# Richland-Chambers Watershed Protection Planning & USDA-NRCS Incentive Program Meeting

**Wednesday, November 14, 2018**
**Cowboy Church of Ennis**

***9:00 Registration*** *w/ coffee & snacks provided by TRWD*

***9:30 Richland-Chambers Watershed Protection Planning (WPP).***

- *Review of Project Status*
- *Review and Input on Existing Programs*
- *Review and Input on Education & Outreach Plan*
- *Review and Input on Technical & Financial Assistance Needs*
- *New project website*

***11:30 Lunch*** *provided by TRWD*

***12:00 City of Ennis Master Planning and Green Stormwater Project***
*Mr. R. Scott Dixon, MPA, City Manager*

***12:30 NRCS Rainfall Simulator & TRWD Stream Trailer demonstrations***

***1:30 National Water Quality Initiative (NWQI)***

- *What is NWQI and what are its benefits to agriculture producers and the public*
- *Discussion panel of agriculture producers about their experience participating in NWQI*
- *How to apply for the NWQI program*

***3:30 Adjourn***

NRCS

watershed protection

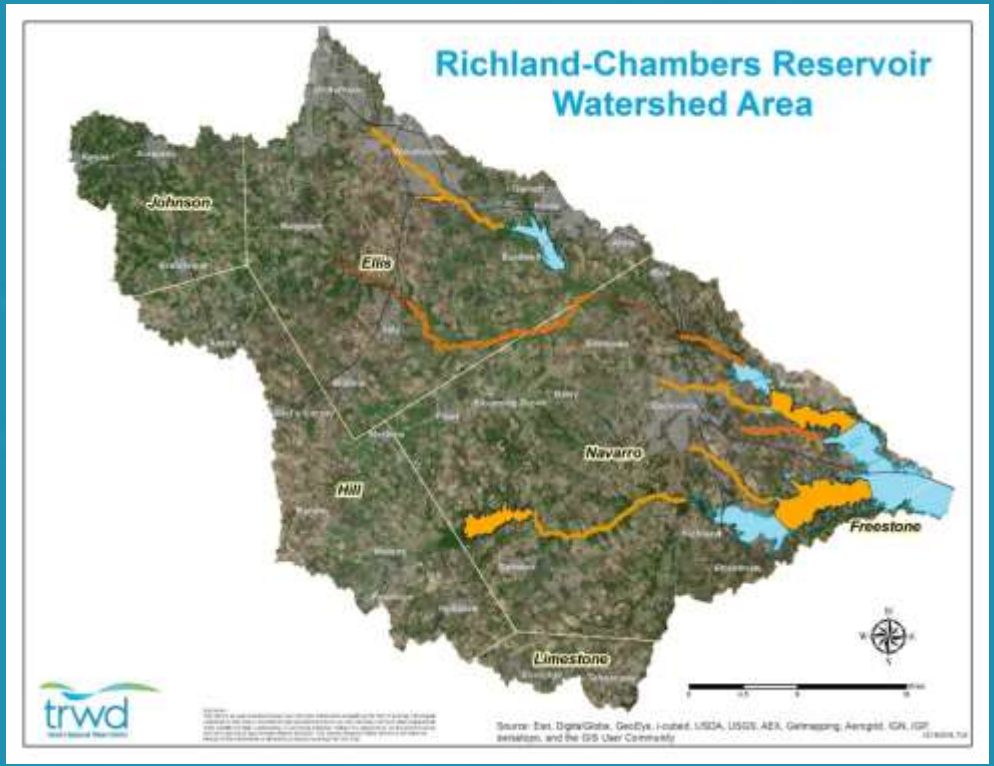
trwd Tarrant Regional Water District

# Richland-Chambers Watershed Partnership

**Stakeholder Meeting**
**November 14, 2018**

# Why We're Here

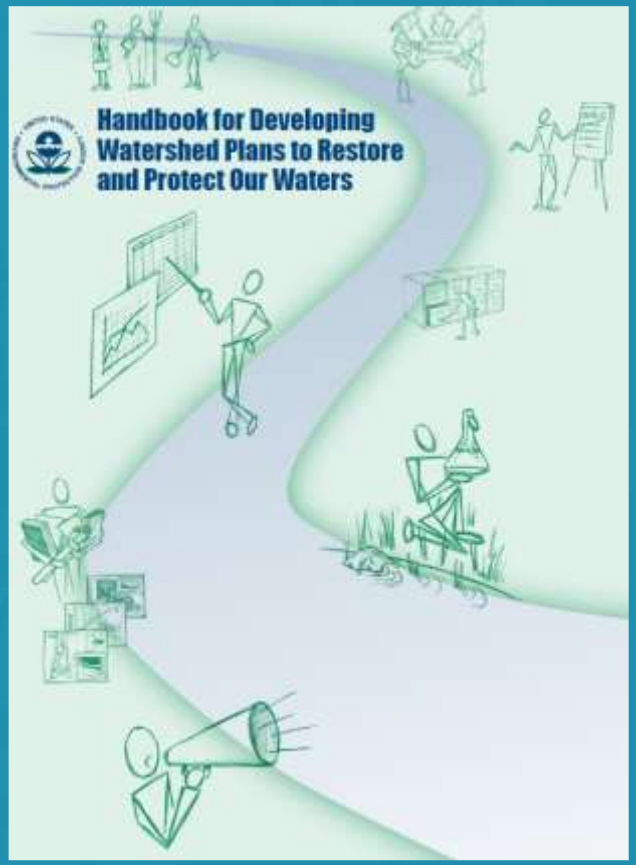
- TCEQ identified problems in streams & lakes
- Grass-roots approach to addressing local problems
- Local input is necessary to ensure investments are put where they're needed.



# Watershed Protection Plans

## A Locally-Led Approach

A. Identify problem & sources
B. Reductions needed to reach goals
C. Identify measures needed to achieve reductions
D. Assistance needed
E. Education & outreach plan
F. Schedule
G. Milestones
H. Criteria for measuring progress
I. Monitoring Plan



# Point Sources

## 32 Permittees

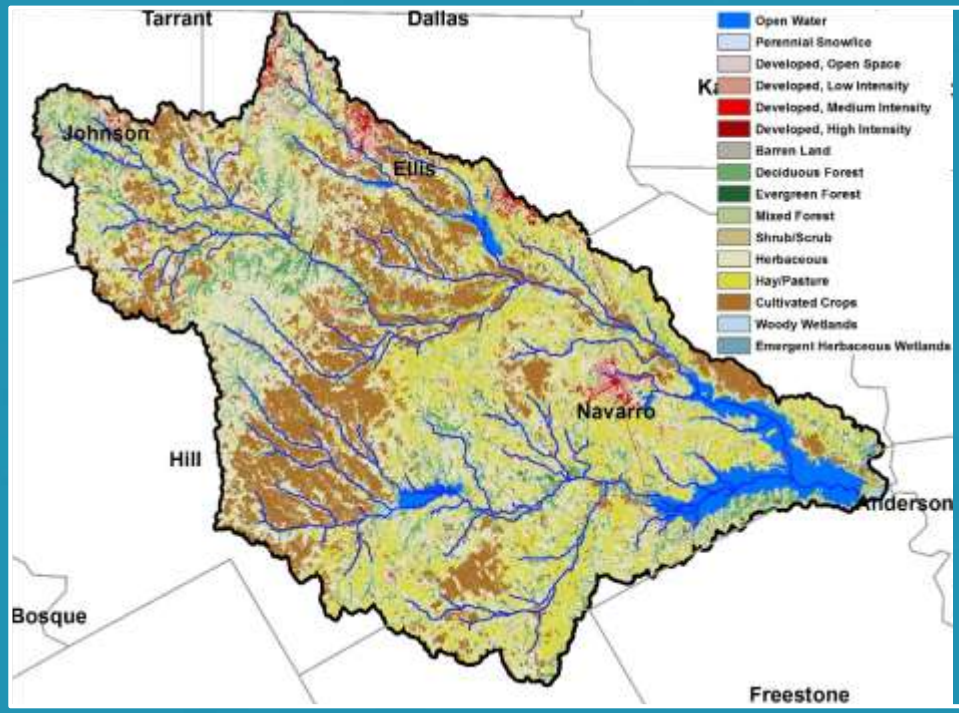
Permitted Flow
21.48 mgd

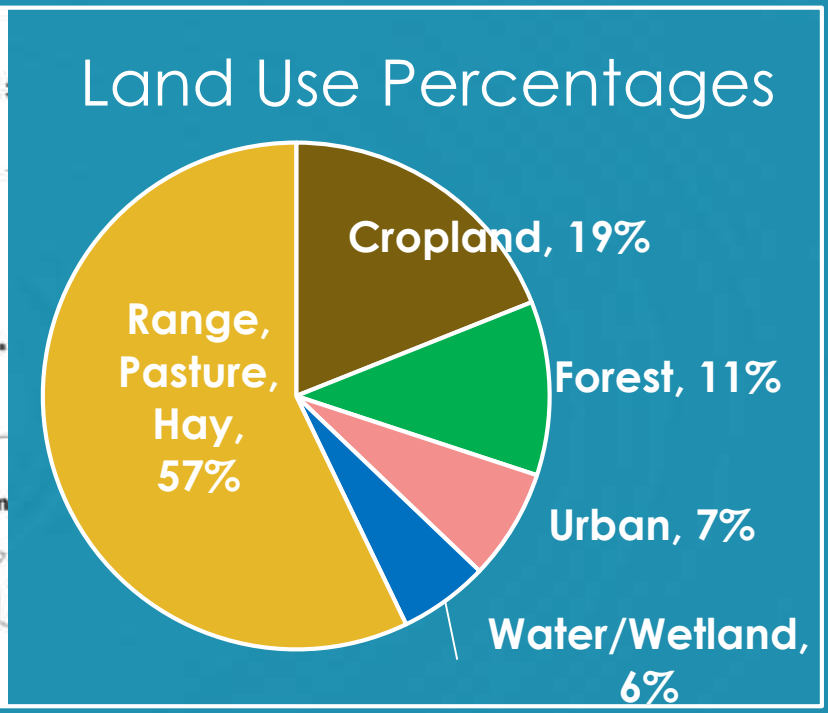
Reported Flow
11.33 mgd

| Permittee | Flow (mgd) | | Daily Average Discharge Limits (mg/L) | | | |
|---|---|---|---|---|---|---|
| | Permitted | Reported Ψ | BOD | TSS | Ammonia | DO |
| City of Waxahachie* | 8.0 | 4.79 | 7/10 | 15 | 2 | 5/4 |
| City of Corsicana, Outfall 1 | 4.84 | 2.98 | 7 | 15 | 2 | 6 |
| City of Corsicana, Outfall 2 | 1.0 | 0.3 | 10 | 15 | 3 | 4 |
| City of Ennis | 4.0 | 1.79 | 5 | 12 | 2 | 6 |
| City of Keene | 0.83 | 0.4 | 10 | 15 | 3 | 4 |
| City of Italy | 0.65 | 0.35 | 7 | 12 | 2 | 4 |
| City of Grandview | 0.3 | 0.07 | 10 | 15 | 2 | 4 |
| City of Ennis | 0.25 | 0.098 | -- | 9 | -- | -- |
| City of Hubbard | 0.25 | 0.088 | 10 | 15 | 3 | 4 |
| City of Maypearl | 0.175 | 0.1 | 10 | 15 | 3 | 5 |
| City of Dawson | 0.13 | 0.066 | 20 | 20 | 10 | 2 |
| City of Blooming Grove | 0.1 | 0.04 | 20 | 20 | -- | 2 |
| City of Coolidge | 0.1 | 0.03 | 30 | 90 | -- | 4 |
| N Tx Dist Cncl Assemblies of God | 0.1 | 0.04 | 20 | 20 | -- | 3 |
| Rice Water Supply & SSC | 0.086 | 0.03 | 30 | 90 | -- | 4 |
| City of Bardwell | 0.08 | 0.02 | 10 | 15 | 3 | 4 |
| City of Milford, Outfall 1 | 0.06 | 0.03 | 30 | 90 | -- | 4 |
| City of Milford, Outfall 2 | 0.06 | 0.02 | 10 | 15 | 3 | 4 |
| Pelican Isle (Bosque Utilities Corp) | 0.06 | 0.007 | 10 | 15 | 2 | 4 |
| City of Frost | 0.05 | 0.02 | 10 | 15 | 3 | 4 |
| City of Malone | 0.05 | n/a | 20 | 20 | -- | 2 |
| The Salvation Army | 0.05 | 0.006 | 10 | 15 | 3 | 4 |
| City of Bynum | 0.04 | 0.02 | 20 | 20 | -- | 2 |
| Forreston Sewer Service & WSC | 0.04 | 0 | 30 | 90 | -- | 2 |
| Matheson Tri-Gas Inc | 0.04 | 0 | -- | -- | -- | -- |
| Blue Water Oaks POA | 0.03 | 0.007 | 10 | 15 | *report**** | 4 |
| Avalon Water Supply & Sewer | 0.025 | 0.01 | 20 | 20 | *report**** | 4 |
| City of Mertens | 0.025 | 0 | 30 | 90 | -- | 4 |
| White Rock Homeowners | 0.025 | 0 | 10 | 15 | 3 | 4 |
| TxDOT | 0.014 | 0.007 | 10 | 15 | 3 | 4 |
| City of Angus | 0.012 | 0.008 | 20 | 20 | -- | 3 |
| Town of Mustang | 0.01 | 0.002 | 10 | 15 | -- | 4 |
| Holcim (Texas) LP | Interm** | 0.004 | -- | 25 | -- | -- |
| Owens Corning | Interm** | 0 | -- | -- | -- | -- |

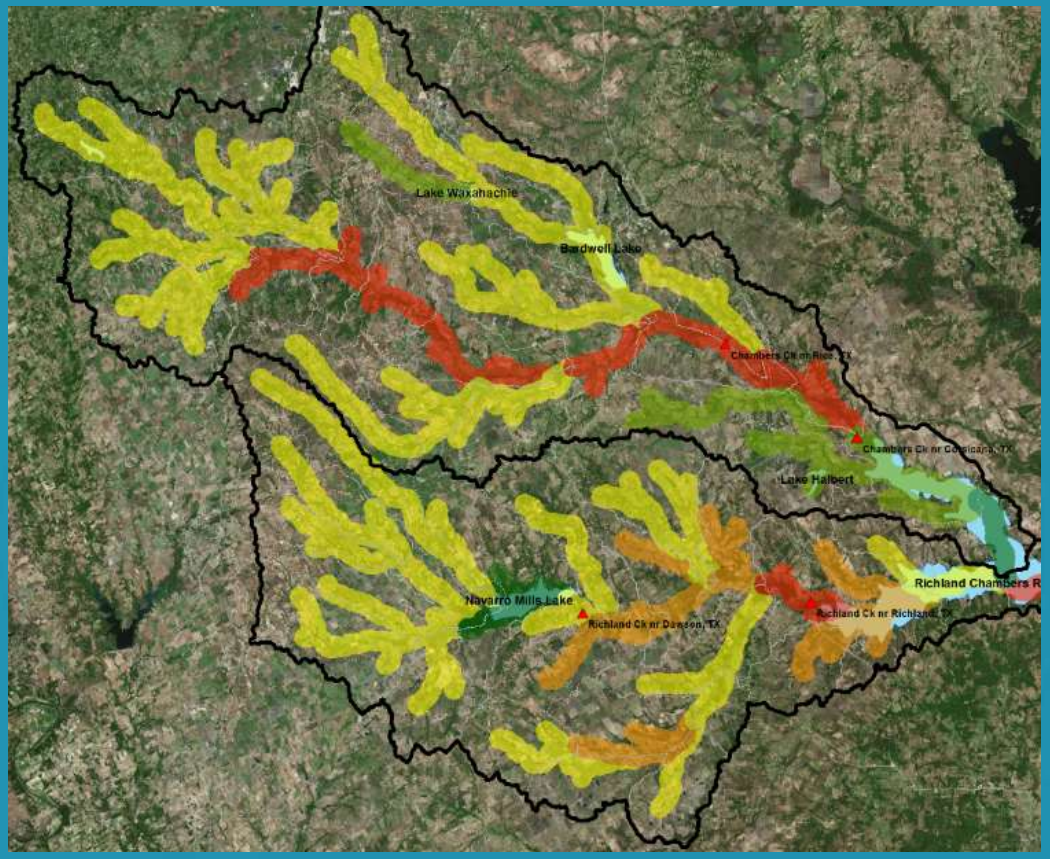
# Nonpoint Sources

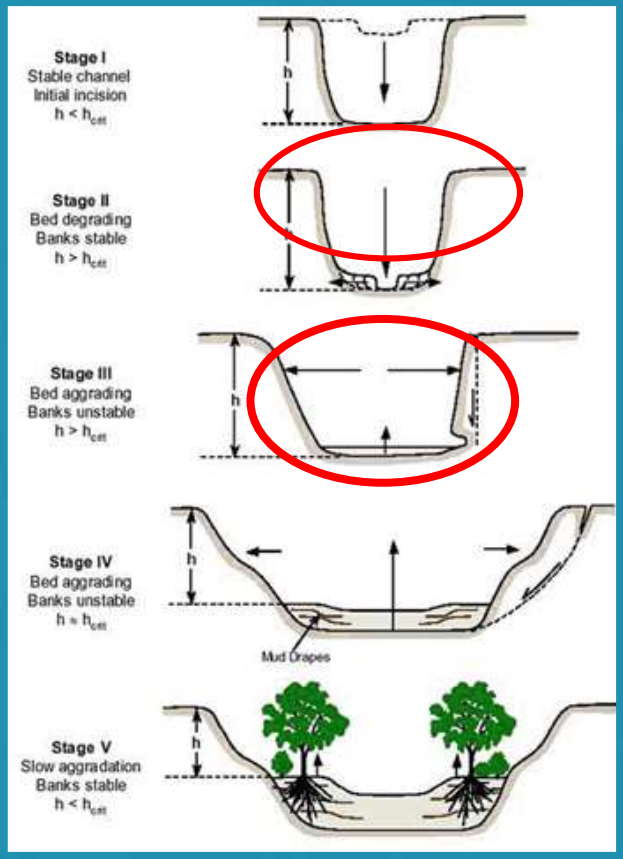
## Land Uses and Coverage



# Channel Erosion



# Watershed Goals

- **Goal Statement** (Restoration)

  … streams and reservoirs in the Richland-Chambers reservoir meet appropriate water quality standards.

