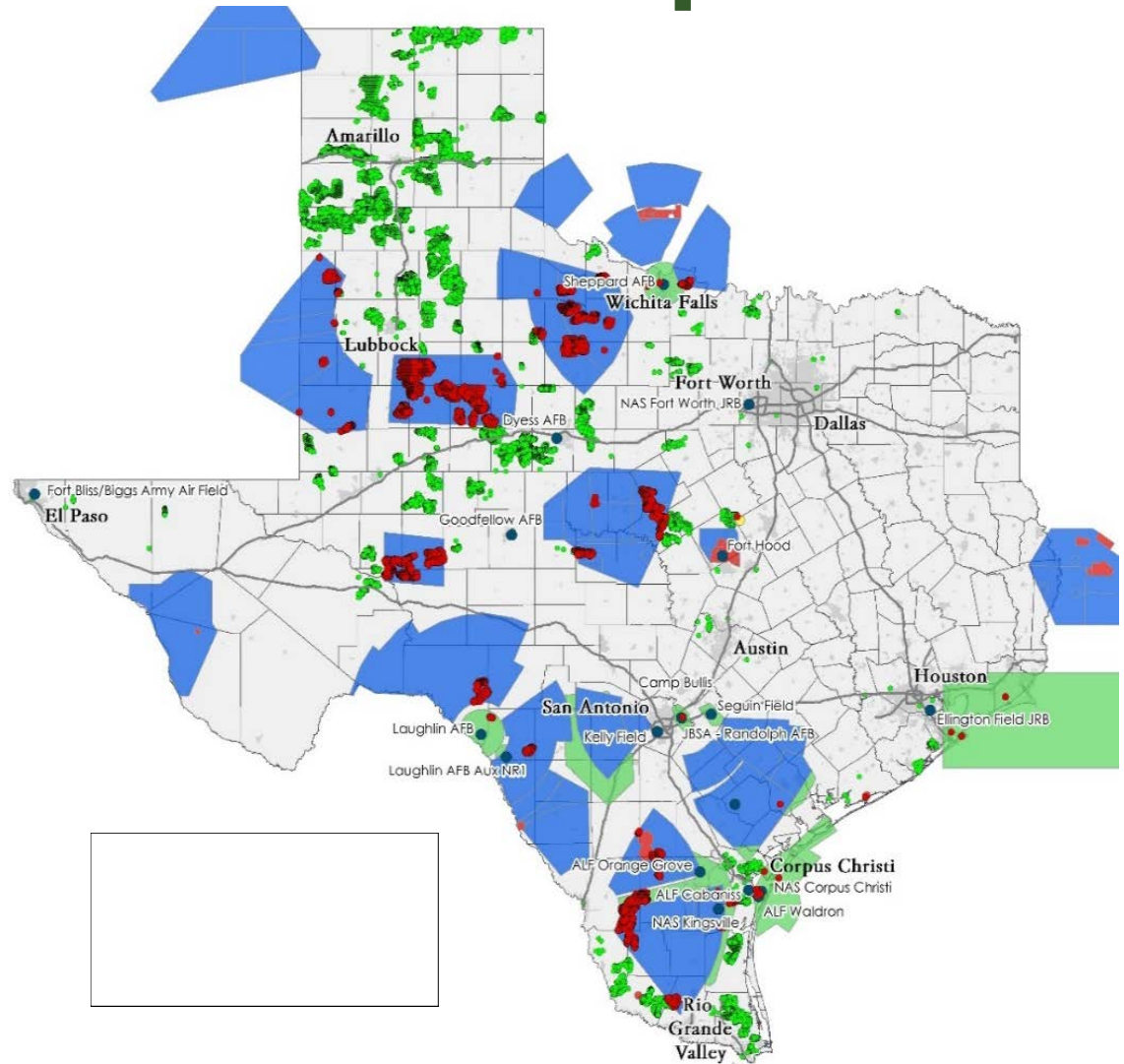
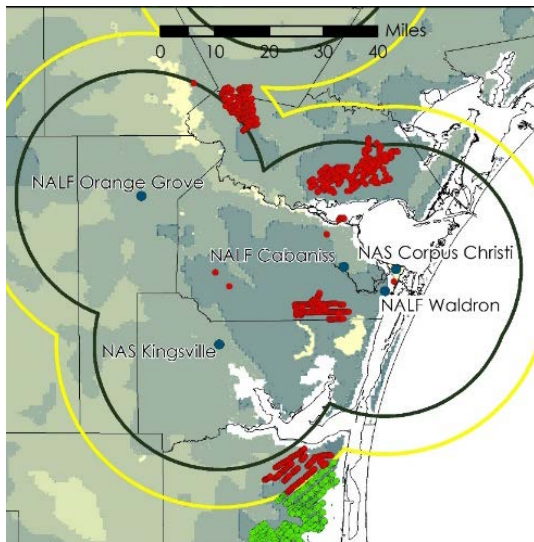


		2010 Turbines	2017 Turbines
Statewide	Total	7,140	15,770
	Existing	6,252	12,069
	Proposed	888	3,701
CREZ	Total	5,183	8,800
	Existing	4,751	7,405
	Proposed	432	1,395

