Riparian Area Initiative

How should Fort Worth better protect our streams, rivers, and lake shores?

Urban Riparian Symposium | February 20th, 2025

AJ Prebensen – Planner, Fort Worth Lab

Agenda

- Introduction
- Green Space Impacts on Communities
- Riparian Area Buffer & Potential Development Incentives

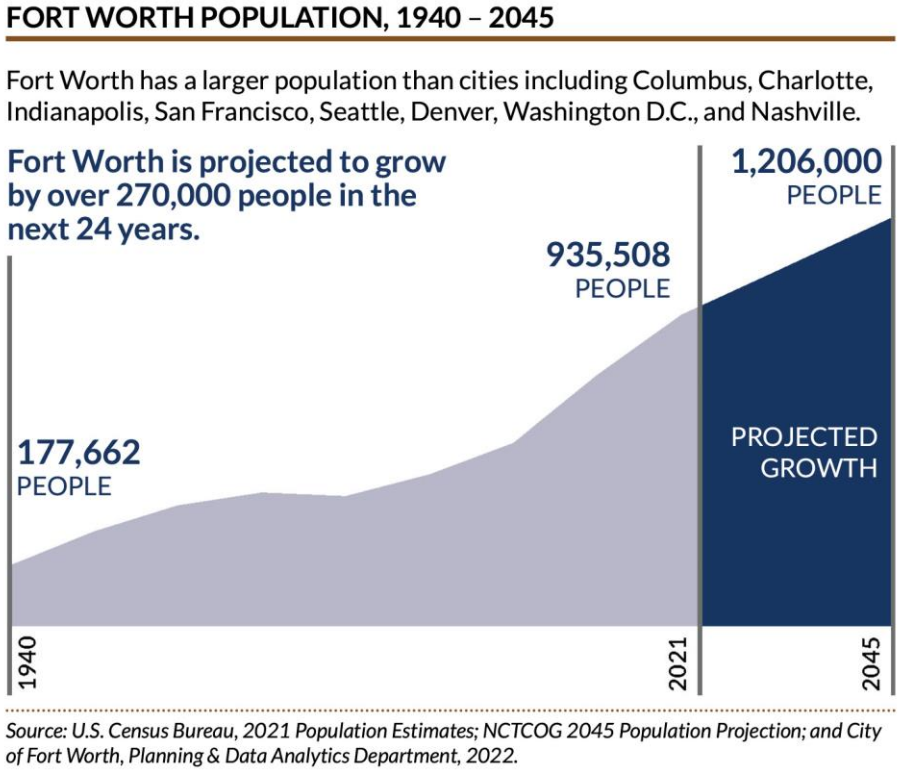
Bear Creek – Jason Flowers, Trust for Public Land

Introduction

Dosier Creek – Jason Flowers, Trust for Public Land

Why are we exploring this now?

- Fort Worth is experiencing rapid growth
  - Fastest-developing large city in the US
  - Population projected to be 1.2M by 2045
  - Losing 50 acres of undeveloped land a week to development
- What will Fort Worth look like in 20 years?
- How can we achieve our vision of being the most livable city in Texas?