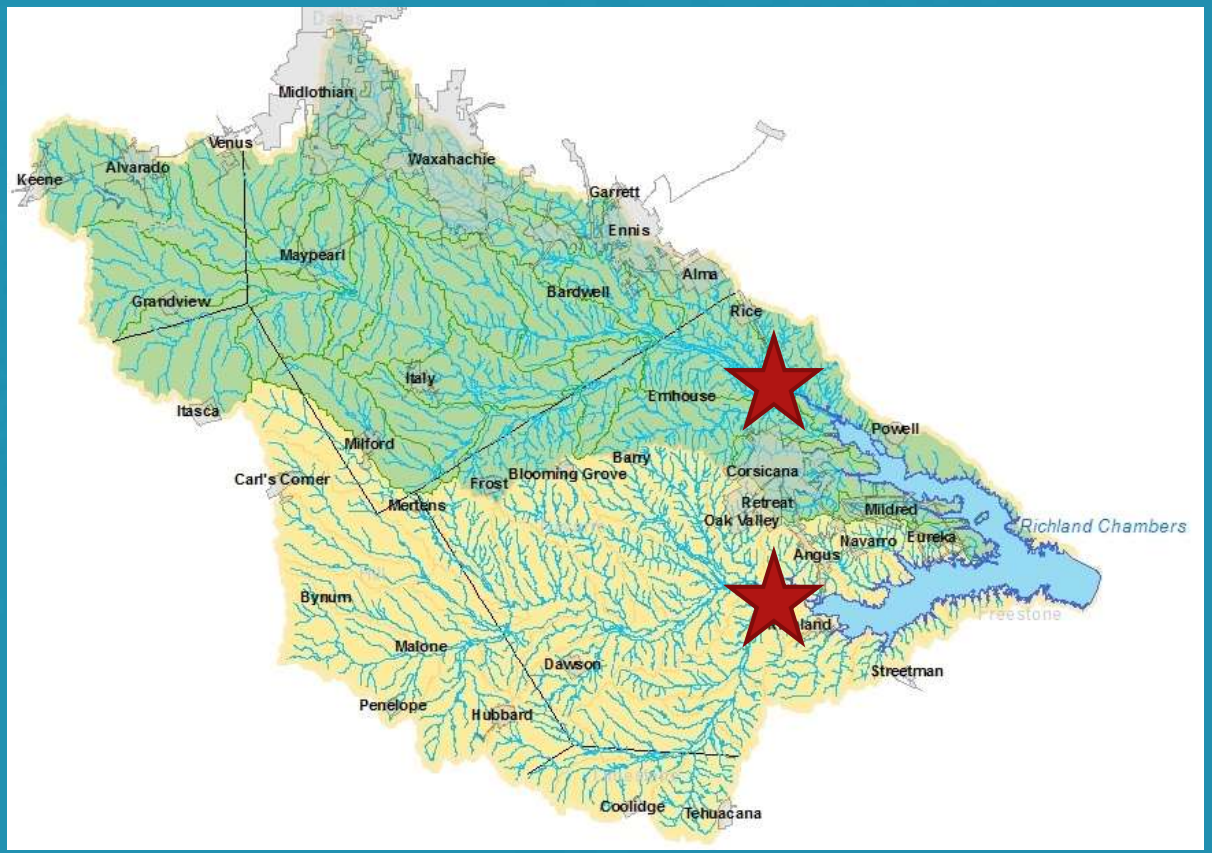
- **Goal Statement** (Protection)

  … capacity of water supply reservoirs be protected by reducing erosion in the Richland-Chambers watershed.

# Water Quality Targets

Reduce the effects of eutrophication in the watershed by reducing Total Phosphorus by 30%

Further refinement needed to evaluate by subwatershed



# Questions?

# Existing Programs & Initiatives

# Wastewater

- **Sanitary Sewer Overflow Initiative (SSOI)**
  - *Goal: Prevent or reduce sanitary sewer overflows*
  - Waxahachie, Ennis, Corsicana
  - Infrastructure surveys, monitoring, maintenance & public education

# Agricultural & Rural

- **State & Federal Programs (NRCS, TSSWCB & SWCDs)**
  - *Goal: Conserve soil & water resources in agricultural areas*
  - Financial Assistance (EQIP, CSP, WQMPs), Easements (ACEP)
  - National Water Quality Initiative (NWQI)
  - Regional Conservation Partnership Program (RCPP)
- **Small Watershed Dam Program (NRCS, TSSWCB, SWCDs)**
  - *Goal: Protect downstream areas from flooding & excess erosion*
  - Operation & Maintenance, Repairs, Rehabilitation
- **Grazing Group (landowner-led)**
  - *Goal: Provide support & encouragement within the grazing community.*
  - Expert and Peer-to-peer information on practices & methods

# Agricultural & Rural

- **MillerCoors**
  - *Goal: Support practices that protect water quality*
  - Financial assistance to ag producers for conservation planning & practices that protect water quality

- **Western Navarro Bobwhite Restoration Initiative (WNBRI)**
  - *Goal: Increase habitat for bobwhite and grassland birds*
  - Provide planning and assistance to deliver conservation to local landowners
  - Eases landowner financial burdens through free or no-cost materials & equipment

# Urban & Developed Areas

- **Municipal Separate Storm Sewer System (MS4)**
  - *Goal: Reduce pollutants from urban areas*
  - Midlothian, Waxahachie, Ellis County, Johnson County
  - Ordinances, floodplain design manuals, construction standards, public education

- **Other, non-MS4 Measures**
  - Stream bank stabilization projects (Waxahachie, Corsicana, others?)
  - Flood protection/erosion planning studies & plans (Corsicana)

# Urban & Developed Area

**North Central Texas Council of Governments (NCTCOG)**

- **Stormwater Management Program**
  - *Goal: Provide regional strategy to address stormwater issues*
  - Supports regional stewardship of urbanized surface waters
  - Hosts Regional Stormwater Management Coordinating Council and task forces
  - Interlocal agreements , workplans, cost-share arrangements
  - Identifies external funding sources

# Other

- **Tarrant Regional Water District (TRWD)**
  - *Goal: Reduce  nutrients and sediment entering water supplies*
  - Supports wastewater limits on discharges close to lakes
  - Issues permits for construction activities within 2,000 ft of lake
  - Issues permits & inspects septic systems in 2,000 ft buffer
  - Samples lakes & major tributaries for water quality conditions
  - Provides watershed planning & project assistance to stakeholder groups
  - Funds technical studies to support watershed planning
  - Financial assistance for conservation planning & practices that protect water quality & reduce erosion

# Additional thoughts?

# Education & Outreach

# Goal of Education & Outreach

**To provide the information and knowledge necessary for successful implementation of desired land management strategies and practices.**

| Pollutant Source | Target Audiences |
|---|---|
| **All** | General Public |
| **Agricultural & Rural Lands** (cropland, rangeland, pastures, forests) | Farmers, Ranchers, Landowners, Industry Reps, Agency personnel |
| **Urban & Developed Areas** (wastewater, stormwater runoff) | Decision makers, permittees, residents, business owners |
| **Stream Channel Erosion** | Streamside landowners, Agency personnel |

*Events & activities facilitated & tracked by Watershed Coordinator*

| Pollutant Source | Target Audiences |
|---|---|
| **All** | General Public |

**To provide youth and adults with an understanding of how natural resources function and impact people, and how their actions impact natural resources.**

| General Natural Resource Management | Lead Entities | How Often? |
|---|---|---|
| **Multimedia information campaign** (web site, social media, articles, press releases, flyers, email updates, etc) | TRWD/Texas A&M AgriLife Research | continuous |
| **Texas Watershed Stewards** (statewide workshops) | Texas A&M AgriLife Extension | every 3 yrs |
| **Public/Private School Education** (curriculum & hands-on events) | TRWD/Texas A&M AgriLife Research | every 1 yr |
| **Community Outreach Events** (information handouts & interactive demonstrations) | TRWD/Texas A&M AgriLife Res & Ext | every 1 yr |

| Pollutant Source | Target Audiences |
|---|---|
| **Agricultural & Rural Lands** (cropland, rangeland, pastures, forests) | Farmers, Ranchers, Landowners, Industry Reps, Agency personnel |

**To provide rural landowners and agricultural producers with information on land management programs, systems and practices that reduce erosion and nutrient loss.**

| Programs | Lead Entities | How Often? |
|---|---|---|
| **Agricultural Program Workshops** (resources for planning & financial assistance) | NRCS, SWCD, TRWD, Texas A&M AgriLife Ext | every 3 yrs |
| **Conservation Practices Workshops/Field Days** (e.g. soil health; nutrient, grazing management) | NRCS, SWCD, Texas A&M AgriLife Ext | every 1 yr |
| **Small Acreage Producer Workshops/Field Days** (land management, stocking rates, tax valuation) | Texas A&M AgriLife Ext, SWCD, NRCS, TRWD | every 3 yrs |
| **Land Management Demonstration Sites** (demonstration of methods/practices ) | Landowner/Producers, NRCS, SWCD, TRWD, Texas A&M AgriLife Ext | every 5 yrs |

| Pollutant Source | Target Audiences |
|---|---|
| **Urban & Developed Areas** (wastewater, stormwater runoff) | Decision makers, permittees, residents, developers, business owners |

**To provide stakeholders with information on practices and programs that reduce urban stormwater runoff and protect water quality.**

| Programs | Lead Entities | How Often? |
|---|---|---|
| **Urban Stormwater & Floodplain Workshops** (resources & tools for policies in managing urban stormwater) | NCTCOG, Texas A&M AgriLife Rsch & Ext, Regulated entities | every 3 yrs |
| **Urban Stormwater Management Practices & Green Stormwater Infrastructure Workshops** (practices for addressing urban stormwater) | NCTCOG, TRWD, Texas A&M AgriLife Rsch & Ext, Regulated entities | Every 3 yrs |
| **Homeowner Education Events** (Healthy Lawns/Healthy Waters, rainwater harvesting, landscape mgmt, nutrient mgmt) | Texas A&M AgriLife Rsch & Ext, Regulated entities | every 1 yr |

| Pollutant Source | Target Audiences |
|---|---|
| **Stream Channel Erosion** | Streamside landowners, Local government staff, Agency personnel |

**To provide stakeholders with information on stream channel and riparian functions, and practices and programs that address channel and riparian erosion.**

| Programs | Lead Entities | How Often? |
|---|---|---|
| **Texas Riparian Ecosystem Workshops** (stream ecosystem functions, values, & mgmt ) | TRWD, Texas A&M AgriLife Rsch & Ext | every 3 yrs |
| **Urban Riparian Workshops** (stream functions & mgmt in urban settings) | TRWD, Texas A&M AgriLife Rsch & Ext | every 3 yrs |
| **Stream Restoration Workshops** (opportunities, limitations, design approaches) | NCTCOG, Texas A&M AgriLife Rsch & Ext | every 3 yrs |

# Additional thoughts?

# Technical & Financial Assistance Needs

| Target Source | Implementation Categories |
| --- | --- |
| **Agricultural & Rural Areas** (cropland, rangeland, pastures, forests) | • Conservation Planning<br>• Structural & Non-structural practices |
| **Urban & Developed Areas** (wastewater, stormwater runoff) | • Policies/ordinances<br>• Structural BMPs<br>• Land management practices |
| **Stream Channel Erosion** | • Riparian zone management<br>• Structural BMPs & channel restoration |

# Agricultural & Rural Areas

Conservation Planning and Practices

| Technical Assistance Needs & Sources | Financial Assistance Sources |
|---|---|
| ➢ Technician to develop plans<br>➢ NRCS<br>➢ SWCD<br>➢ TPWD<br><br>➢ Engineering assistance for structural practices | ➢ NRCS Farm Bill Programs (EQIP, CSP, CRP)<br>➢ TSSWCB WQMP Program<br>➢ SWCD Partnerships<br>➢ TPWD<br>➢ Landowner Incentive Program<br>➢ Tx Farm & Ranch Lands Conservation Program<br>➢ TWDB Economically Distressed Area Program<br>➢ TDA Texas Capital Fund<br>➢ USDA Rural Development Water & Environmental Programs<br>➢ EPA Section 319(h) Clean Water Act Program |

# Urban & Developed Areas

Policies/ordinances, wastewater, Structural BMPs, Land management

| Technical Assistance Needs & Sources | Financial Assistance Sources |
|---|---|
| ➢ Technical information to support effective policies.<br>➢ NCTCOG<br>➢ Texas A&M AgriLife Research<br><br>➢ Administrative support for stormwater management programs<br>➢ NCTCOG<br><br>➢ Engineering assistance for wastewater & structural BMPs | ➢ NCTCOG Stormwater Management Program<br><br>➢ TWDB<br>➢ Regional Water Supply & Wastewater Planning Program,<br>➢ Economically Distressed Area Program,<br>➢ State Revolving Fund<br><br>➢ TCEQ<br>➢ 106 State Water Pollution Control Program,<br>➢ Supplemental Environmental Program<br><br>➢ National Fish and Wildlife Foundation Grants<br><br>➢ EPA<br>➢ Section 319(h) Clean Water Act Program<br>➢ Five Star & Urban Waters Grant |

# Stream Channel Erosion

Riparian zone management, Structural BMPs, Stream Restoration

| Technical Assistance Needs & Sources | Financial Assistance Sources |
|---|---|
| ➢ Technician to develop management plans<br>  ➢ NRCS<br>  ➢ SWCD<br>  ➢ TPWD<br><br>➢ Engineering assistance for structural projects | ➢ NRCS Farm Bill Programs, (EQIP, CSP, CRP)<br><br>➢ TSSWCB WQMP Program<br><br>➢ TPWD Landowner Incentive Program<br><br>➢ WNBRI Landowner Assistance Grant<br><br>➢ EPA<br>  ➢ Section 319(h) Clean Water Act Program,<br>  ➢ Environmental Education Grants<br><br>➢ TCEQ Supplemental Environmental Program |

