

USDA Forest Service

URBANFOREST CONNECTIONS

webinar series

Second Wednesdays | 1:00 – 2:15 pm ET

www.fs.fed.us/research/urban-webinars



Forest Service
Urban Natural Resources Stewardship

USDA is an equal opportunity provider and employer.



SMART GROWTH FOR DALLAS: LEVERAGING GIS AND LOCAL PARTNERSHIPS TO DRIVE URBAN FORESTRY INVESTMENTS TOWARD CLIMATE EQUITY



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Dallas Urban Heat Management Study

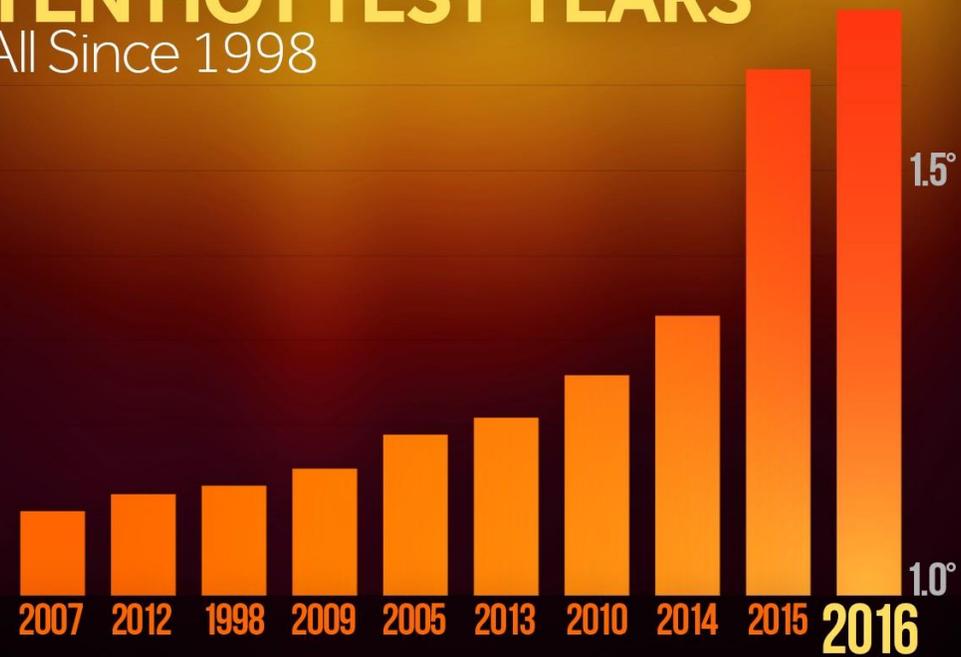
Matt Grubisich

