



**North Central Texas Council of Governments**

**Sixteen Member County Watershed Management Forum**

**July 12, 2017**

**NCTCOG, Centerpoint II**

**Transportation Council Room**

**AGENDA**

<b><u>Time</u></b>	<b><u>Topic</u></b>	<b><u>Speakers</u></b>
9:30a-9:45a	<b>Welcome, Introductions, and Brief Summary of Why We're Here and Progress Made</b>	<i>Mia Brown, CFM NCTCOG E&amp;D</i>
9:45a-10:05a	<b>Importance of the Sixteen County Watershed Management Effort for New Development</b>	<i>Jessica Baker, PE, CFM, PMP TFMA/Halff Associates</i>  <i>Jerry Cotter, PE USACE Chief Water Resources</i>
10:05a-10:10a	<b>Summary of the Regionally Recommended Standards in County Watershed Management, and Example Resources Available for Adoption</b>	<i>Edith Marvin, PE NCTCOG E&amp;D</i>
10:10a-10:30a	<b>Texas Water Code – Amended in 2001 by Texas Senate Bill 936 (77R)</b>	<i>John Ivey, PE, CFM TFMA/Halff Associates</i>
10:30a-11:15a	<b>Forum Peer Discussion of the Legislation Enabling Texas Counties to Adopt the Regionally Recommended Standards in Watershed Management</b>	<i>County Attorneys (Edith Marvin and Mia Brown facilitating)</i>
11:15a	<b>Tools to Come and Next Steps</b>	<i>Jerry Cotter and Edith Marvin</i>

If you have any questions regarding the meeting or agenda items, please contact

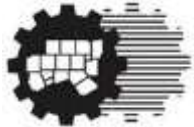
Mia Brown: (817) 695-9227; [MBBrown@nctcog.org](mailto:MBBrown@nctcog.org)

If you plan to attend this public meeting and you have a disability that requires special arrangements at the meeting, please contact Crysta Guzman by phone at (817) 695-9231 or by email at [cguzman@nctcog.org](mailto:cguzman@nctcog.org) 72 hours in advance of the meeting. Reasonable accommodations will be made to assist your needs.

**616 Six Flags Drive, Centerpoint Two  
P.O. Box 5888, Arlington, Texas 76005-5888  
(817) 640-3300 FAX: 817-640-7806  
[www.nctcog.org](http://www.nctcog.org)**

# 16-County Watershed Management Forum

July 12, 2017



North Central Texas  
Council of Governments



BUILDING STRONG®

# Agenda

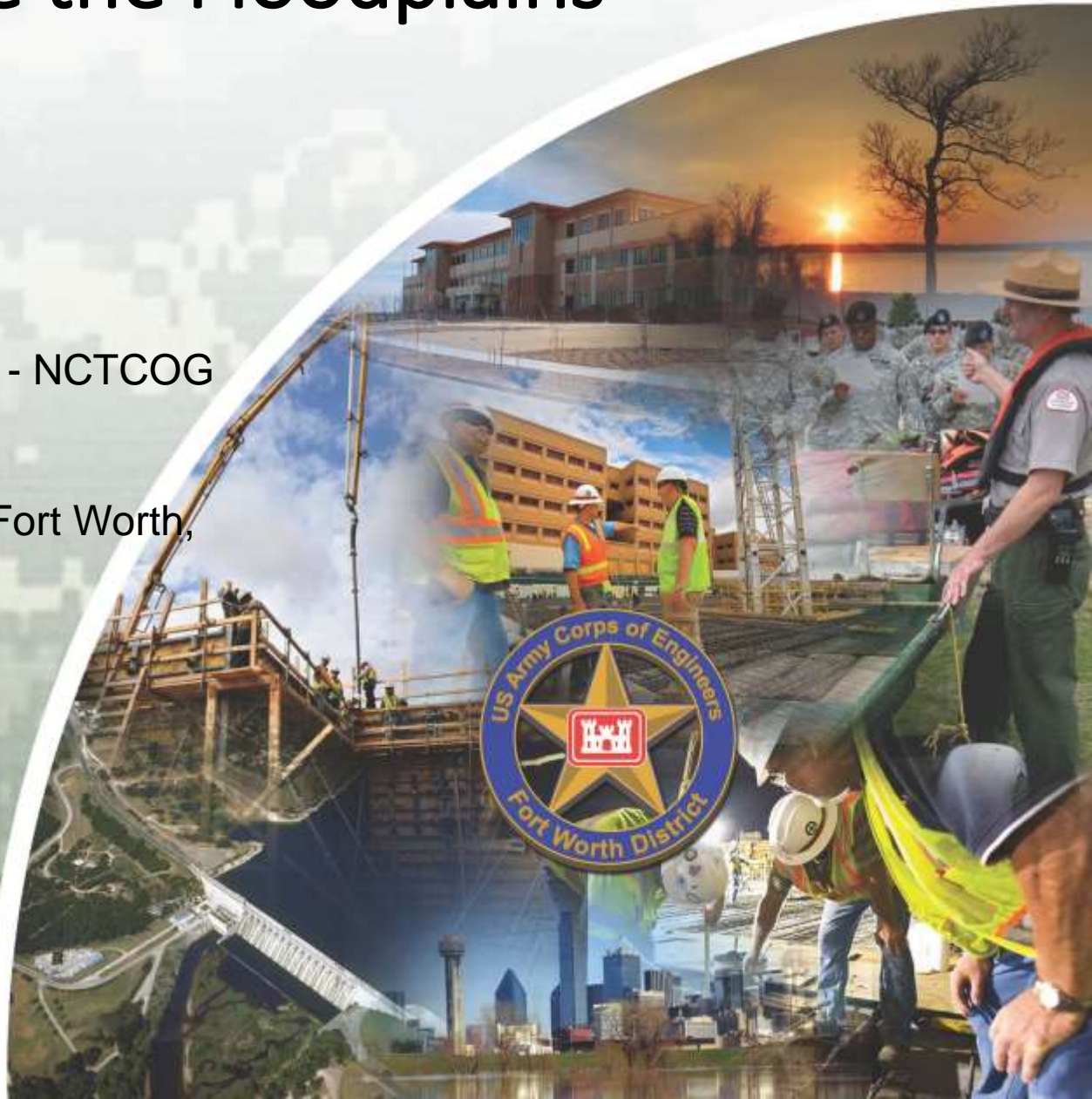
- Introduction
- Importance of the Sixteen County Watershed Management Effort for New Development
- Summary of the Regionally Recommended Standards
- Texas Water Code – *Amended in 2001 by Texas Senate Bill 936 (77R)*
- Forum Peer Discussion
- Tools to Come and Next Steps

# Why Manage the Floodplains

Date: 12 July 2017

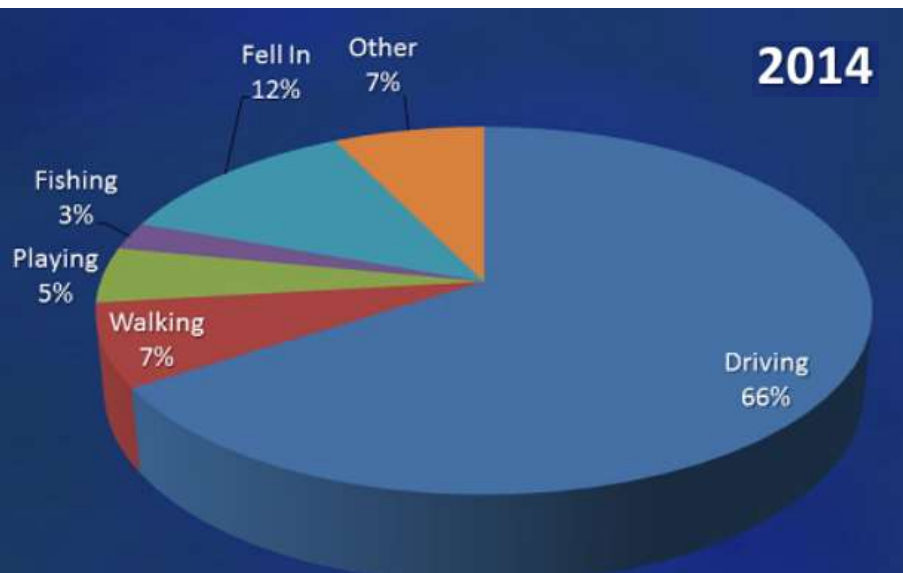
Audience: 16 County Forum - NCTCOG

By: Jerry L. Cotter P.E.  
Chief of Water Resources – Fort Worth,  
US Army Corps of Engineers



# Background – Flooding in the US

- Floods are the leading cause of natural disaster losses in the US
- 30yr average = \$7.96 billion in damages/year, 82 fatalities/year



Year	Flood Damages (Water Year) <small>Adjusted to 2014 Inflation Water year (e.g. WY 2014 is Oct 1, 2013 through Sep 30, 2014)</small>	Flood Fatalities <small>Calendar Year (Jan 1-Dec 31)</small>
2014	\$2,861,426,089	38
2013	\$2,210,809,876	80
2012	\$522,119,985	29
2011	\$9,102,294,087	113
2010	\$5,615,860,859	103



National Oceanic and Atmospheric Administration's

**National Weather Service**

# Texas Is Subject to Extreme Flooding

- 2015-2016 Record flooding
- 1000s of Structures impacted across TX and LA in 2015-2016
- \$850M Damages in 2015 in TX alone