# All Areas

General Watershed Planning, Monitoring, Implementation

| Technical Assistance Needs & Sources | Financial Assistance Sources |
|---|---|
| ➢ Water quality data & landscape information collection<br>  ➢ NRCS<br>  ➢ TPWD<br>  ➢ TRWD<br>  ➢ MS4s & local entities<br><br>➢ Watershed planning | ➢ TCEQ Texas Clean Rivers Program<br><br>➢ EPA<br>  ➢ Targeted Watersheds Grants<br>  ➢ Section 319(h) Clean Water Act Program,<br>  ➢ Environmental Education Grants |

# Additional thoughts?

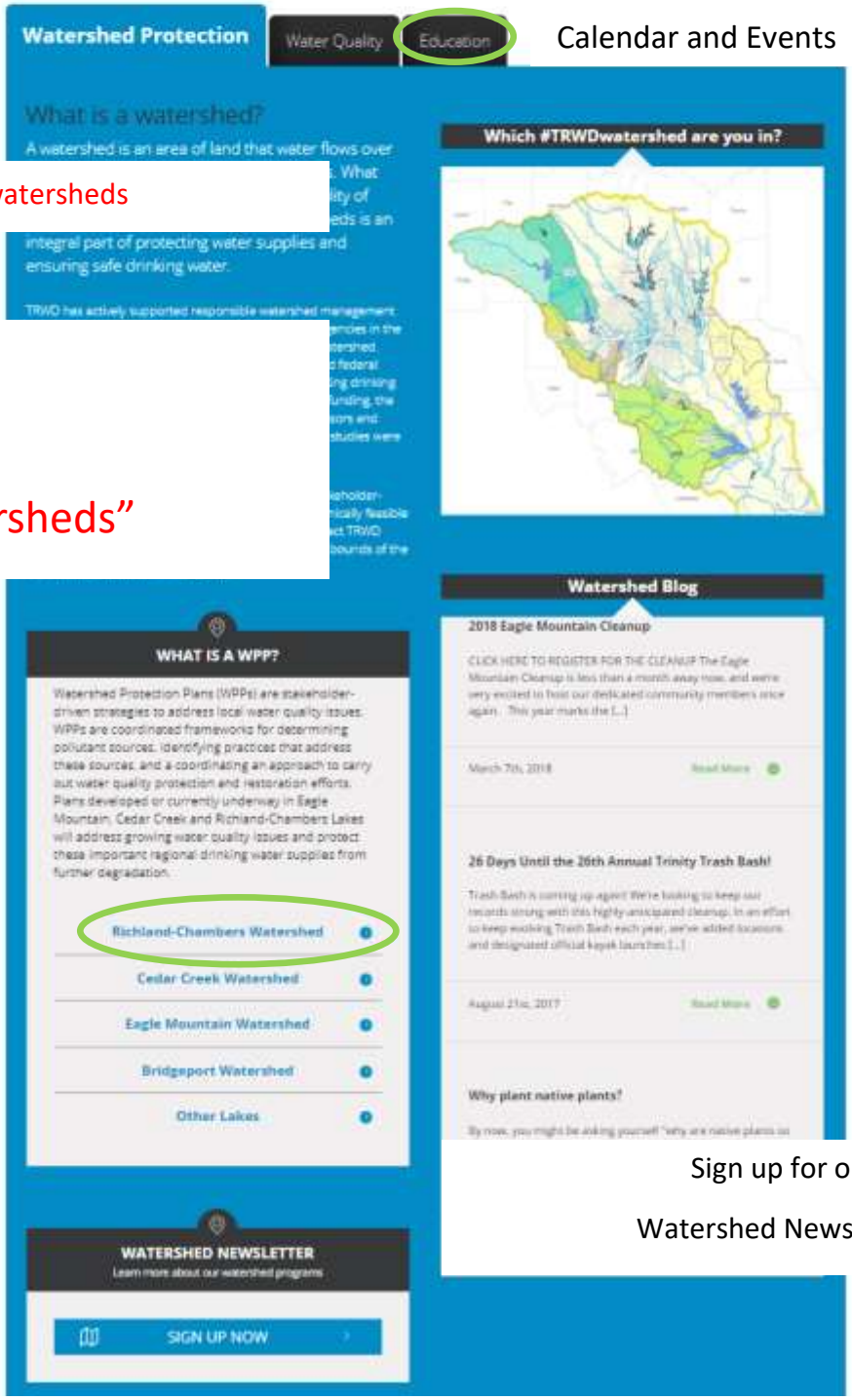
# Three ways to access our new webpage!

#1

www.trwd.com:


#2

http://bit.ly/TRWDwatersheds




Calendar and Events

#3

Google:

“TRWD watersheds”

Sign up for our

Watershed Newsletter!

# Richland-Chambers Project Page

http://www.trwd.com/water-supply/environmental/environmental-stewardship/watershed-protection/richland-chambers/

Find info on watershed projects and other local resources!


- ⇒ Maps
- ⇒ Reports
- ⇒ Past meeting agendas
- ⇒ NWQI
- ⇒ Partnerships

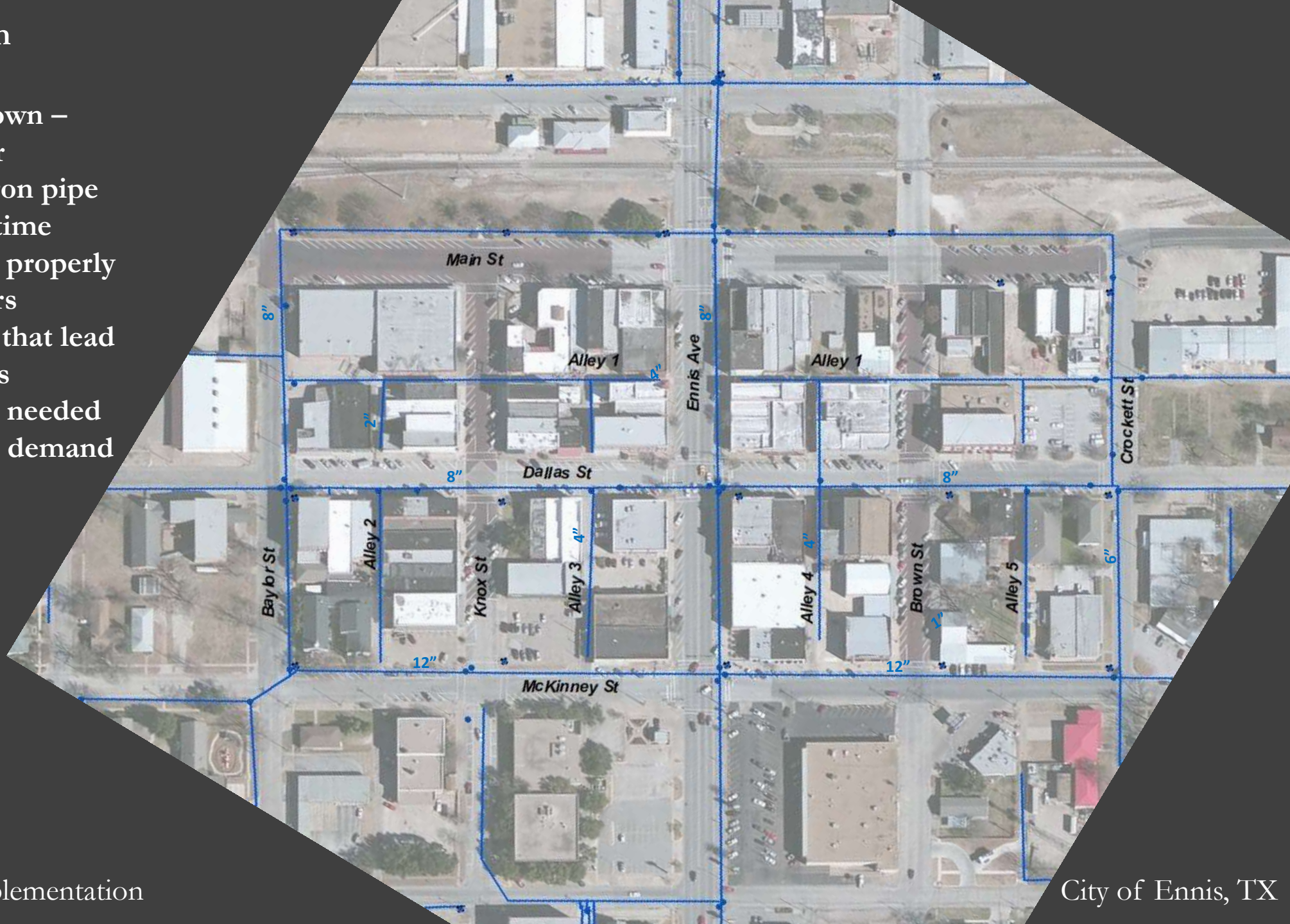
Scan this QR code with your device to go directly to RC watershed's new page!

Scan me


RESPECT THE PAST - ANTICIPATE THE FUTURE
THRIVE IN THE PRESENT

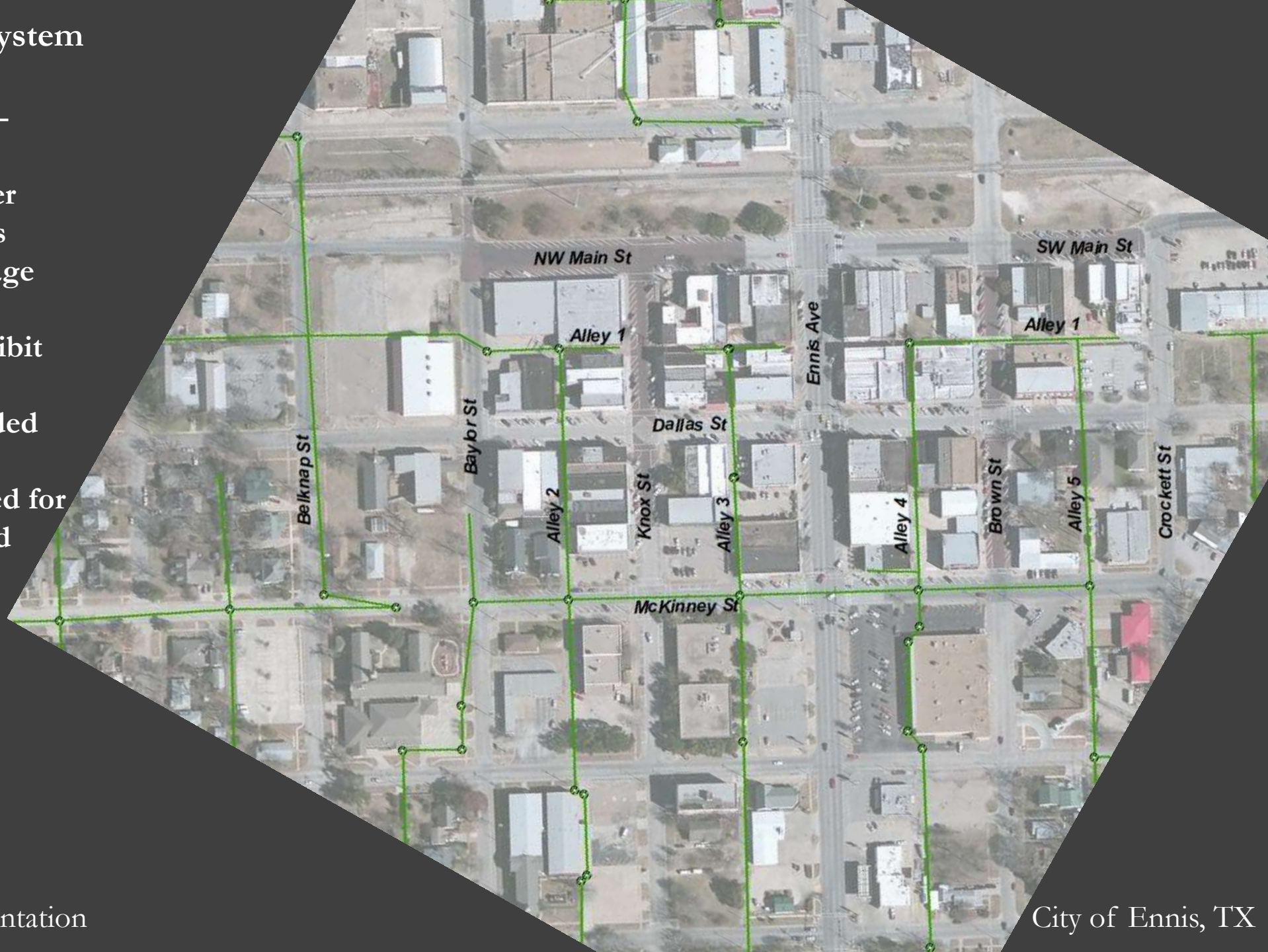
# Existing Water System

- Date Installed Unknown – Likely 1950s or earlier
- Predominately cast iron pipe which corrodes over time
- Not enough valves to properly isolate lines for repairs
- Dead ends in system that lead to water quality issues
- Additionally capacity needed for anticipated future demand



# Existing Sanitary Sewer System

- Date Installed Unknown – Likely 1950s or earlier
- Predominately 6” diameter vitrified clay pipe which is subject to leaks and damage over time
- Alignment issues that inhibit flow
- Additional manholes needed to facilitate maintenance
- Additional capacity needed for anticipated future demand

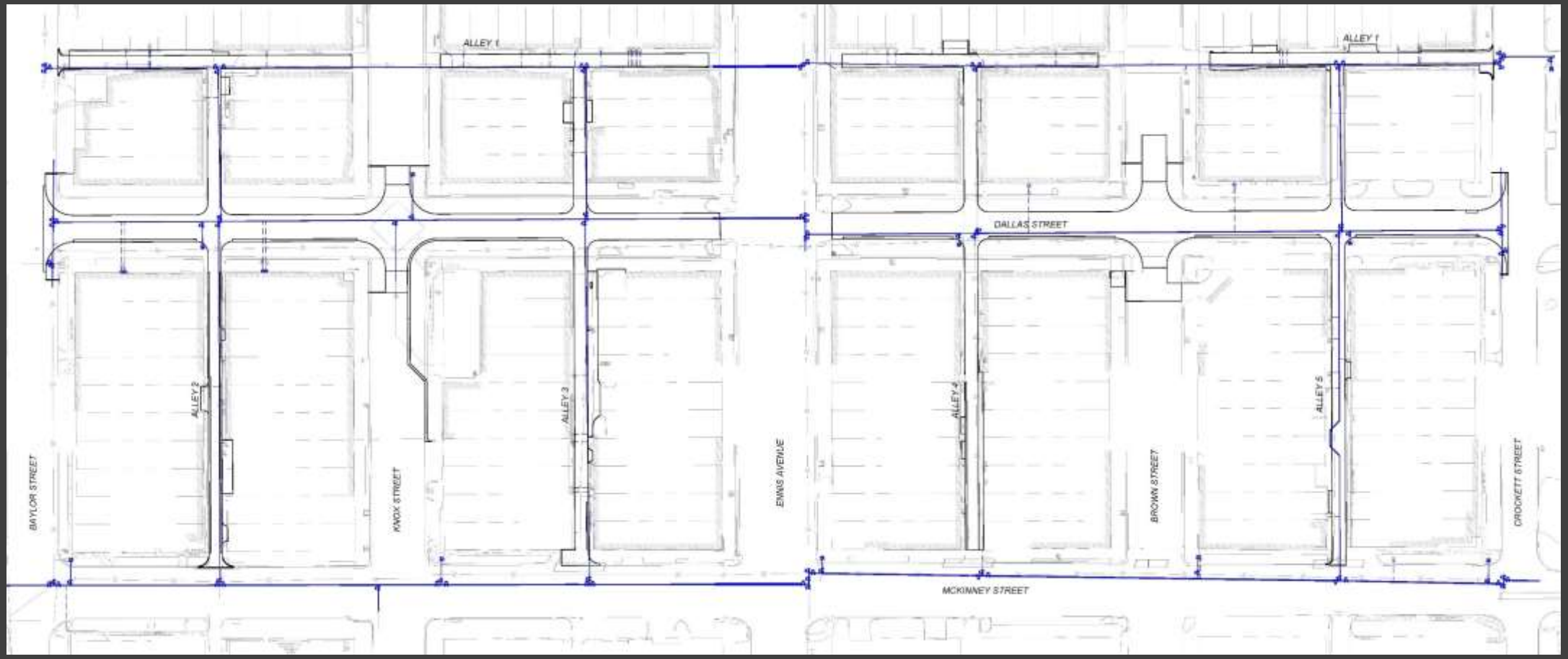


# Existing Storm Sewer System

- Date Installed Unknown – Likely 1950s or earlier
- Predominately clay tile pipe which is subject to leaks and root damage over time
- Pipes under sized for current impervious drainage area
- Localized water ponding occurs in flat areas
- Improvements to streetscape require drainage system reconfiguration