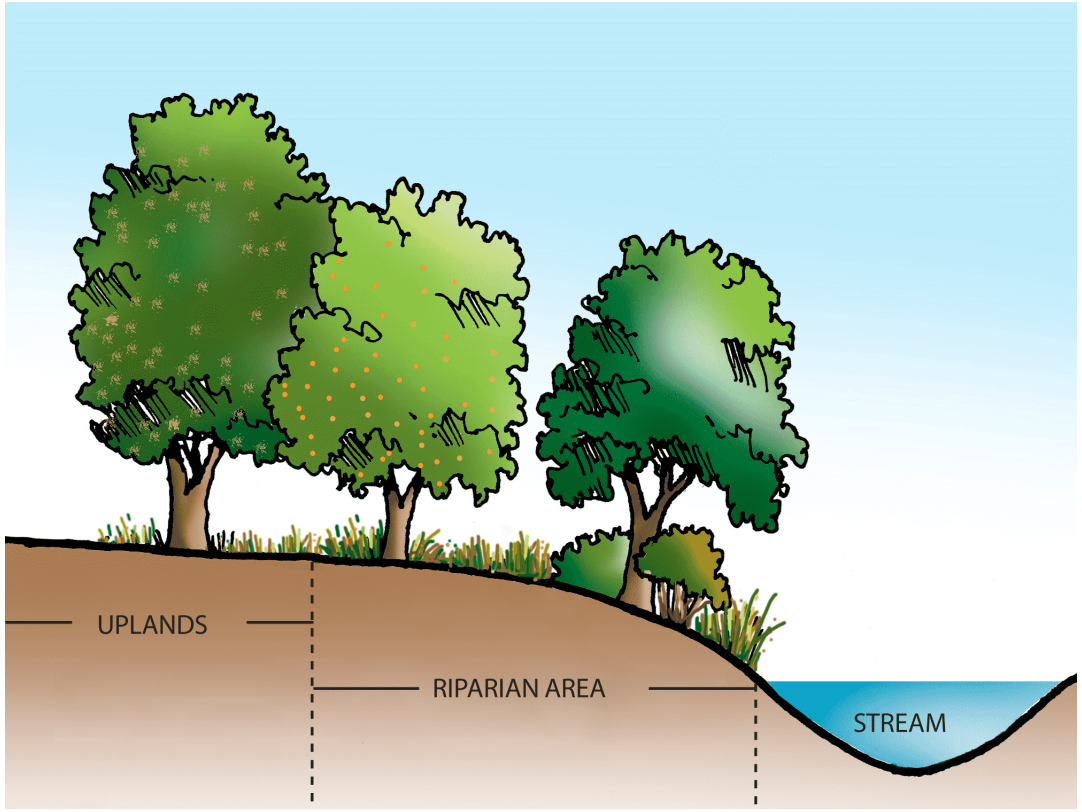


What is a Riparian Area?

Proposed Riparian Area Definition:

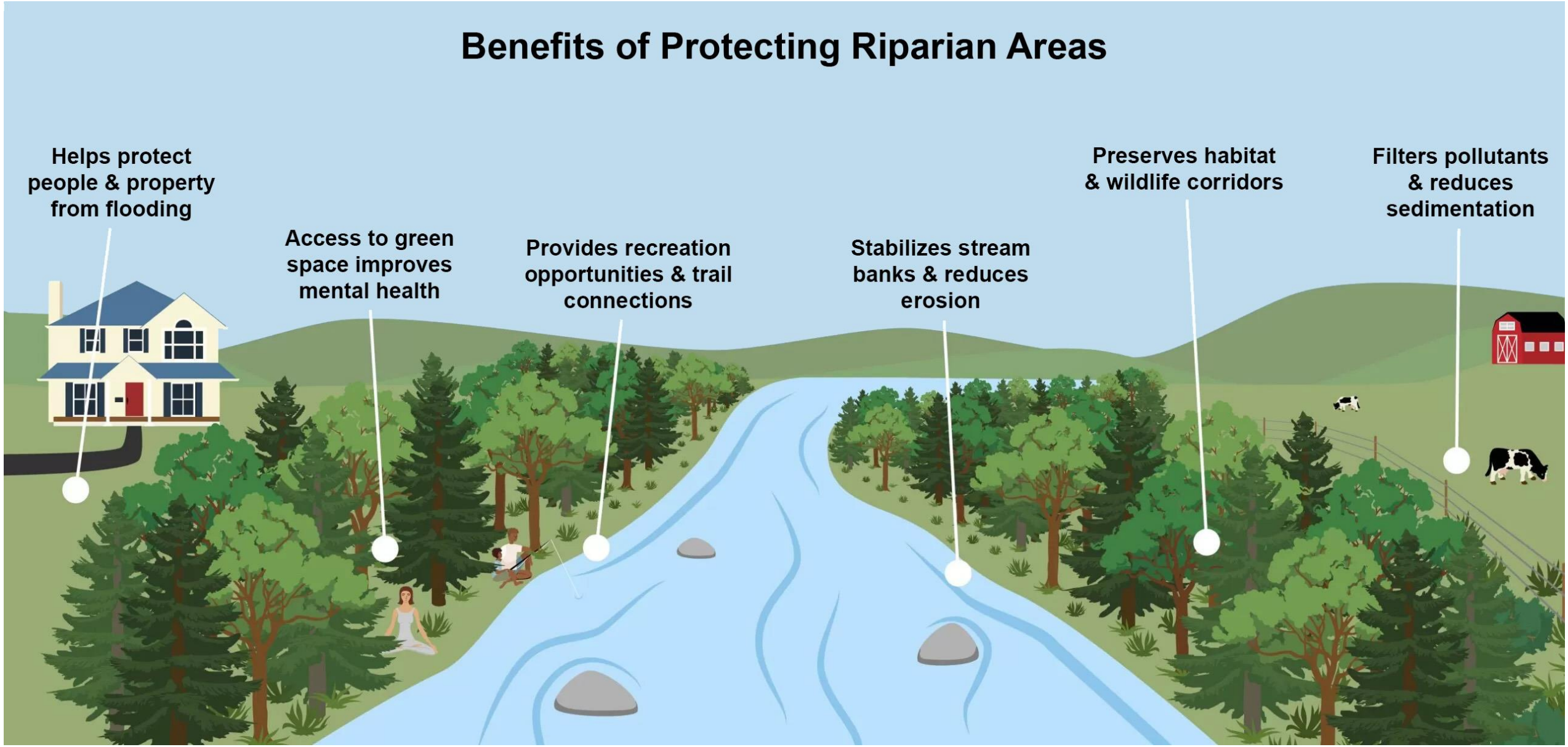
Riparian areas are ecosystems that occur along watercourses or water bodies where vegetation is strongly influenced by the presence of water. These areas serve many purposes and are beneficial for water quality, wildlife, recreation, and health.

