

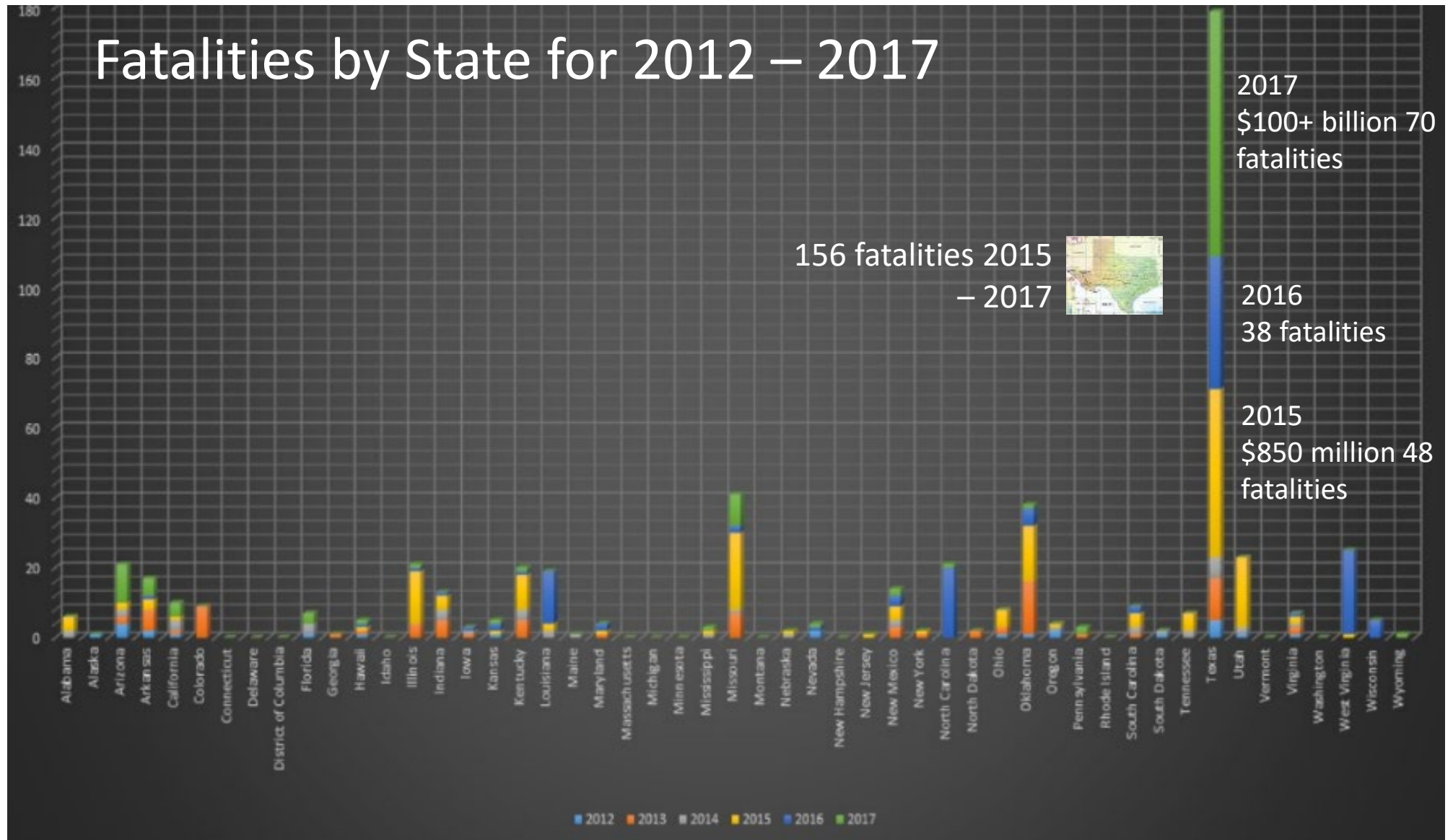
North Central Texas
Council of Governments

