

2022 TFMA TECHNICAL SUMMIT

ACHIEVING TEXAS' TOP RATING FROM FEMA'S CRS PROGRAM

LESSONS LEARNED FROM OUR JOURNEY

October 24, 2022

Kim Dewailly, P.E., CFM – City of Dallas

Jack Young, P.E., CFM – Halff Associates

ACHIEVING TEXAS' TOP RATING FROM FEMA'S CRS PROGRAM | SPEAKERS



KIM DEWALLY, P.E., CFM,

Senior Engineer Floodplain Management

City of Dallas



JACK YOUNG, P.E., CFM, PMP

Water Resources Program Manager

Half Associates

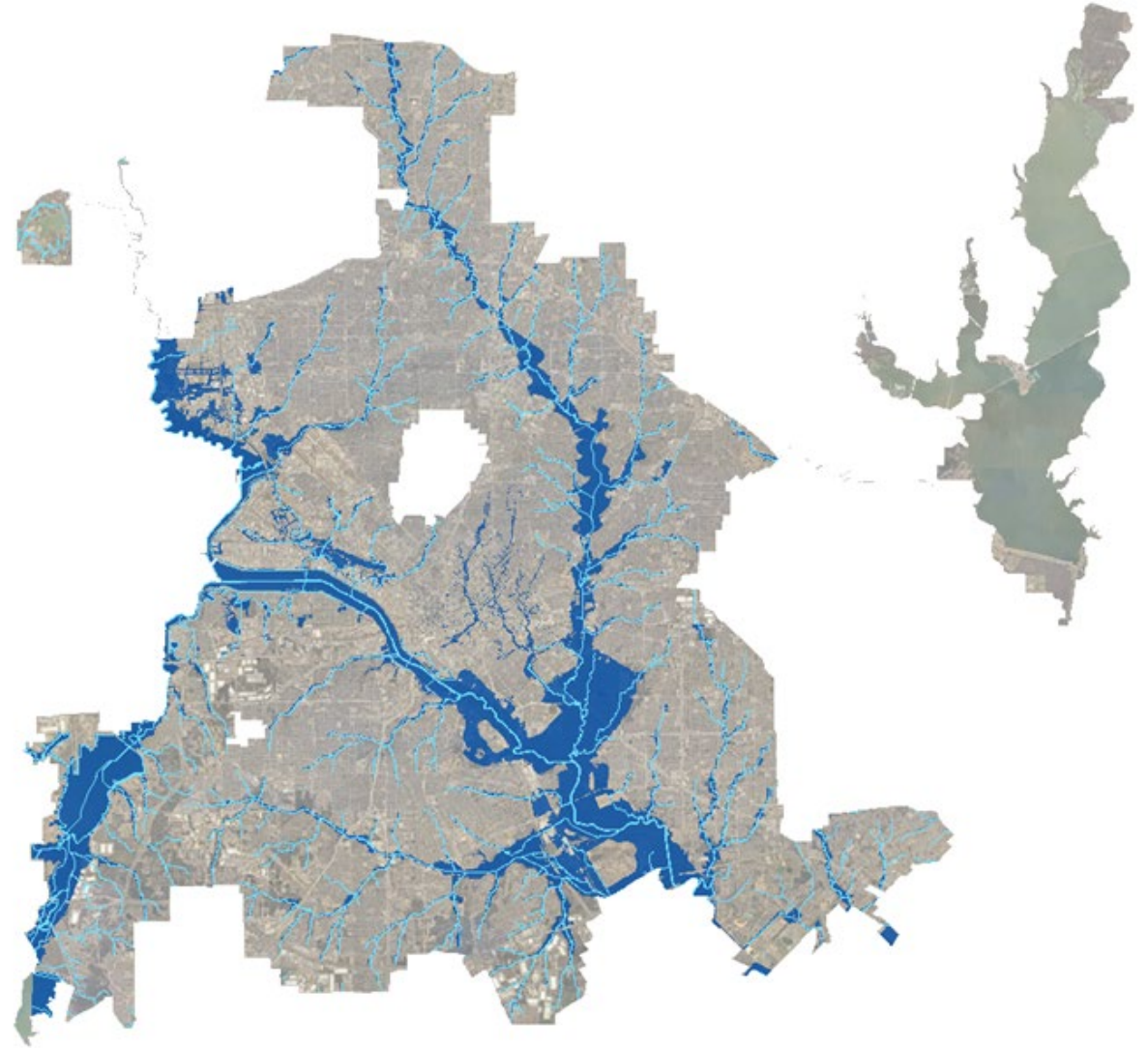
ACHIEVING TEXAS' TOP RATING FROM FEMA'S CRS PROGRAM | AGENDA

- City of Dallas Overview
- History of Dallas Floodplain Management
- Summary of Dallas Class 4 Activities
- Lessons Learned