Wind Energy

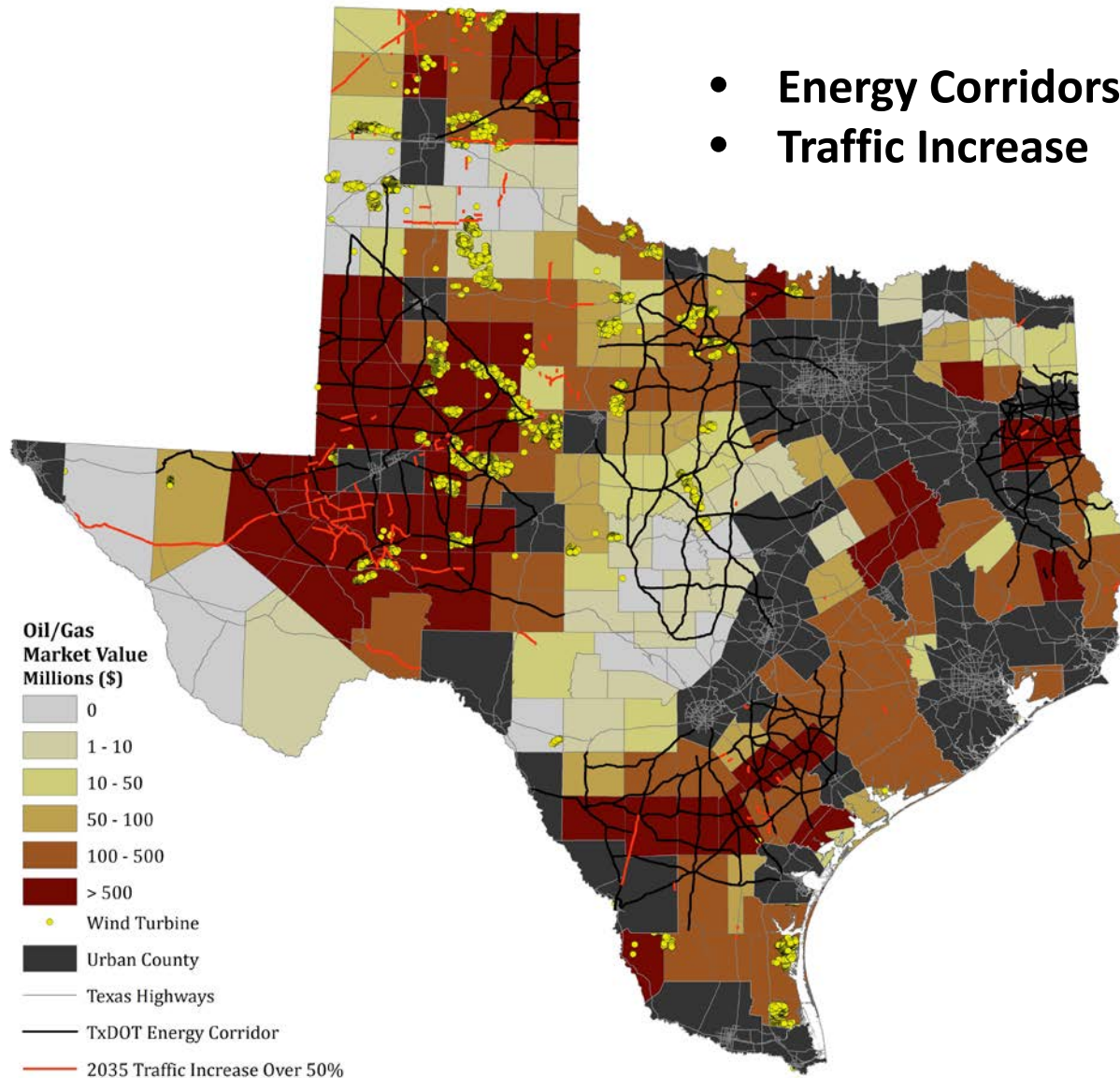


Wind Energy and Mission Footprint



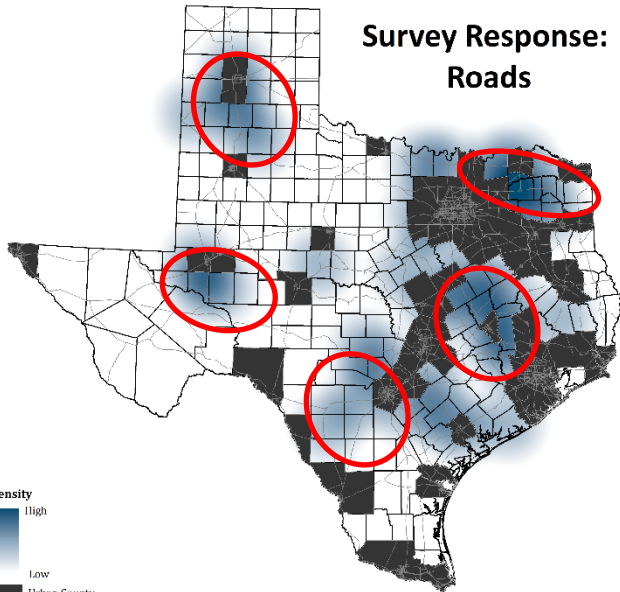
Energy

- Energy Corridors
- Traffic Increase

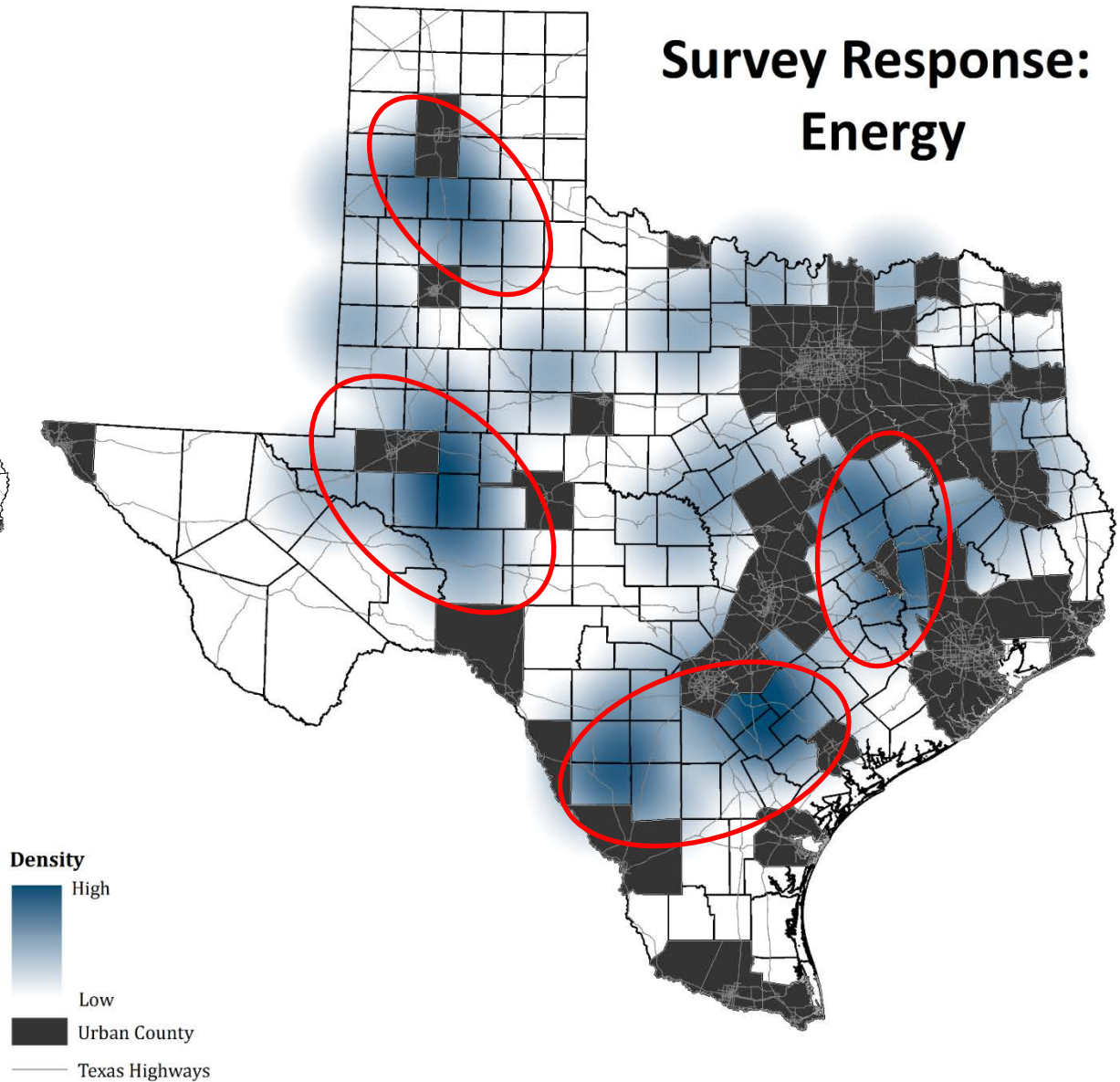


Energy

Survey Response:
Roads