Integrated Transportation and Stormwater Infrastructure (TSI)

Green Asset Management Workshop – May 16, 2023

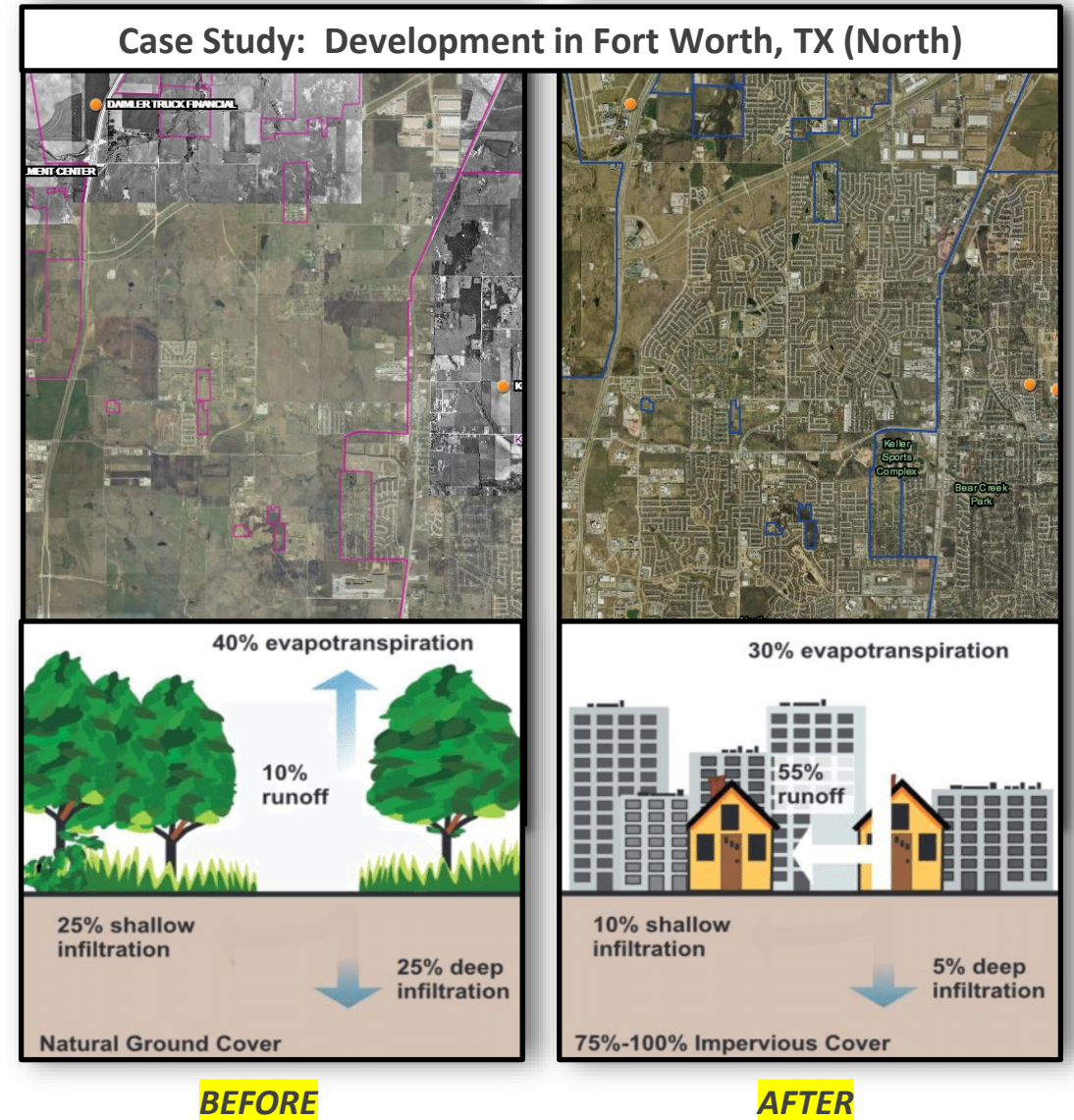
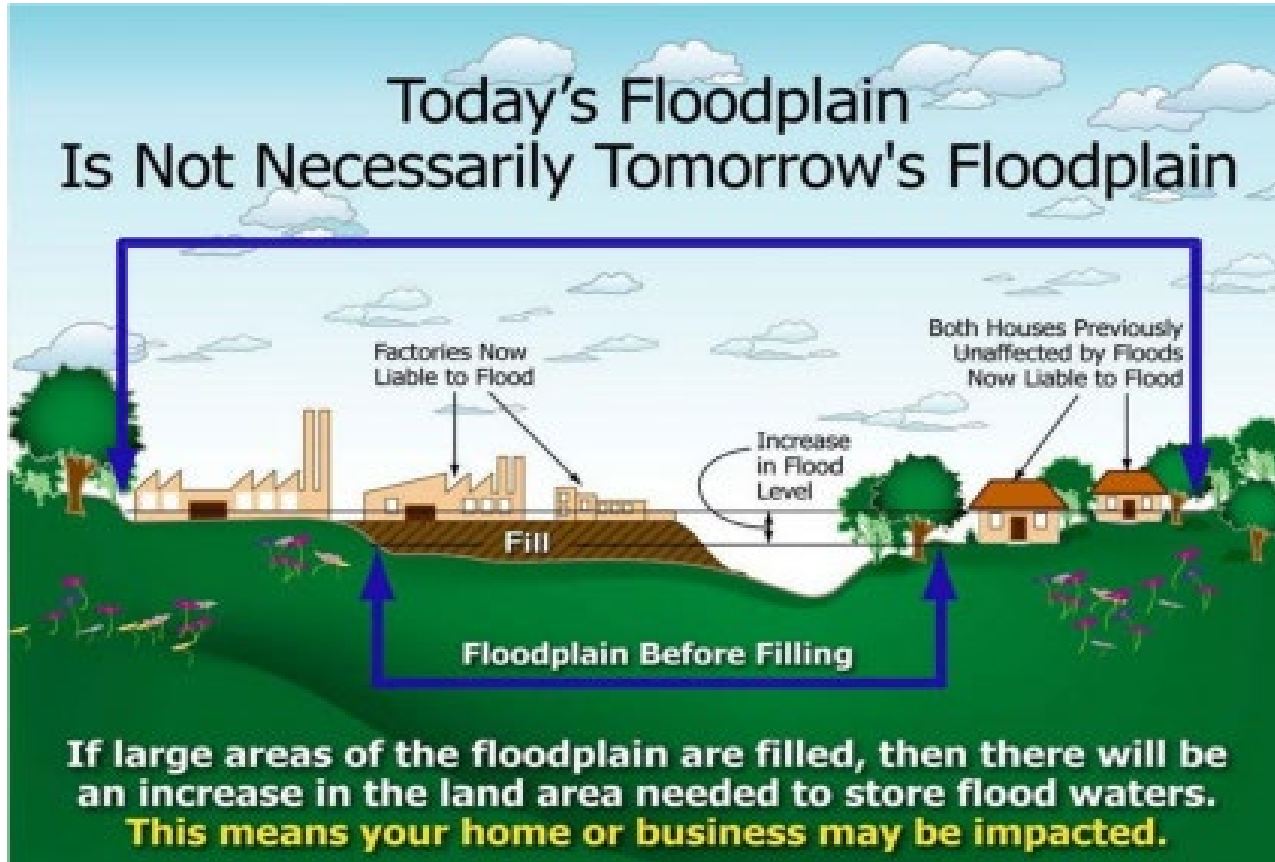
Flooding Fatalities and Damages