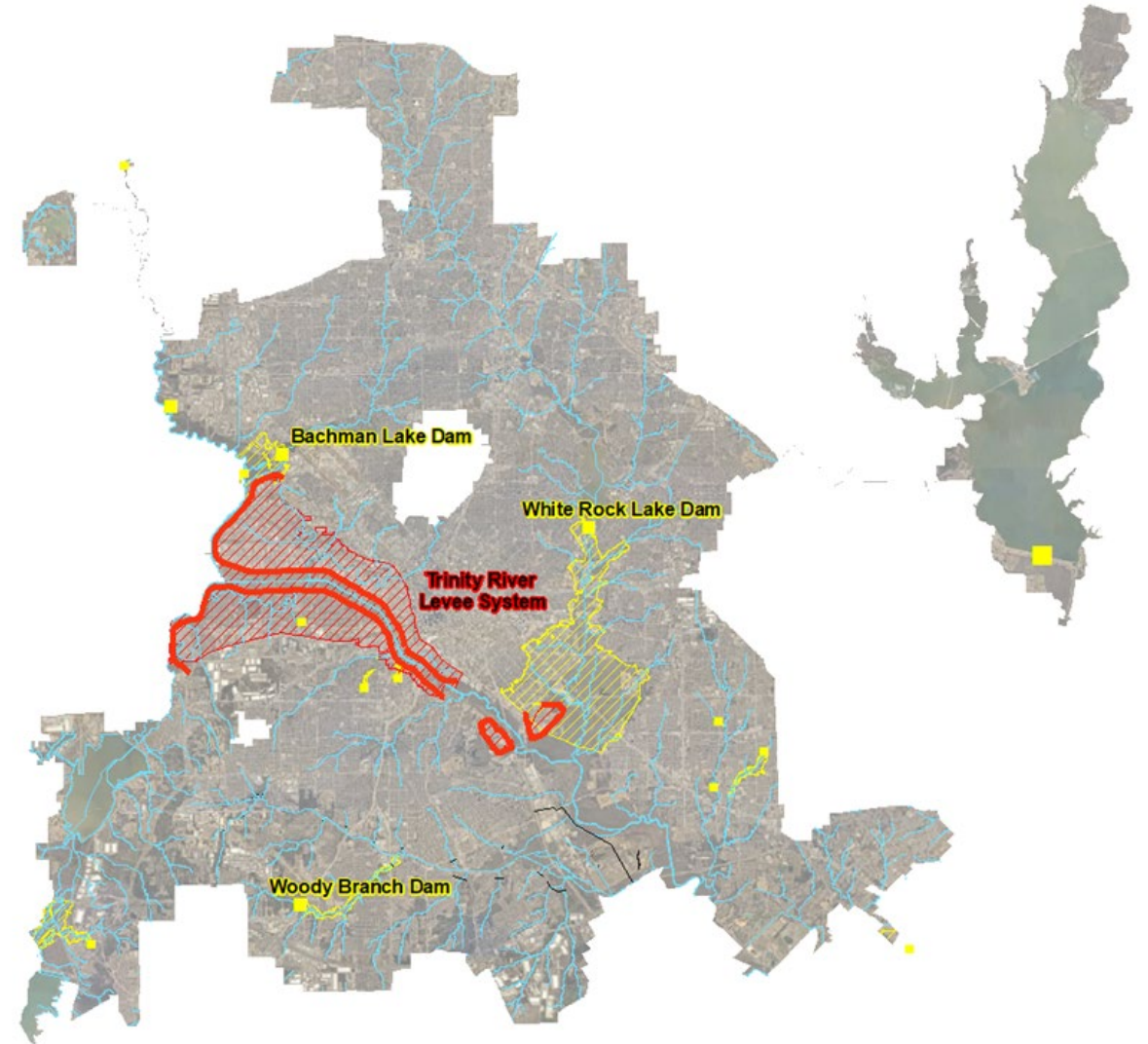
ACHIEVING TEXAS' TOP RATING FROM FEMA'S CRS PROGRAM | DALLAS VULNERABILITY TO FLOODING