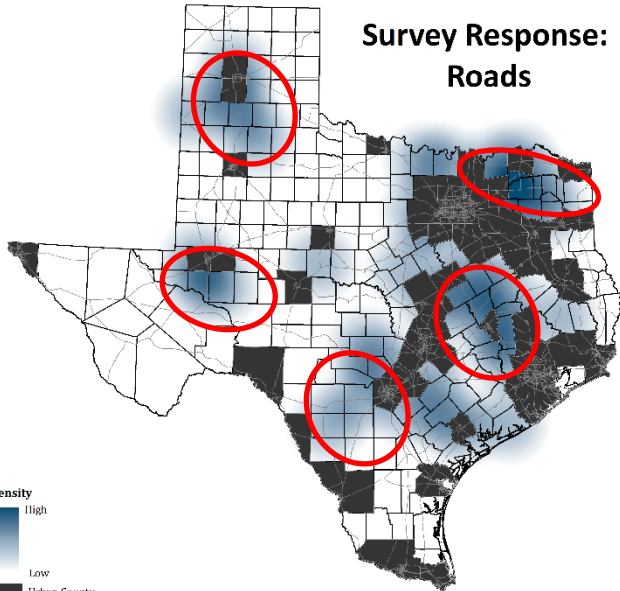


Survey Response:
Energy



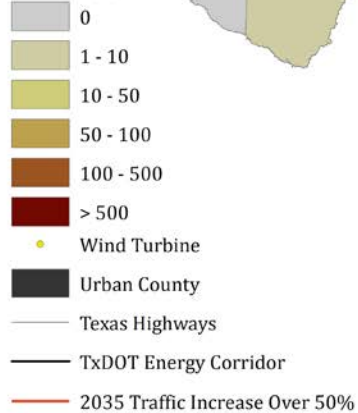
Energy

Survey Response:
Roads

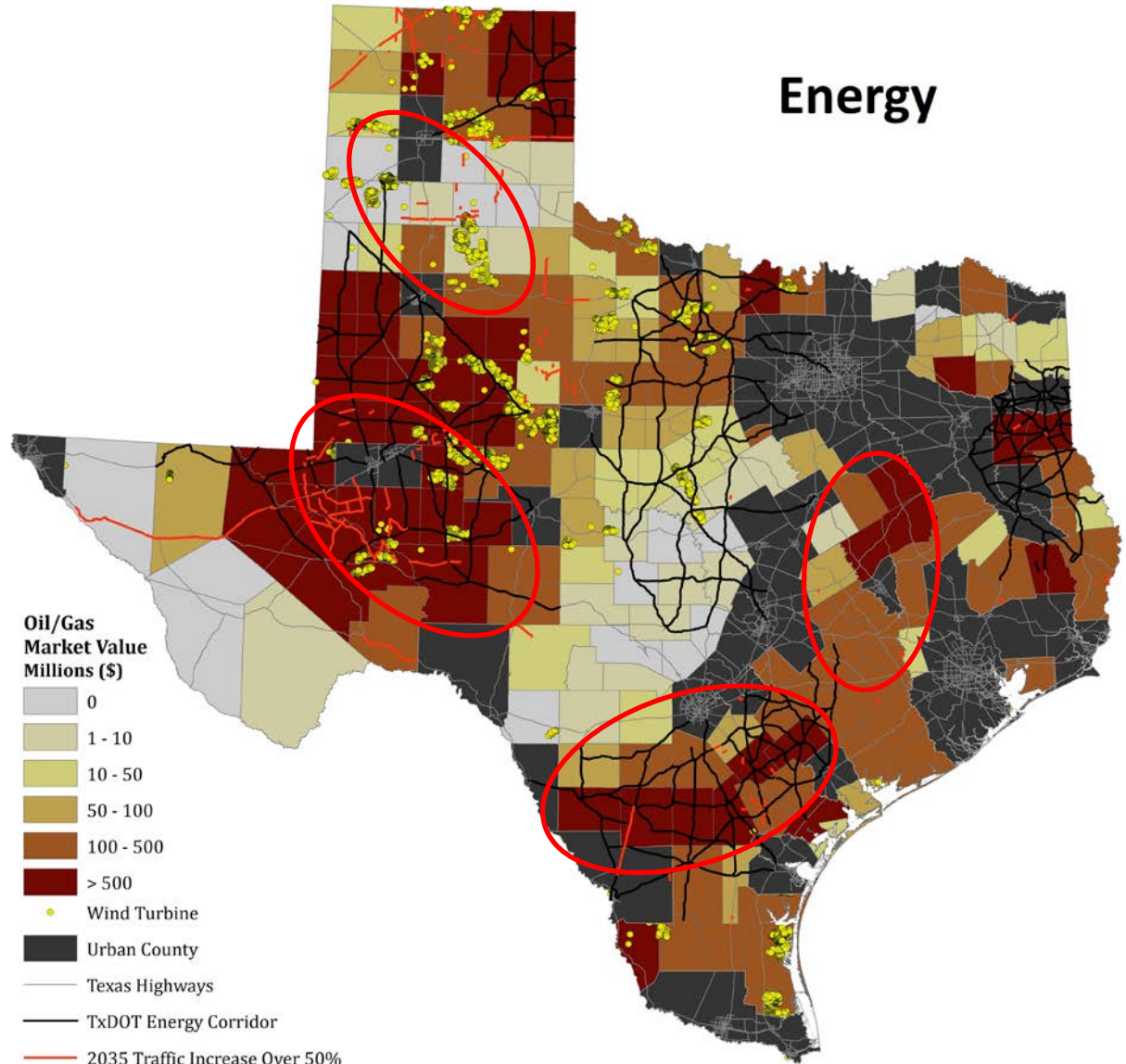


Density
High
Low
Urban County
Texas Highways

Oil/Gas
Market Value
Millions (\$)