Texas far outpaces other states in flood related fatalities and flood-related damages



Source: Gregory Waller, Service Coordination Hydrologist, NWS – West Gulf River Forecast Center, <http://www.nws.noaa.gov/om/hazstats.html>, 11/18 TFMA

Urbanization Challenges



Stormwater Challenges

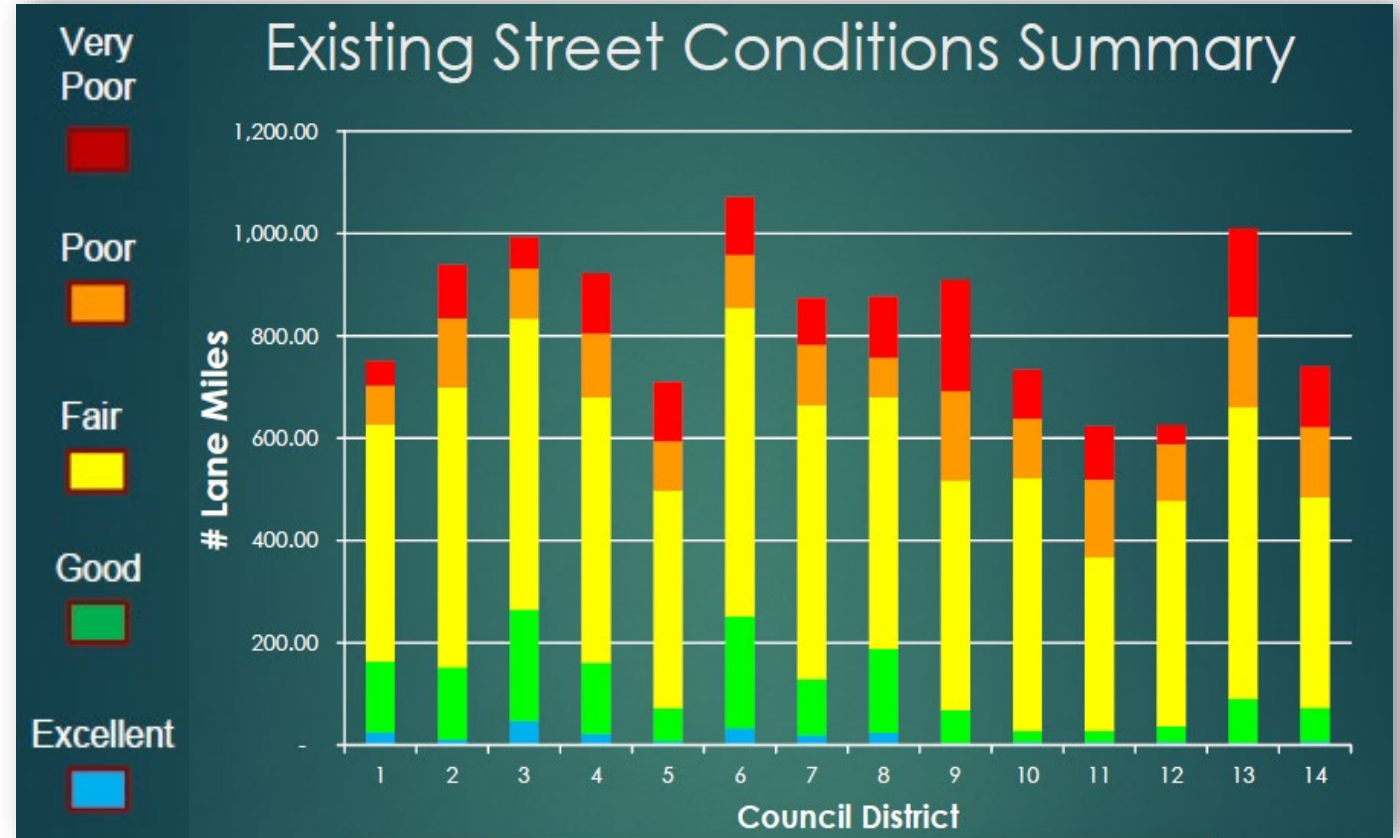
- No regionwide data
- Piece-meal/lacks connectivity
- NOAA Atlas 14 rainfall estimates
 - Required for infrastructure design, planning, and delineation of flood risk
 - 2022 FLOODS Act
 - 10-year updates