- Location
- Demographics
- Major Flooding Source



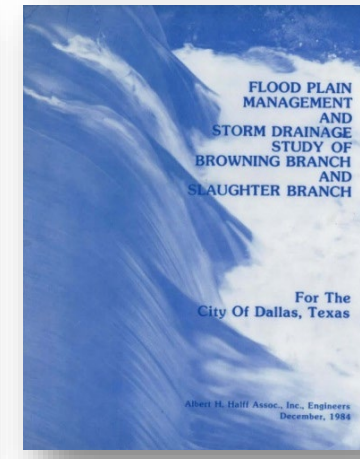
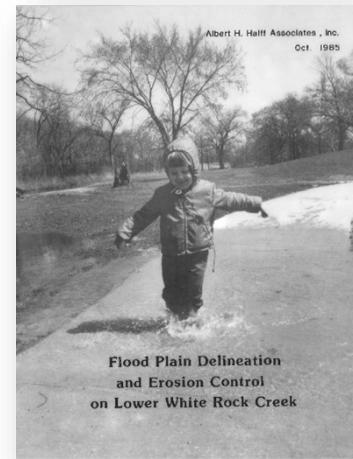
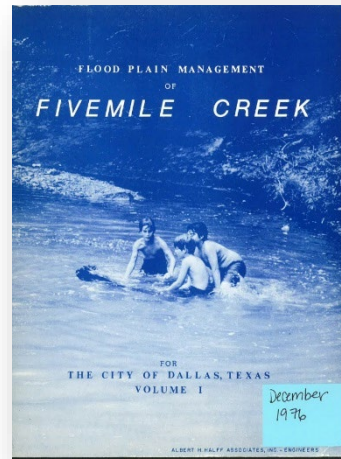
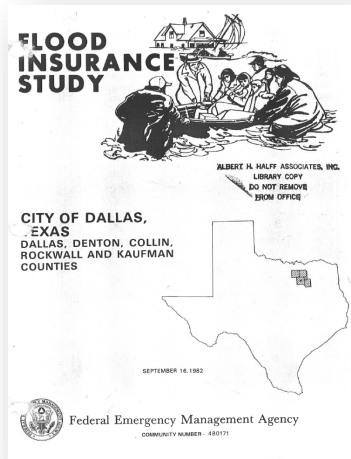
ACHIEVING TEXAS' TOP RATING FROM FEMA'S CRS PROGRAM | DALLAS VULNERABILITY TO FLOODING

- Stormsewer System
- High and Significant hazard dams
- Levee



ACHIEVING TEXAS' TOP RATING FROM FEMA'S CRS PROGRAM | HISTORY OF DALLAS FLOODPLAIN MANAGEMENT

- 1965 – City adopts Stormwater Management Ordinance
- 1968 – Bachman Branch Stormwater Management Plan
- 1972 – Stricter Floodplain Management Ordinance
- 1972 – Joes Creek and Upper White Rock Creek Floodplain Plan
- 1978 – FEMA FIS - Dallas County
- 1983 – FEMA NFIP - City of Dallas



ACHIEVING TEXAS' TOP RATING FROM FEMA'S CRS PROGRAM | HISTORY OF DALLAS FLOODPLAIN MANAGEMENT

- 1991 – Joined CRS Program
- 1999 – CRS Verification Class 8
- 2004 – CRS Verification Class 7
- 2009 – CRS Verification Class 5
- 2021 – CRS Verification Class 4
- 2023 (est) – CRS Modification Class 3