Director of Operations

Texas Trees Foundation www.texastrees.org

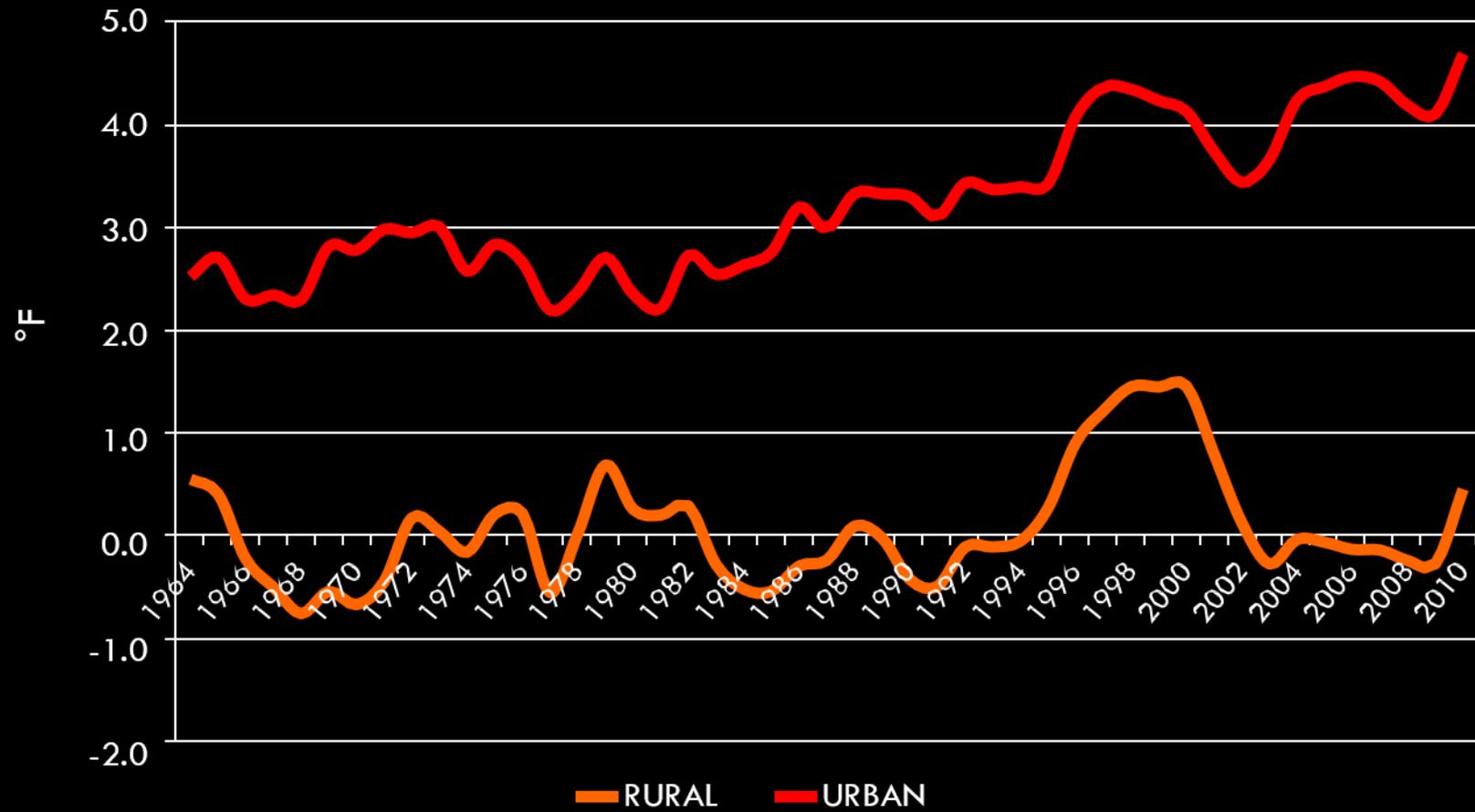
TEN HOTTEST YEARS

All Since 1998

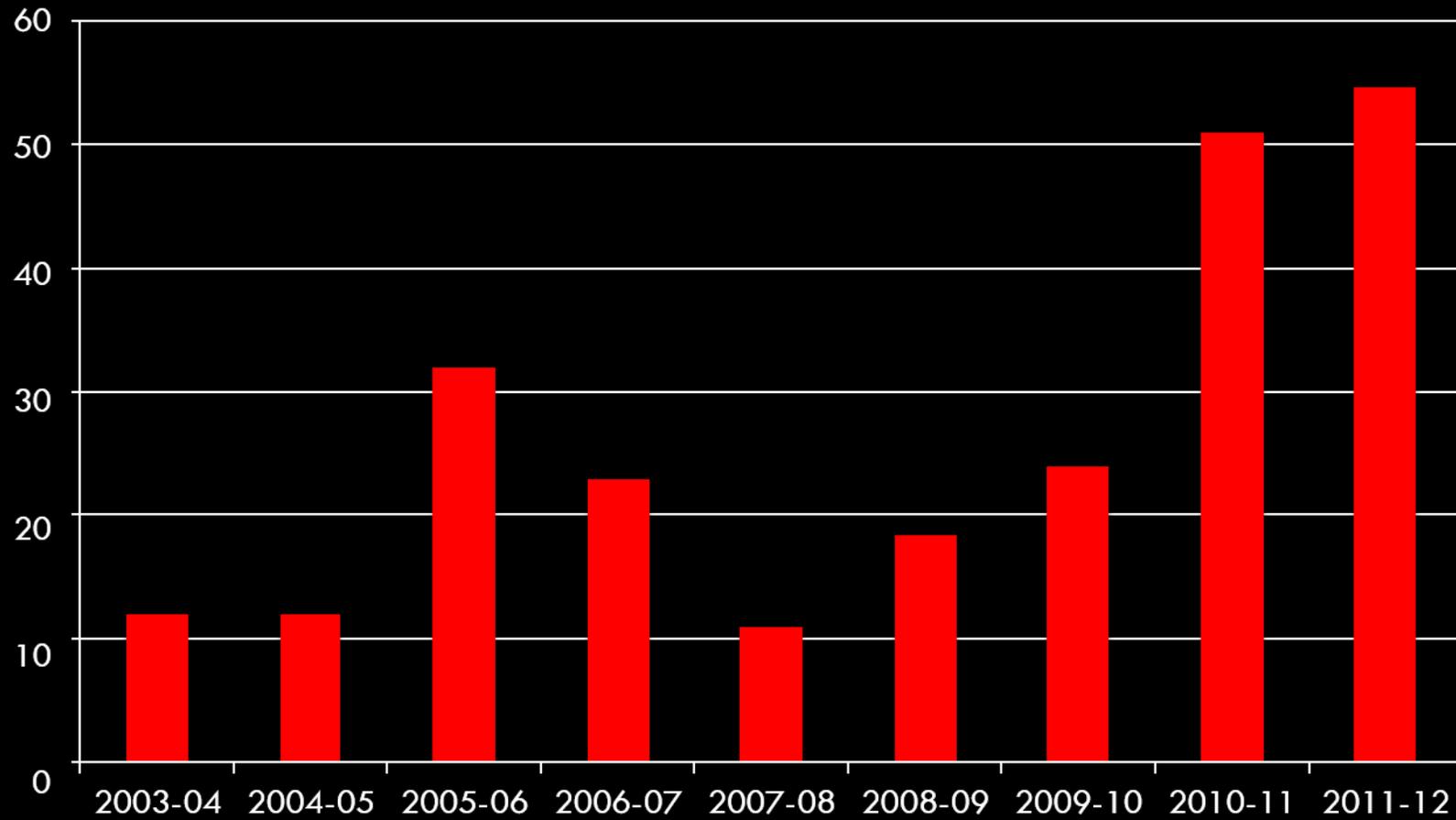


2003 and 2006 (not shown) tied with 2007. Columns represent difference from 20th century average.
Data as of January 18, 2017. Subject to change based on NCEI revisions.
Source: NOAA/NCEI

urban and rural trends for Dallas, TX



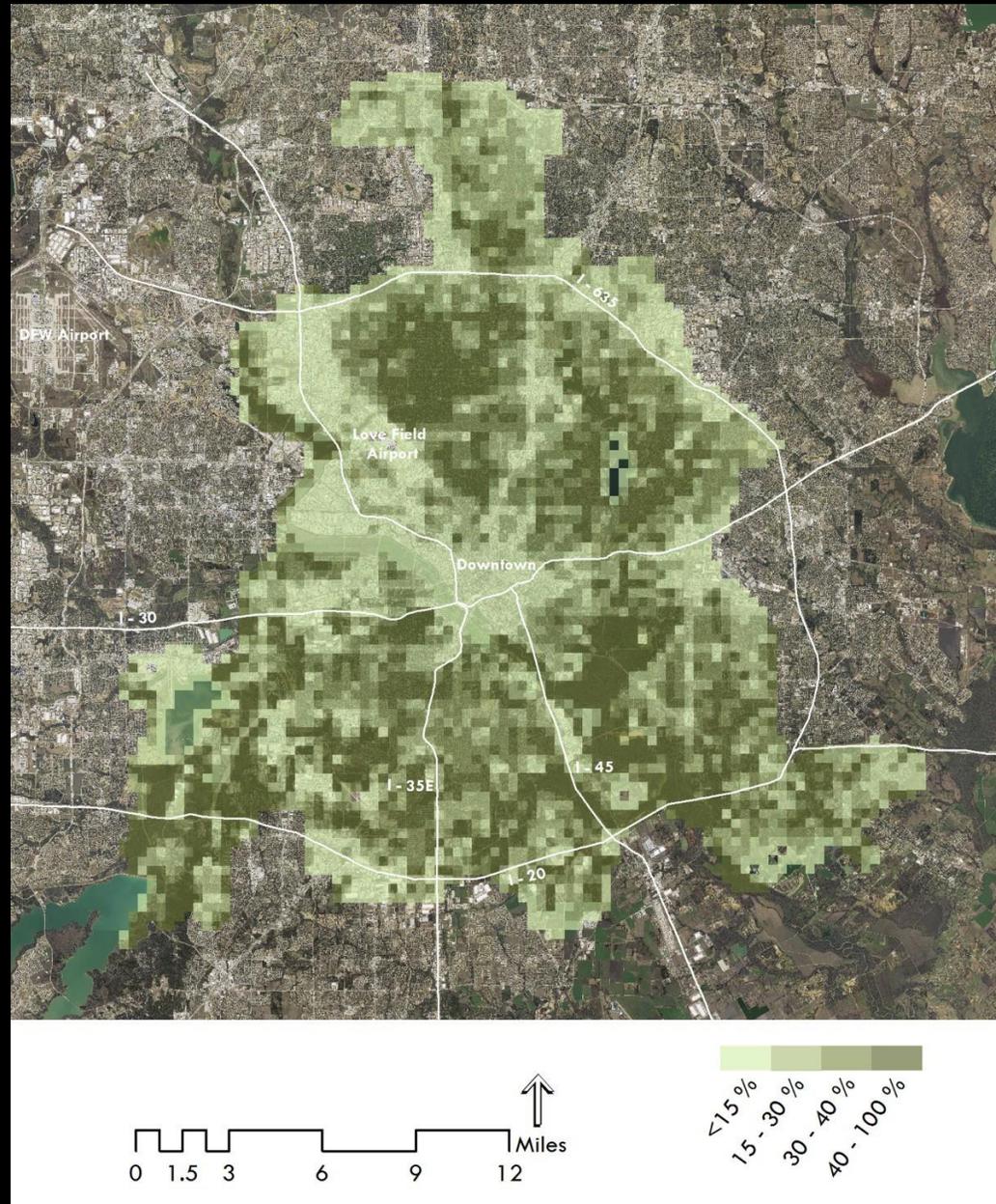
two-year average number of days with high temp > 100°F