City of Waxahachie

Transportation Challenges

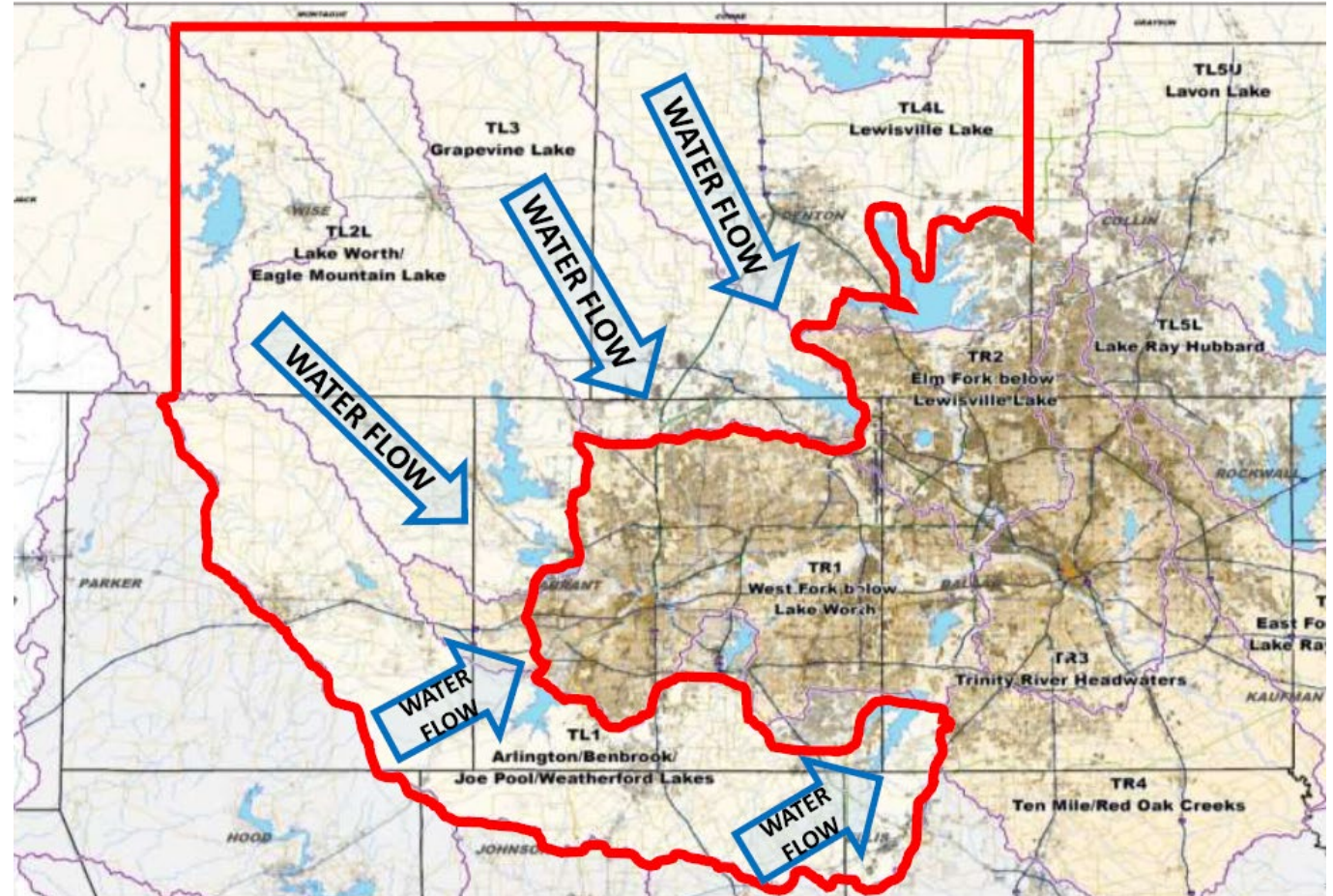
- Transportation spending is high and growing
- Rate of deterioration for transportation infrastructure increasing
- Needs far outweigh resources