ACHIEVING TEXAS' TOP RATING FROM FEMA'S CRS PROGRAM |

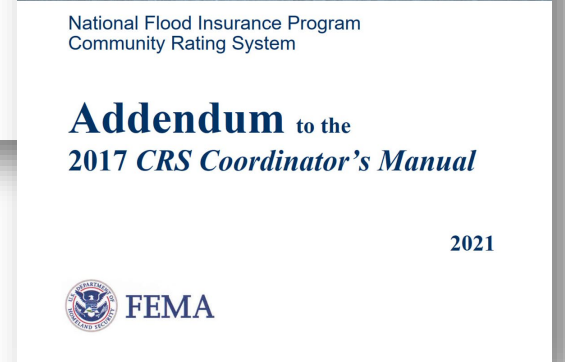
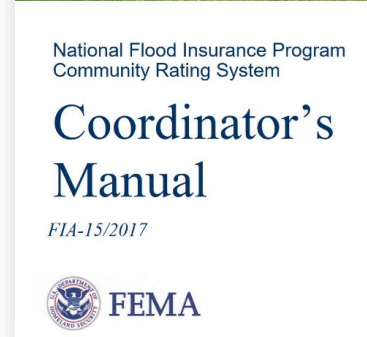
CRS OVERVIEW

- Program Goals
- Activities
 - Public Information Activities (300 Series)
 - Mapping and Regulations (400 Series)
 - Flood Damage Reduction Activities (500 Series)
 - Warning and Response (600 Series)
- Points
- Classes
- Prerequisites

CRS Class	Credit Points	Premium Reduction (%)
10	0-499	0%
9	500-999	5%
8	1000-1499	10%
7	1500-1999	15%
6	2000-2499	20%
5	2500-2999	25%
4	3000-3499	30%
3	3500-3999	35%
2	4000-4499	40%
1	4500+	45%

ACHIEVING TEXAS' TOP RATING FROM FEMA'S CRS PROGRAM | DALLAS CRS CLASS 4 ACTIVITIES

Activity	Points		Dallas % of Max Points
	Max Possible	Dallas Earned	
300 Public Information Activities	981	530	 54%
400 Mapping and Regulations	5841	1892	 32%
500 Flood Damage Reduction	5042	635	 13%
600 Warning and Response	790	369	 47%
TOTAL	12654	3426	 27%



ACHIEVING TEXAS' TOP RATING FROM FEMA'S CRS PROGRAM

DALLAS CRS CLASS 4 ACTIVITIES

300 Series – Public information

Activity	Points			% Communities Credited*
	Max Possible	Dallas Earned	Average Points Earned	
300 Public Information Activities	981	530	344	
310 Elevation Certificates	116	86	38	96%
320 Map Information Service	90	90	73	85%
330 Outreach Projects	350	200	87	93%
340 Hazard Disclosure	80	15	14	84%
350 Flood Protection Information	125	69	38	87%
360 Flood Protection Assistance	110	55	55	41%
370 Flood Insurance Promotion	110	15	39	4%