Fixing Fort Worth flooding issues could top \$1 billion, report says

Drivers become stranded in high waters across North Texas



Somerville, TX 2016



Brazos River, 2016

Brandon Wade/Star-Telegram via AP Photos



(AP Photo/Da

# Flooding Impacts Lives

- 48 deaths in Texas in 2015
- 29 deaths in Texas April – June 2016



# Flooding Impacts Transportation Infrastructure

- Largest loss of life
- Access issues
- Long rebuild schedules
- 10's of millions





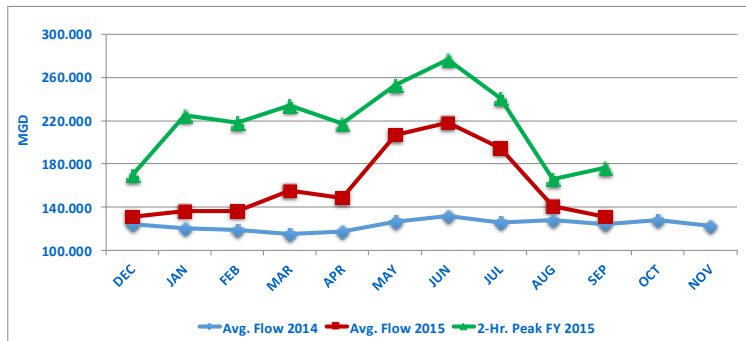
# Flooding Impacts Water Systems

- Fort Worth water system impacted, 1949
- Eastland County and Cisco, Texas loss of potable water system, memorial day 2016 flood
- Treatment plants
- Pipelines
- Can impact whole communities

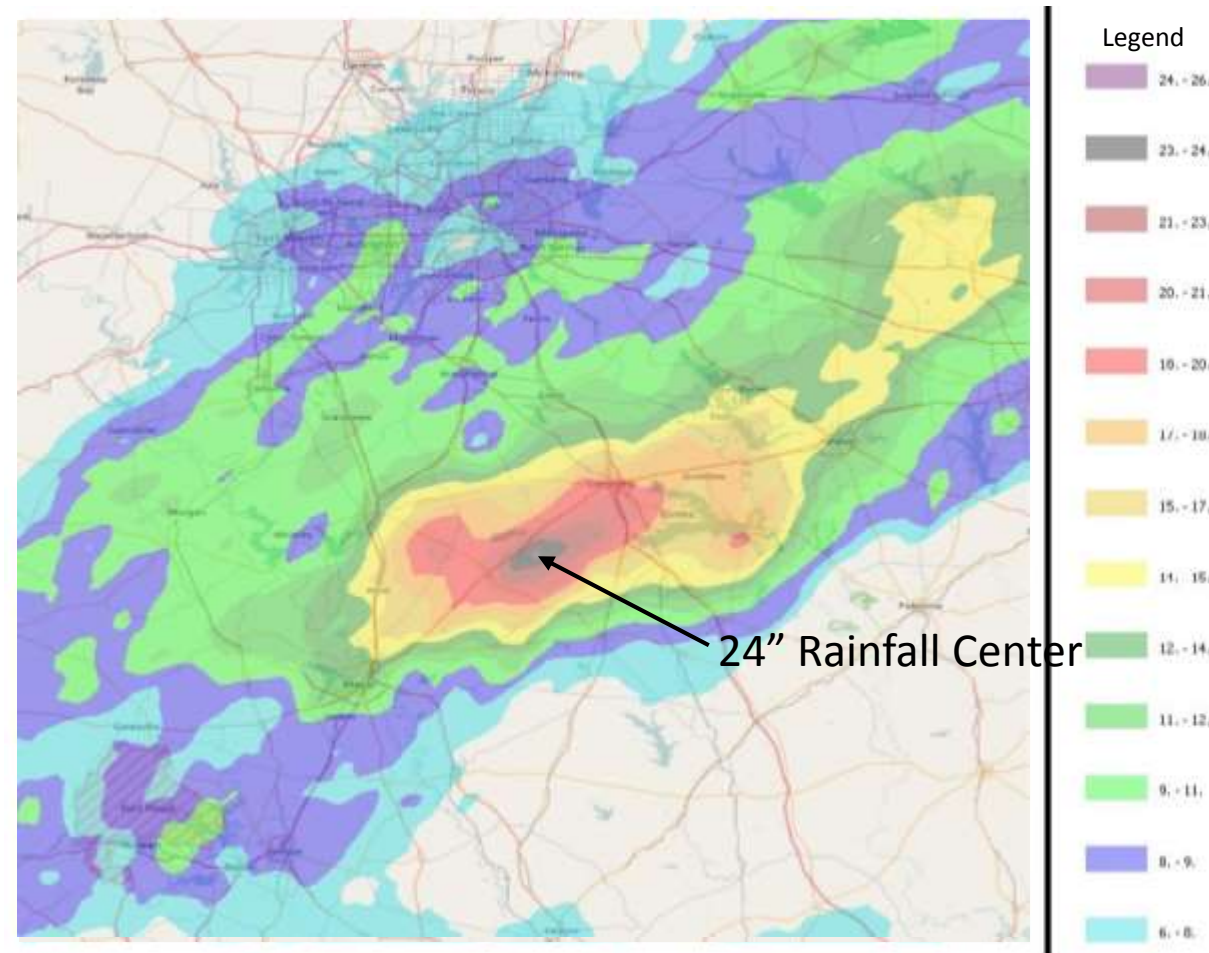


# Flooding Impacts Sanitary Sewer Systems

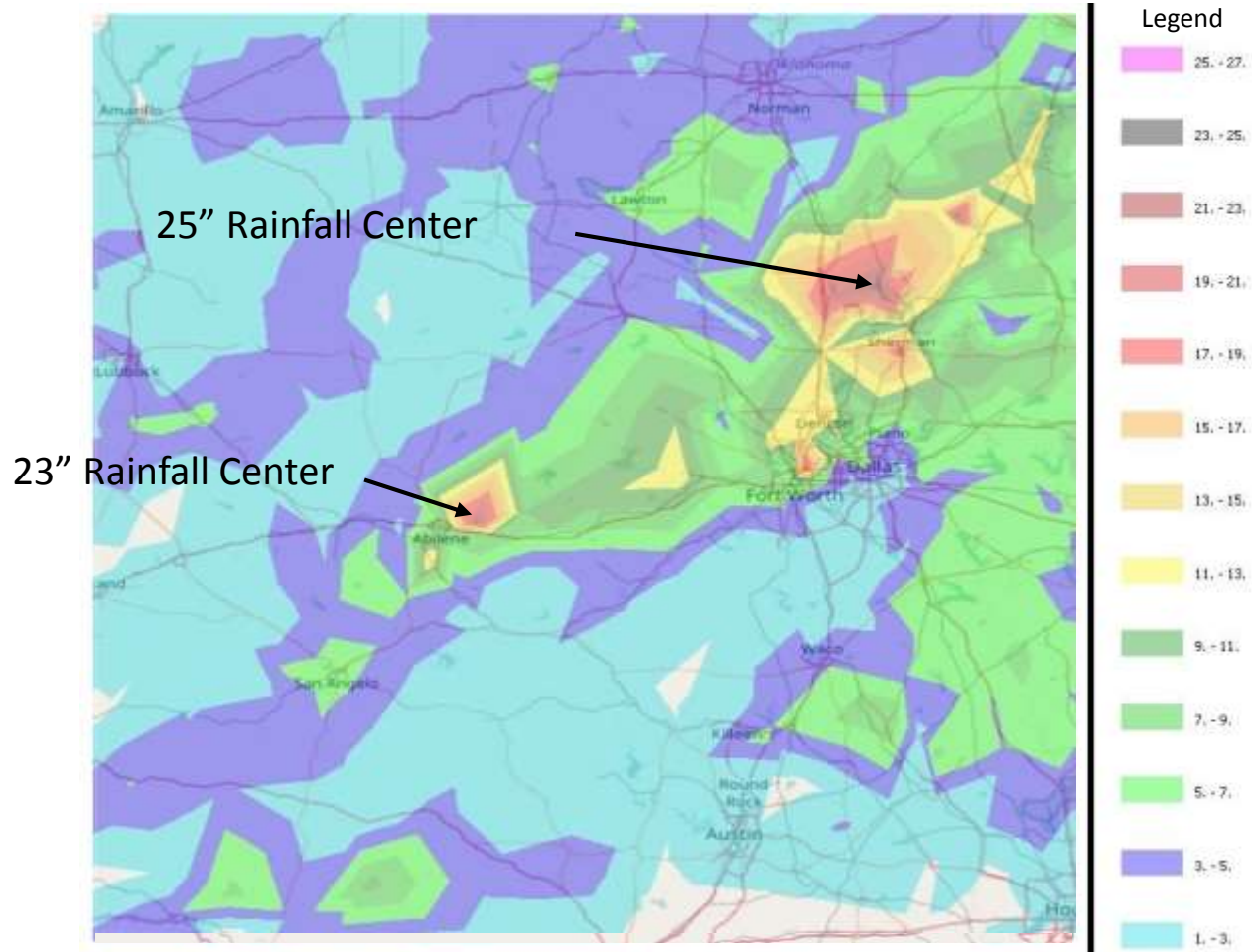
- 2015 - TRA and USACE partner to mitigate flood impacts on regional sanitary sewer for DFW
- Uncertainty in determining flood potential
- Treatment plants
- Damaged pipelines