Source: Dallas 2017 Bond Program – <http://www.dallasbond.com/>

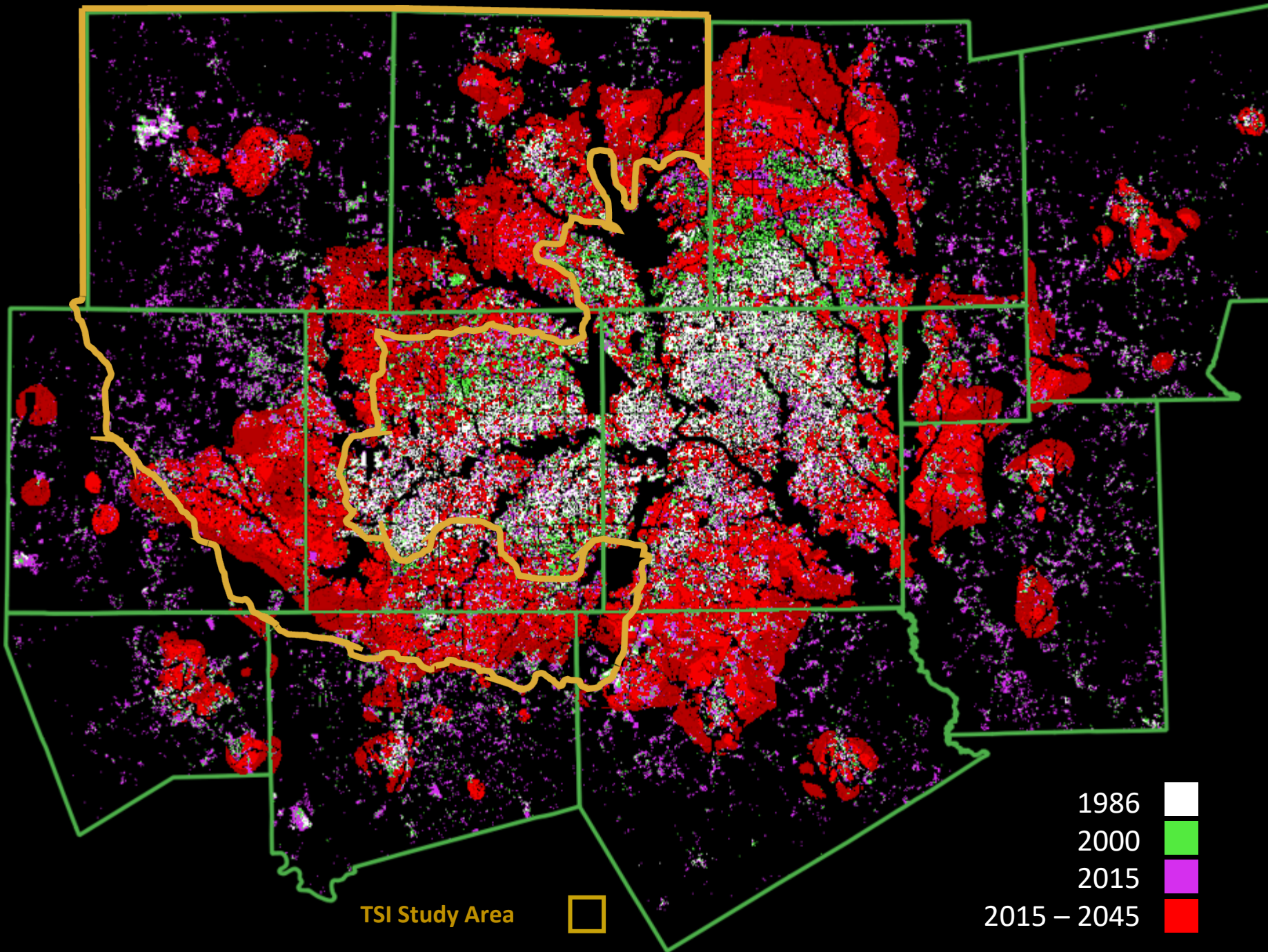
Integrated Transportation and Stormwater Infrastructure (TSI) Initiative