Adapted from the National Resource Conservation Service and Texas Parks & Wildlife definitions



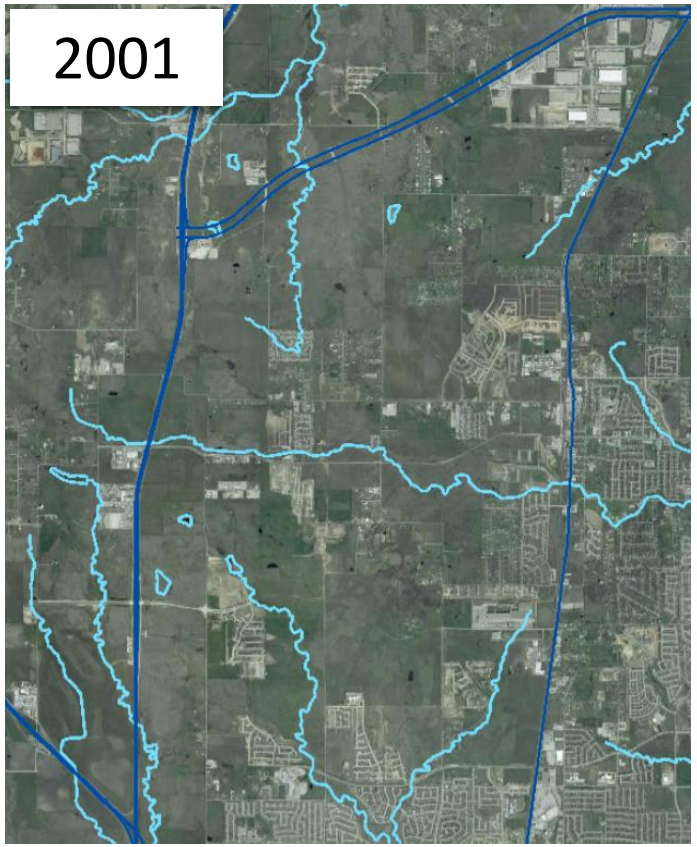
Illustrator: Gary Bentrup, USDA national Agroforestry Center 2015

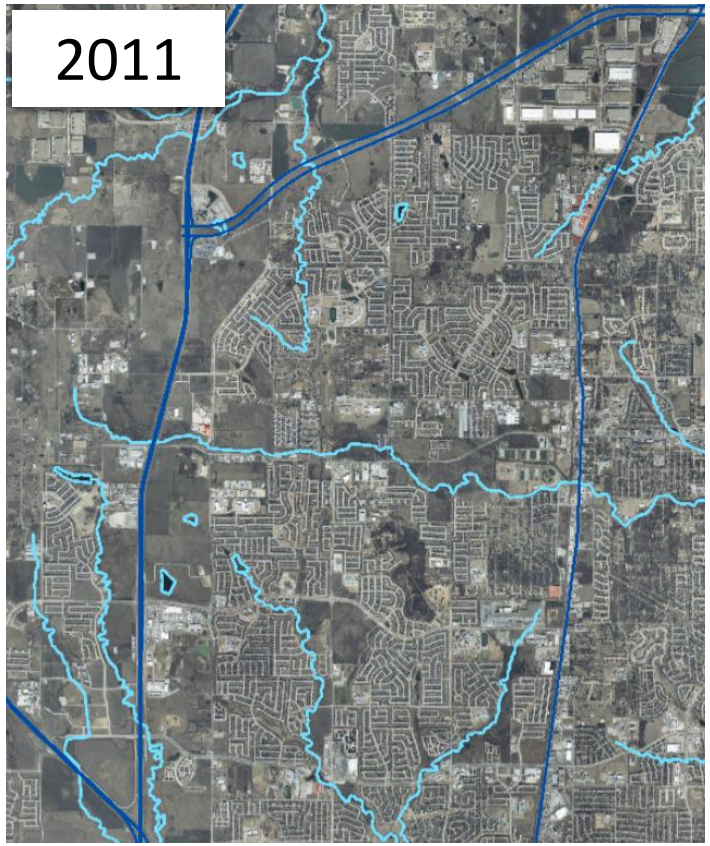
Benefits of Protecting Riparian Areas



Pressures on riparian areas

- Development increases:
  - Impervious surfaces and soil compaction
  - Stormwater runoff, sedimentation, and pollutants
  - Stream flow velocities that can cause erosion
- Extreme rainfall events in Texas are becoming more frequent and severe, and are expected to worsen in the future