# Corsicana, TX – October 2015

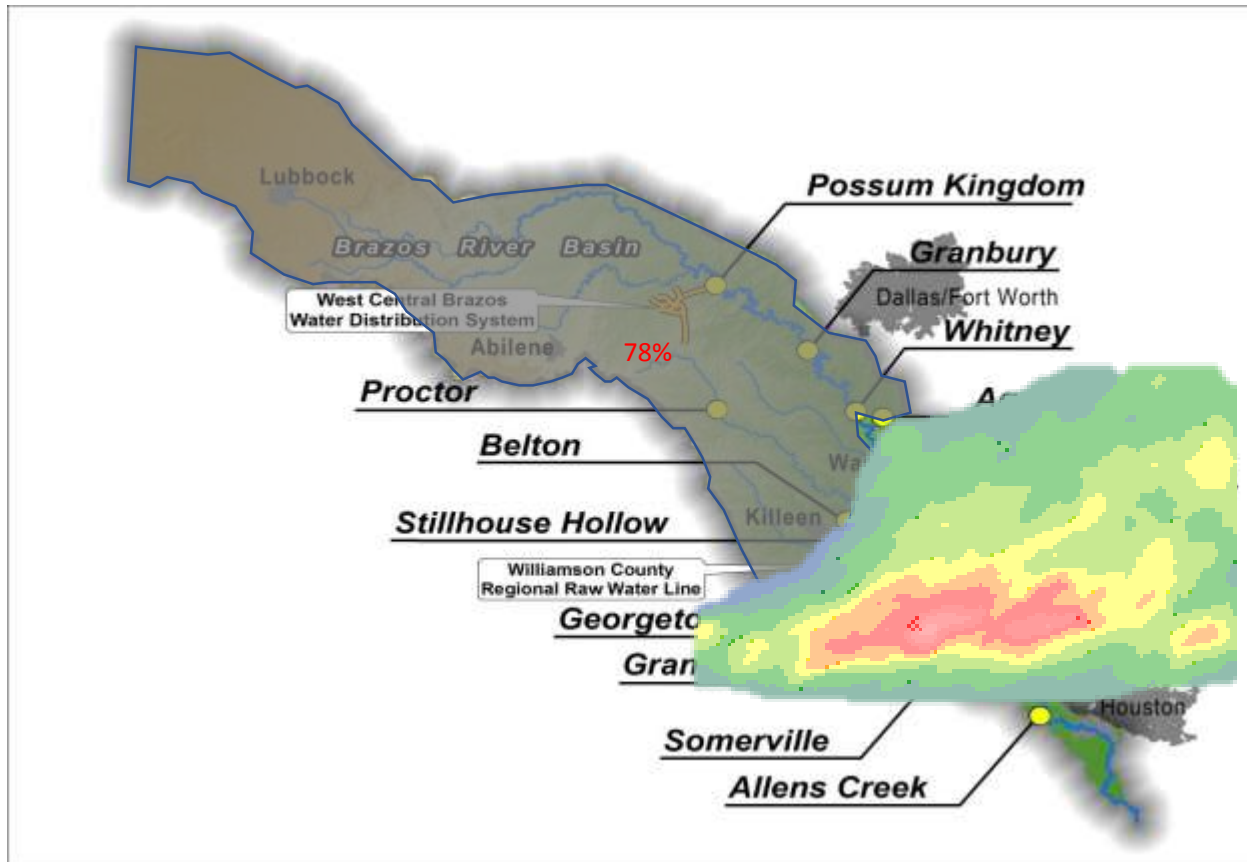


# Clyde, TX – October 1981



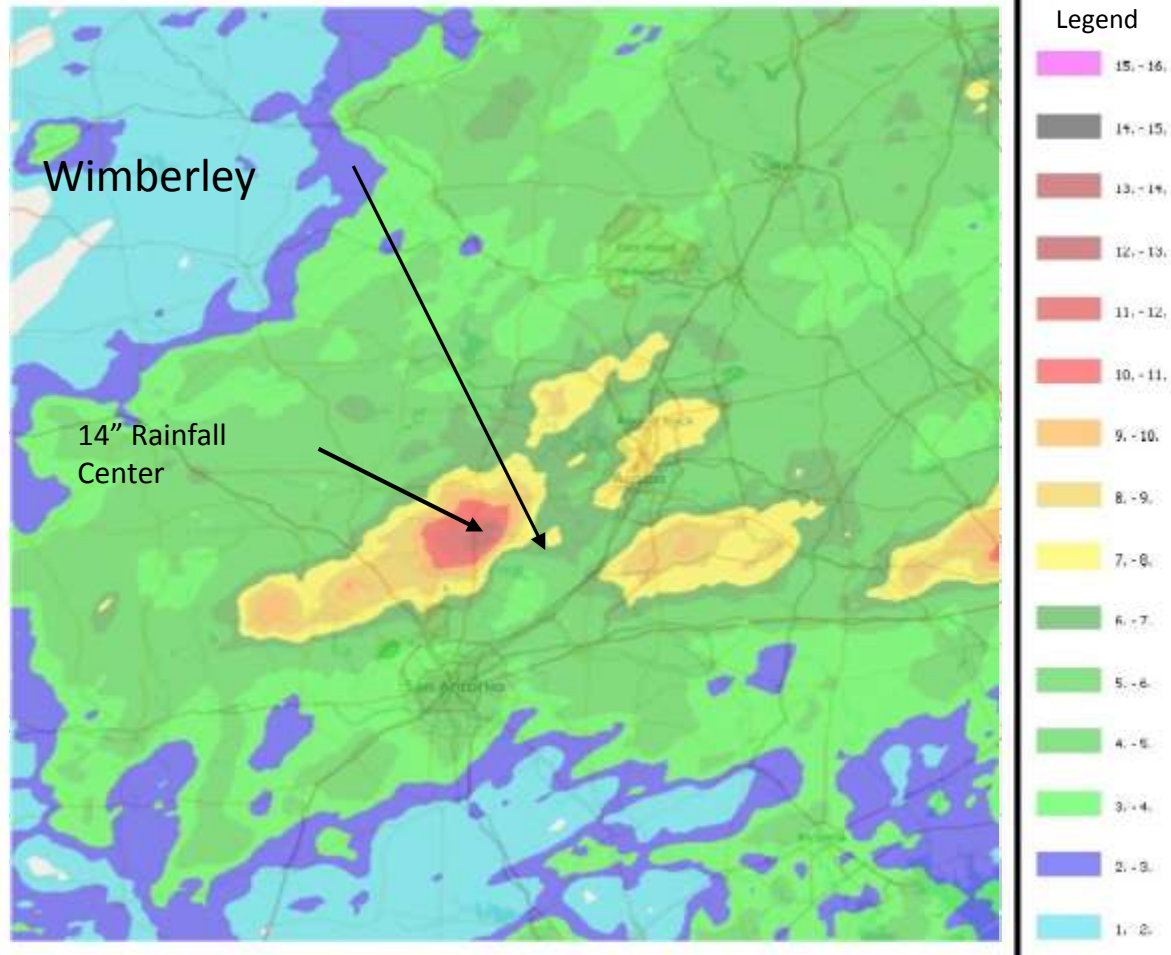
# Brazos River Basin Reservoirs

May 26-27, 2016



22" @  
Brenham, TX

# Wimberley Flood – May 2015



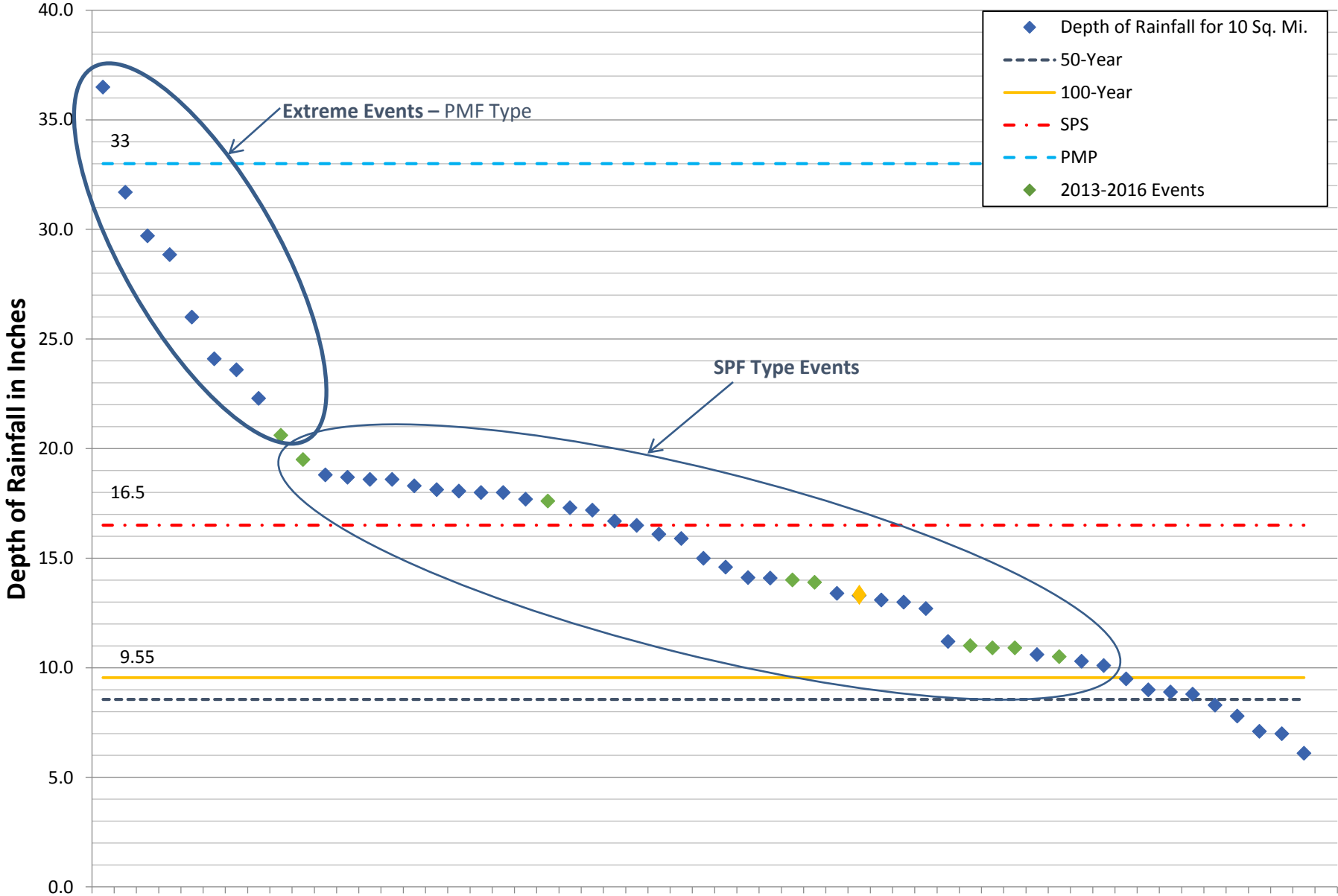