ACHIEVING TEXAS' TOP RATING FROM FEMA'S CRS PROGRAM | DALLAS CRS CLASS 4 ACTIVITIES

320 MAP INFORMATION SERVICES – 90 POINTS

OBJECT: PROVIDE CITIZENS WITH FLOOD HAZARD INFORMATION

Lo
g

Notificati

**TRINITY WATERSHED MANAGEMENT / FLOODPLAIN MANAGEMENT
LOG SHEET FOR FEMA & CRS INFORMATION**

DATE	TYPE	ADDRESS	NAME, PHONE #, COMPANY NAME	MAP PANEL #	ZONE	BFE	EL	INFO GIVEN	ASST. BY
10/1/2012	W	1802 Highland Rd (LOMR -2007)	Tom John w/BI Partners 972.738-0226	47-C, 0365J, 365K	AE, X	430	V		Tam, Stev
10/1/2012	T	PRP forms for 8220 Coolgreen	Cindy w/ State Farm Insurance 214-327-9315	48-A, 0365J	AE, X	483, 490	V, E		Tam
10/1/2012	T	8707 Wingate (Bachman Branch)	Kelly Vanboven 214-683-2025	24-W, Bachman	AE, X		V		Tam
10/1/2012	W	Mill Creek floodplain	Dale		AE, X		V		Tam
10/2/2012	T	PRP forms for 8220 Coolgreen	Cindy w/ State Farm Insurance 214-327-9315	48-A, 0365J	AE, X	483, 490	V, E		Tam
10/2/2012	T	1445 Ross Ave (flood map-s)	Andrew John, 214-855-7766	Mill Creek	AE, X		V		Tam
10/2/2012	T	4835 Pachuca (Need flood maps)	Karl Insurance Inc. 214-497-5545	62-L, 470J Fire Mill creek	X		V		Tam
10/2/2012	W	9671 Broken Bow (McCree CTP-F Y10 Insurance info)	Chad Senn Nobilityhomes@ebcglobal.net	27-Q McCree plate 12, 13	X, AE	486.3	V, E		Tam
10/3/2012	W	information about fill permit					V		Tam
10/3/2012	T	Flood insurance info	Maria McWilliam 214-662-3588				V		Tam
10/3/2012	T	Outreach letter	Theresa Green 214-375-7722				V		Tam
10/3/2012	T	1630 Kessler	Raph Tilman 214-941-2636	44-T	AE, X		V		Tam
10/3/2012	W	9910 Inwood (Browning branch) Bachman branch plate 2	Andrea Pittman andrea@daystapp.com 214-498-1411	24-R	AE, X		V		Tam
10/4/2012	W	2223 Elderoaks (Woody Branch) Send LOMR to FEMA 2005	Kay Rodger 214-794-0159	63-V, 0490J	AE, X	557	V		Tam
10/4/2012	T	Outreach letter	Mary 469-688-1011				V		Tam
10/4/2012	W	329 Saint Augustine	Code Complian				V		Tam
10/4/2012	W	306 Centennial					V		Tam
10/4/2012	W	9910 Inwood (Browning branch) Bachman branch plate 2	Andrea Pittman andrea@daystapp.com 214-498-1411	24-R	AE, X		V, E		Tam
10/4/2012	W	13925 Hillcrest (WRC)	Mark 214-505-8888	15-M	AE, X	538	V, E		Tam

Codes: W – walk in, H – Gave handout, T – Telephone request, E – Email, V – Told Verbally, L – written request, N/A – Not Applicable, M – Mail

Amount Due 7/25/14 \$75.23
Do not pay. As an AutoPay Customer, your account will be automatically debited for the amount shown on 7/25/14

City of Dallas
Utilities And Services

Customer Name: [REDACTED]
Account Number: [REDACTED]
Service Address: [REDACTED]

Invoice 050502127630 Issued 7/10/14 Page: 1 of 2

INVOICE SUMMARY		SPECIAL MESSAGES	
Previous Balance	\$45.20	Do you know if you are in or near a high-risk flood zone? The City of Dallas Floodplain Management Section provides flood map information. For more information call 214-948-4690.	
Payment(s)	(\$45.20)		
Balance Forward	\$0.00		
Current Charges (See back page(s) for details)		Call 311 to request or report an emergency water turn-off, a water main break, a water meter leak, a fire hydrant leak, or a clogged or overflowing wastewater main.	
Water Charges	\$16.75	Pay your utility bill online. It's safe and hassle free! You'll have no checks to write, bills to mail or late fees to pay! Visit cpay.dallascityhall.com to sign-up.	
Sewer Charges	\$30.37		
Sanitation Charges	\$22.34		
Storm Water Charges	\$5.77		
Total Current Charges	\$75.23		
Total Amount Due	\$75.23		

WATER CONSERVATION TIP
The Lawn Whisperer reminds you that trees, shrubs and most ~~perennials need less water than you think.~~ [Click Here](#) to see more tips.

Do you know if you are in or near a high-risk flood zone? The City of Dallas Floodplain Management Section provides flood map information. For more information call 214-948-4690.

CONTACT US?
By Phone: (214) 651-1441
Internet: www.dallascityhall.com
In writing: 1500 Marilla, 3ANorth, Dallas, TX 75201

Please return this portion with your payment. 14971 03-006

City of Dallas
Dallas Water Utilities
PO Box 680025
Dallas TX 75266-0025

Amount Due 7/25/14 \$75.23
Do not pay. As an AutoPay Customer, your account will be automatically debited for the amount shown above on 7/25/14

MAIL PAYMENT TO:
City of Dallas
City Hall, 2D South
Dallas TX 75227

Operation WaterShare _____
Teen Library Programs _____
Total Amount Enclosed \$ _____

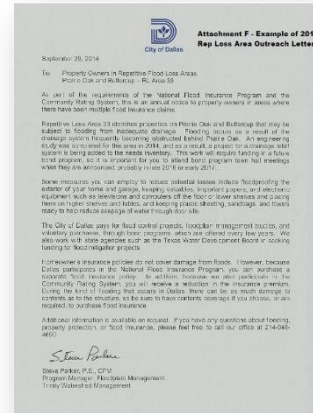
Check here for change of address on back.