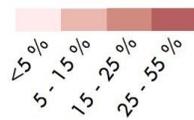
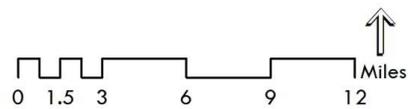
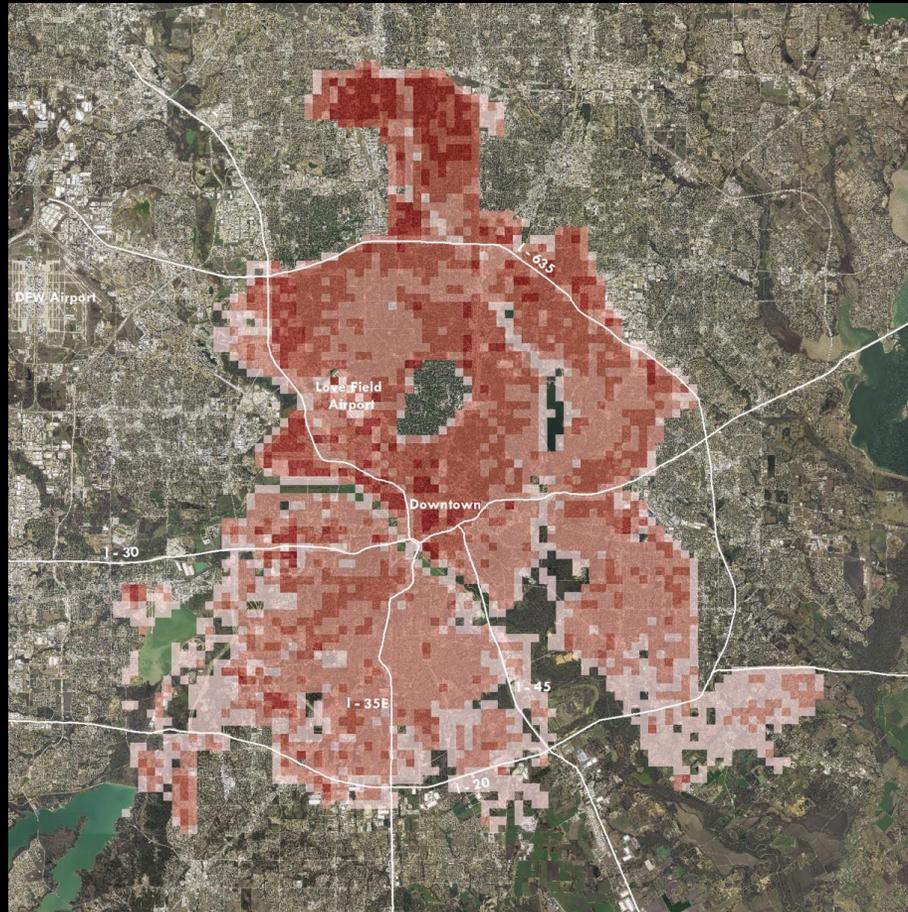
study questions

1. What is the spatial pattern of heat exposure in Dallas?
2. How can this pattern be modified through increasing the city's tree canopy and the reflectivity of buildings, roads, and parking lots?
3. How many residents succumb to high temperatures during hot summers in Dallas and in what zones of the city?
4. Can the number of heat-related deaths in hot summers be lessened through urban heat management?
5. Where should urban heat management strategies be prioritized?

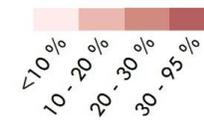
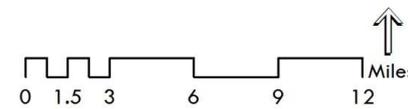
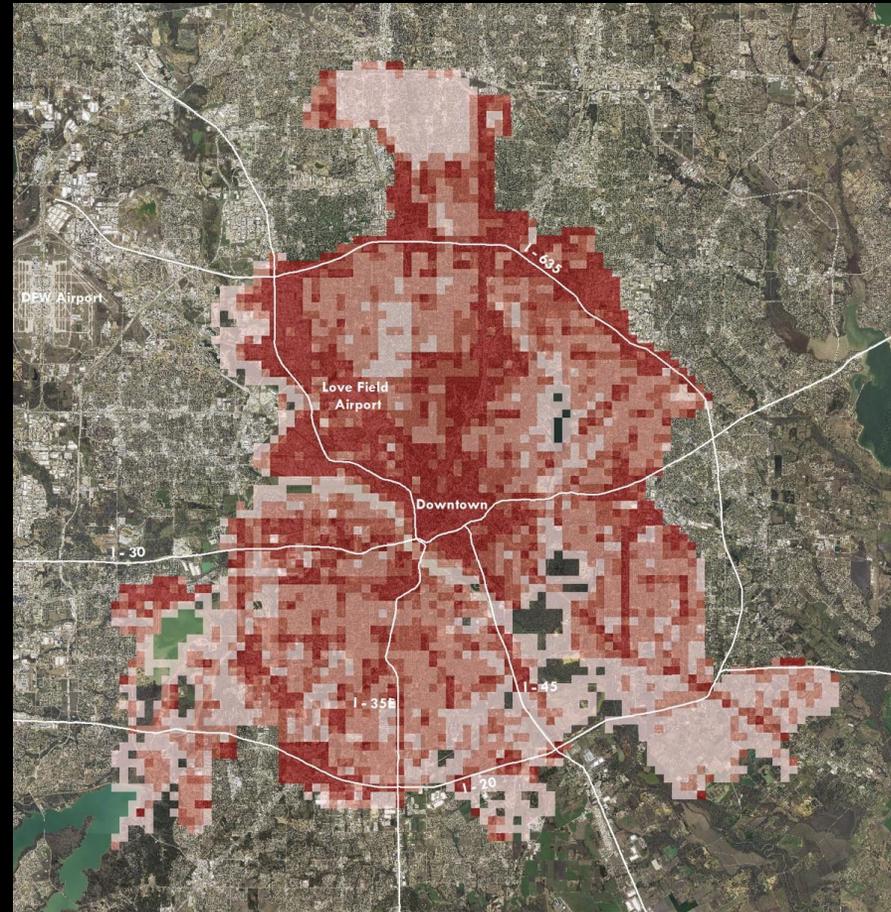
current tree canopy



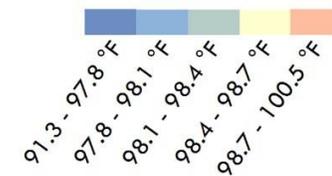
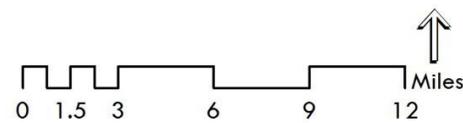
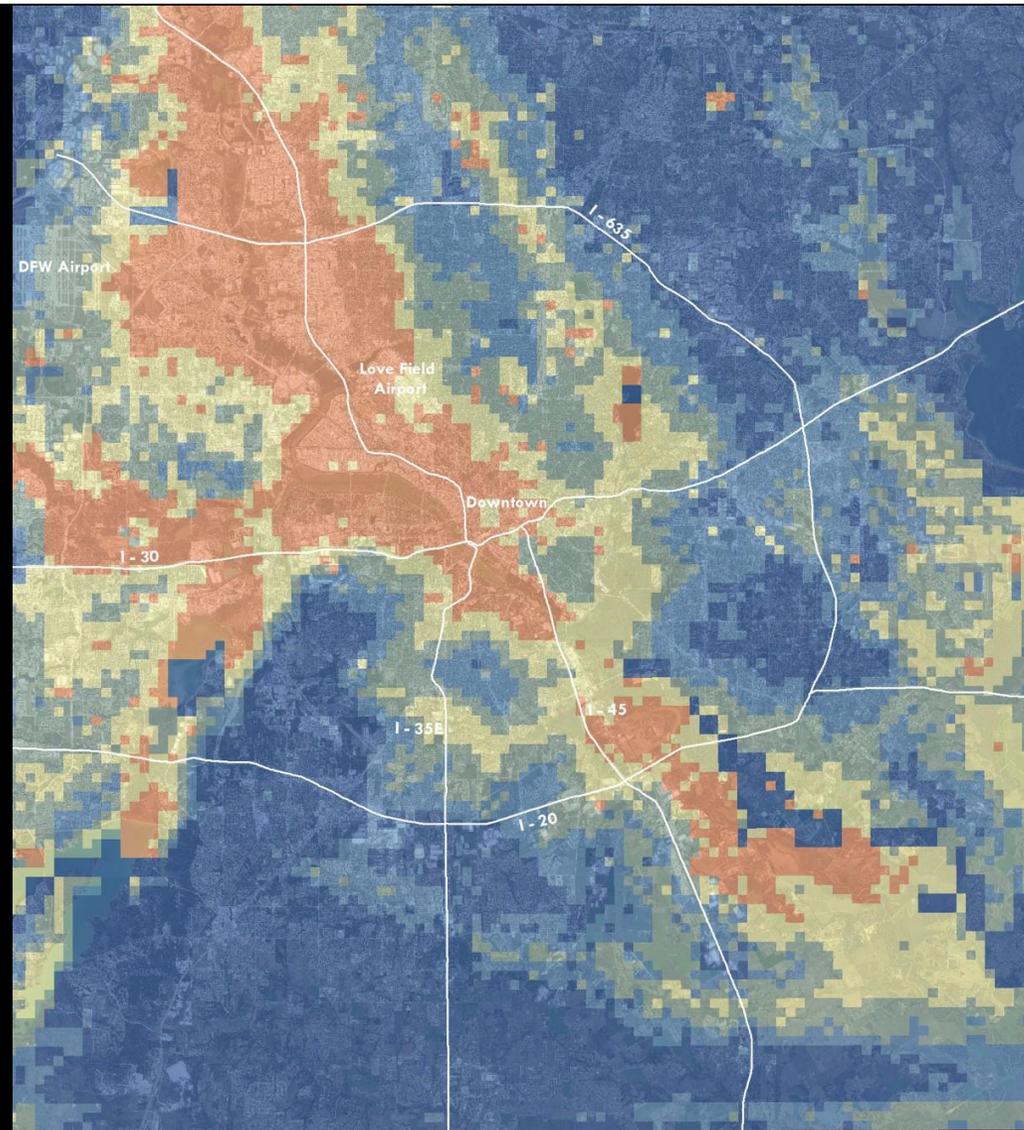
buildings