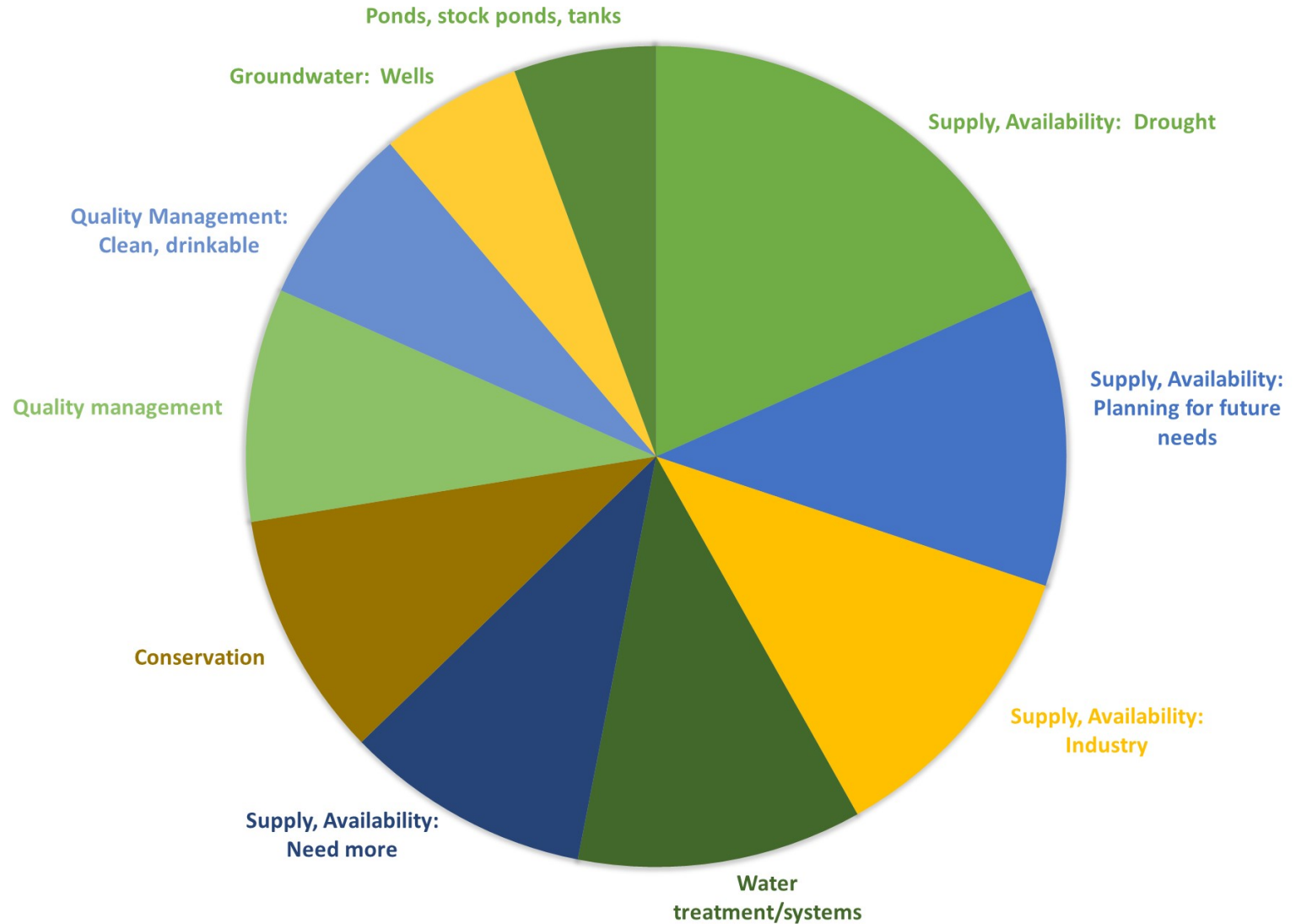
Energy



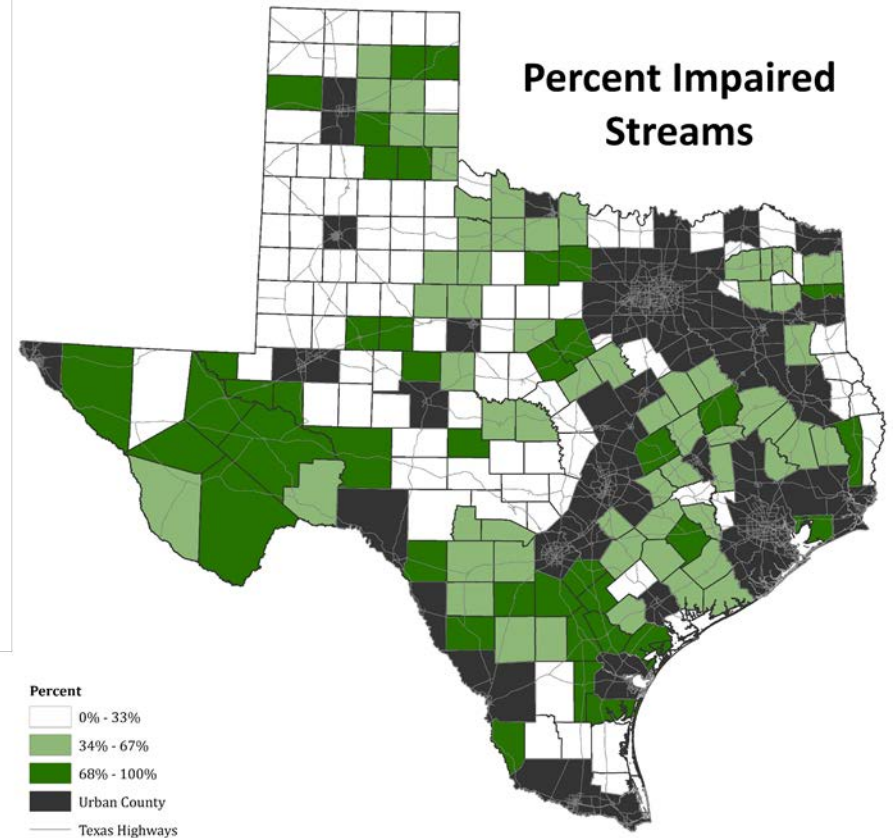
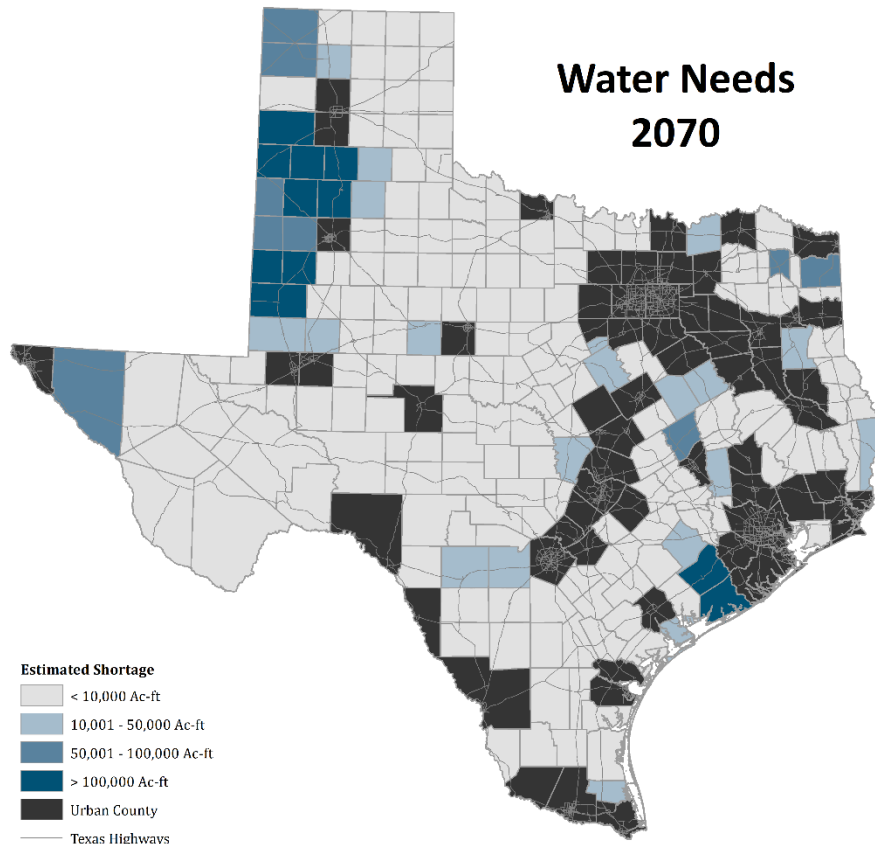
Water – *Rural “Voices”*