- Integrate stormwater management, urban development, transportation, and environmental planning
- Develop plan for risk awareness and resiliency
- Identify impacts and alleviate risks from flooding



Project Area Details and Demographics

- 85 cities and portions of 8 counties
- 126% increase in population (2020 – 2045)
- 60% undeveloped (2015)
- 19% growth in impervious surface (2006 – 2016)
- > 7,000 miles of streams and > 274,000 acres of 100-year floodplain



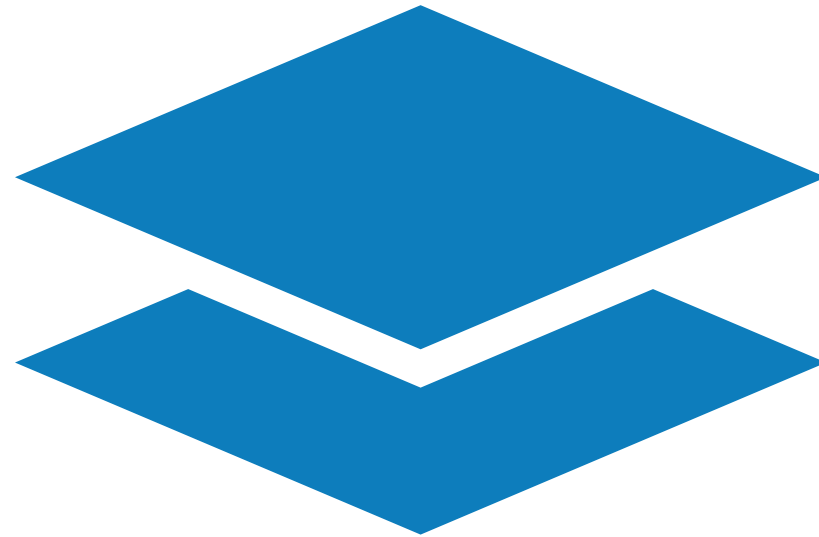
Mapping, Modeling,
and Policy
Recommendations