# Blanco River May 23-24, 2015



12 Lives Lost, \$30M Total Damages

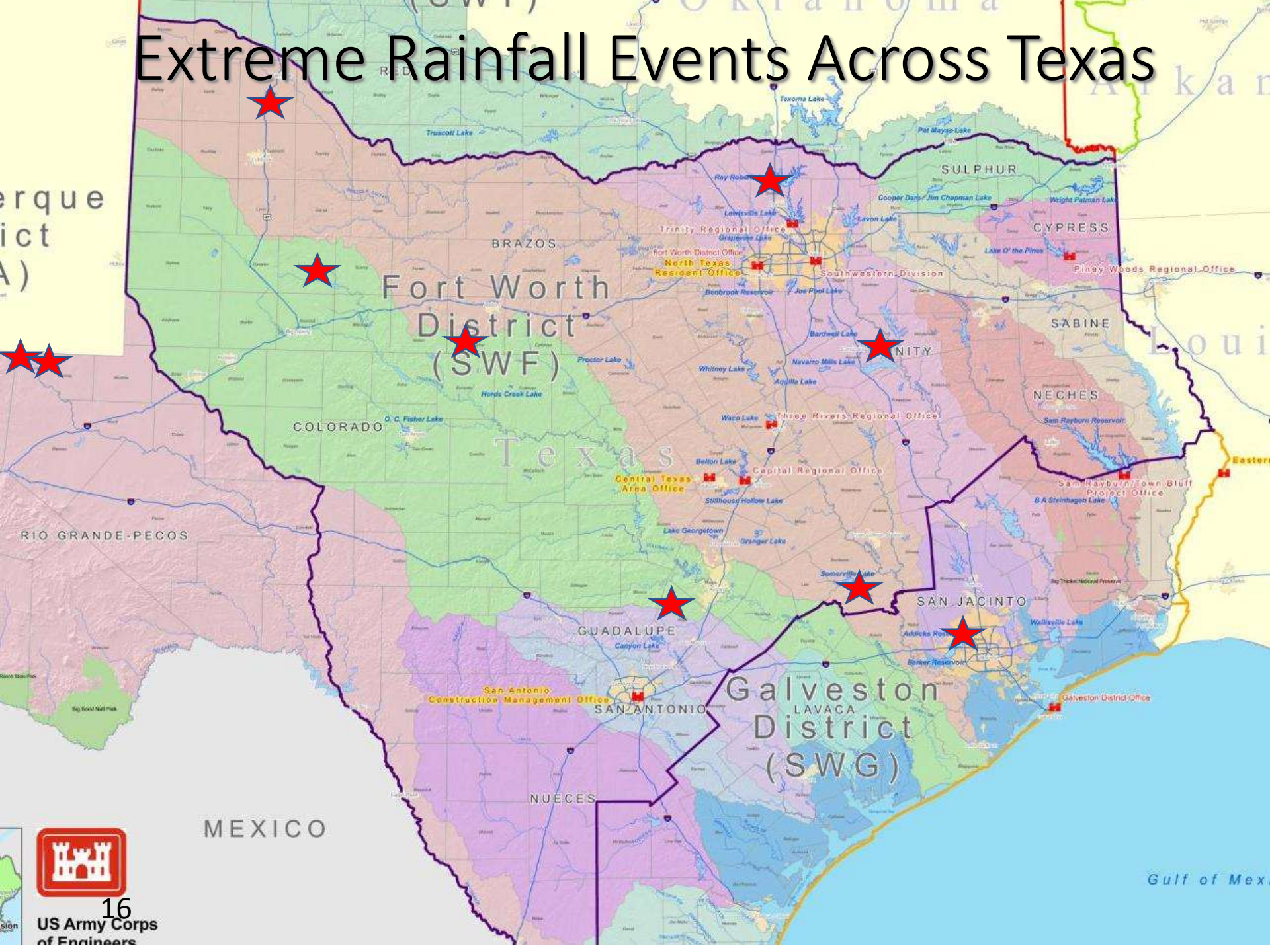
<http://features.texasmonthly.com/editorial/wimberley-floods-memorial-day-weekend-2015/>

# 24 Hour Rainfall for 10 Sq. Mi.





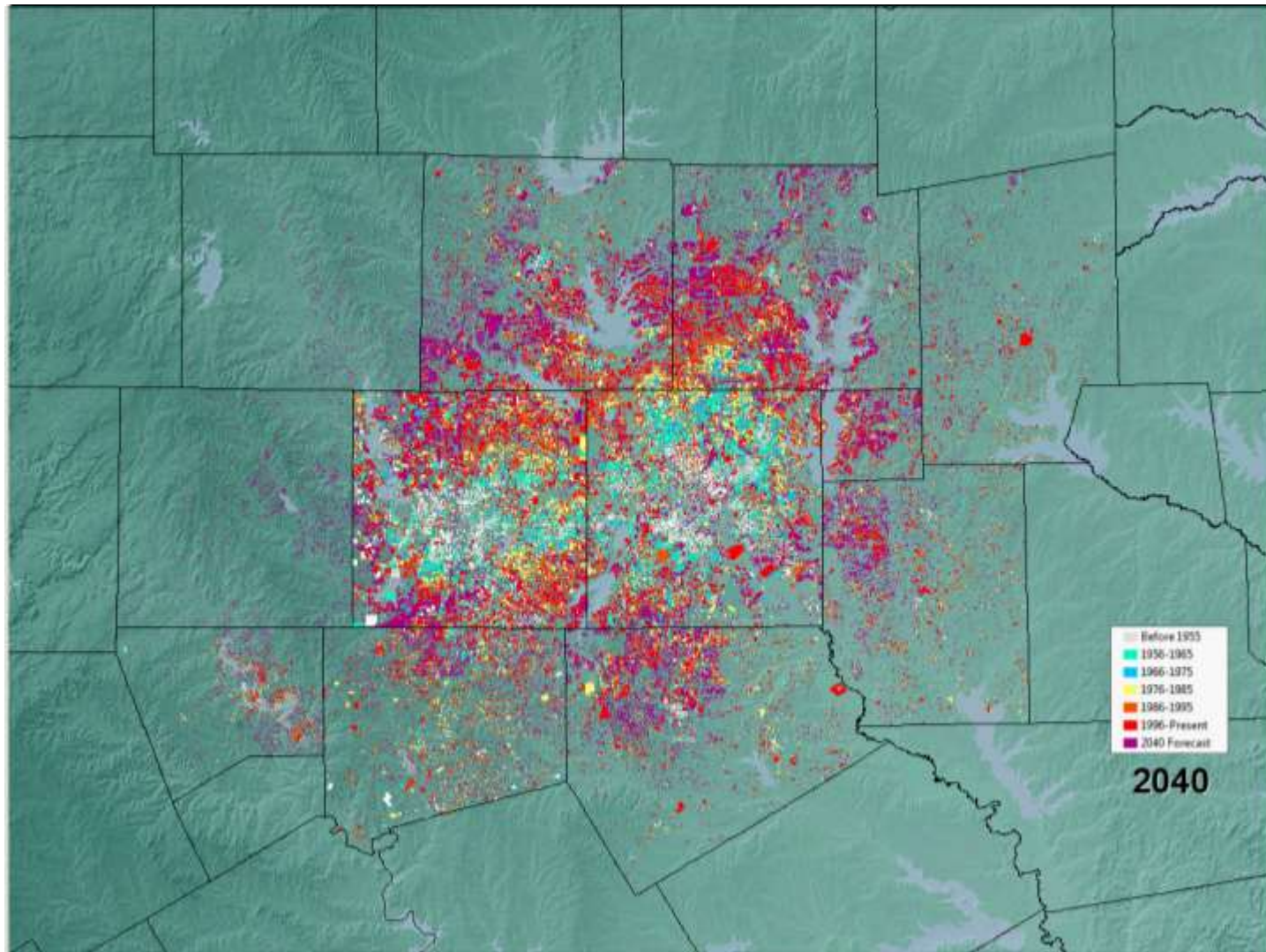
# Extreme Rainfall Events Across Texas



erque  
ict  
A)