# Water System Improvements

- Replaced existing pipes with 8” and 12” PVC C-900 Pipe
- Service lines replaced up to meters
- Valves added to enable isolation
- All dead ends eliminated
- Engineer worked closely with City Public Works to ensure all needs addressed



# Sanitary Sewer System Improvements

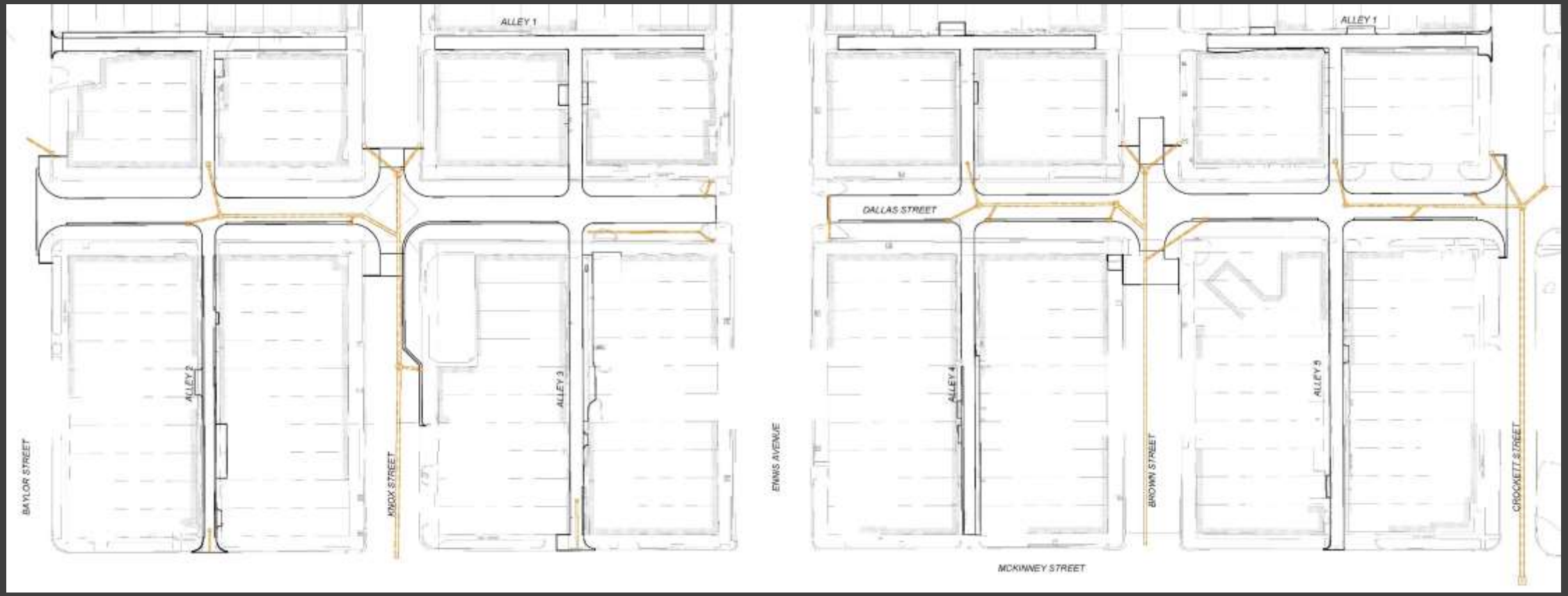
- Replaced existing pipes with 8” PVC SDR-26 Pipe
- Service laterals and cleanouts replaced
- Additional manholes installed to facilitate maintenance
- Addressed alignment issues

# Grease Collection System

- Installed four ‘community’ grease traps and grease laterals for existing and future restaurants
- Restaurants to be responsible for maintenance
- Provides incentive for restaurants to locate to Downtown Ennis

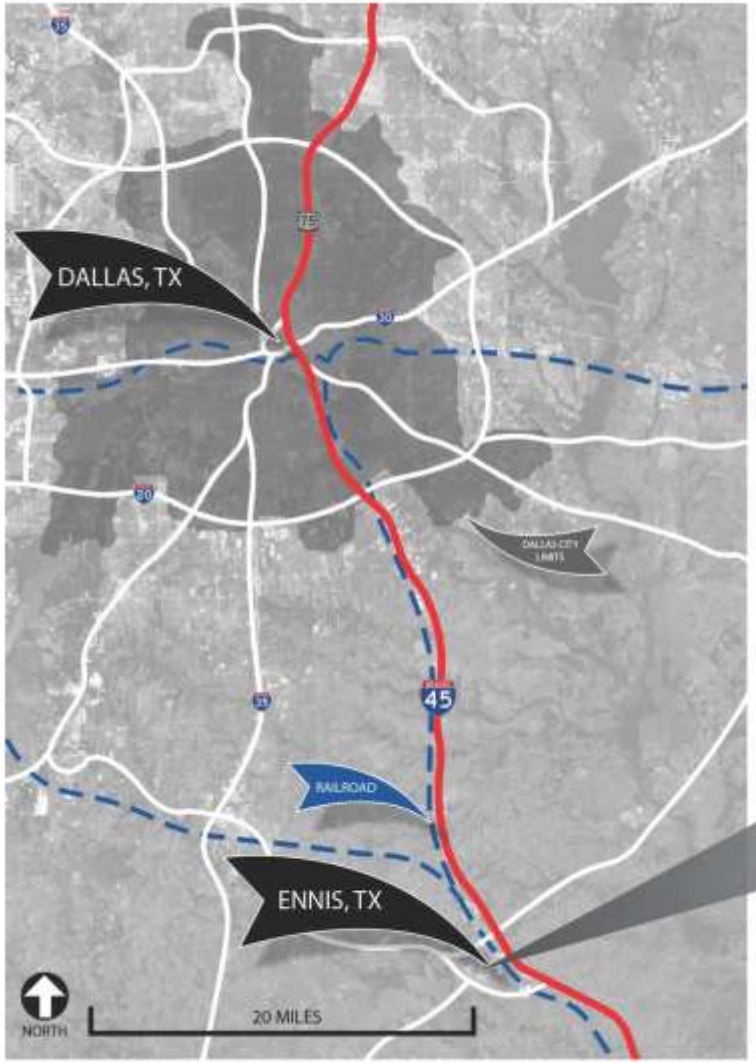
# Storm Sewer System Improvements

- Pipe and inlets designed to contain the 25-year storm
- Drainage design incorporated into curb-less pedestrian friendly streetscape
- Overflow drainage directed to alleys which are capable of conveying 100-year storm