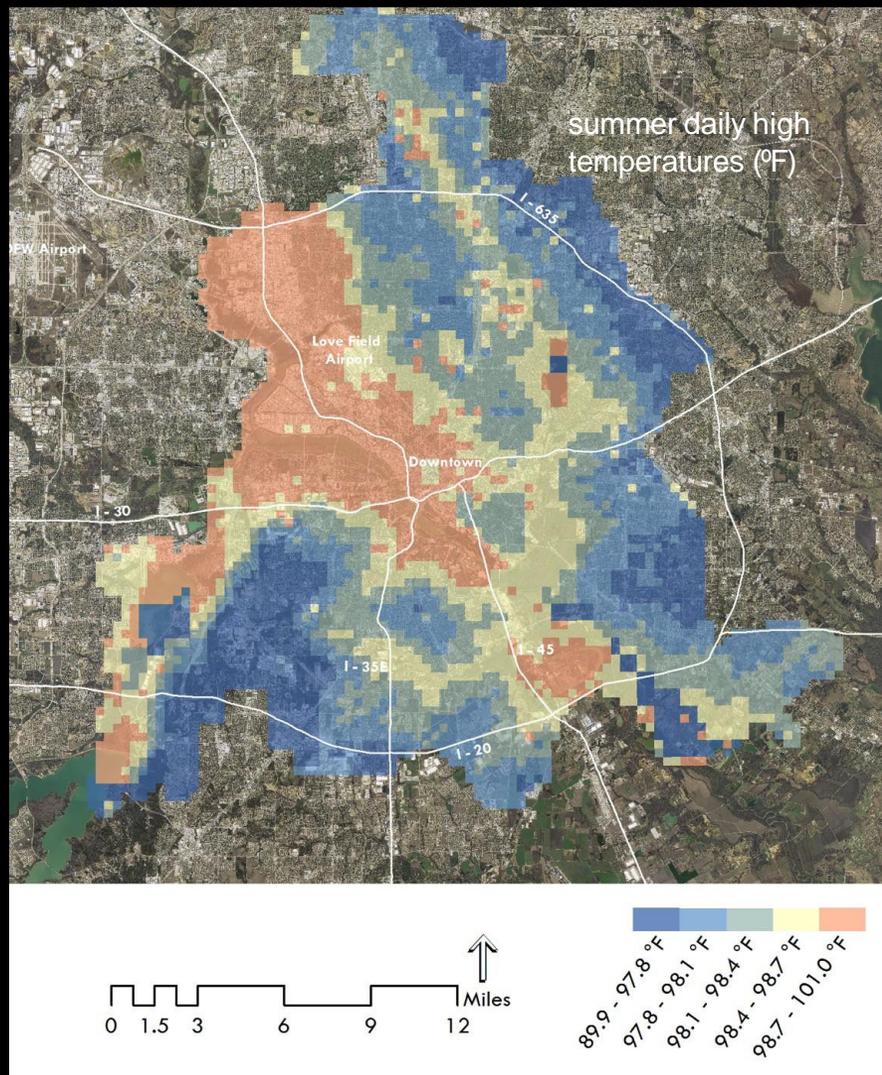
streets & parking lots



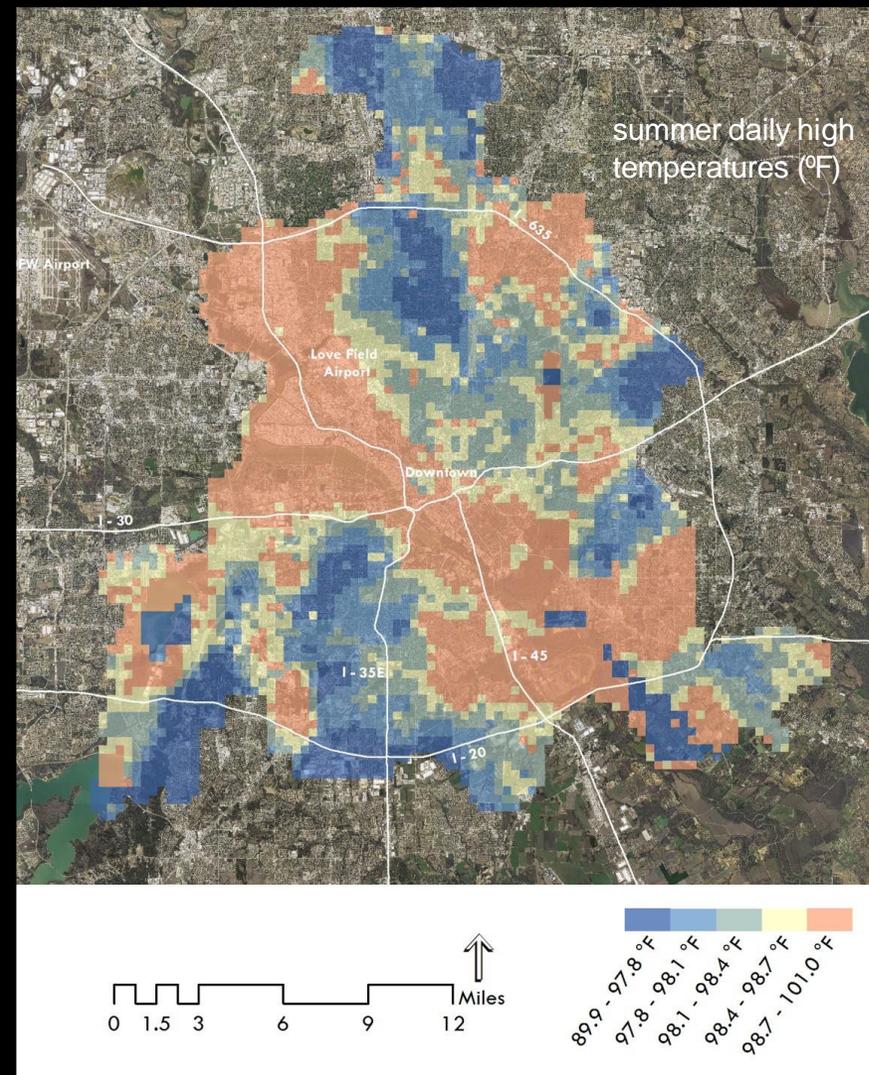
average daily high temperature
May – September 2011