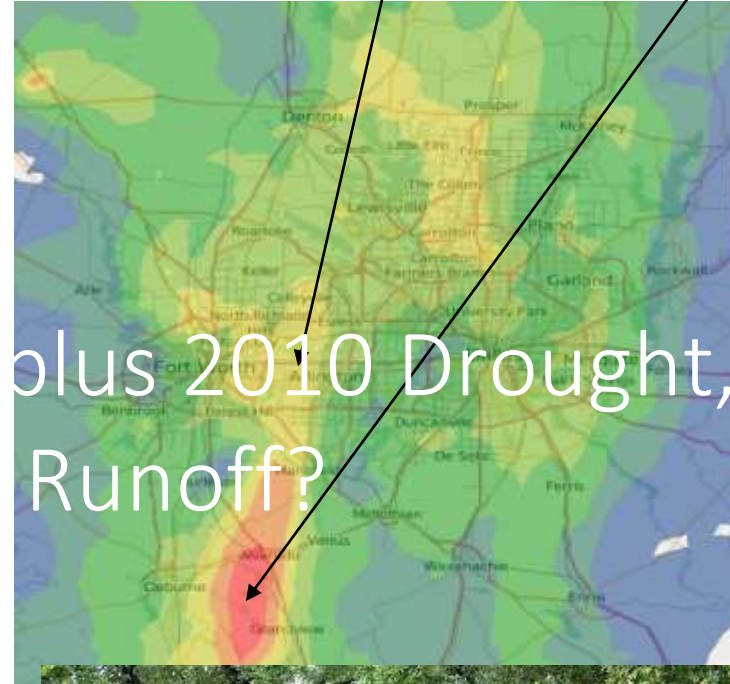
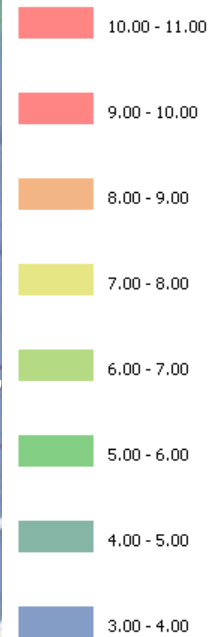
# 1950-2040 Growth Animation



# 2010 Tropical Storm Hermine Flood Rush Creek, Arlington, TX

7-8" Rain over Rush Creek

11" Rain



Less than design rainfall plus 2010 Drought,  
Why So Much Runoff?

# Rush Creek Buyouts Arlington, Texas

- 49 homes
- 100 unit condominium
- \$17 million total cost
- Repetitive loss buyouts
  - \$150k to \$800k each year + 90% matching grant
- Causes
  - Lack of regulatory products
  - Inadequate regulatory products
  - Upstream urbanization
  - Vegetation management



# Onion Creek Buyouts Austin, TX

- Federal project
  - 483 to be purchased
  - \$30 million federal funding
  - 1999 to “still underway”
- City of Austin project
  - No –federal funding
  - 232 homes



# Onion Creek Buyouts

## Austin, TX

- October 2013 flood (Halloween Flood)
  - 4 deaths
  - 825 homes flooded in 2013
  - 300 had already been purchased in federal buy-out
- Causes
  - Lack of regulatory products
  - Inadequate regulatory products
  - Upstream development



# Questions?



**US Army Corps  
of Engineers**

U.S. Army Corps of Engineers  
Fort Worth District (SWF)  
819 Taylor Street  
Fort Worth, TX 76102

**Jerry L. Cotter, P.E.**

---

Chief Water Resources

(817) 886-1549 TEL  
(817) 454-1290 CEL

[Jerry.L.Cotter@usace.army.mil](mailto:Jerry.L.Cotter@usace.army.mil)

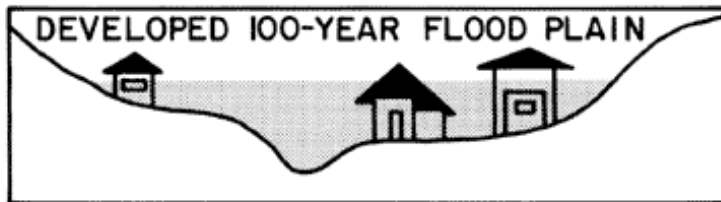
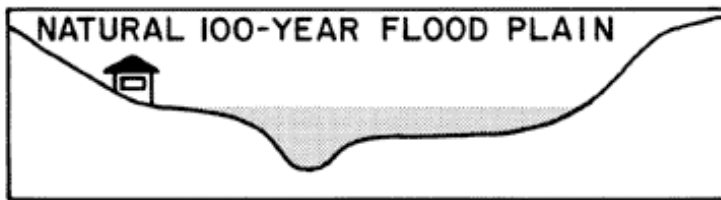
# National Flood Insurance Program

- NFIP created in 1968 to protect, insure lives and property from flood damage; establish regulatory framework
- Communities agree to regulate development in and around flood prone designated areas

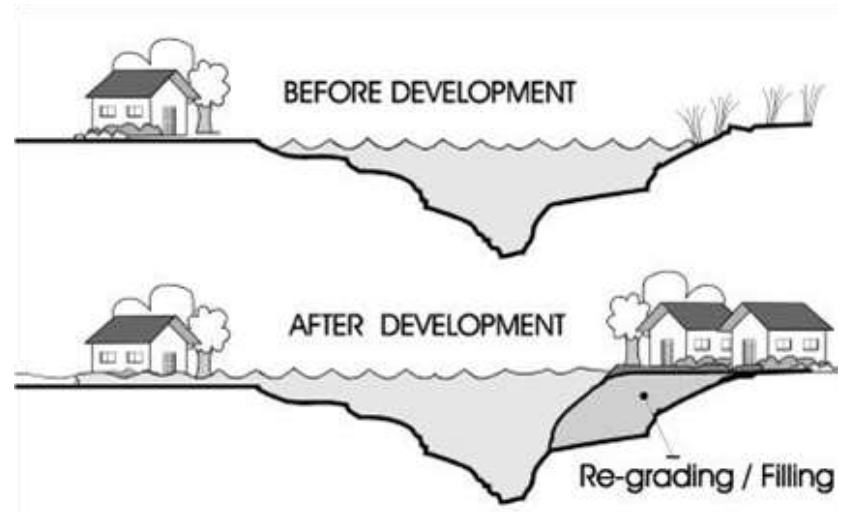




# Why Regulate Development Near Floodplains?



**BUILDING ON FLOOD PLAINS INCREASES THE RISK OF FLOOD HAZARDS**

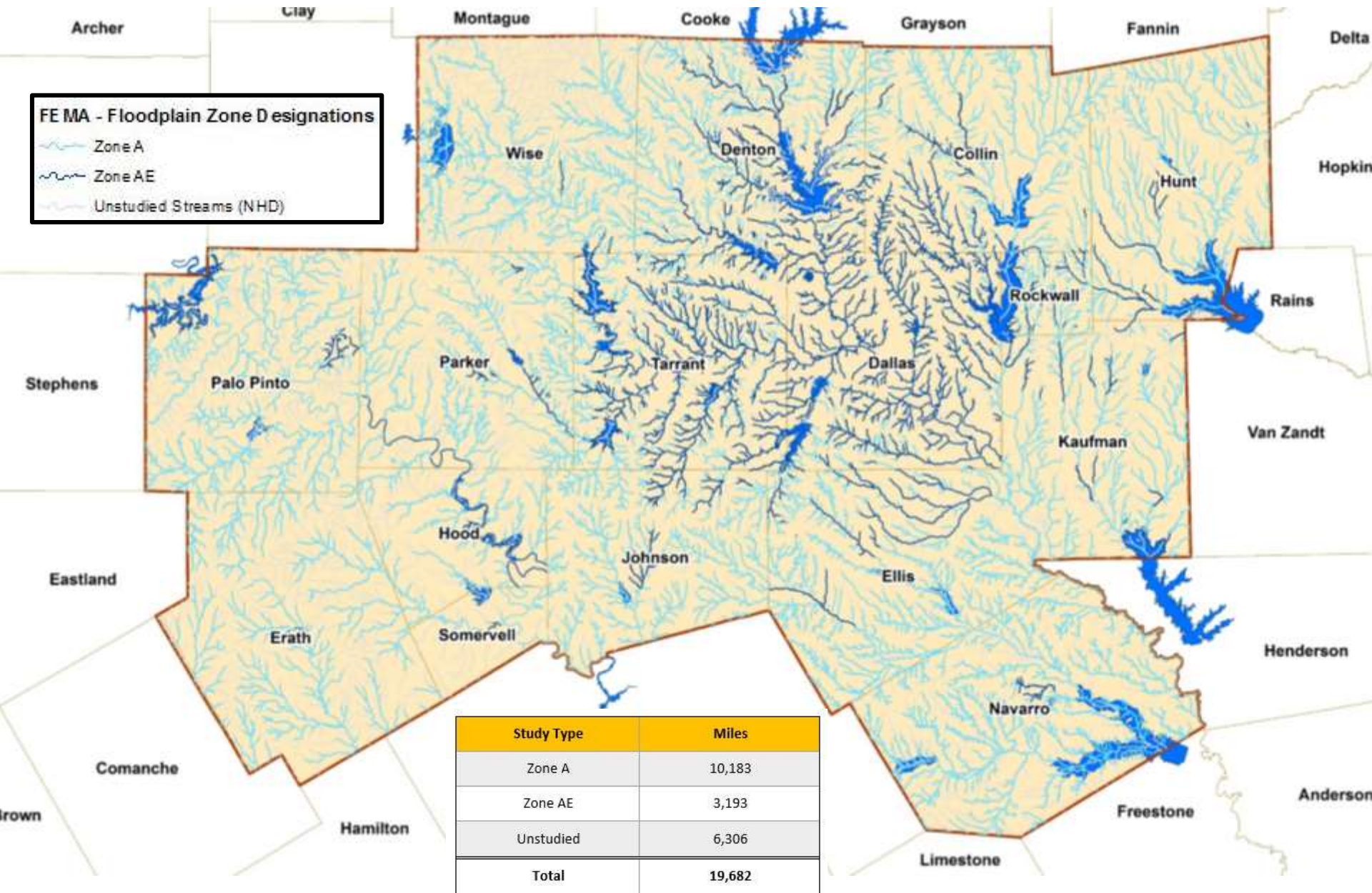


# Tools Needed to Regulate Floodplain Development

- Accurate Flood Risk Mapping
- Community Floodplain Administrator who implements development permit process