ACHIEVING TEXAS' TOP RATING FROM FEMA'S CRS PROGRAM | DALLAS CRS CLASS 4 ACTIVITIES

330 OUTREACH PROJECTS – 200 POINTS

OBJECT: PROVIDE CITIZENS WITH FLOOD HAZARD INFORMATION

- Targeted Letters
- Information Materials
- Public Meetings
- Targeted Training Events
- Social Media



City of Dallas Office of Emergency Management @Dall... · Jun 22

With all the rain in the last couple of days, there can be high water on roads and trails. Don't cross barricades or go into moving water. Only inches can be dangerous.

Check for road closures at this site - ci.dallas.tx.us/sts/html/fc.htm...

@CityOfDallas @DallasFireRes_q @DallasPD

FLASH FLOODS

Fact
6 in. of swiftly flowing water can knock a person over.

Fact
2 ft. of water will make most vehicles float.

Flooding is the #1 cause of death associated with thunderstorms...more than 140 fatalities each year.

What you should know!

- Flash Flood Watch means it is possible that weather conditions will cause flash flooding in the specified area. Be alert and prepared for a flood emergency.

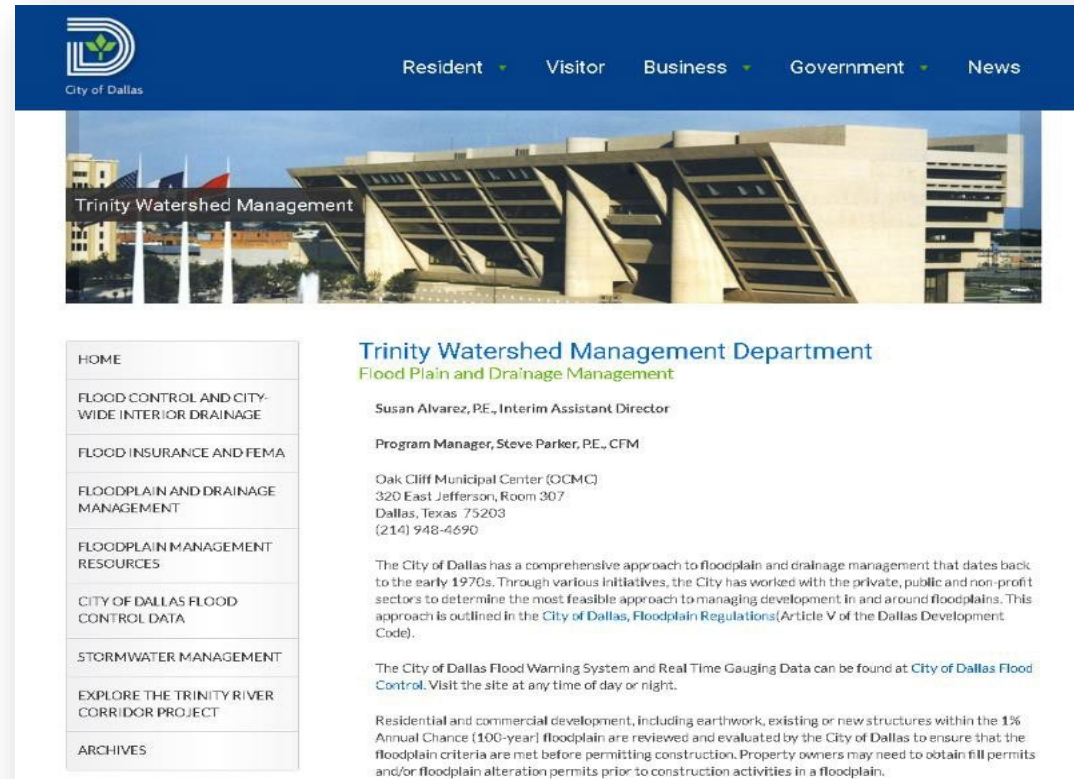
6 13

ACHIEVING TEXAS' TOP RATING FROM FEMA'S CRS PROGRAM | DALLAS CRS CLASS 4 ACTIVITIES

350 FLOOD PROTECTION INFORMATION – 58 POINTS

PROVIDE PUBLIC WITH INFORMATION ABOUT FLOOD PROTECTION

- Flood Protection Library (LIB)
- Locally Pertinent Documents (LPD)
- Flood Protection Website (WEB)