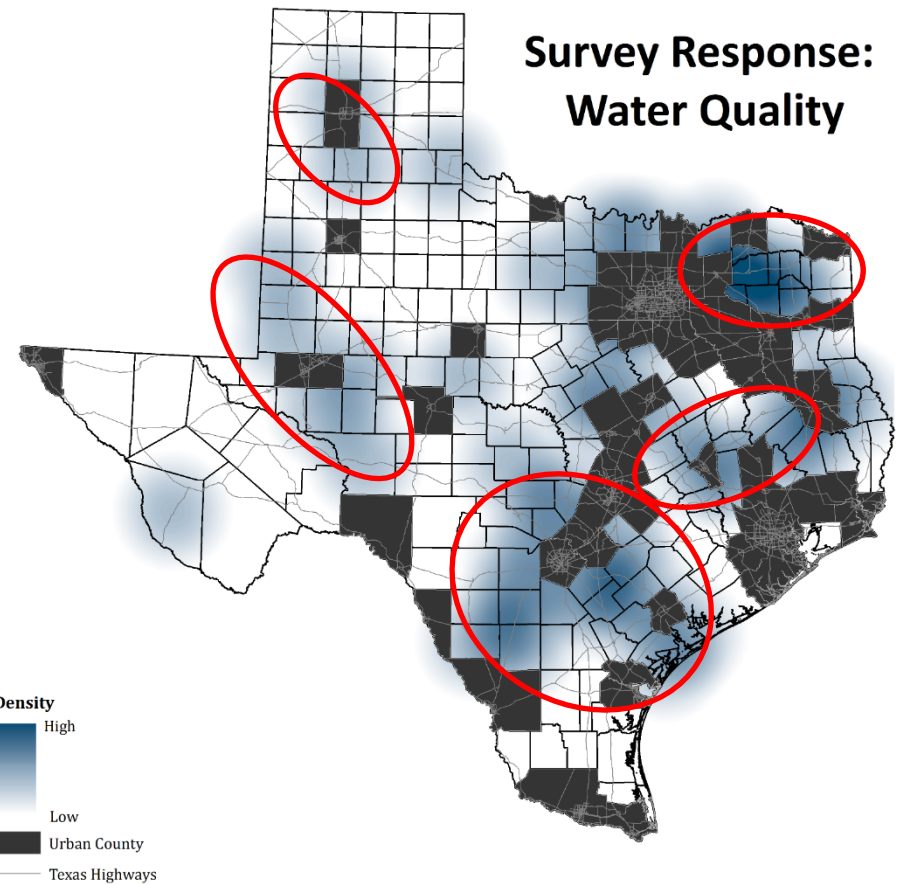
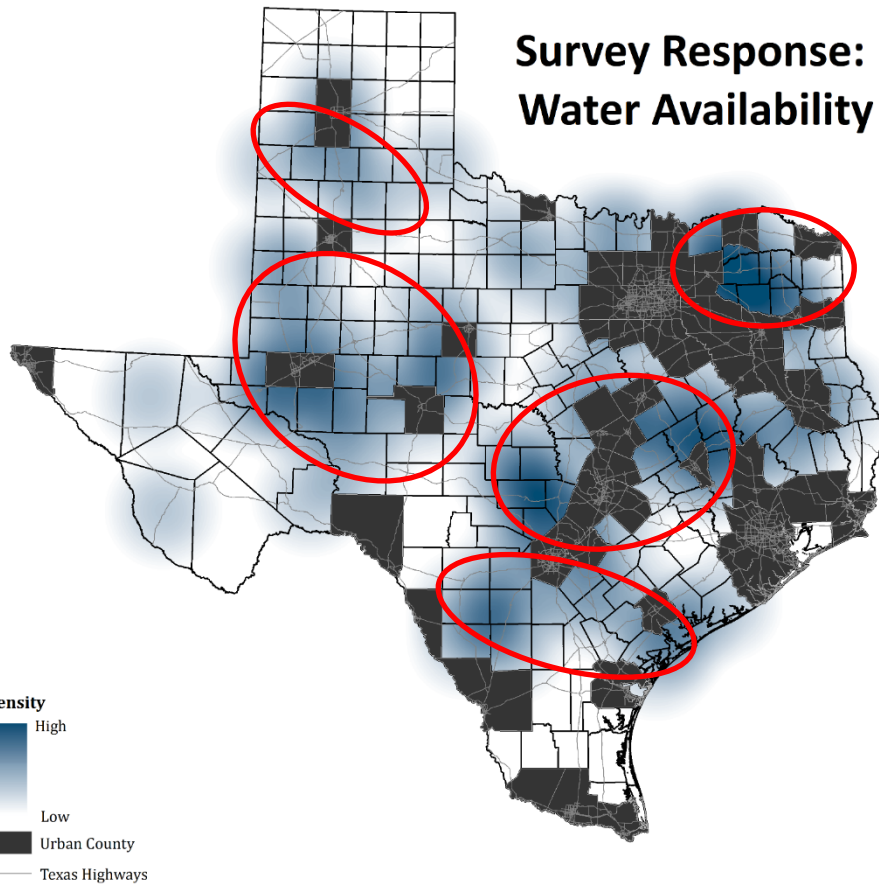
Water – *Top 10*