Riparian Area Initiative Stakeholders

Communities & Industries

- Community Members
- Private Property Owners
- Academia
- Riparian Area & Water Specialists
- Engineers & Landscape Architects
- Development & Real Estate

Partner Agencies

- US Army Corps of Engineers
- US Department of Agriculture
- Texas Parks & Wildlife
- North Central Texas Council of Governments
- Tarrant Regional Water District
- Streams & Valleys

US Army Corps of Engineers®

USDA

TEXAS PARKS & WILDLIFE

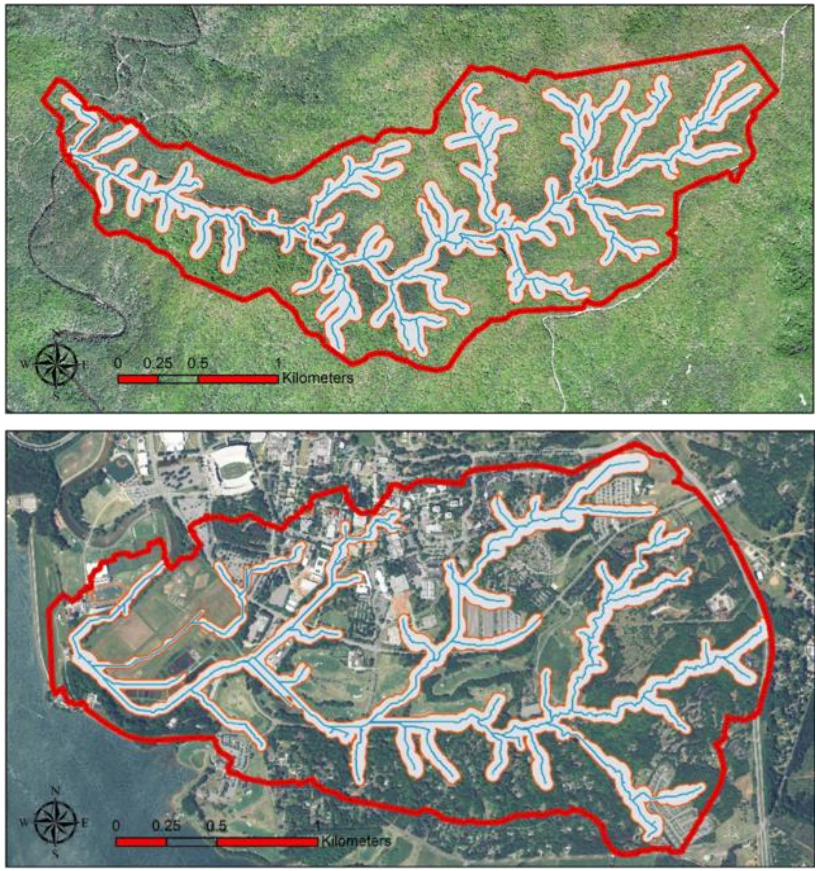
North Central Texas Council of Governments

trwd Tarrant Regional Water District

Streams & Valleys

Riparian Area Initiative Anticipated Outcomes

- Update the development process to incorporate the riparian area buffer and associated development incentives
- Provide a map of the buffer for developers and City staff
- Provide an overlay where development incentives apply
- Update applicable development criteria manuals, ordinances, and policies



Modeling and monitoring riparian buffer zones using LiDAR data in South Carolina

Green Space Impacts on Communities

Big Fossil Creek – Jason Flowers, Trust for Public Land

Environmental Benefits of Walkable Communities

- Reduces greenhouse gas emissions
- Improves urban microclimates
- Minimizes land use
- Reduces air pollution
- Improves water management
- Promotes alternative transportation
- Preserves green space
- Cuts ambient noise

Congress for New Urbanism (CNU)

FEMA Ecosystem Service Value of Riparian Areas

Benefit	Value Per Acre Per Year
Erosion Control	$13,823
Water Filtration	$6,239
Recreation & Tourism	$6,215
Flood & Storm Hazard Reduction	$6,052
Habitat	$2,547
Other: Aesthetic, Air, Biological, Climate, Food, Water Supply	$1,557
Total Benefits Per Acre Per Year	**$37,199**

Table values estimated based on 2022 data

Social Benefits of Walkable Communities

- Improves happiness and mental health
- Reduces obesity and chronic disease
- Fosters social interaction
- Reduces pedestrian deaths
- Tends to reduce crime
- Enhances “sense of place” and community identity
- More accessible

Congress for New Urbanism (CNU)

Economic Benefits of Trails & Greenways

- Near the Katy Trail in Dallas, developers reported a **25% premium** for properties sold. *Dallas Morning News*
- Trails generated the highest **Return on Investment** of any park typology, **over 50:1** from 1998-2016. *HR&A study of Dallas Park System*
- Property values associated with a single greenway resulted in estimated **$13.64M new property tax revenue** for Austin. *Journal of Leisure Research*