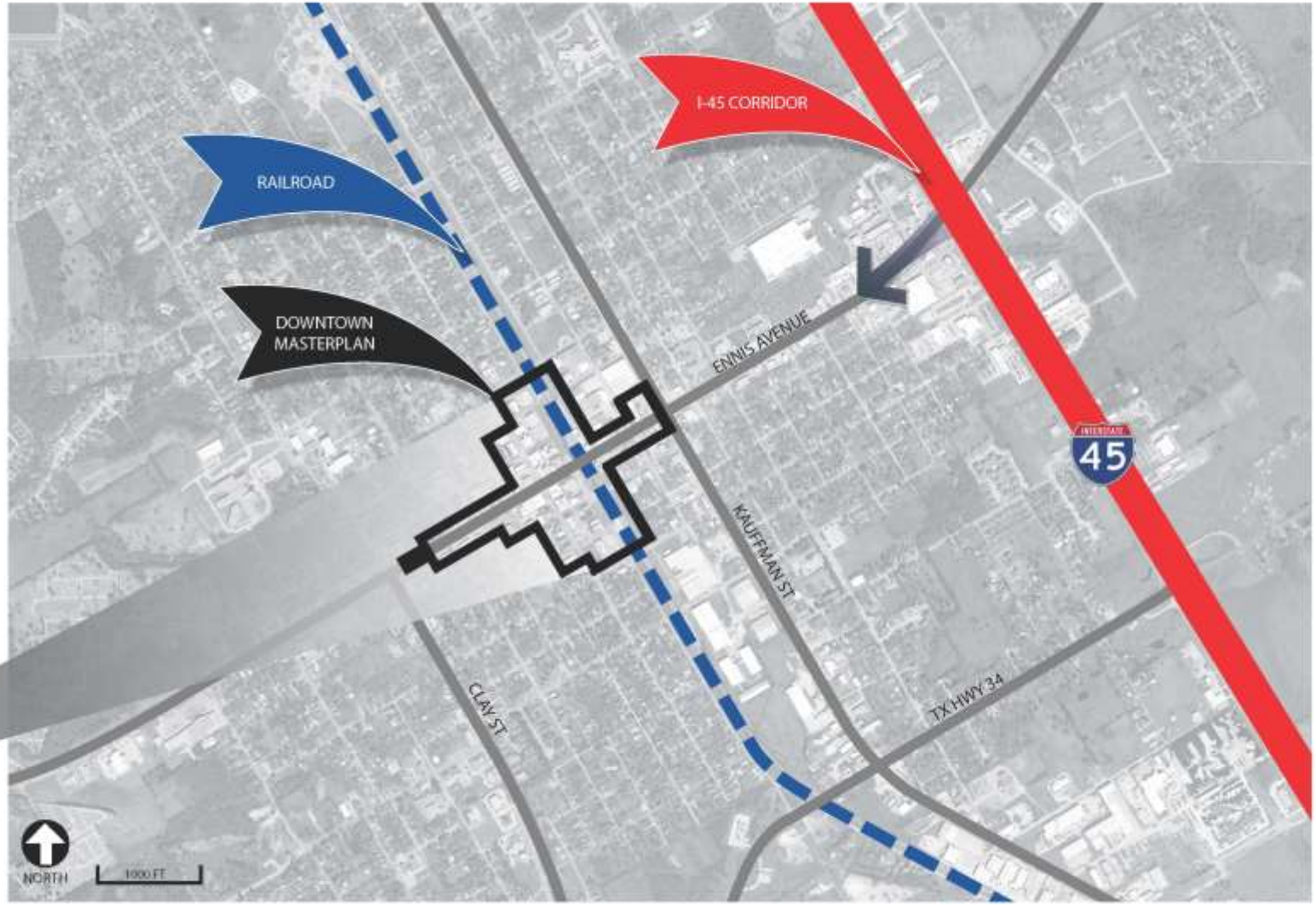


# Historic Downtown Ennis Streetscape

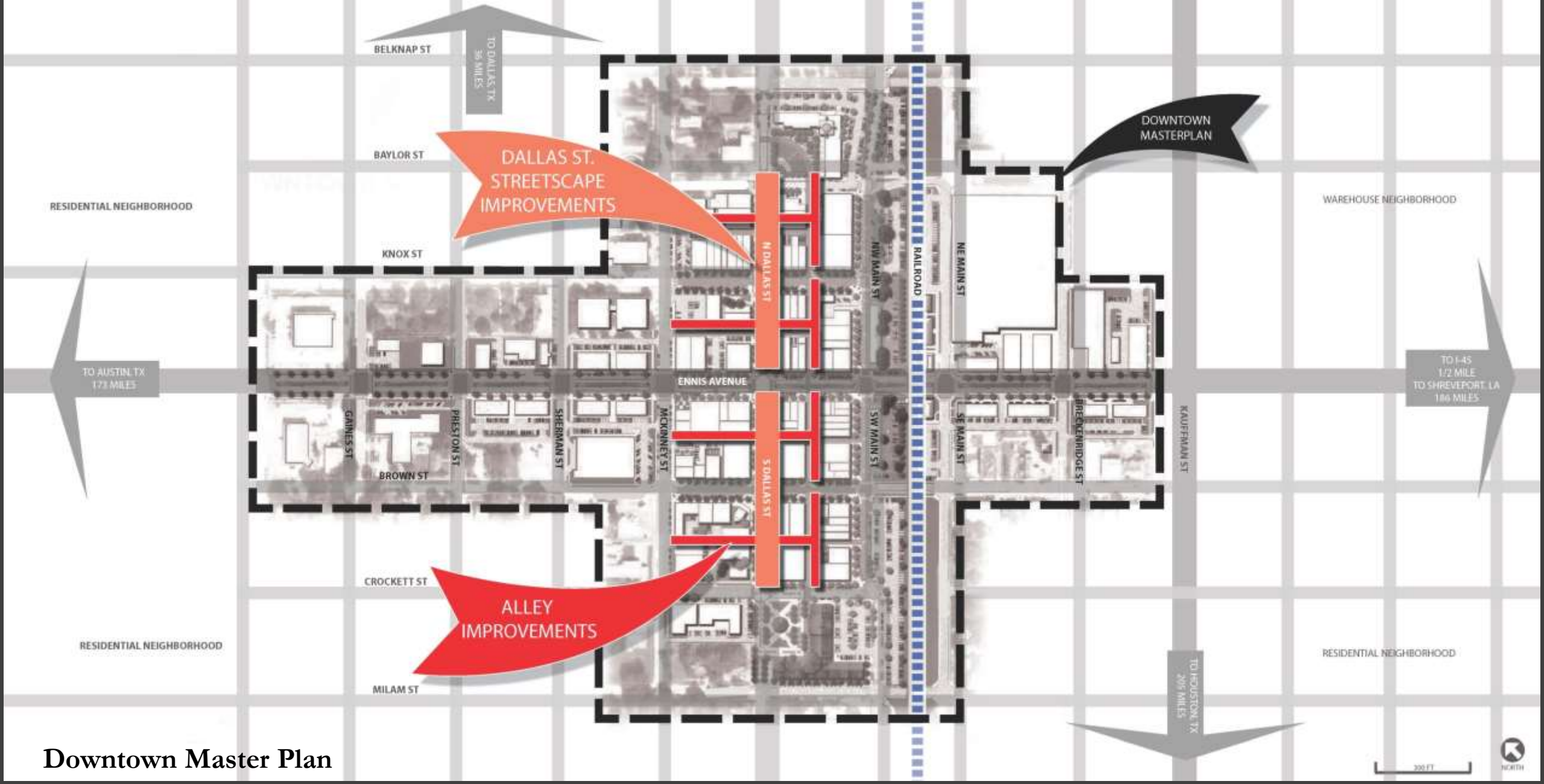
2.C.7



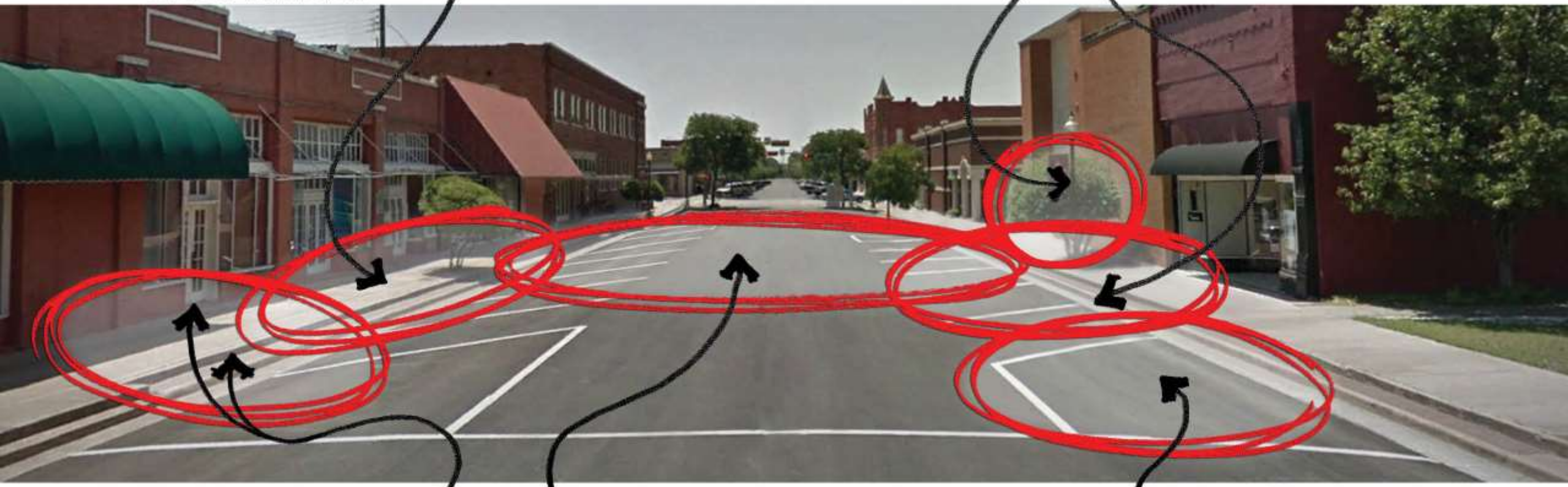

**Regional Context**



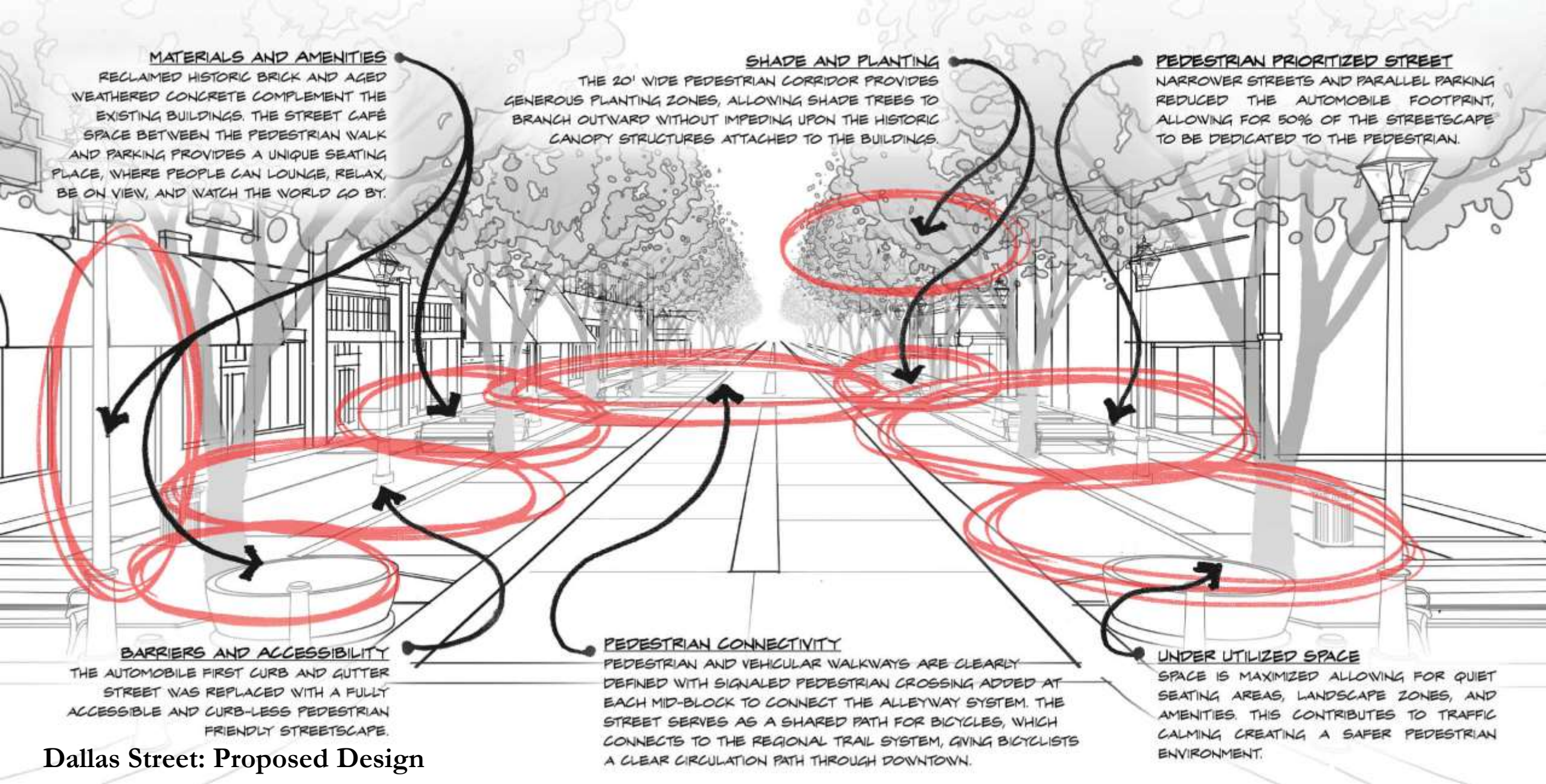

**Local Context**



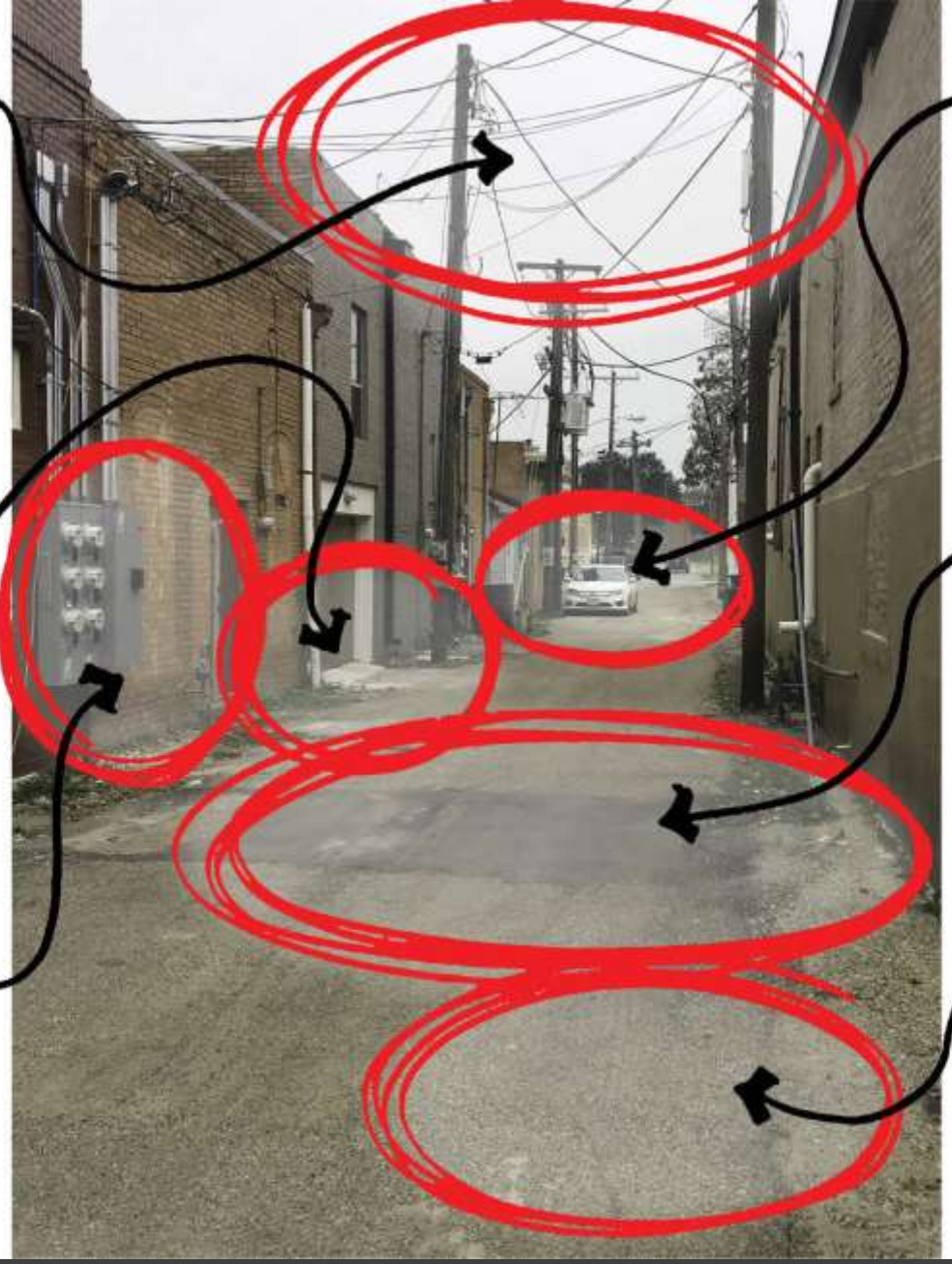

**Downtown Master Plan**




**Dallas Street: Existing Conditions**




**Dallas Street: Proposed Design**



**PHYSICAL AND VISUAL CLUTTER**

ALLEY CLUTTER IS VISUALLY OFFENSIVE AND CREATES MANY DIFFERENT HEALTH AND SAFETY ISSUES. TRASH CANS, AC UNITS, UTILITIES, ABANDONED DOCKS, AND RUSTY AND BROKEN STAIR CASES LITTER THE ALLEYS. OLD ELECTRICAL POLES AND WIRING DOMINATE THE SKYLINE.

**SHADE AND PLANTING**

HARDSCAPE DOMINATES THE ALLEY AND PLANTING IS NON-EXISTENT CREATING A VERY RIGID, COLD, BLEAK AND UNATTRACTIVE SPACE.

**BARRIERS AND ACCESSIBILITY**

MOST OF THE ALLEYS ARE INACCESSIBLE DUE TO BROKEN OR INAPPROPRIATE GROUND PLANE MATERIALS AND HIGH BUILDING THRESHOLDS.

**CONNECTIVITY**

ALLEYS ARE UNMARKED AND UNCELEBRATED, WITH NO MEANINGFUL CONNECTION TO THE SURROUNDING STREETS.

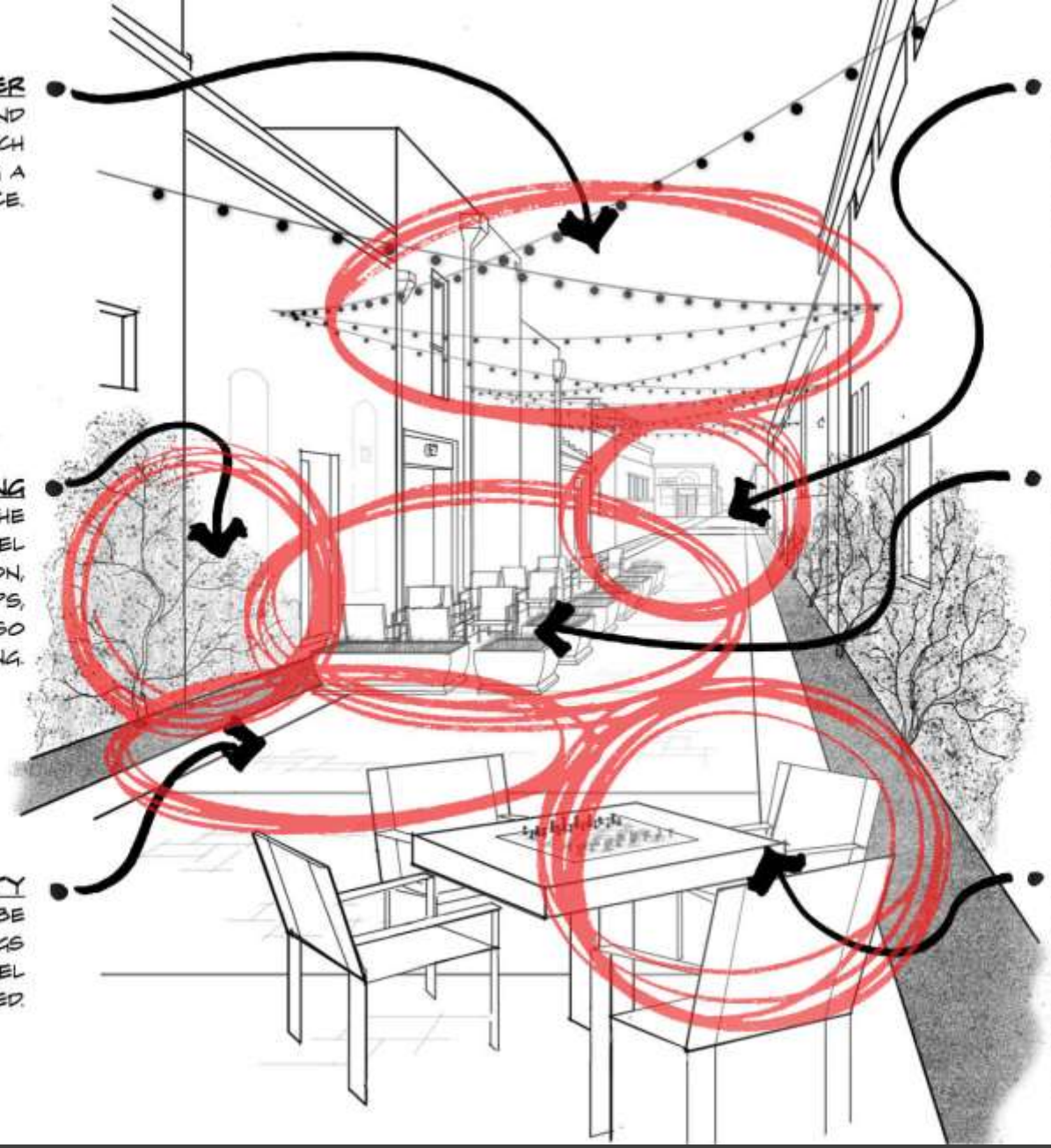
**UNDERUTILIZED SPACE**

THE ALLEYS CURRENTLY EXIST TO SERVE THE AUTOMOBILE, SERVING AS OFFLOADING, STORAGE AND TRASH PICK-UP. THIS PROGRAM DETERS PEDESTRIAN ACTIVITY. THE ALLEYS ARE SELDOMLY USED EXCEPT FOR TRASH PICK-UP AND OCCASIONAL OFFLOADING OF SUPPLIES.

**MATERIALS AND AMENITIES**

LACK OF AMENITIES AND SEATING OPPORTUNITIES DISCOURAGES PEOPLE FROM PAUSING AND OCCUPYING THE SPACE. IMPERMEABLE CONCRETE AND ASPHALT SURFACES NEGATIVELY CONTRAST THE HISTORIC BRICK BUILDINGS, AND PREVENT NATURAL DRAINAGE.

## Alleyway: Existing Conditions



**PHYSICAL AND VISUAL CLUTTER**
THE OVERHEAD ELECTRICAL POWERLINES AND POLES WERE REMOVED AND RELOCATED. EACH ALLEY HAS ITS OWN LIGHTING THEME CREATING A UNIQUE AND DYNAMIC NIGHTLIFE EXPERIENCE.

**SHADE AND PLANTING**
A 4' WIDE GRAVEL BAND CONNECTS THE BRICK WALK TO THE BUILDINGS. THE GRAVEL BANDS PROVIDE A FLEXIBLE CONNECTION, ACCOMMODATING EXISTING UTILITIES, RAMPS, STAIRS AND MERCHANT APPURTENANCES, ALSO ALLOWING FOR SPONTANEOUS PLANTING.