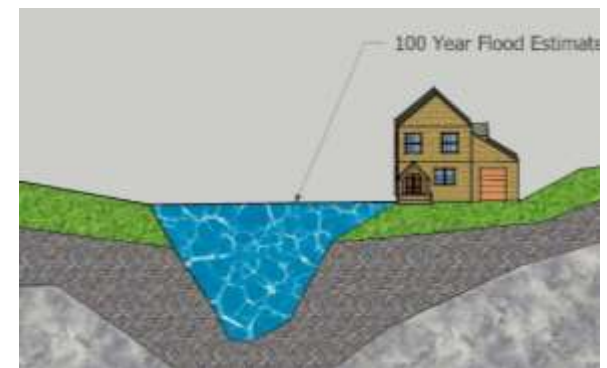
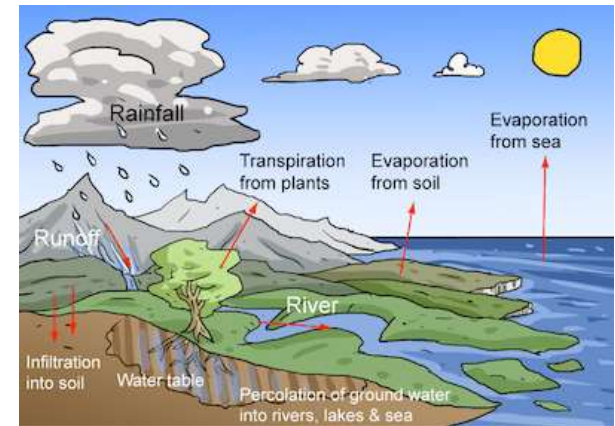
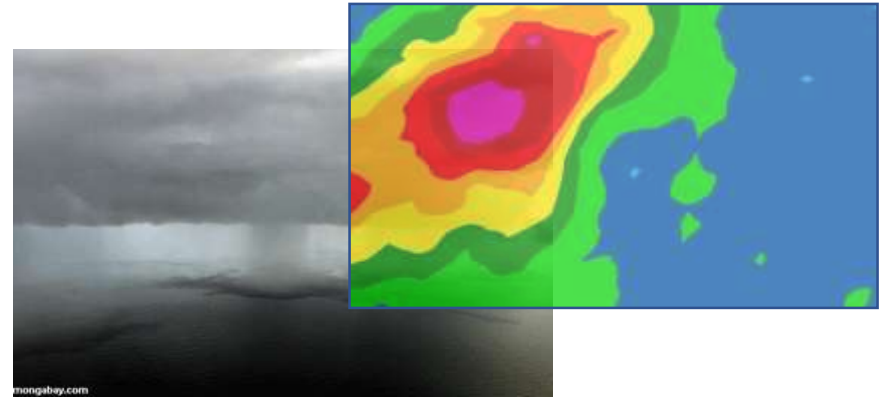


# Detailed Flood Risk Identification



# Components of Flood Impact Determinations

- Meteorology
  - How much rain
  - Medium uncertainty
- Watershed Hydrology
  - How much runoff
  - High uncertainty
- River Hydraulics
  - How deep will the water get
  - Low uncertainty



# Regionally Recommended Standards in Watershed Management

*These Regionally Recommended Standards in Watershed Management for New Development Within County Regulated Areas were developed by the North Central Texas Countywide Watershed Management Roundtable held on March 14, 2017.*



## Regionally Recommended Standards in Watershed Management For New Development Within County Regulated Areas

1. Design infrastructure to fully developed conditions with approved land-use maps if data is available
2. Begin protection at the most upstream end of the watershed above Federal Emergency Management Agency Limit of Detail Study
3. Maintain unfilled valley storage areas
4. Protect against and reduce erosive velocities
5. Match pre-developed site runoffs
6. Verify/require adequate downstream conveyance
7. Require freeboard from fully developed (if data is available) and changing watershed conditions
8. Define written operation and maintenance responsibilities
9. Size conveyance of street and storm systems adequately to safely convey traffic
10. Create stream buffers and preserve open space; limit clearing and grading
11. Consider regional (on or off stream) detention incentives
12. Implement Conservation and/or Cluster Development incentives
13. Encouraging low impact development techniques and/or green infrastructure

These Regionally Recommended Standards in Watershed Management were developed by the North Central Texas Countywide Watershed Management Roundtable held on March 14, 2017.

# Existing Example County Regulations

- Collin County Flood Damage Prevention Regulations - <http://www.collincountytx.gov/engineering/Documents/floodplainreg.pdf>
- Denton County Flood Damage Prevention Regulations - <https://dentoncounty.com/-/media/Departments/Public-Works-Planning/PDFs/LRR/2011/2011-Floodplain-Regulations.pdf?la=en>
- Dallas County Floodplain Management Regulations - <https://www.dallascounty.org/Assets/uploads/docs/public-works/FloodPlainManagementRegulations.pdf>
- Tarrant County Flood Damage Prevention Rules - [https://www.tarrantcounty.com/content/dam/main/transportation/Documents/FP\\_Regulations\\_2011.pdf](https://www.tarrantcounty.com/content/dam/main/transportation/Documents/FP_Regulations_2011.pdf)
- Collin County Subdivision Regulations - <http://www.collincountytx.gov/engineering/Documents/subregs.pdf>
- Denton County Planning Department Subdivision Process - <https://dentoncounty.com/-/media/Departments/Public-Works-Planning/PDFs/LRR/2009/Final-09-Rules-and-Regs.pdf?la=en>

# Existing Example County Regulations

- **Dallas County Floodplain Management Regulations** state: Floodplain management regulations means zoning ordinances, subdivision regulations, building codes, health regulations, special purpose ordinances (such as a floodplain ordinance, grading ordinance and erosion control ordinances) and other applications of police power. The term describes such state or local regulations, in any combination thereof, which provide standards for the purpose of flood damage prevention and reduction.
- Sec. 42-35. - Methods of reducing flood losses.
- In order to accomplish its purposes, this article uses the following methods:
  - (1) Restricts or prohibits uses that are dangerous to health, safety or property in times of flood, or cause excessive increases in flood heights or velocities;
  - (2) Requires that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
  - (3) Controls the alteration of natural floodplains, stream channels, and natural protective barriers, which are involved in the accommodation of flood waters;
  - (4) Controls filling, grading, dredging and other development which may increase flood damage;
  - (5) Prevents or regulates the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards to other lands.

# Existing Example County Regulations

**Collin County** Flood Damage Prevention Regulations state:

(1) **Residential Construction** - new construction and substantial improvement of any residential structure shall have the **lowest floor (including basement), elevated to two (2) feet above the base flood elevation.** ...

(2) **Nonresidential Construction** - new construction and substantial improvements of any commercial, industrial or other nonresidential structure shall either have **the lowest floor (including basement) elevated to two (2) feet above the base flood level** or...

## **Section C. Standards for Subdivision Proposals:**

(4) Base flood elevation data shall be generated by a **detailed engineering study for all Zone A areas**, within 100 feet of the contour lines of Zone A areas, **and other streams not mapped by FEMA**, as indicated on the FIRM.

**Collin County** Subdivision Regulations state:

## **E. DRAINAGE & TOPOGRAPHY**

... The drainage calculations shall be sufficiently detailed to determine changes in the 100-year floodplain elevation, water discharge and velocities within the subdivision and upstream and downstream of the subdivision, **and Pre and Post construction Runoff values and means of mitigating any increased runoff.**



# Existing Example County Regulations

Collin County Subdivision Regulations state:

## E. DRAINAGE & TOPOGRAPHY

... Locations of **drainage easements** will be shown. Drainage easements shall generally be located along the existing drainage way, and shall meet the following standards:

- a. Open channels with top widths from 0' to 50' requires **top width plus 25'**.
- b. Open channels with top widths greater than 50' requires, top width plus 25' each side.
- c. Enclosed pipe require **20' minimum width**.

**All easements shall be so designed to allow maintenance equipment to enter the easement, and be able to perform the necessary work.**

## A. DRAWING REQUIREMENTS

The recording plat shall be 24" x 36" and shall be on translucent Mylar. The following statements and information shall be noted on the face of the final plat:

2. "The existing creeks or drainage channels traversing along or across the addition will remain as open channels **and will be maintained by individual owners of the lot or lots that are traversed by or adjacent to the drainage course along or across said lots.**"

# Existing Example County Regulations

## Collin County Subdivision Regulations state:

Environmental - ... Based on Collin County Park and Open Space Strategic Plan, the developer, together with the County, shall make every effort to preserve natural resources such as the following:

1. Floodplains, wetlands and natural drainage ways;
2. Unique vegetation areas such as forests, native prairies or grasslands, wooded stream corridors, mature trees and marsh lands;
3. Unique wildlife habitat areas;
4. Areas with soils that are highly suited for agricultural production;
5. Areas with soils that are highly erosive and/or have limitations because of excessive slope (20% or greater); and
6. Scenic views of underdeveloped or limited developed (but compatible) landscapes along United States of America. State of Texas or major County roads that could maintain the rural countryside and beauty of the county.
7. Collin County, at the discretion of Commissioners' Court, shall make every reasonable effort to provide incentives for implementation of the above environmental factors.