Trailhead on Clear Fork Trinity
Dallas Morning News

Increased Home Prices Near Green Space

On average, home prices increase:

- 20% – adjacent to passive park
- 32% – next to a larger and longer greenbelt area for hiking and biking
- 22% – near tree-covered undeveloped area
- 37% – near heavily wooded open land

Community Economics - A Literature Review
University of Washington Study

Biking on the Medina River Greenway Trails
San Antonio Parks & Recreation

Changing Attitudes of Homebuyers

- **National Association of Realtors Survey:**
  - 85% of respondents said sidewalks and places to walk are very/somewhat important
  - 56% of respondents would prefer a house with a small yard and be able to walk to places
  - 78% of respondents would pay more for a walkable community
  - 90% of Millennials & Gen Z would pay more for a walkable community
  - Millennials represented 38% of all home buyers in the U.S. in2024, up from 28% in 2023

Getty Images

Riparian Area Survey Results

- Strong public support for protecting riparian areas:
  - 95% of respondents say that preserving riparian areas is "Very Important"
  - 96% of respondents support regulations and incentives to better protect riparian areas
- Recreational amenities that residents would like to see in riparian areas:
  - Trails
  - Bird Watching & wildlife viewing areas
  - Launches for non-motorized water sports
- These are very similar to results from Open Space public survey.

Riparian Area Buffer & Potential Development Incentives

Cottonwood Creek – Jason Flowers, Trust for Public Land

Best Practice Recommendations from Benchmarking

- Wider buffers offer the most flood control and ecosystem benefits – *Tx Parks and Wildlife*
- Buffers should be 100ft minimum from stream bank and have 3 zones – *National Association of Wetland Managers (NAWM)*
- Offer incentives for developers to encourage more sustainable development – *NAWM*
- Offer realistic exemptions – *USDA*
- Plant vegetation, as appropriate – *Virginia Dept. Of Conservation & Recreation*
- Should be easy to understand and apply – *KPI Tech*

"The most effective buffers are at least 100ft wide, composed of native forest, and are applied to all streams, including very small ones."

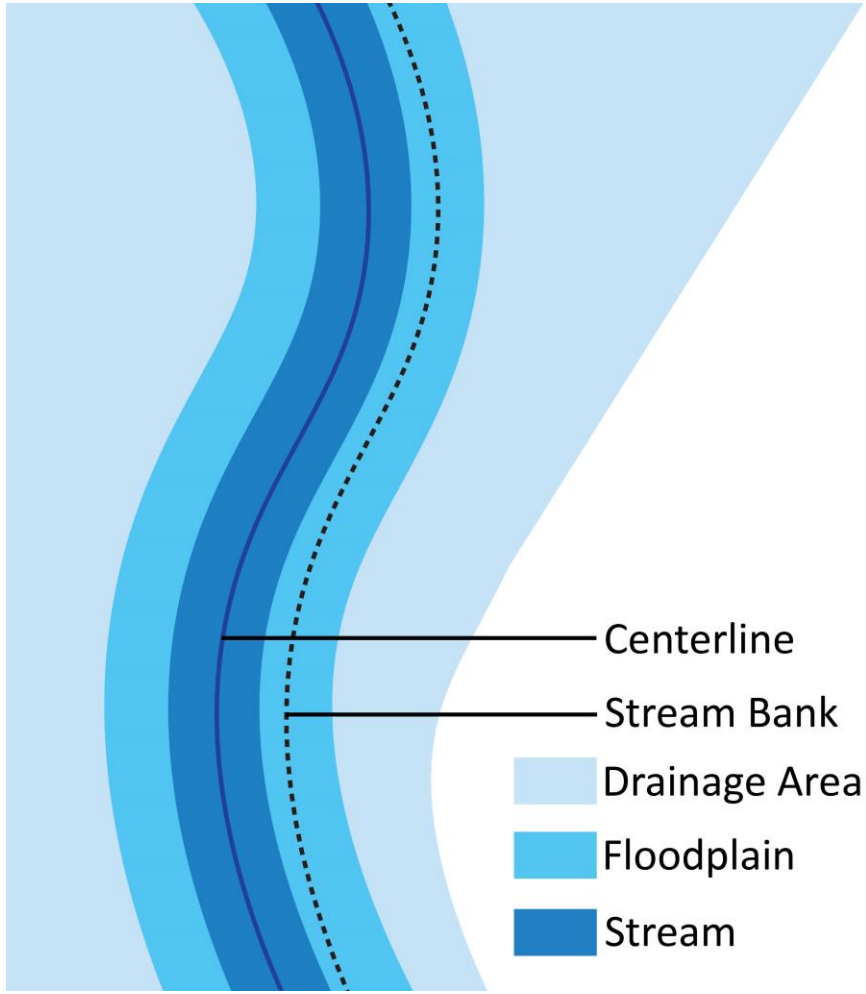
Carl Vinson Institute, University of Georgia