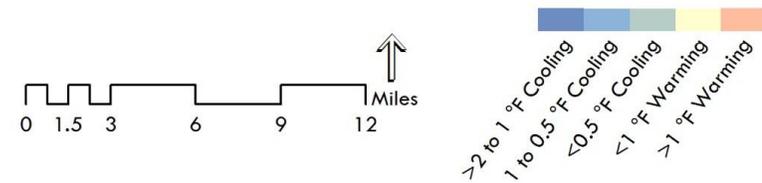
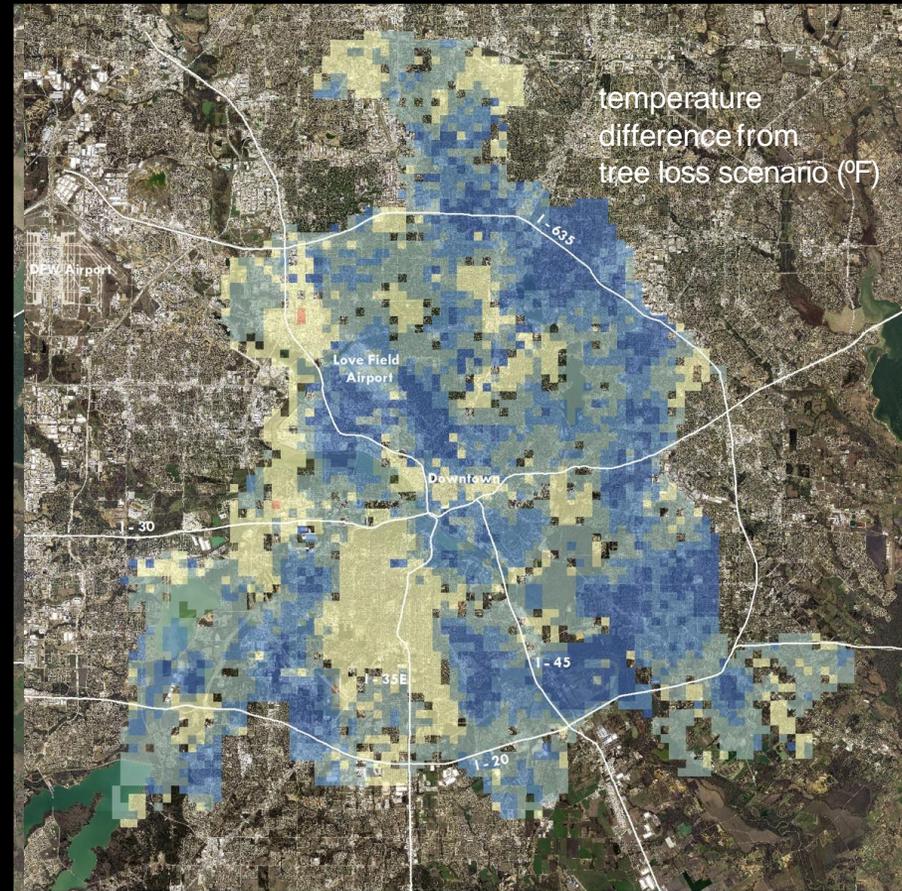
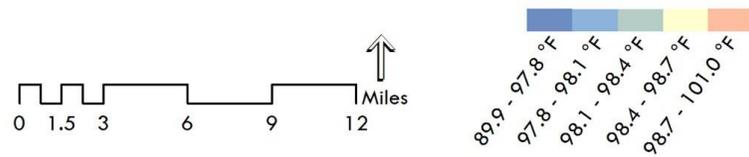
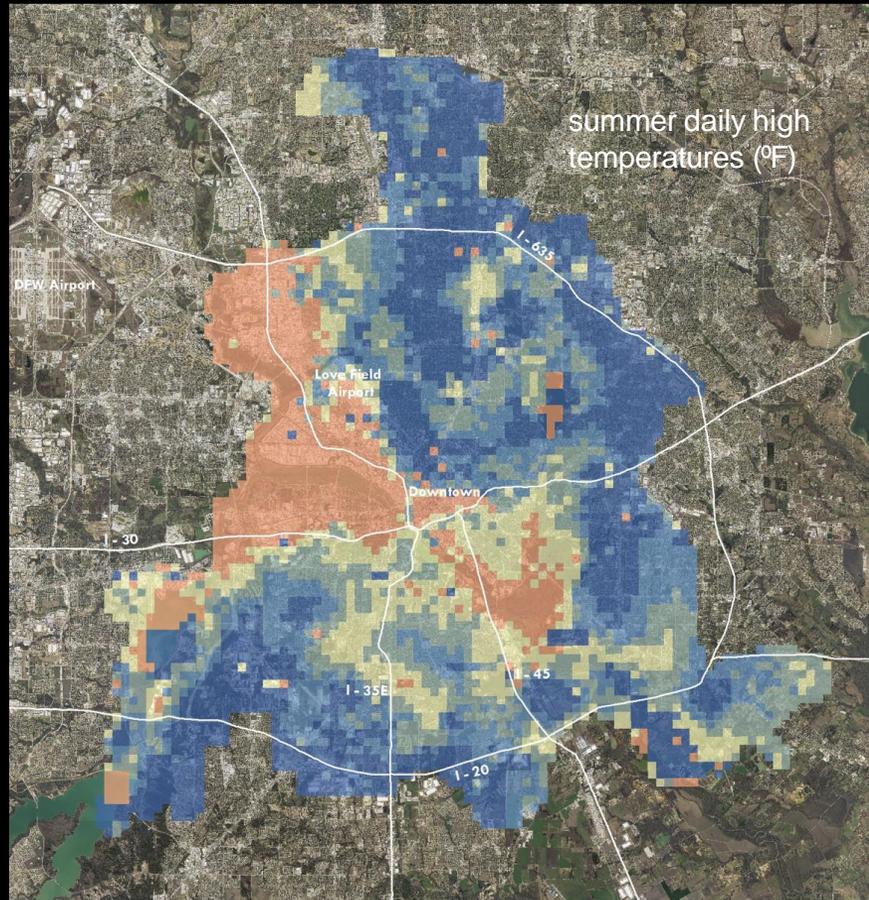
current conditions