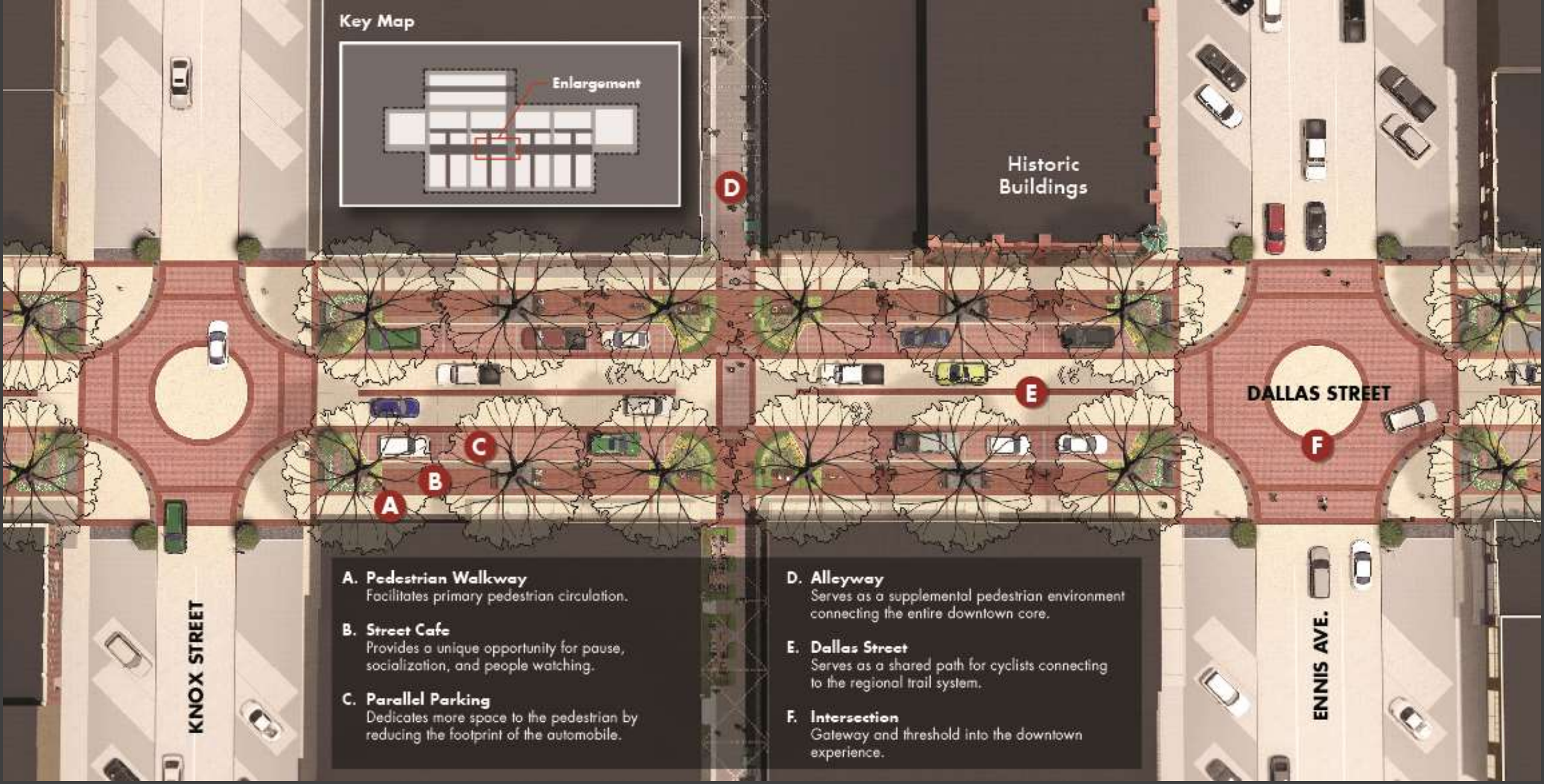
**BARRIERS AND ACCESSIBILITY**
THE ENTIRE ALLEY WAS REGRADED TO BE ACCESSIBLE, WITH SMALL RAMPS AND LANDINGS STRATEGICALLY LOCATED WITHIN THE GRAVEL BANDS WHERE NEEDED.

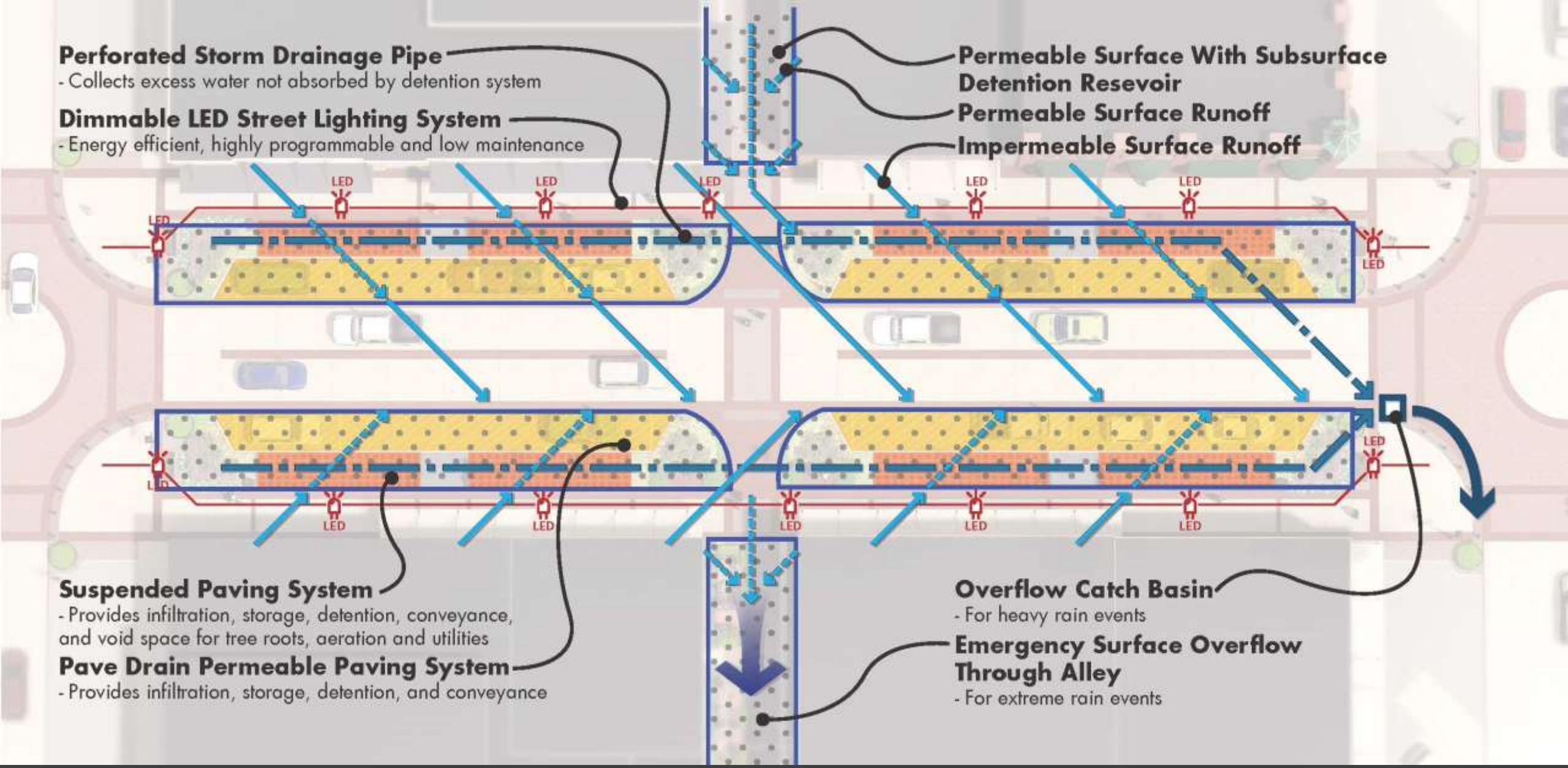
**CONNECTIVITY**
A 12' WIDE RECLAIMED BRICK WALK EXTENDS THE ENTIRE LENGTH OF THE ALLEY, CONNECTING TO THE FABRIC OF THE ADJACENT STREETS. SERVING PRIMARILY AS A PEDESTRIAN CORRIDOR, THE WALK IS VEHICULAR RATED, ALLOWING FOR OCCASIONAL VEHICULAR ACCESS.

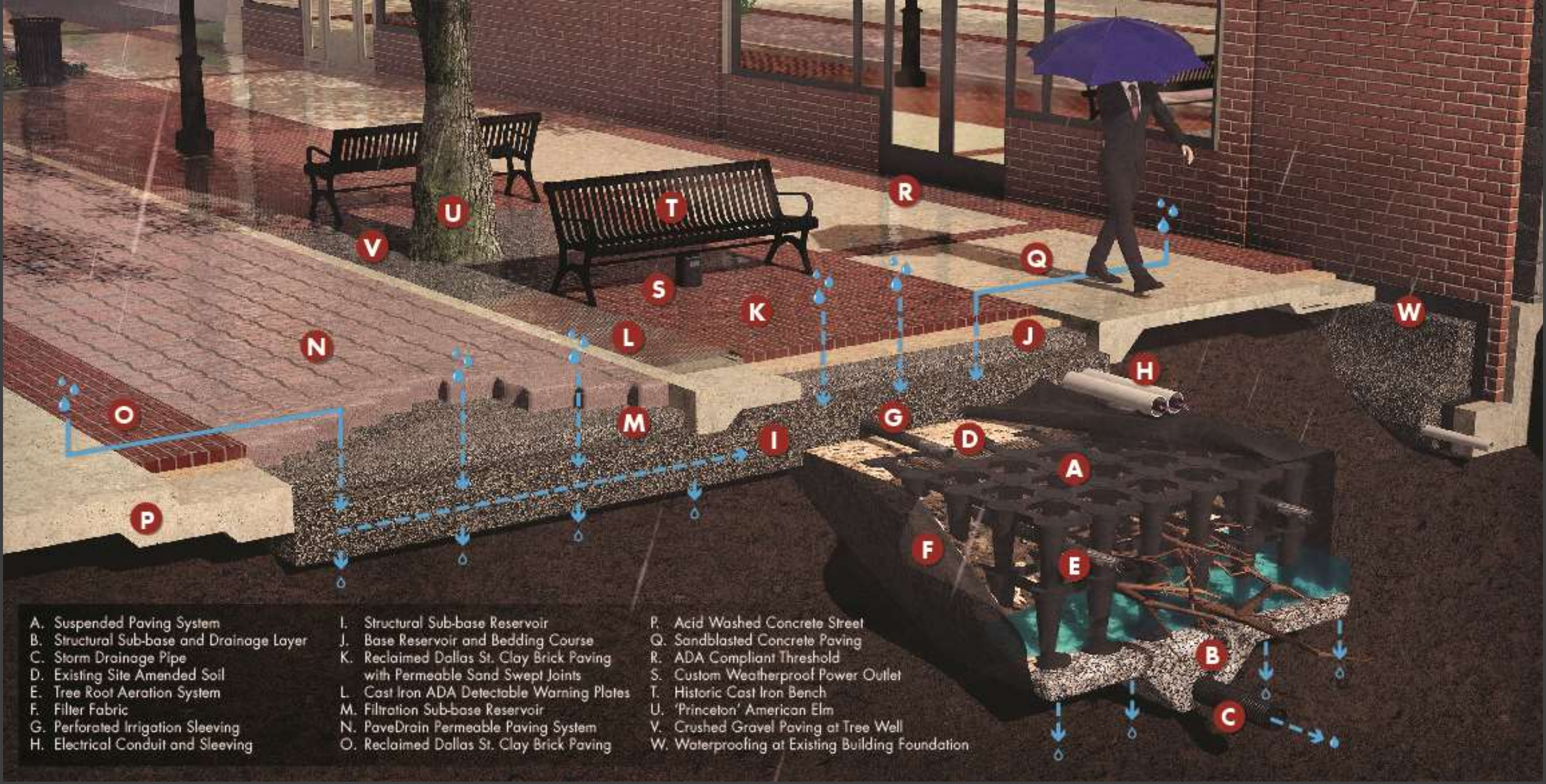
**UNDERUTILIZED SPACE**
THE ALLEYWAYS PROVIDE A SPECIAL RETAIL/ ENTERTAINMENT INVESTMENT OPPORTUNITY AND CAN BE ACTIVATED TO PROMOTE USE OF BUILDINGS THEY SERVE.

**MATERIALS AND AMENITIES**
ALLEYWAYS, IF PROGRAMMED AND ENHANCED WITH PEDESTRIAN AMENITIES CAN SERVE AS A SUPPLEMENTAL PEDESTRIAN ENVIRONMENT CONNECTING THE ENTIRE DOWNTOWN CORE. RECLAIMED HISTORIC BRICK PAVING COMPLIMENTS THE BUILDINGS AND SERVES AS A WARM WELCOMING PATH INTO THE ALLEYS.

**Alleyway: Proposed Design**


Key Map
Enlargement
Historic Buildings
KNOX STREET
DALLAS STREET
ENNIS AVE.
A
B
C
D
E
F
A. Pedestrian Walkway
Facilitates primary pedestrian circulation.
B. Street Cafe
Provides a unique opportunity for pause, socialization, and people watching.
C. Parallel Parking
Dedicates more space to the pedestrian by reducing the footprint of the automobile.
D. Alleyway
Serves as a supplemental pedestrian environment connecting the entire downtown core.
E. Dallas Street
Serves as a shared path for cyclists connecting to the regional trail system.
F. Intersection
Gateway and threshold into the downtown experience.


Perforated Storm Drainage Pipe
- Collects excess water not absorbed by detention system
Dimmable LED Street Lighting System
- Energy efficient, highly programmable and low maintenance
Permeable Surface With Subsurface Detention Resevoir
Permeable Surface Runoff
Impermeable Surface Runoff
LED
Suspended Paving System
- Provides infiltration, storage, detention, conveyance, and void space for tree roots, aeration and utilities
Pave Drain Permeable Paving System
- Provides infiltration, storage, detention, and conveyance
Overflow Catch Basin
- For heavy rain events
Emergency Surface Overflow Through Alley
- For extreme rain events


A. Suspended Paving System
B. Structural Sub-base and Drainage Layer
C. Storm Drainage Pipe
D. Existing Site Amended Soil
E. Tree Root Aeration System
F. Filter Fabric
G. Perforated Irrigation Sleeving
H. Electrical Conduit and Sleeving
I. Structural Sub-base Reservoir
J. Base Reservoir and Bedding Course
K. Reclaimed Dallas St. Clay Brick Paving with Permeable Sand Swept Joints
L. Cast Iron ADA Detectable Warning Plates
M. Filtration Sub-base Reservoir
N. PaveDrain Permeable Paving System
O. Reclaimed Dallas St. Clay Brick Paving
P. Acid Washed Concrete Street
Q. Sandblasted Concrete Paving
R. ADA Compliant Threshold
S. Custom Weatherproof Power Outlet
T. Historic Cast Iron Bench
U. 'Princeton' American Elm
V. Crushed Gravel Paving at Tree Well
W. Waterproofing at Existing Building Foundation


Historic Downtown Ennis Streetscape


Historic Downtown Ennis Streetscape


Historic Downtown Ennis Streetscape


Historic Downtown Ennis Streetscape


Historic Downtown Ennis Streetscape

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TEXAS
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# NRCS Local Work Group Meeting For Navarro and Ellis Counties

11/14/2018 | Brandon Steinberg

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# Locally Led Conservation

Locally led conservation is based on the principle that community stakeholders are best suited to identify and resolve local natural resource problems.

# Soil and Water Conservation District (SWCD)

- Ellis-Prairie SWCD
- Navarro SWCD

# Texas State Soil and Water Conservation Board (TSSWCB)

TEXAS STATE
Soil & Water
CONSERVATION BOARD

Our Partners at the State Level since 1940.

# Local Work Group (LWG)

Convened by local SWCD and NRCS, the Local Work Group responsibilities include:

- Identifying the biggest conservation needs in our counties;
- Prioritizing those conservation needs that can be addressed by USDA programs;
- Recommending USDA conservation program application and funding criteria and focus of NRCS funding efforts;
- Assisting NRCS with public outreach and information efforts; and,
- Providing recommendations to the NRCS State Technical Advisory Committee based on resource data.

# Public Involvement

- Anyone can participate
- Local, state and federal agencies
- Agricultural organizations
- Local agri-businesses
- Impacted stakeholders

# What is a “Resource Concern?”

Every piece of property is unique with opportunities to improve natural resources and address any areas of concern. Human activities contribute to the condition of natural resources on the land -- they can help improve them or contribute to their decline, which can result in what we refer to as a “resource concern.”

# Conservation Practices

Through the use of Conservation Planning, practices are implemented to address identified resource concerns, in order to meet client objectives.