Defining the Riparian Area Buffer – Data Availability

- Size of stream/river, floodplain, and drainage areas – stream/river centerline and floodplain data available, but not stream banks and drainage areas
- Water quality – impaired streams and reservoirs are mapped
- Soil type and erosion potential – we have clay soil, high erosion potential in some areas, but no detailed erosive conditions data available
- Slope – Contours available, but not detailed slope analysis
- Other considerations:
  - Typical development patterns in Fort Worth are low-density
  - Any buffer would only apply to new development
  - Streams are primary habitat and wildlife corridors in developed areas
  - Amount and type of vegetation – primarily tree canopy and native grass

Proposed Riparian Buffers

- Buffer Options:
  - 100ft from stream Centerline
  - 150ft from stream centerline
  - FEMA Floodplain or 100ft from centerline, whichever is greater
- Buffer Exemptions
  - Utilities
  - Access roads and bridges
  - Trails
  - Stormwater outfalls & infrastructure
  - Kayak & Watercraft Launches
  - Ephemeral Streams



David Weekley Model Site Development Plan

- Pro-bono plan to help determine which development incentives should be considered
- Utilized other real-world developments as a basis for the overall site plan and proposed housing forms
- Helped the City determine which incentives are feasible and could be implemented within our existing processes

Model Site Development

- Simplified plan showing how to incorporate riparian buffers and incentives that achieve multiple goals:
  - Diverse housing stock and missing middle housing
  - Mixed use & commercial corridor
  - Green space and tree preservation
  - Complete streets and trails
  - Sheet flow – utilize natural topography

Potential Incentives

- Height & Density
  - Allow higher density, increased height, and/or smaller lot sizes than current zoning
  - Aligns with 2024 Texas Comptroller housing affordability report findings
- Reduced Minimum Parking
  - Reduce spots per unit/bedroom & offsite parking
- Urban Forestry & Canopy Credits
  - Align with master plan and ordinance updates
- Park Dedication Requirements
  - Meet existing criteria & trail can count as one of the required amenities