Green Infrastructure Deliverables – Web-Based Map

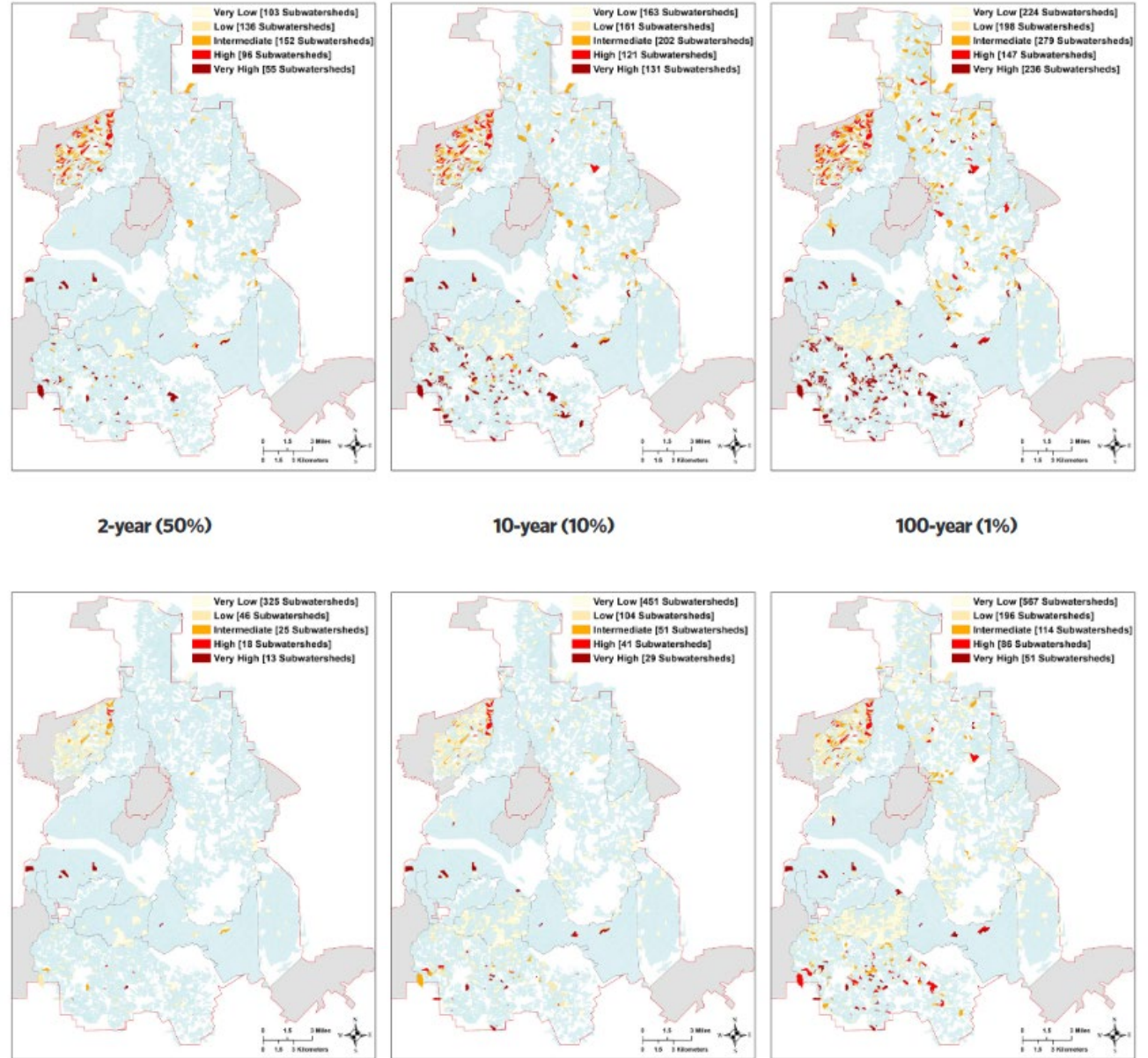
Identifies:

- Flood-prone areas
- Areas that fit design criteria for green stormwater infrastructure, nature-based solutions
- Opportunities for environmental stewardship as potential revenue



Example

- Study conducted for City of Dallas
- Where can GSI most effectively enhance urban flood reduction
- Hydrologic modeling (USEPA SWMM v. 5.1) and spatial analysis
- <https://www.nature.org/dallasgsi>



Green Infrastructure Deliverables – Planning and Incentives

Documentation of:

- Existing planning and infrastructure efforts
- Potential options or incentives for conservation and preservation of flood-prone and environmentally sensitive areas




Green Infrastructure Deliverables – Return on Investment

Economic information related to:

- Financial pro forma, benefit cost analysis tool
- Fact sheets on applications illustrating project economics
- Documented return on investment of environmental stewardship using NCTCOG's Economic & Environmental Benefits of Stewardship tool, <http://eeps.nctcog.org/>


5. Stewardship Options for Your Project



Bioswales
Bioretention

Water Quality/Quantity of Runoff, Flood Regulation, Biodiversity, Aesthetic Value

View Details



Native Tree Plantings
A Tree for a Tree

Water Quality/Quantity of Runoff, Flood Regulation, Biodiversity, Aesthetic Value, Recreation, Air Quality

View Details

6. Stewardship Option Details



Detention Ponds

Detention ponds capture and store stormwater in a pond year-round, or during/after a storm event. The stormwater is then released at a controlled rate and location. Depending on the type of pond, stormwater pollutants may be filtered, settled, infiltrated, or otherwise reduced before it is released.



Today's Presenter



Kate Zielke

Program Supervisor
NCTCOG Environment &
Development
Department
817.695.9227
kzielke@nctcog.org

Project Funders



Texas Water Development
Board
Federal Highway
Administration
Texas Department of
Transportation
Federal Emergency
Management Agency