# Ranking Applications to Award EQIP Funding

Four evaluation categories contribute to the overall score:

- Local issues (the most points are awarded here)
- State issues (second most points in this category)
- National issues (least amount of points awarded)
- Cost effectiveness

# Local Resource Concerns

County Based

- Funding Percentage
- Prioritize Resource Concerns

# THANK YOU!

**These are the priorities we will use for ranking funding for our FY20 EQIP applications.**

# *Questions?*

## www.tx.nrcs.usda.gov

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**USDA is an equal opportunity provider, employer and lender.**

# Water Stewardship

MillerCoors Fort Worth Brewery

*It Takes Great Water to Make Great Beer*

*To Make Great Water Takes Great Responsibility*

SUSTAINABILITY AT MILLERCOORS DEFINED:

# MAKE A POSITIVE AND MEANINGFUL IMPACT ON THE SOCIAL, ENVIRONMENTAL AND ECONOMIC ISSUES THAT AFFECT OUR BUSINESS, EMPLOYEES AND OTHER STAKEHOLDERS

# Corporate Goals - 2020

- Establish Local Water Conservation Programs that return more water annually back to the Environment than the brewery will use during the year. (RESTORE 100%)

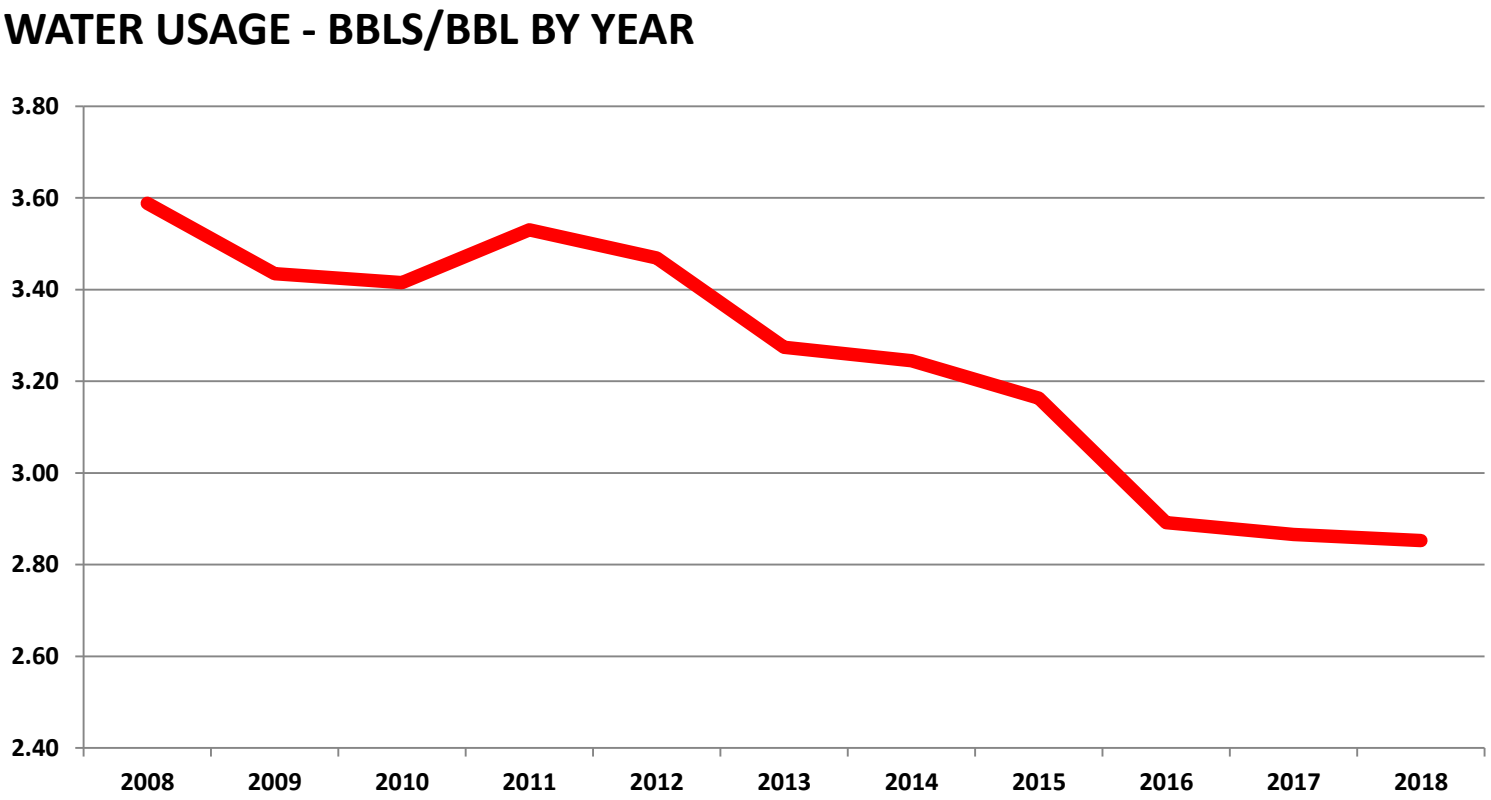
- Drive water use numbers to 3.1 barrels of water to produce 1.0 barrel of beer at All Large Breweries (8)

- All Large Breweries (8) become third party certified "Landfill Free"

- In our world the program is about water volume and water quality
- It makes up roughly 96% of our product
- In addition, of all the water used by MillerCoors – 96% is for growing the Barley and Hops

# Brewery Numbers

- Approximately 24% Reduction in Water Purchased since 2008



# How does the Fort Worth Brewery Compare?

- For the Domestic Brewing Industry as a whole: **6 barrels of water**
- The European Beer Industry: **Between 8 -10 barrels of water**
- The Fort Worth brewery: **Currently at 2.67 barrels of water (Oct 2018)**

- **NOTE:** 2018 Plant KPI is **2.86 barrels** of water to produce a barrel of beer.

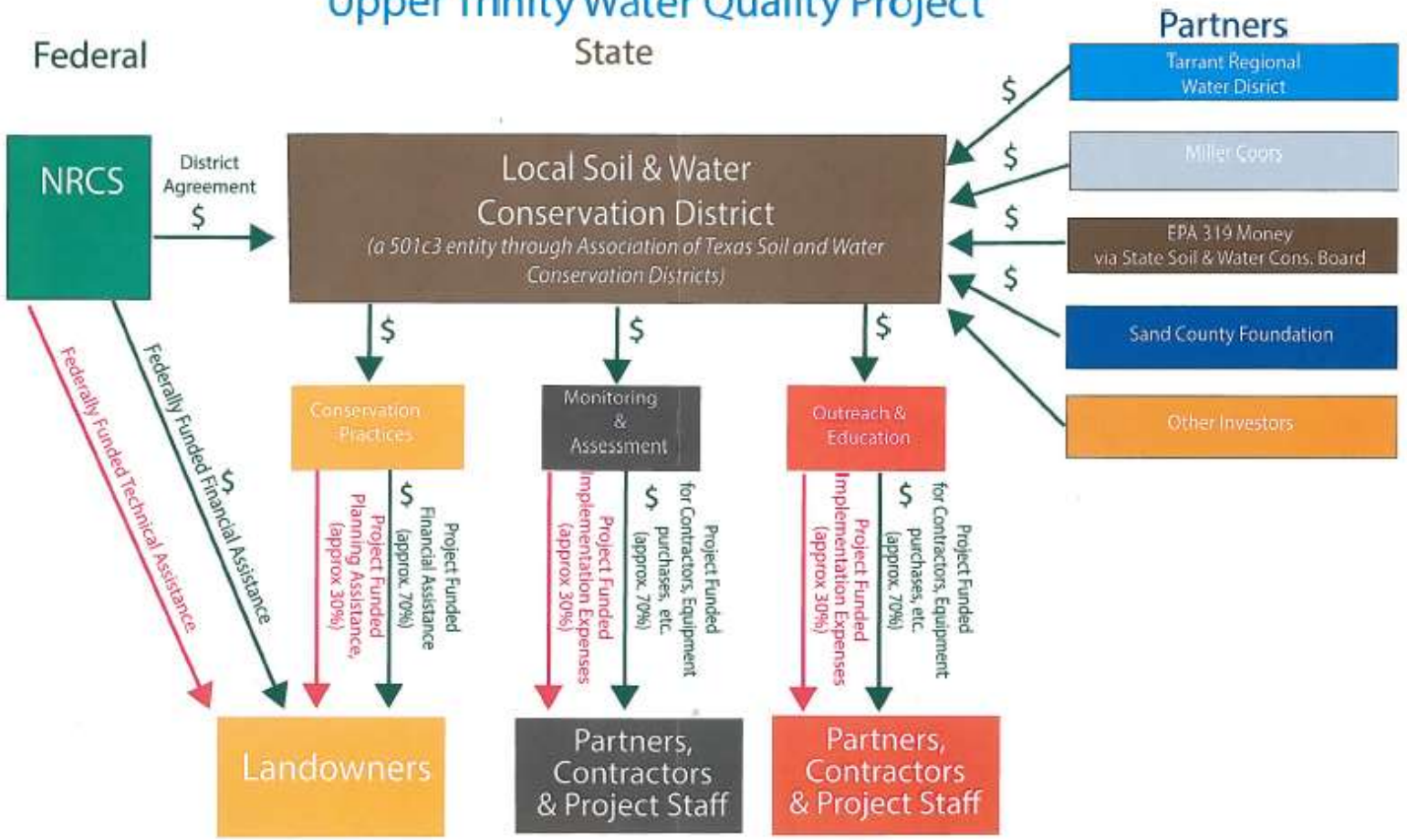
# Our External Sustainability Project

- It starts with targets of
- Improving Water Quality
- Increasing Water Quality
- It really all starts with Soil Health

# Richland-Chambers Watershed Partnership

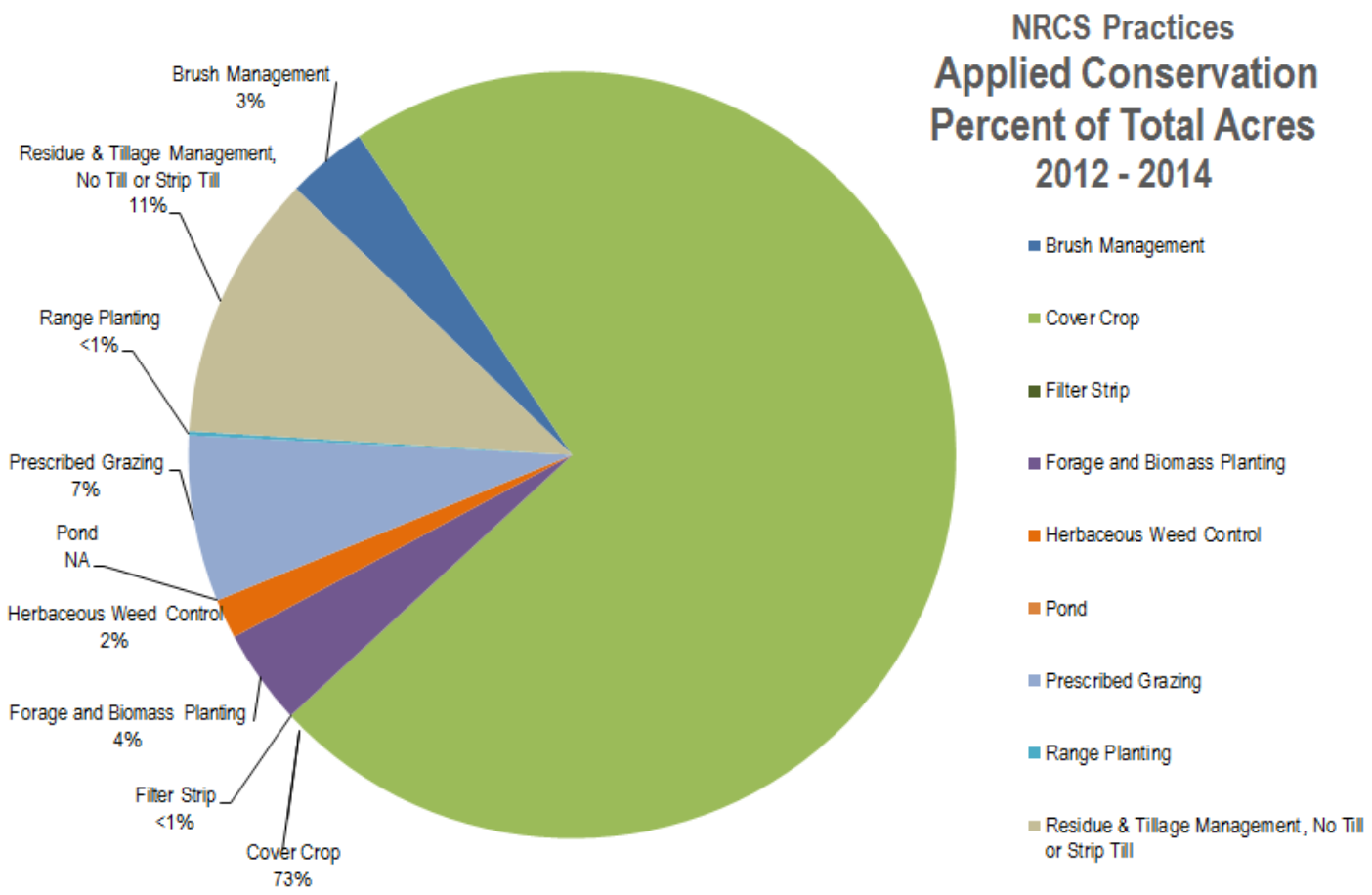
- TRWD, TXAgrilife and NRCS
- Issues of Concern
  - Excess Nutrients (Phosphorus, Nitrogen)
  - Sedimentation
  - Run-off
  - Program is focused on reducing the sources of the issues of concern
  - Group is currently developing a Watershed Protection Plan.