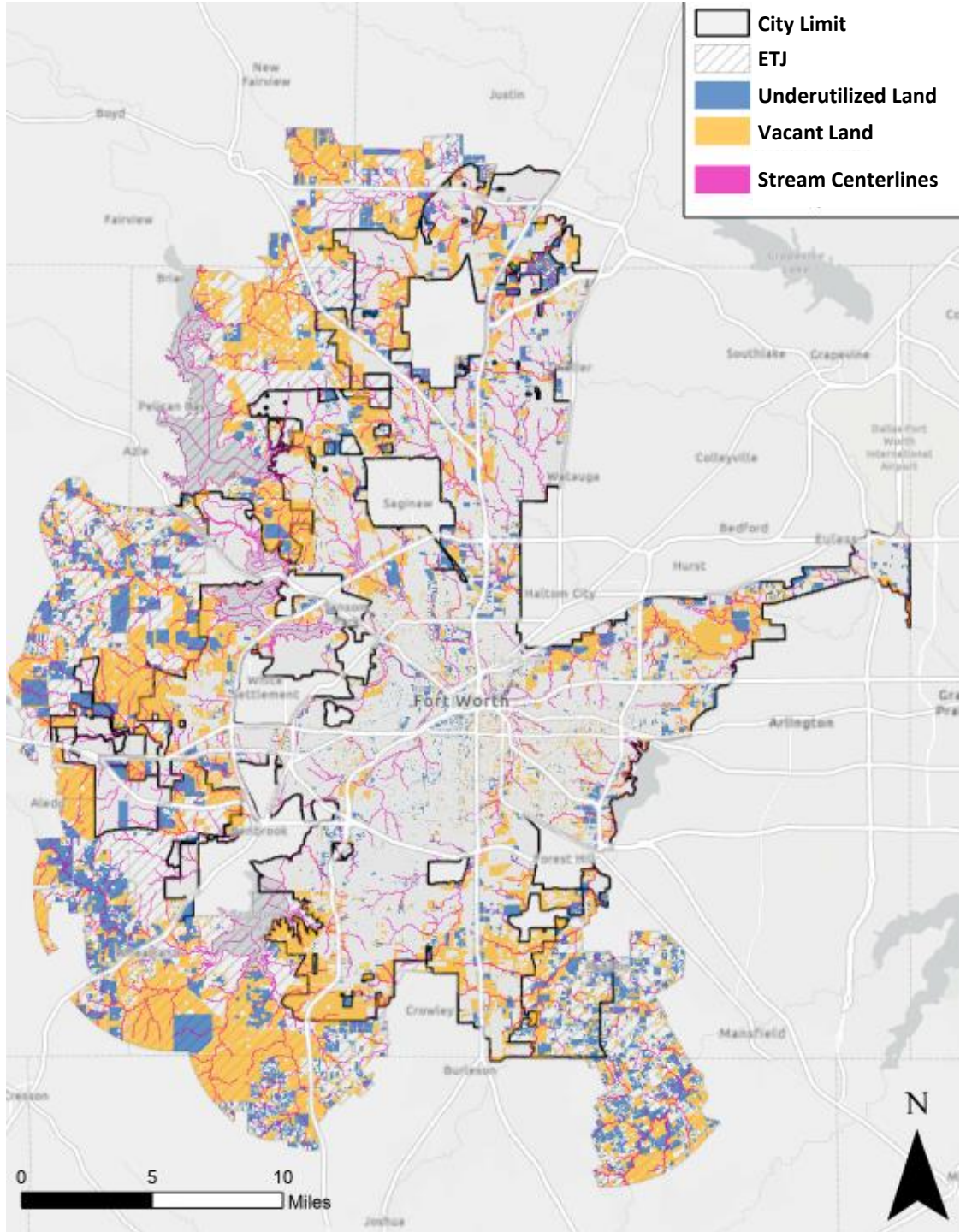
Old Town Commons, Alexandria, VA

Developable Land & Buffer Options

Total Developable Land: 179,665 acres

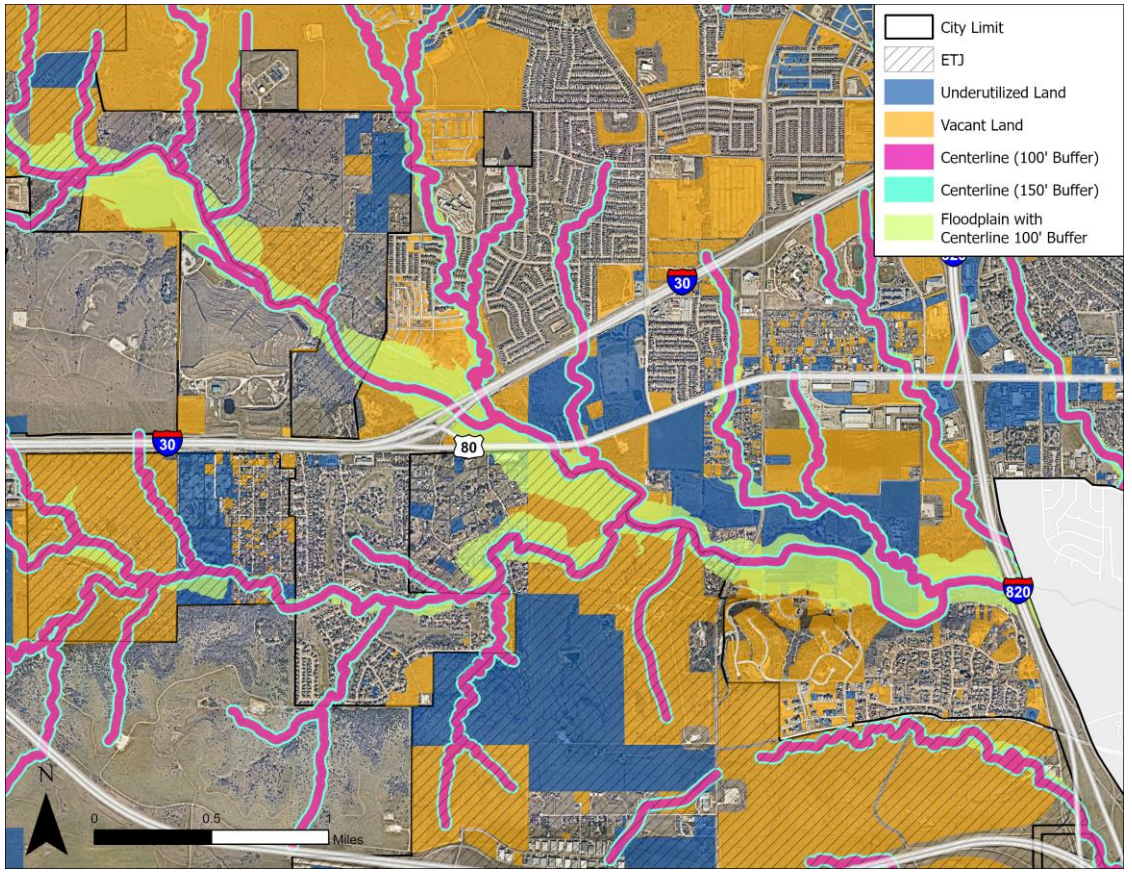
Buffer Size	Acres	Percent of Developable Land
Stream Centerline (100ft Buffer)	15,174	8.4%
Stream Centerline (150ft Buffer)	22,111	12.3%
FEMA Floodplain & 100ft Buffer	32,621	18.2%

Note: The stream centerline data does capture some ephemeral streams, but these will be exempt from the buffer requirement.