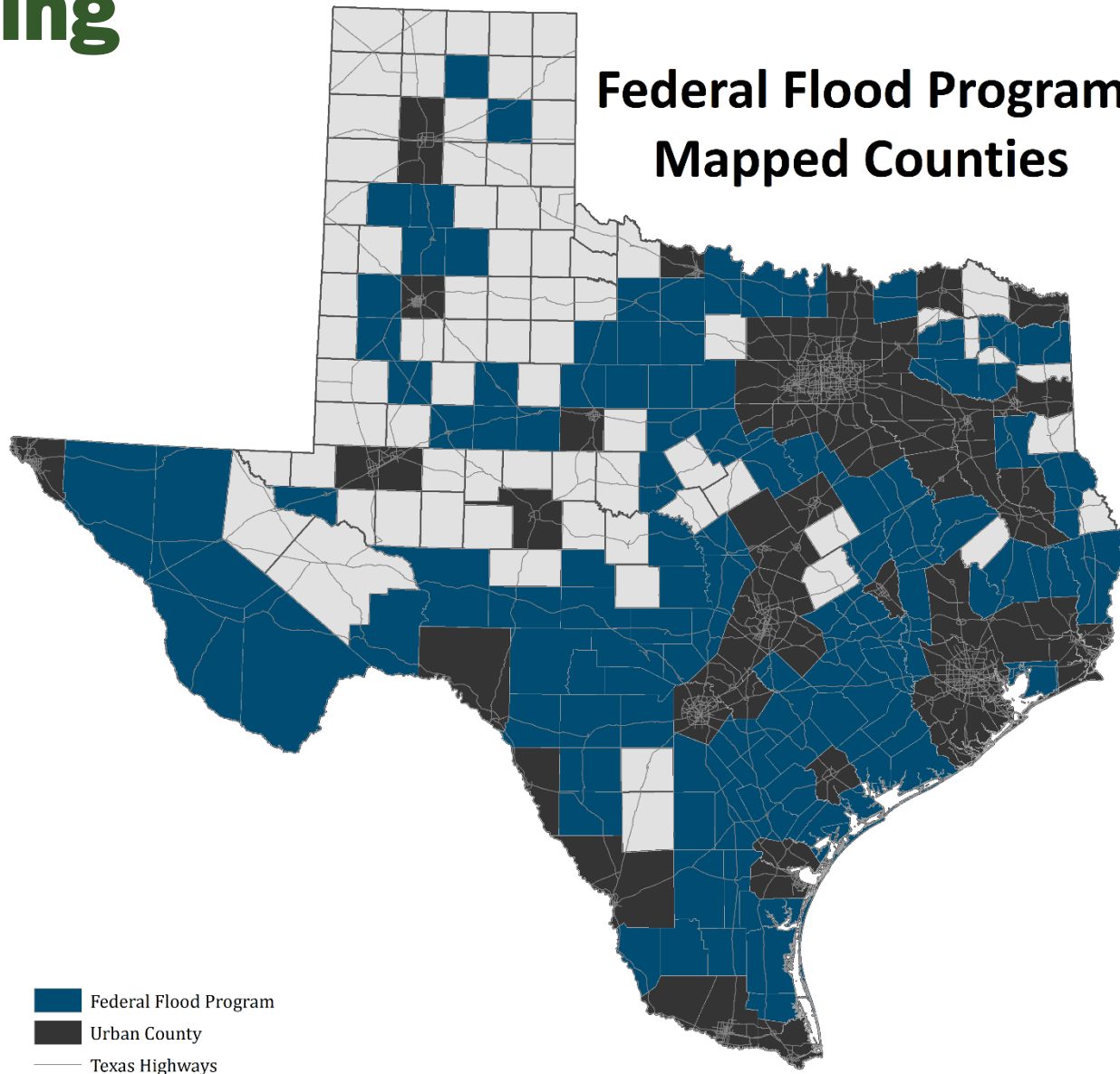
Water (Quantity/Quality)



Water (Quantity/Quality)