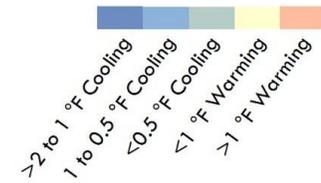
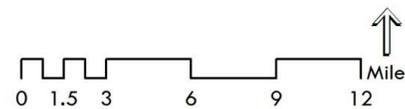
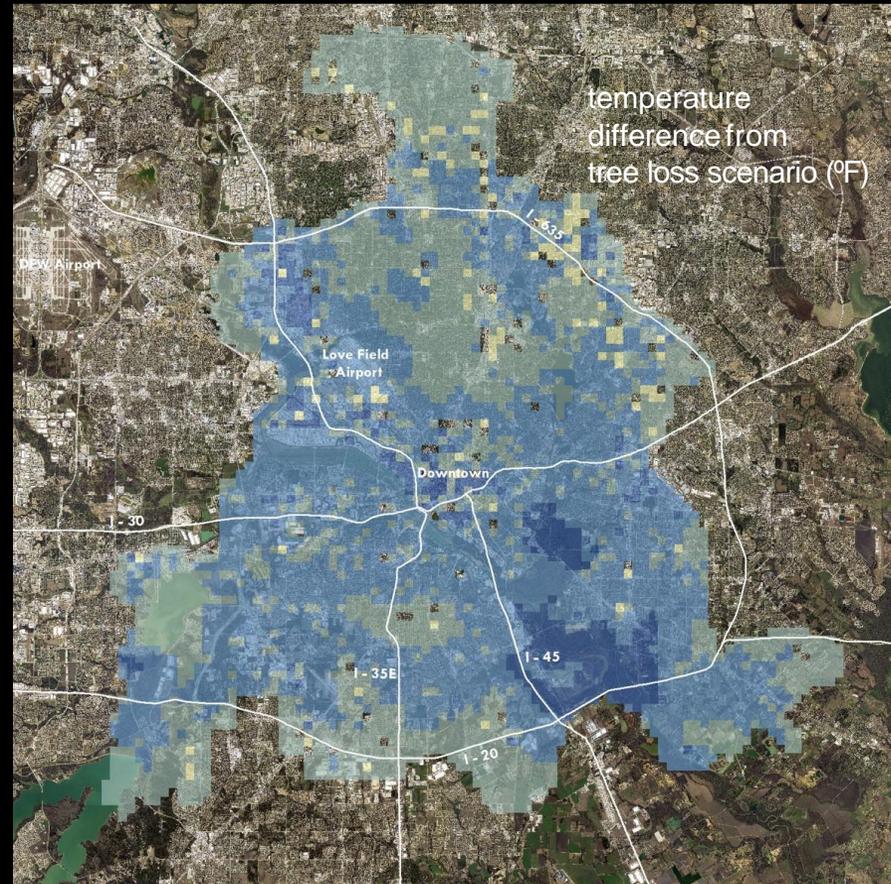
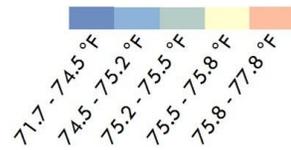
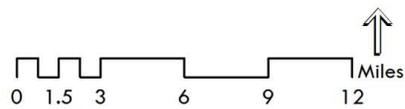
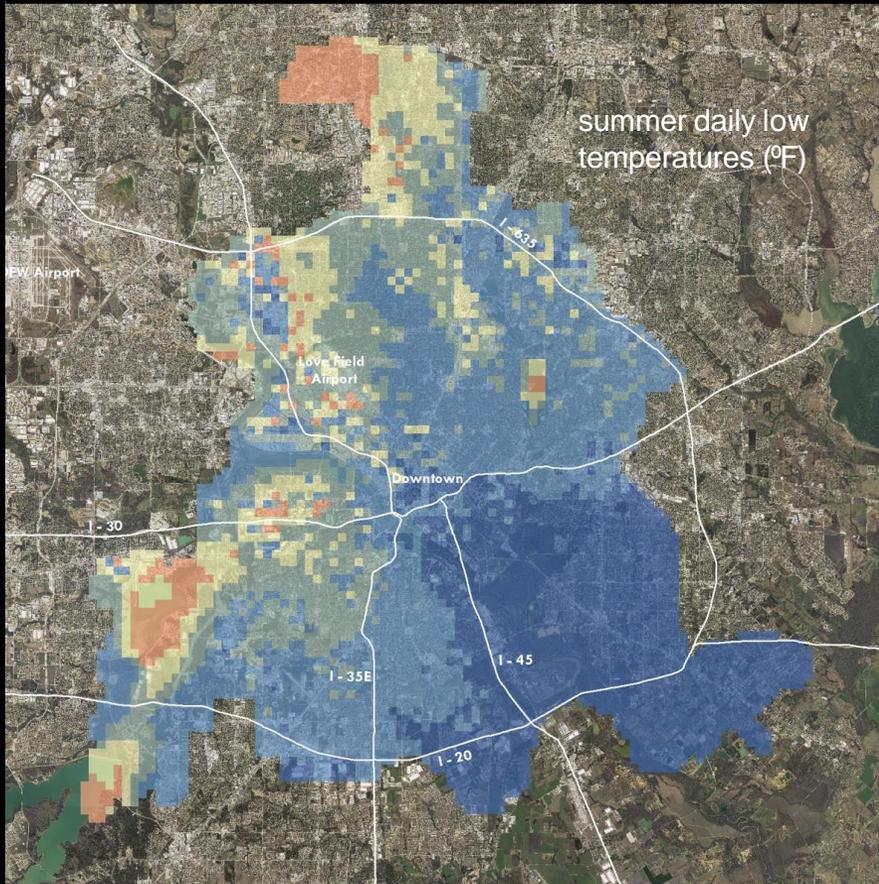
tree loss scenario



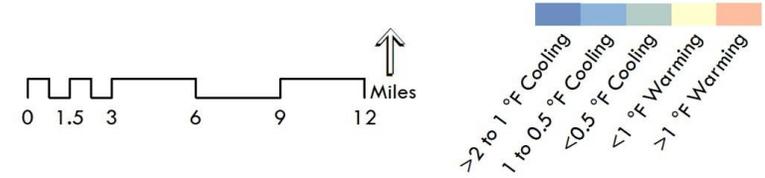
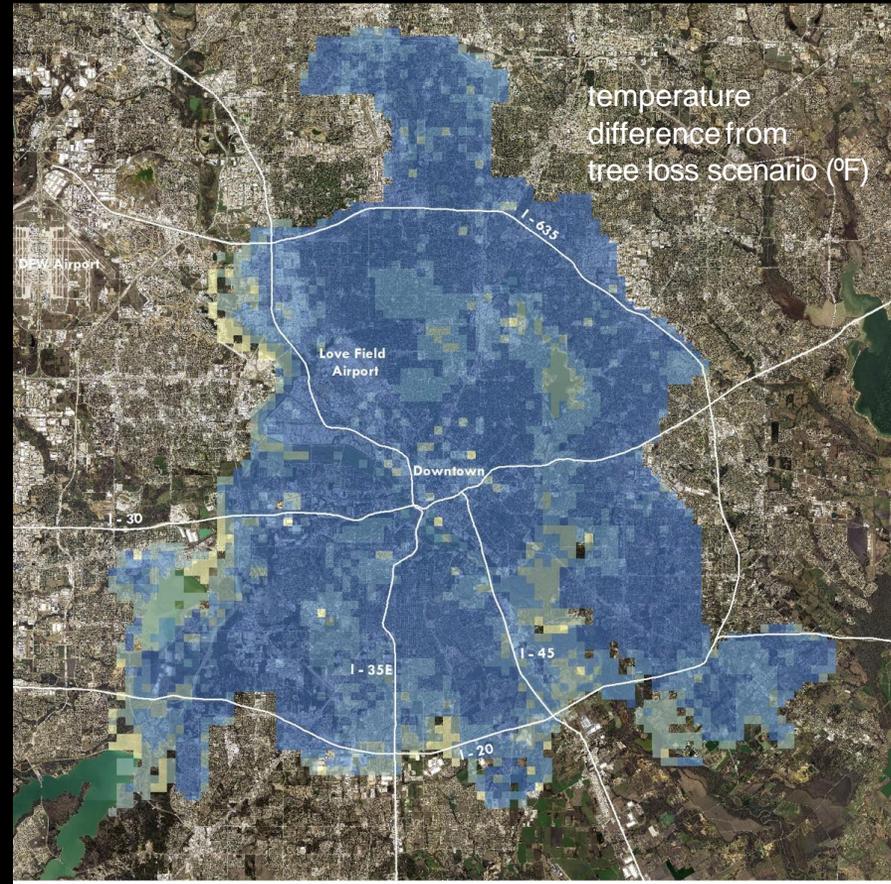
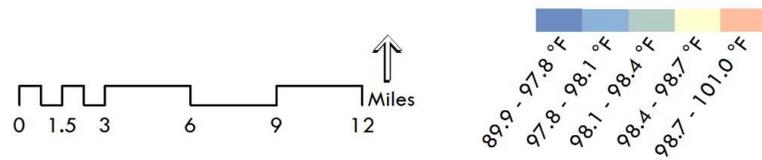
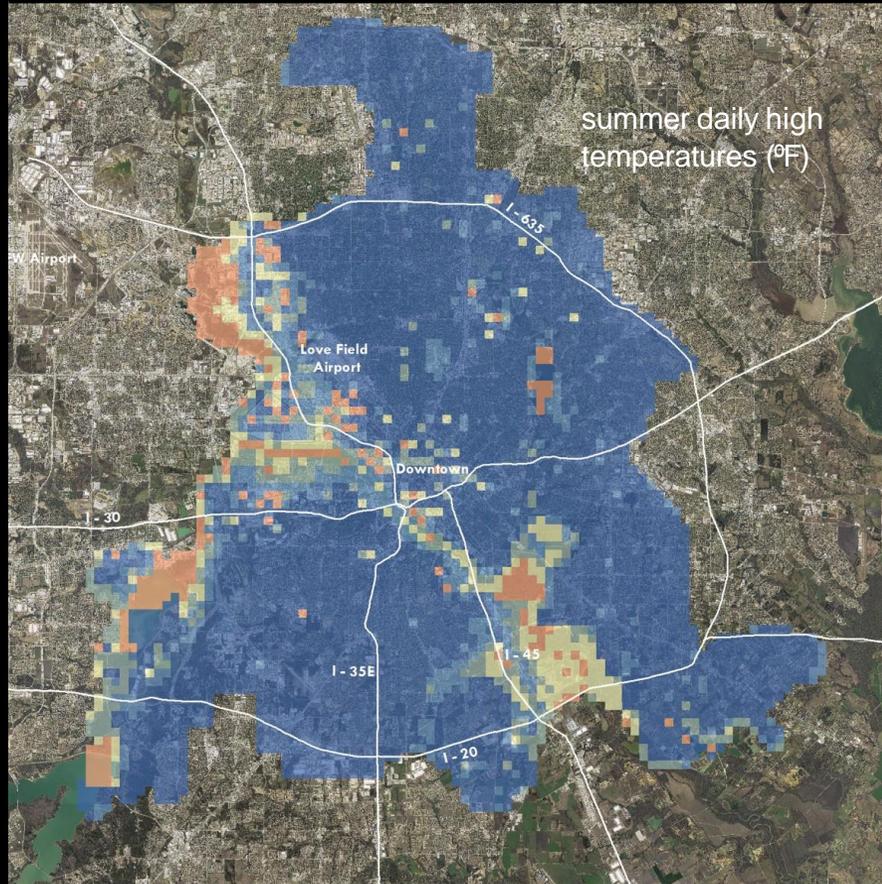
greening scenario