Creative land planning is encouraged to maximize the number of building sites, minimize development costs, and preserve the natural resources that contribute to the beauty of Collin County.

# Existing Example County Regulations

**Denton County Flood Damage Prevention Regulations state:**

Permit Procedures - ... (h) The top of the slab of the lowest habitable floor must be elevated to two (2) feet or more above the base flood elevation.

(v) Any reduction in floodplain storage or conveyance capacity must be offset with a hydraulically equivalent (one-to-one) volume of mitigation sufficient to offset the reduction. The reduction may result from development or the placement of fill within the floodplain.

**Denton County Subdivision Regulations state:**

## 17. IMPROVEMENTS STATEMENT:

... “Blocking the flow of water or constructing improvements in surface drainage easements, and filling or obstructing the floodway is prohibited.”

“The existing creeks or drainage channels traversing along or across the addition will remain as open channels and will be maintained by the individual property owners of the lot or lots that are traversed by or adjacent to the drainage courses along or across the lots.”

# Existing Example County Regulations

Denton County Subdivision Regulations state:

## 17. IMPROVEMENTS STATEMENT:

... “No construction, without written approval from Denton County shall be allowed within an identified “FIRM” floodplain area, and then only after a detailed floodplain development permit **including engineering plans and studies show that no rise in the Base Flood Elevation (BFE) will result, that no flooding will result, that no obstruction to the natural flow of water will result;** and subject to all owners of the property affected by such construction becoming a party to the request. Where construction is permitted, all finished floor elevations shall be a minimum of one foot above the 100-year flood elevation.”

## ENGINEERING PLANS – IV. Drainage Designs

### IV.1.5 Downstream Hydrologic Assessment

**It is the responsibility of all new development to assess downstream conditions and determine the likelihood that an adverse impact will be created. Where downstream conditions warrant, it will be the developer’s responsibility to mitigate for increased peak discharge** and increased erosion potential for 2, 5, 10, 25 and 100 return event storms.

# Existing Example County Regulations

Denton County Subdivision Regulations state:

## IV. - B. Drainage Design Criteria

### **Storm Water Runoff Management:**

Denton County Storm Water Policy- **it the intent of Denton County to have zero impact on properties adjacent to and or downstream of new subdivisions or developments. This shall be required of all new developments regardless of size.**

There is one condition that will serve as an exception to this requirement and that is when a “point discharge” would result if a detention pond or other drainage structure were to be constructed. Therefore, in cases where the overland distance of flow across the entire portion of the property being platted is less than three hundred feet (300') and can be clearly shown to have only sheet flow that does not concentrate flow, a drainage plan clearly showing this condition will be all that is required to be submitted. If it is known that the final usage of such a property will result in a drainage runoff coefficient greater than 0.50 this exception will not apply and some form of storm water management will be required. There are several accepted methods of providing protection and safety for these downstream properties that can be used. They are:

### **Storm Water Detention**

Storm Water Detention involves collecting excess runoff before it enters the main

# Existing Example County Regulations

Denton County Subdivision Regulations state:

## ENGINEERING PLANS – IV. Drainage Designs

IV.2.1 General Design Considerations - Design Storm Requirements

All calculations shall assume full development watershed conditions.

IV.2.2 On-Site Flood Control System Design - Design Frequency

See Section IV.2.1 for design storm requirements for the sizing of storm system components. Fully developed conditions should be used for design.

Flow Spread Limits -

Road side ditches and inlets shall be spaced so that the spread in the street for the design flow shall not exceed the following, as measured from the face of the curb:

- 8 feet if the street is classified as a Collector or Arterial street (for 4-lane streets or greater, spread may extend across one travel lane)
- 16 feet at any given section, but in no case greater than 10 feet on one side of the street, if the street is classified as a Local street
- A minimum of one 12-foot lane shall remain clear in a 100-year return-event storm for all roadway classifications.

# Existing Example County Regulations

Denton County Subdivision Regulations state:

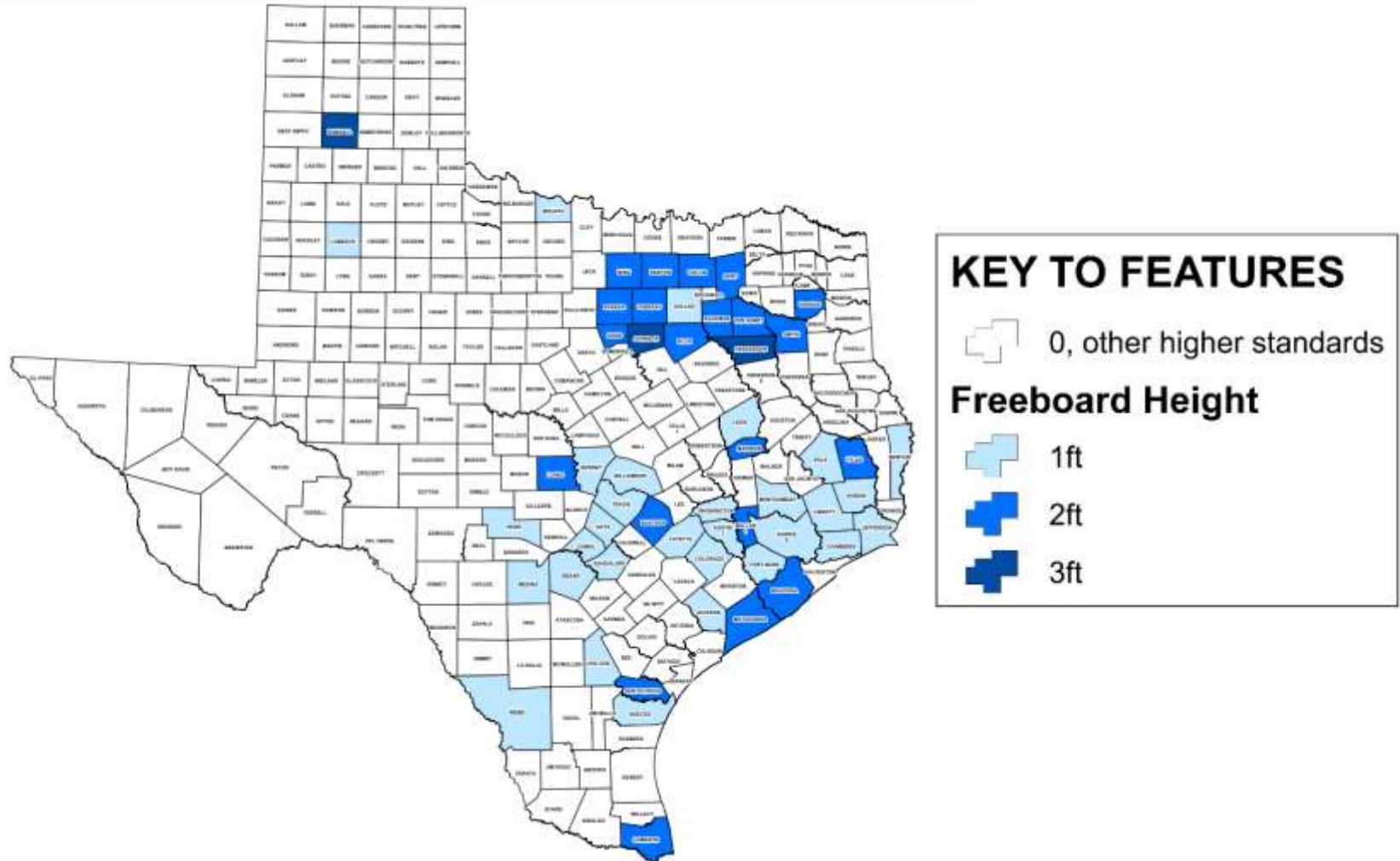
## ENGINEERING PLANS – IV. Drainage Designs

### IV.3.3 Bridge Design – Frequency Flood

All bridge design shall include 100-year return event discharges, assuming fully developed watershed conditions.

D. Design should be for fully developed watershed conditions. If the available discharges are from FEMA existing conditions hydrology, the following options are available: (1) obtain new hydrology, (2) extrapolate fully-developed from existing data, or (3) variance from the County Engineer on design discharges

# Many Texas Communities & Counties Adopted Higher Standards





# Legislation Enabling Counties to Manage Floodplain Development

- The State specifically address the NFIP in the Texas Water Code under Section 16 Subchapter I. Flood Insurance

§ 16.312. PURPOSE. The State of Texas recognizes the personal hardships and economic distress caused by flood disasters since it has become uneconomic for the private insurance industry alone to make flood insurance available to those in need of such protection on reasonable terms and conditions. Recognizing the burden of the nation's resources, congress enacted the National Flood Insurance Act of 1968, as amended (42 U.S.C. Sections 4001 through 4127), whereby flood insurance can be made available through coordinated efforts of the federal government and the private insurance industry, by pooling risks, and the positive cooperation of state and local government. The purpose of this subchapter is to evidence a **positive interest in securing flood insurance coverage under this federal program and to so procure for those citizens of Texas desiring to participate and in promoting the public interest by providing appropriate protection against the perils of flood losses and in encouraging sound land use by minimizing exposure of property to flood losses.**

Amended by Acts 1977, 65th Leg., p. 2207, ch. 870, § 1, eff. Sept. 1, 1977.