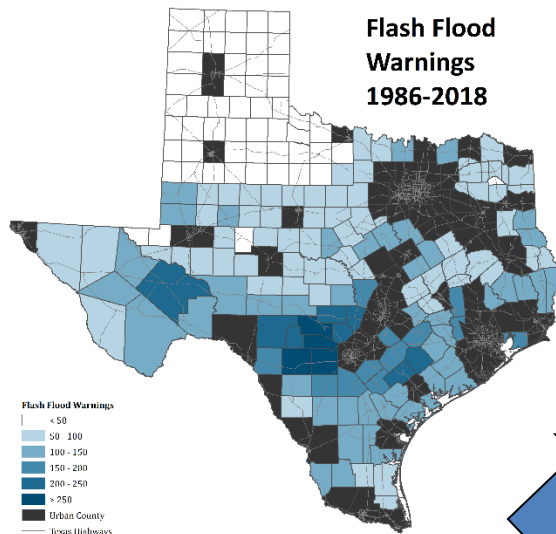


Flooding

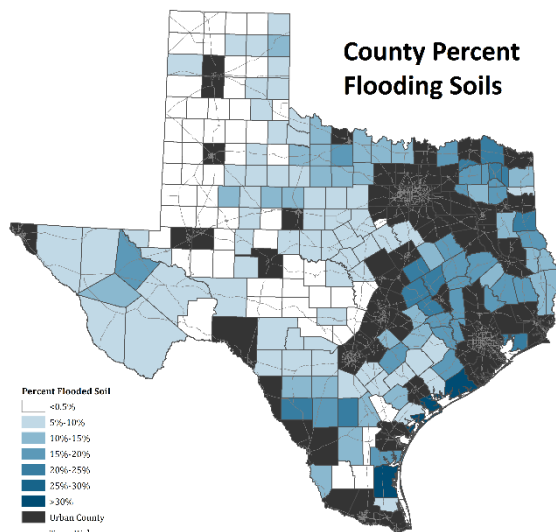


Flooding

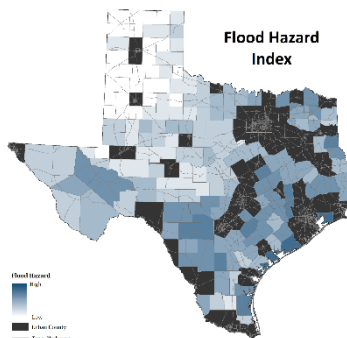
**Flash Flood Warnings
1986-2018**



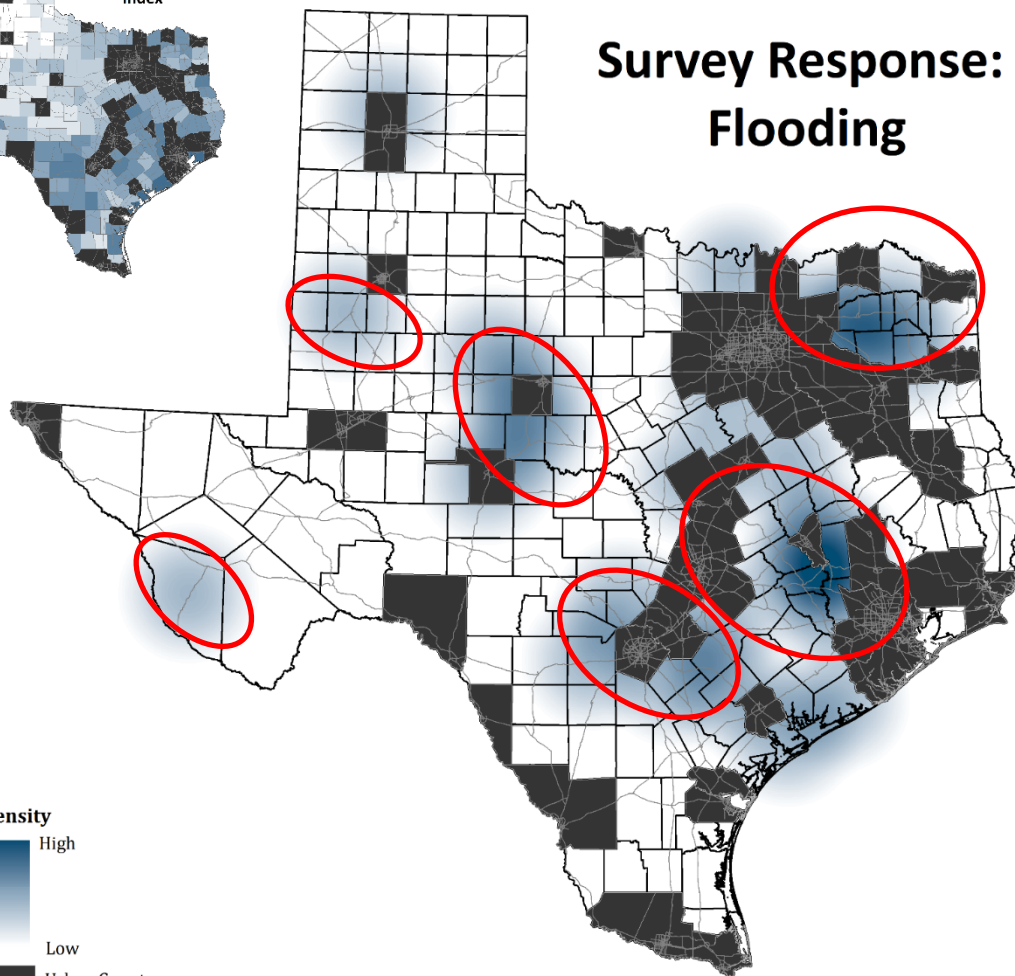
**County Percent
Flooding Soils**



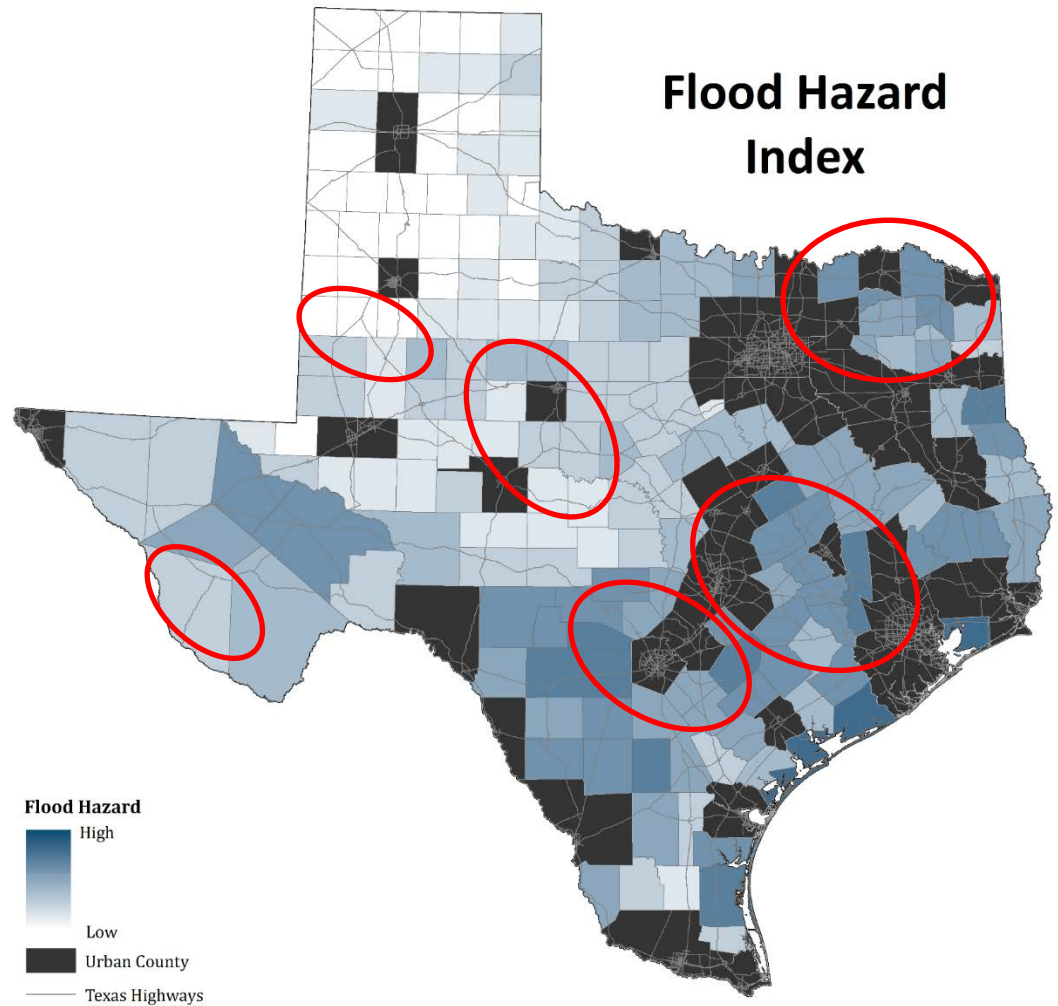
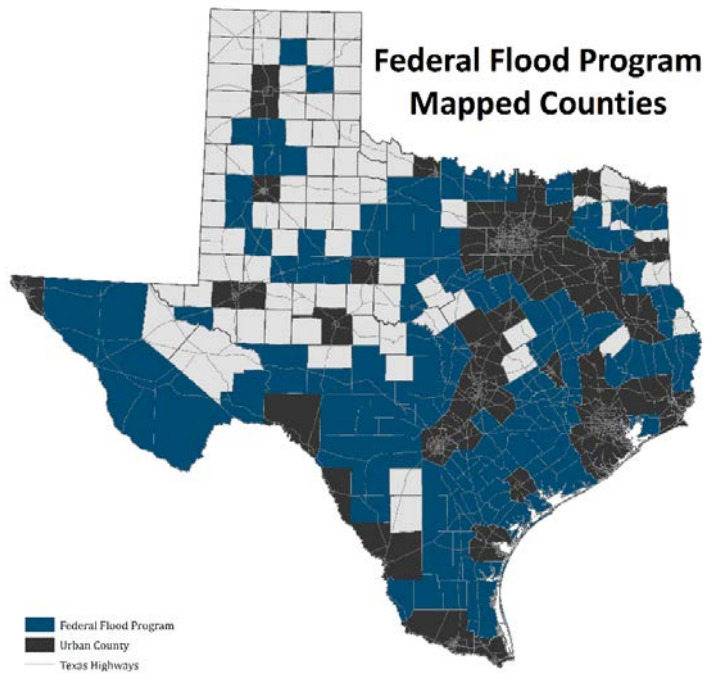
**Flood Hazard
Index**