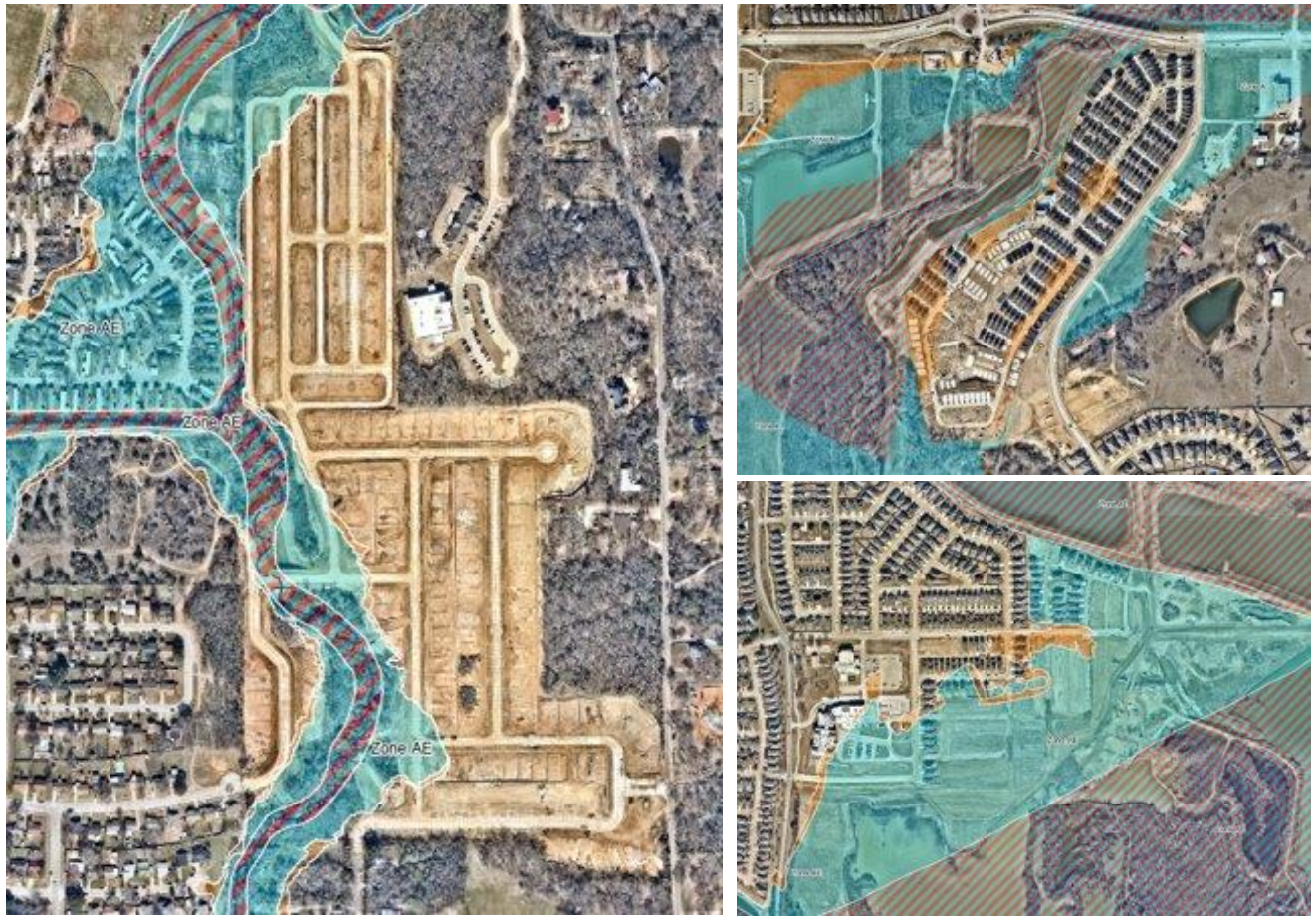
Buffer Option #3 - FEMA Floodplain or 100 feet, whichever is greater

- Provides greatest flood control benefits along Trinity River and larger creeks.
- Generally larger than 150ft buffer along Trinity River and larger creeks, but smaller than 150ft buffer along smaller creeks and streams.
- Includes 32,621 acres
- 16,426 acres are in the floodway
- 18.2% of estimated developable land



Parcel Sizes & Further Analysis

- Threshold for net loss of developable land & parcels that may become undevelopable
  - How many will be impacted?
  - What is the level of impact?
  - What Strategies can we use?



All images are of development within the past year

Discussion

Thank You