# Upper Trinity Water Quality Project

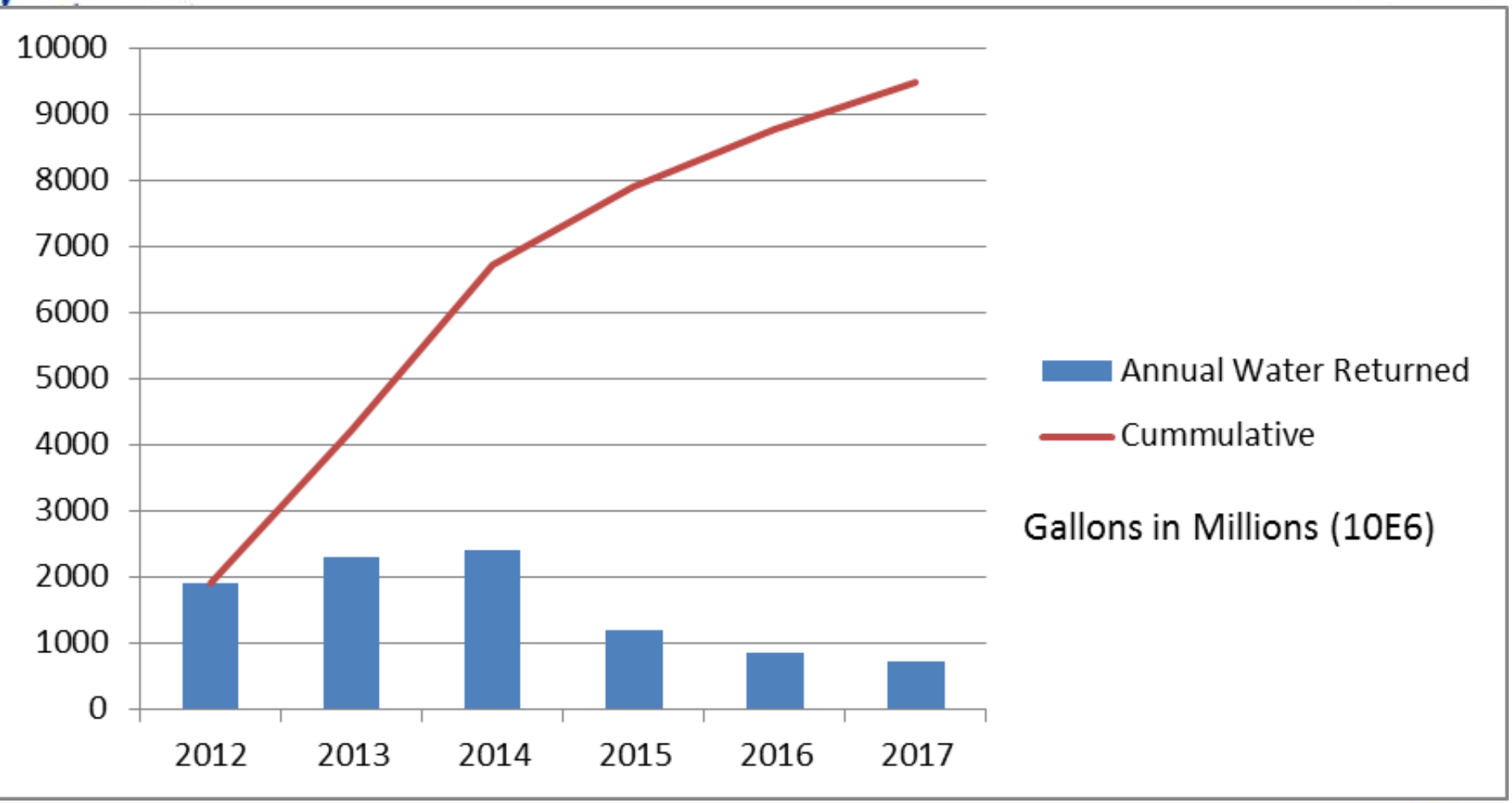



131 LANDOWNERS
35,000 ACRES
>9.0 BILLION
GALLONS
Since 2012

# NWQI - Applied Conservation Practices



# National Water Quality Initiative
## Annual Water Quantity Benefit (Mgal/yr)



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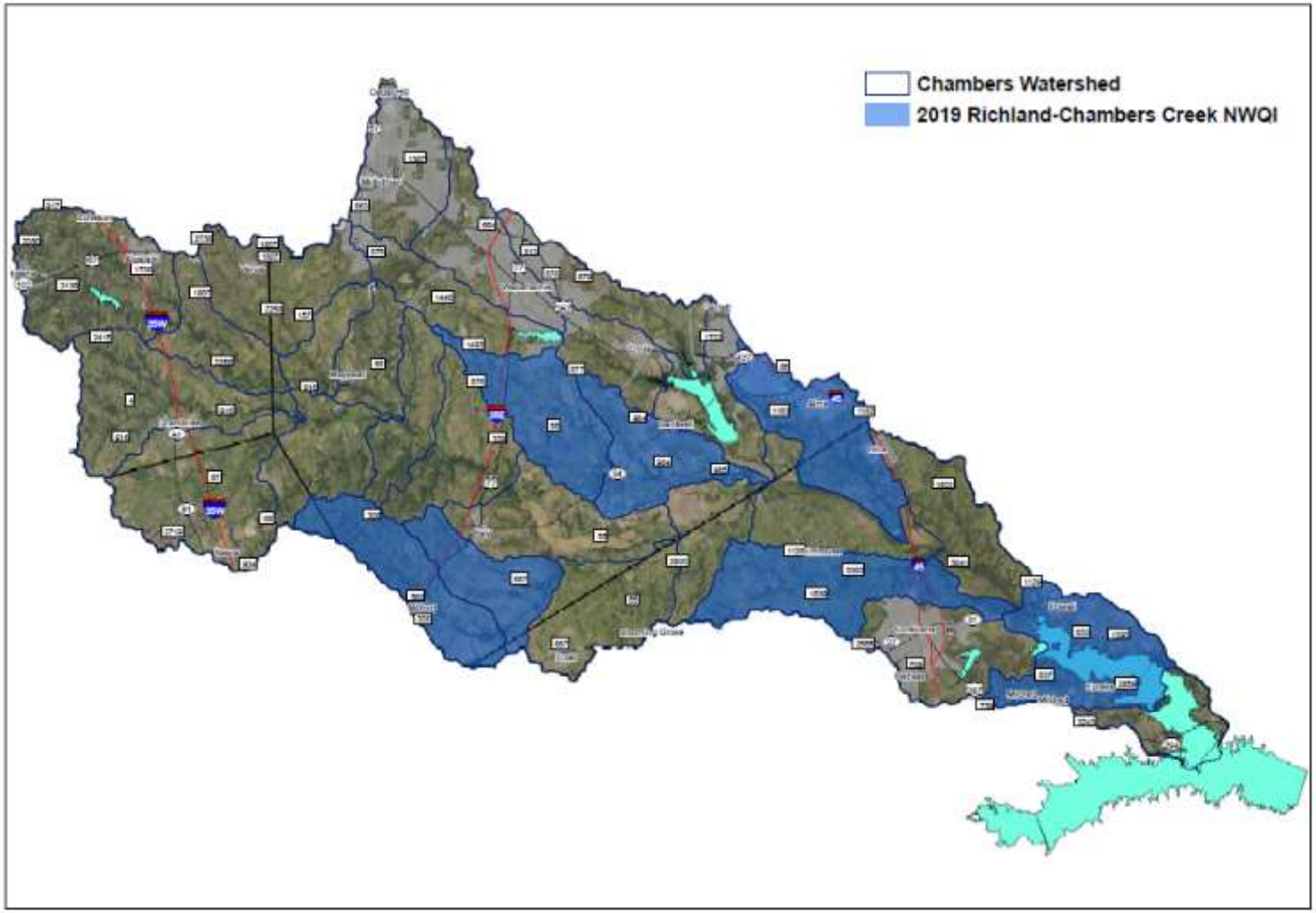
# National Water Quality Initiative

Beau Brooks
NRCS District Conservationist
Waxahachie, Texas

# FY2019 EQIP – National Water Quality Initiative
# Richland-Chambers Creek

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10 5 0 10 Miles

N W E S

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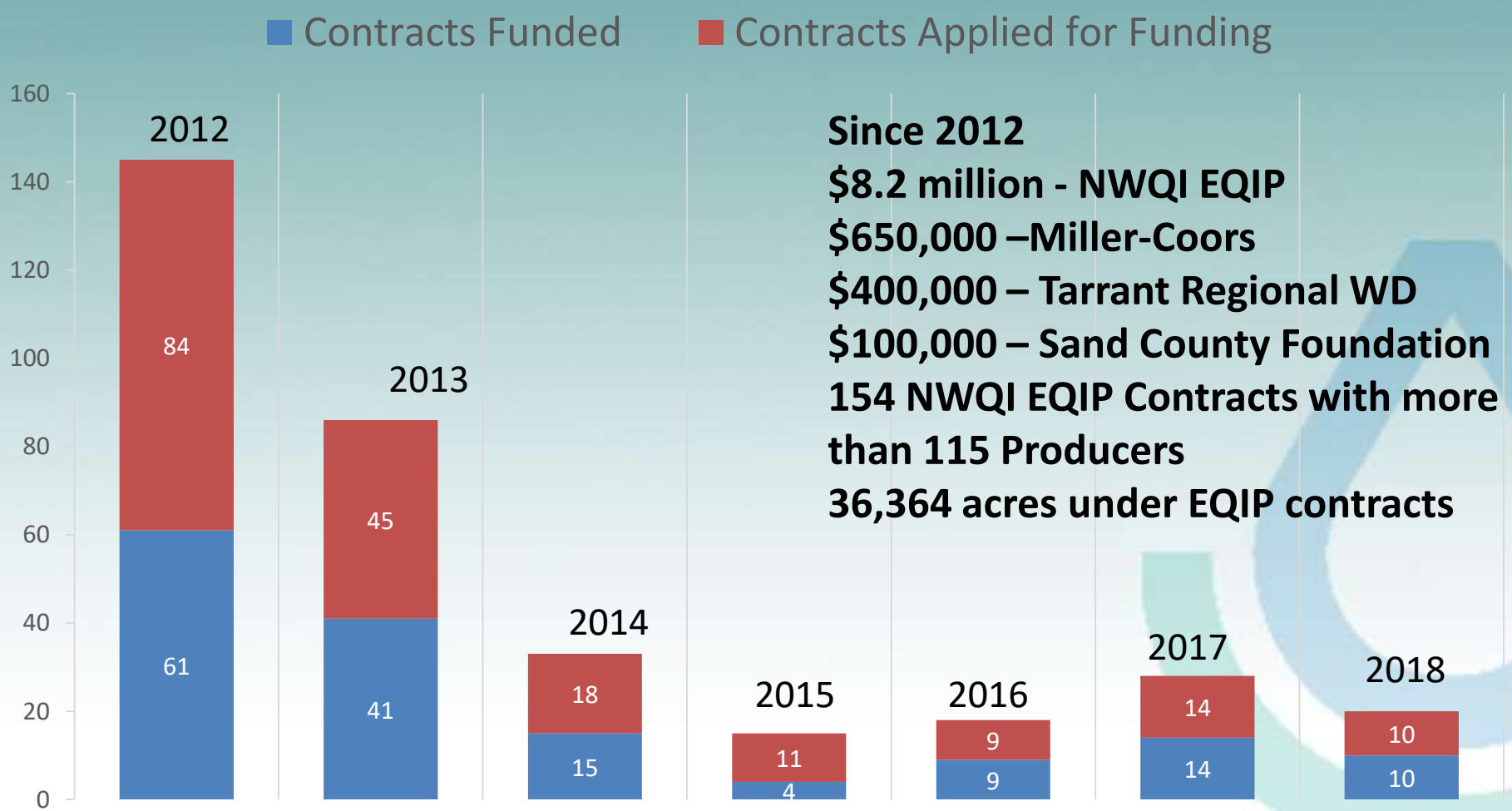
# National Water Quality Initiative

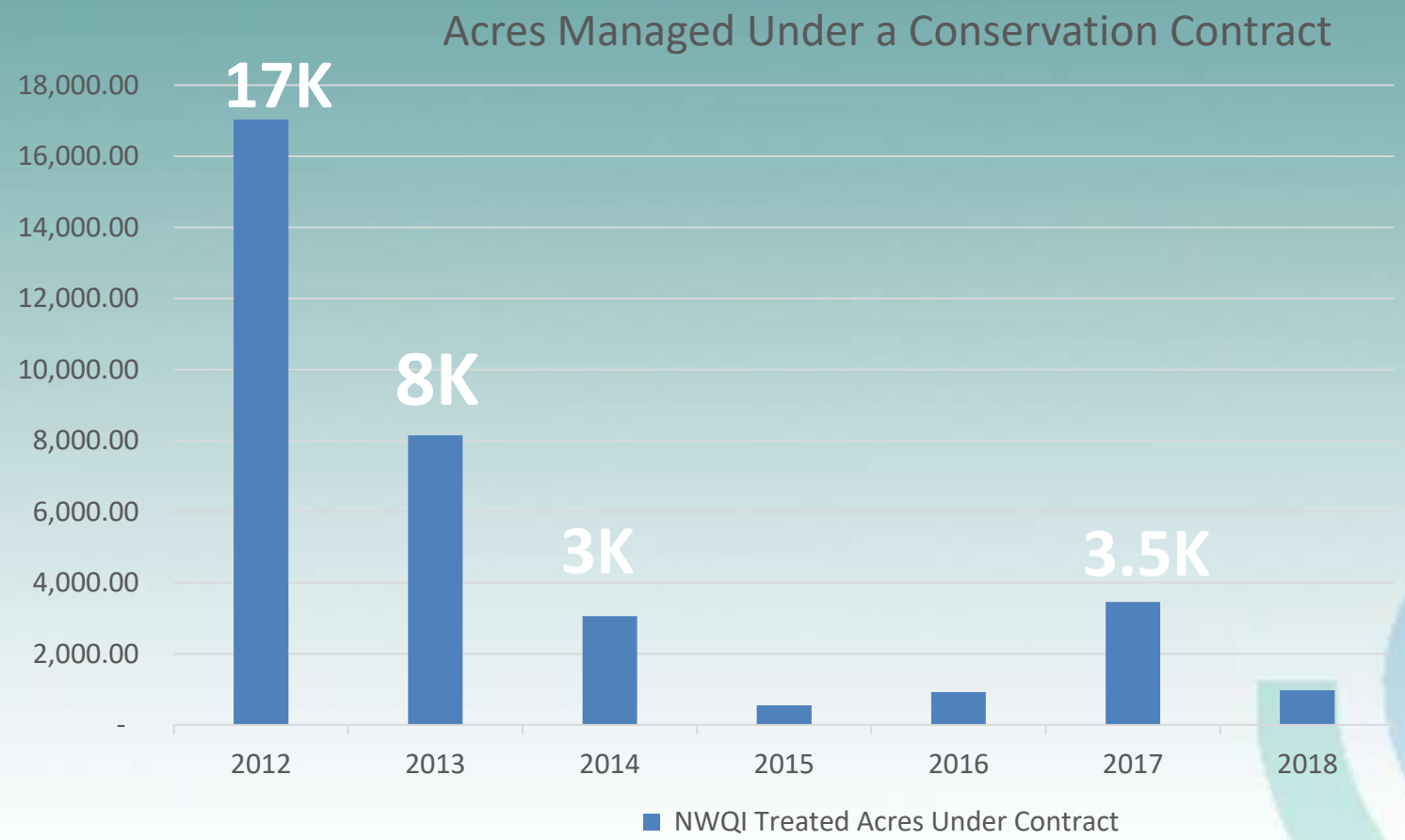
## CONTRACT APPLICATIONS VS. CONTRACTS FUNDED




**Since 2012**
**$8.2 million - NWQI EQIP**
**$650,000 –Miller-Coors**
**$400,000 – Tarrant Regional WD**
**$100,000 – Sand County Foundation**
**154 NWQI EQIP Contracts with more than 115 Producers**
**36,364 acres under EQIP contracts**

United States Department of Agriculture

# Conservation Planning Assistance at Work




2012-2018

# Chambers Creek NWQI (2018)

## At-a-Glance

- Contracts – 10
- $340,000 in EQIP funding
- Acres - 977

## Typical Conservation Practices:

- Prescribed Grazing
- Residue & Tillage Management
- Cover Crop
- Forage & Biomass Planting
- Livestock Pipeline
- Herbaceous Weed Control
- Range Planting
- Cross Fencing
- Ponds
- Forage Harvest Management

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# 5 Steps to Assistance

## How to Get Assistance from NRCS for Farms, Ranches and Forests

**1 PLANNING**

Visit your local NRCS field office to discuss your goals and work with staff on a conservation plan.

**2 APPLICATION**

With the help of NRCS, complete an application for financial assistance programs.

**3 ELIGIBILITY**

Find out if you're eligible for NRCS' variety of financial assistance programs.

**4 RANKING**

NRCS ranks applications according to local resource concerns.

**5 IMPLEMENTING**

Put conservation to work by signing a contract and implementing conservation practices.

# Challenges for Implementing Successful Projects in the Future

- The soil in the Blackland Prairie
- Staff to Monitor/Evaluate Projects
- Education for Land Owners
- Time to Build Relationships with Producers

# Questions ?

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# LEMON COOKIES

*Soft bakery style lemon cookies with a lemon zest glaze*

- **Prep Time:** 10 minutes
- **Cook Time:** 14 minutes
- **Total Time:** 24 minutes
- **Yield:** 24

## INGREDIENTS

- 1 and 3/4 cups flour
- 1/2 teaspoon baking soda
- 1/2 teaspoon salt
- 1 tablespoon lemon zest (~1 small lemon)
- 1/2 cup unsalted butter (room temperature)
- 1 cup sugar
- 1 egg
- 1 teaspoon vanilla
- 2 tablespoons lemon juice

Glaze

- 2 cups powdered sugar
- 2 tablespoons lemon zest
- 1/3 cup lemon juice

## INSTRUCTIONS

1. Preheat oven to 350 degrees
2. Prepare a cookie sheet with a non-stick spray, or parchment paper, set aside
3. In a medium bowl whisk the flour, baking soda, salt, and lemon zest.
4. In large mixing bowl beat the butter for a few seconds, add the sugar and mix until light and fluffy. Add in the egg, vanilla, and lemon juice. Mix until fully combined.
5. Continue mixing while you add in the dry ingredients. Mix until fully combined.
6. Drop cookie dough by the spoonful onto the prepared cookie sheet. Bake until light golden on edges, approximately 12- 14 minutes. Remove from oven, let cool on the cookie sheet about 5 minutes and then remove to continue cooling on a wire rack.
7. Once cooled prepare the glaze by whisking the powdered sugar, lemon juice, and lemon zest together until well combined. Spoon onto the top of the cookies. Allow to sit and dry, glaze will harden.
8. Store cookies in airtight container at room temperature. Enjoy!