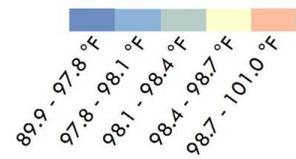
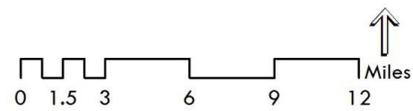
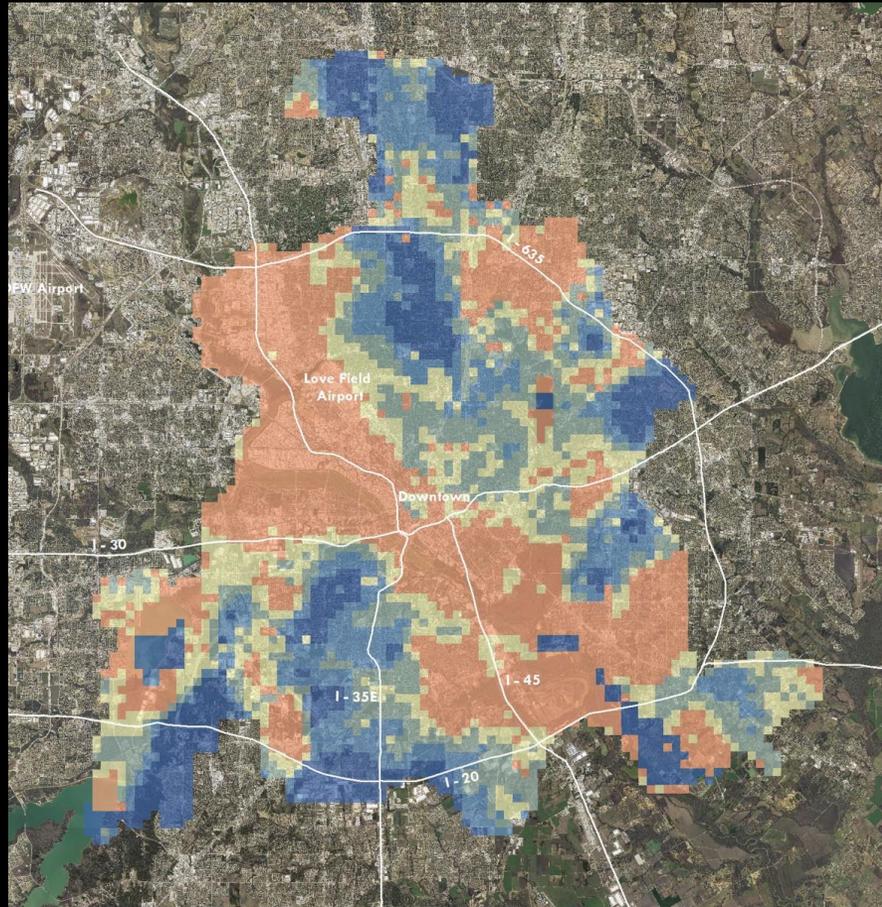
greening scenario



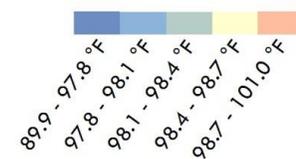
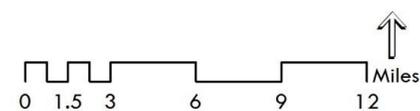
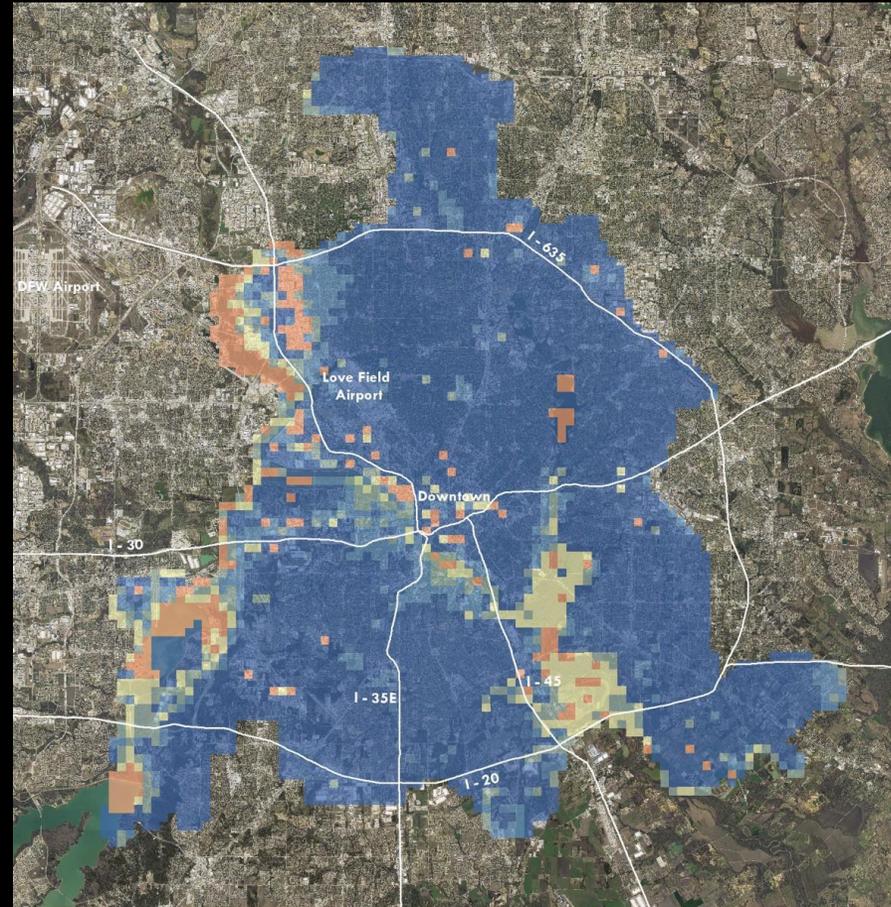
cool materials scenario