# Legislation Enabling Counties to Manage Floodplain Development

- Additionally, The Texas Water Code states:
- To be eligible to participate the political subdivision must be able to qualify under the requirement of 44 CFR, Subchapter B – Insurance and Hazard Mitigation criteria.

§ 16.3145. NATIONAL FLOOD INSURANCE PROGRAM ORDERS OR ORDINANCES.

The **governing body of each city and county** shall adopt ordinances or orders, as appropriate, necessary for the city or county to be **eligible** to participate in the National Flood Insurance Program.

44 CFR 59.2 (b) **To qualify** for the sale of federally-subsidized flood insurance a community must adopt and submit to the Federal Insurance Administrator. as part of its application, flood plain management regulations, satisfying at a minimum the criteria set forth at part 60 of this subchapter, designed to reduce or avoid future flood, mudslide (i.e., mudflow) or flood-related erosion damages. **These regulations must include effective enforcement provisions.**

# Legislation Enabling Counties to Manage Floodplain Development

- The Texas Water Code goes on say:

§ 16.315. POLITICAL SUBDIVISIONS; COMPLIANCE WITH FEDERAL REQUIREMENTS. **All political subdivisions are hereby authorized to take all necessary and reasonable actions to comply with the requirements and criteria of the National Flood Insurance Program, including but not limited to:**

(1) making appropriate land use adjustments to constrict the development of land which is exposed to flood damage and minimize damage caused by flood losses;

(2) guiding the development of proposed future construction, where practicable, away from a location which is threatened by flood hazards;

(3) assisting in minimizing damage caused by floods;

(4) authorizing and engaging in continuing studies of flood hazards in order to facilitate a constant reappraisal of the flood insurance program and its effect on land use requirements;

**(5) engaging in floodplain management and adopting and enforcing permanent land use and control measures consistent with the criteria established under the National Flood Insurance Act;**

**(6) declaring property, when such is the case, to be in violation of local laws, regulations, or ordinances which are intended to discourage or otherwise restrict land development or occupancy in flood-prone areas and notifying the director, or whomever the director designates, of such property;**

(7) consulting with, giving information to, and entering into agreements with the Federal Emergency Management Agency for the purpose of:

(A) identifying and publishing information with respect to all flood areas, including coastal areas; and

(B) establishing flood-risk zones in all such areas and making estimates with respect to the rates of probable flood-caused loss for the various flood-risk zones for each of these areas;

# Legislation Enabling Counties to Manage Floodplain Development

- The Texas Water Code goes on say (continued):

§ 16.315. POLITICAL SUBDIVISIONS; COMPLIANCE WITH FEDERAL REQUIREMENTS. All political subdivisions are hereby authorized to take all necessary and reasonable actions to comply with the requirements and criteria of the National Flood Insurance Program, including but not limited to: **(Continued)**

(8) cooperating with the director's studies and investigations with respect to the adequacy of local measures in flood-prone areas as to land management and use, flood control, flood zoning, and flood damage prevention;

**(9) taking steps, using regional, watershed, and multi-objective approaches, to improve the long-range management and use of flood-prone areas;**

(10) purchasing, leasing, and receiving property from the director when such property is owned by the federal government and lies within the boundaries of the political subdivision pursuant to agreements with the Federal Emergency Management Agency or other appropriate legal representative of the United States

Government;

(11) requesting aid pursuant to the entire authorization from the commission;

(12) satisfying criteria adopted and promulgated by the commission pursuant to the National Flood Insurance Program;

**(13) adopting permanent land use and control measures with enforcement provisions which are consistent with the criteria for land management and use adopted by the director;**

**(14) adopting more comprehensive floodplain management rules that the political subdivision determines are necessary for planning and appropriate to protect public health and safety;**

(15) participating in floodplain management and mitigation initiatives such as the National Flood Insurance Program's Community Rating System, Project Impact, or other initiatives developed by federal, state, or local government; and

(16) collecting reasonable fees to cover the cost of administering a local floodplain management program.

Amended by Acts 1977, 65th Leg., p. 2207, ch. 870, § 1, eff. Sept. 1, 1977; Acts 1985, 69th Leg., ch. 795, § 1.051, eff. Sept. 1, 1985; Acts 2001, 77th Leg., ch. 258, § 2, eff. Sept. 1, 2001.

# Legislation Enabling Counties to Manage Floodplain Development

- The Texas Water Code defines political subdivision to include Counties:

Sec. 16.313. DEFINITIONS. In this subchapter:

(1) "Political subdivision" means any political subdivision or body politic and corporate of the State of Texas **and includes any county**, river authority, conservation and reclamation district, water control and improvement district, water improvement district, water control and preservation district, fresh water supply district, irrigation district, and any type of district heretofore or hereafter created or organized or authorized to be created or organized pursuant to the provisions of Article XVI, Section 59 or Article III, Section 52 of the Constitution of the State of Texas; "political subdivision" also means any interstate compact commission to which the State of Texas is a party, municipal corporation, or city whether operating under the Home Rule Amendment of the Constitution or under the General Law.

# Legislation Enabling Counties to Manage Floodplain Development

- The Texas Water Code additionally makes a statement in regards to “Qualification”:

§ 16.319. QUALIFICATION. Political subdivisions wishing to qualify under the National Flood Insurance Program shall have the authority to do so by complying with the directions of the Federal Emergency Management Agency and by:

- (1) evidencing to the director a positive interest in securing flood insurance coverage under the National Flood Insurance Program; and
- (2) giving to the director **satisfactory assurance that measures will have been adopted for the political subdivision which measures will be consistent with the comprehensive criteria for land management and use developed by the Federal Emergency Management Agency.**

Amended by Acts 1977, 65th Leg., p. 2207, ch. 870, § 1, eff. Sept. 1, 1977; Acts 1977, 65th Leg., 1st C.S., p. 58, ch. 4, § 3, eff. Sept. 1, 1977; Acts 2001, 77th Leg., ch. 258, § 4, eff. Sept. 1, 2001.

# Legislation Enabling Counties to Manage Floodplain Development

- To address the question of actual enforcement ability, the level of penalty is defined in Texas Water Code Chapter 16, Subchapter I, Sec. 16.322-16.323:

Sec. 16.322. CIVIL PENALTY. A person who violates this subchapter or a rule adopted or order issued under this subchapter is subject to a civil penalty of not more than \$100 for each act of violation and for each day of violation.

Sec. 16.3221. CRIMINAL PENALTY.

- (a) A person commits an offense if the person violates this subchapter.
- (b) An offense under this section is a Class C misdemeanor.
- (c) Each violation of this subchapter and each day of a continuing violation is a separate offense.

Sec. 16.323. ENFORCEMENT BY POLITICAL SUBDIVISION.

- (a) If it appears that a person has violated, is violating, or is threatening to violate this subchapter or a rule adopted or order issued under this subchapter, a political subdivision may institute a civil suit in the appropriate court for:
  - (1) injunctive relief to restrain the person from continuing the violation or threat of violation, including an order directing the person to remove illegal improvements and restore preexisting conditions;
  - (2) the assessment and recovery of the civil penalty provided by Section 16.322; or
  - (3) both the injunctive relief and the civil penalty.
- (b) On application for injunctive relief and a finding that a person has violated, is violating, or is threatening to violate this subchapter or a rule adopted or order issued under this subchapter, the court shall grant the injunctive relief that the facts warrant.

# Resolution

## Resolution Authorizing Adoption Of A Selection Of Regionally Recommended Standards In Watershed Management

**WHEREAS**, the [adopting entity] participates in the Federal Emergency Management Agency (FEMA) National Flood Insurance Program (NFIP); and,

**WHEREAS**, the Federal Emergency Management Agency (FEMA) Region 6, Texas Water Development Board (TWDB), United States Army Corps of Engineers (USACE), and Texas Floodplain Management Association (TFMA), have expressed support for the North Central Texas 16-County Watershed Management Initiative; and,

**WHEREAS**, Texas Senate Bill 936 (2001) amends the Texas Water Code to authorize political subdivisions to adopt more comprehensive floodplain management rules that the political subdivision determines are necessary for planning and appropriate to protect public health and safety and allows steps using regional, watershed, and multi-objective approaches to improve the long-range management and use of flood-prone areas; and,

**WHEREAS**, the North Central Texas Council of Governments (NCTCOG), as a result of a regional county roundtable discussion, has developed an initiative with a menu of thirteen regionally recommended standards in watershed management for counties to voluntarily adopt with a goal to allow for sound development through regional consistency; to recognize cost savings associated with the investment in effective watershed management to reduce of prevent flooding; to slow water quality decline; and to avoid loss of opportunity that is a result of rapid growth.

### NOW, THEREFORE, BE IT HEREBY RESOLVED THAT:

**Section 1.**           <adopting entity>           endorses the goal of the Countywide Watershed Management initiative and supports collaboration with partners to implement regionally recommended standards in watershed management in North Central Texas.

**Section 2.**           <adopting entity>           will review current permitting and planning processes and consider revising and adopting regionally recommended standards in watershed management as appropriate.

**Section 3.**           <adopting entity>           will strive to notify the NCTCOG of changes made with regard to adoption of higher standards in floodplain and watershed management permitting and planning processes to help inform further regional coordination.

**Section 4.** This resolution shall be in effect immediately upon its adoption.

I hereby certify that this resolution was adopted by the           <adopting entity>           on           <date of adoption>          

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Adopting Entity



# Forum Discussion

# Tools and Next Steps