**Survey Response:
Flooding**

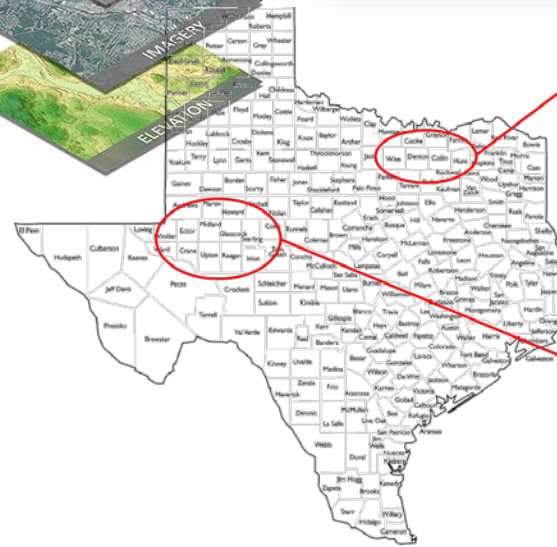
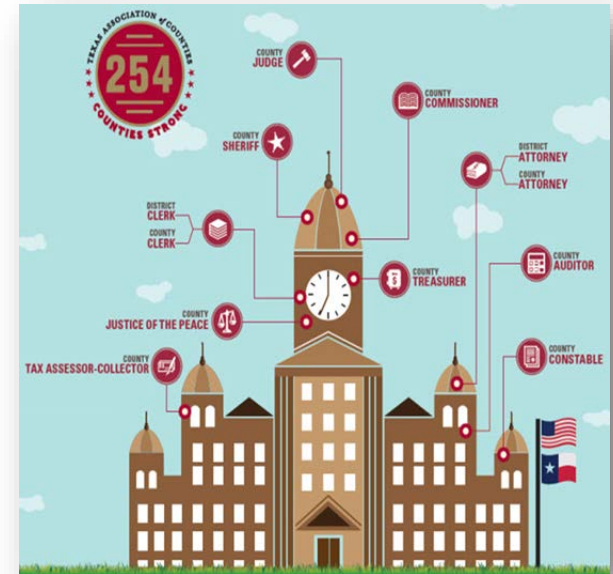
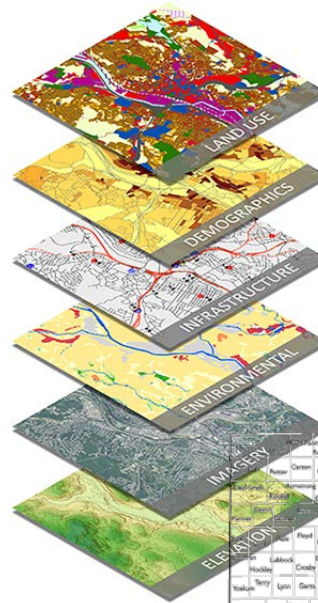


Flooding



The Issues...

- Complicated issues, many are inter-related and with no cookie cutter solutions
- General issues emerged in 3 areas: water, energy, and land.
- Solicit input on potential approaches or policies



Authority to Manage Growth
Subdividing Rules & Regulations
Regulate/Permit Commercial
Wind Turbines
Native Rangelands
County Water Plan
Adequate Supply
Drought
Future Water Use

Road Improvement
Zoning Land for Oilfield Waste
Waste Management
Sand Mining
Oil & Gas Damage
Clean Water
Fracking
Adequate Supply
Water Rights

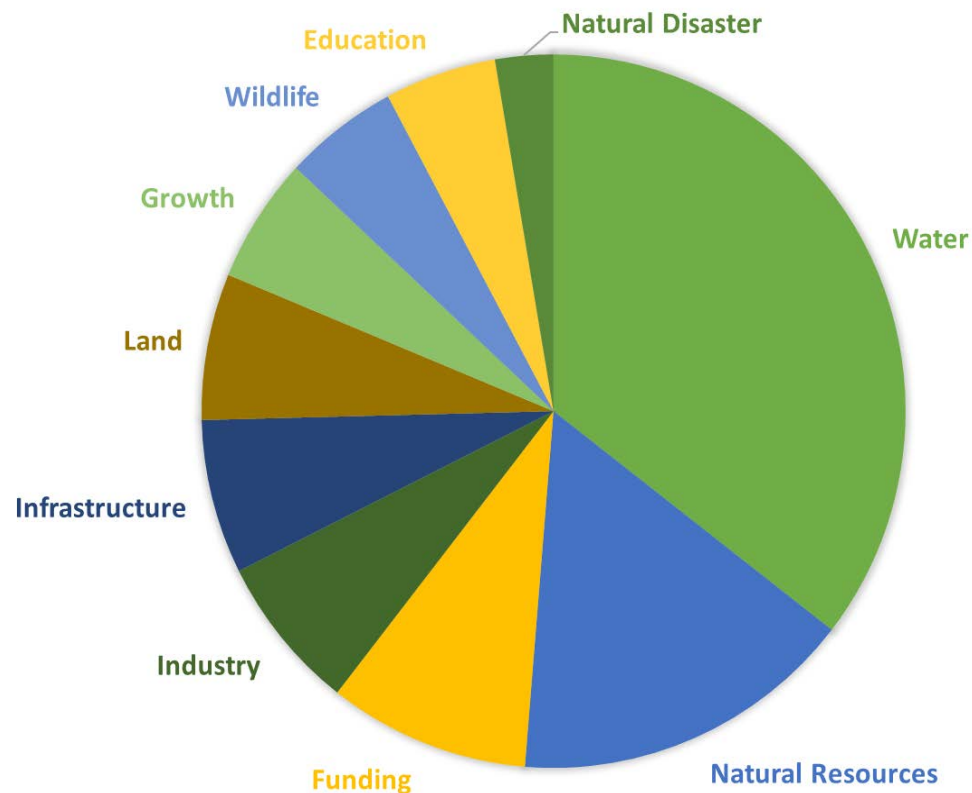
Next Steps...

- *Charge:*
Characterize natural resource and water patterns
- Discuss some issues that surfaced:
 - Water Availability, Water Quality, and Flooding
 - Energy-Transportation, Waste Mgmt-Industry
 - Land Fragmentation

Waste Management

Conservation

Flood Control



Roads

Water Rights

Water Wells

Quality

Promoting Private Lands Stewardship through Research, Education, and Policy.



<http://nri.tamu.edu/>
<http://txlandtrends.org/>

Roel R. Lopez
roel@tamu.edu

Questions?