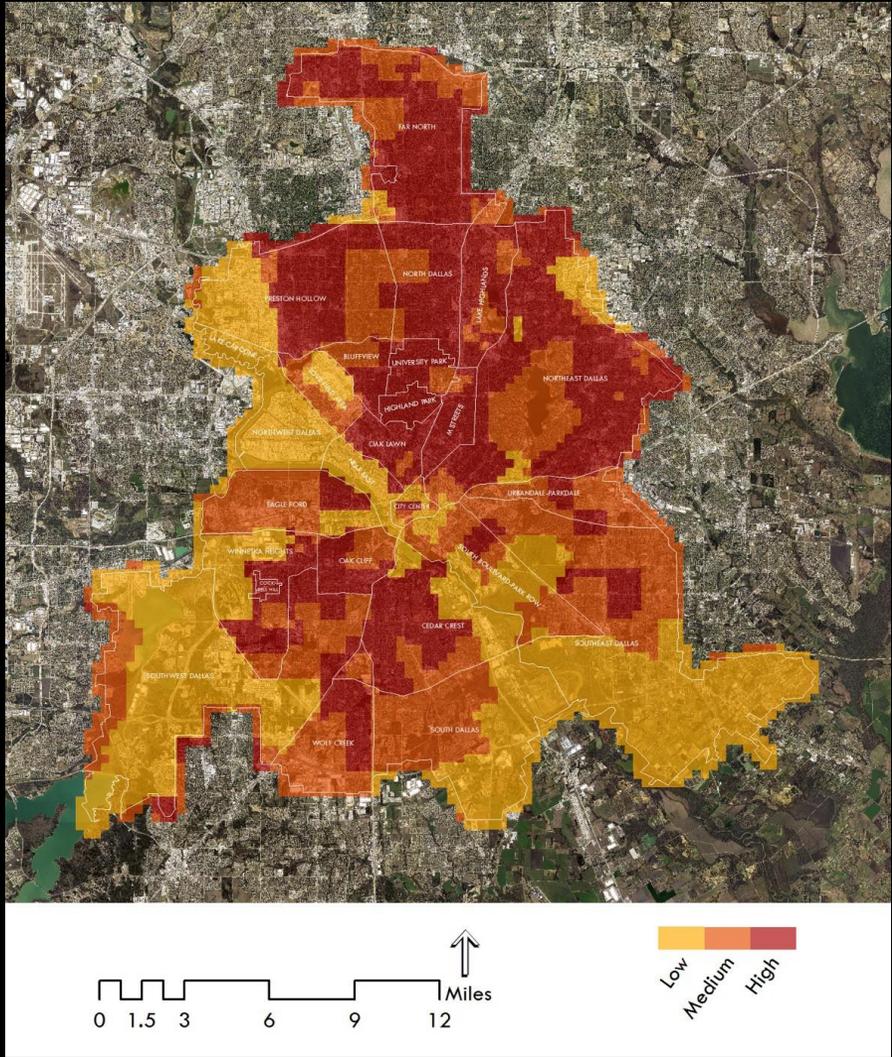
tree loss scenario



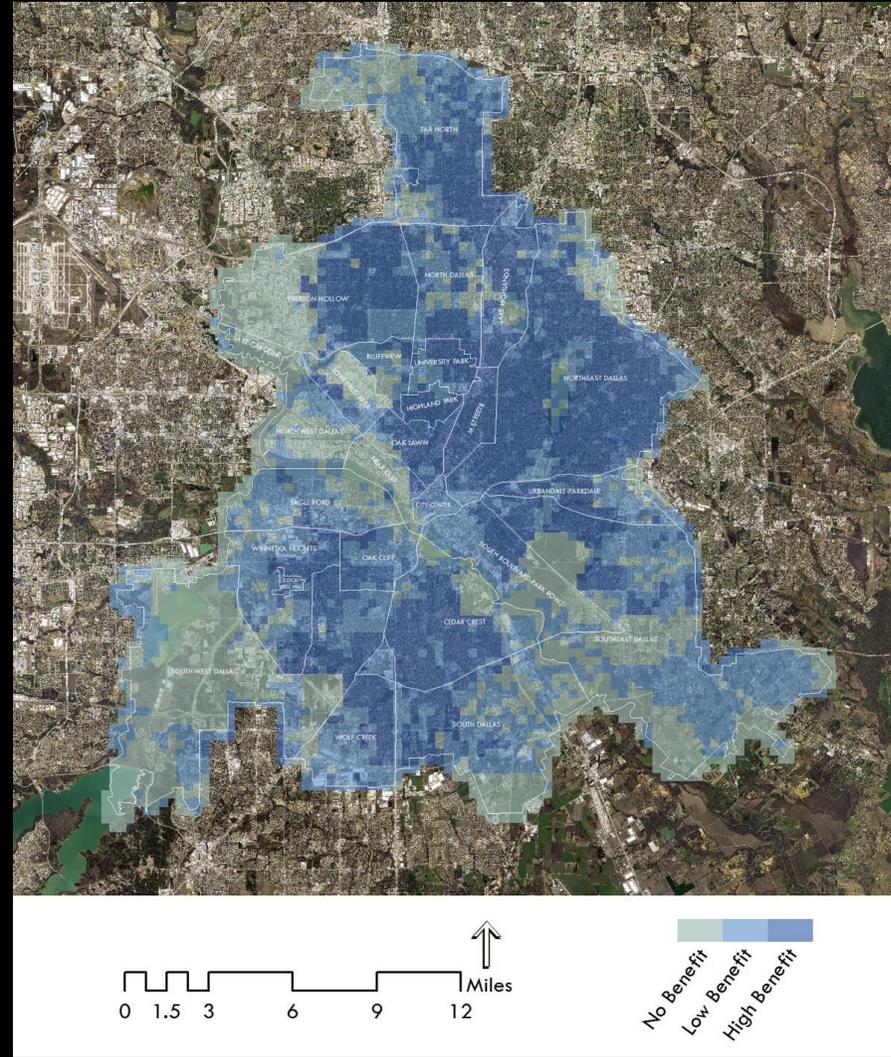
combined strategies scenario



UHI-attributable heat mortality 2011



offset mortality under combined strategies scenario (22%)



study conclusions

- Tree planting and preservation in Dallas can change the weather -- producing cooler days and nights than will occur if tree canopy continues to be lost.
- Tree planting and preservation in Dallas can save lives. When implemented in concert with more reflective paving and roofing materials, tree planting was found to reduce the number of deaths from hot weather by more than 20%.
- Greening strategies were found to be more than 3x's as effective in lowering temperatures around Dallas than cool materials strategies.
- Dallas can achieve significant cooling benefits from the setting of a very feasible tree planting goal: 285,000 trees.