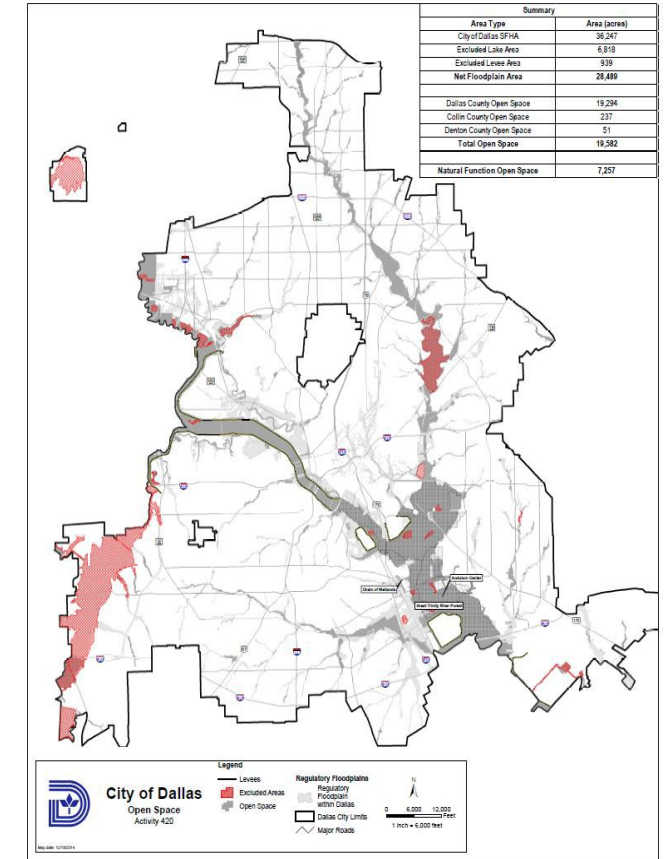


The screenshot displays the website for the Trinity Watershed Management Department. At the top, there is a blue navigation bar with the City of Dallas logo and menu items: Resident, Visitor, Business, Government, and News. Below the navigation bar is a large image of a modern building with the text 'Trinity Watershed Management' overlaid. The main content area features a sidebar on the left with a list of links: HOME, FLOOD CONTROL AND CITY-WIDE INTERIOR DRAINAGE, FLOOD INSURANCE AND FEMA, FLOODPLAIN AND DRAINAGE MANAGEMENT, FLOODPLAIN MANAGEMENT RESOURCES, CITY OF DALLAS FLOOD CONTROL DATA, STORMWATER MANAGEMENT, EXPLORE THE TRINITY RIVER CORRIDOR PROJECT, and ARCHIVES. The main content area on the right is titled 'Trinity Watershed Management Department' and 'Flood Plain and Drainage Management'. It lists Susan Alvarez, PE., as the Interim Assistant Director and Steve Parker, PE., CFM as the Program Manager. It also provides the address: Oak Cliff Municipal Center (OCMC), 320 East Jefferson, Room 307, Dallas, Texas 75203, and the phone number (214) 948-4690. Two paragraphs of text describe the city's floodplain and drainage management approach and the availability of flood warning data.

ACHIEVING TEXAS' TOP RATING FROM FEMA'S CRS PROGRAM | DALLAS CRS CLASS 4 ACTIVITIES

400 SERIES – MAPPING AND REGULATION

Activity	Points			% Communities Credited*
	Max Possible	Dallas Earned	Average Points Earned	
400 Mapping and Regulations	5841	1892	1086	
410 Flood Hazard Mapping	802	110	60	55%
420 Open Space Preservation	2020	1207	509	89%
430 Higher Regulatory Standards	2042	235	270	100%
440 Flood Data Maintenance	222	196	115	95%
450 Stormwater Management	755	144	132	87%

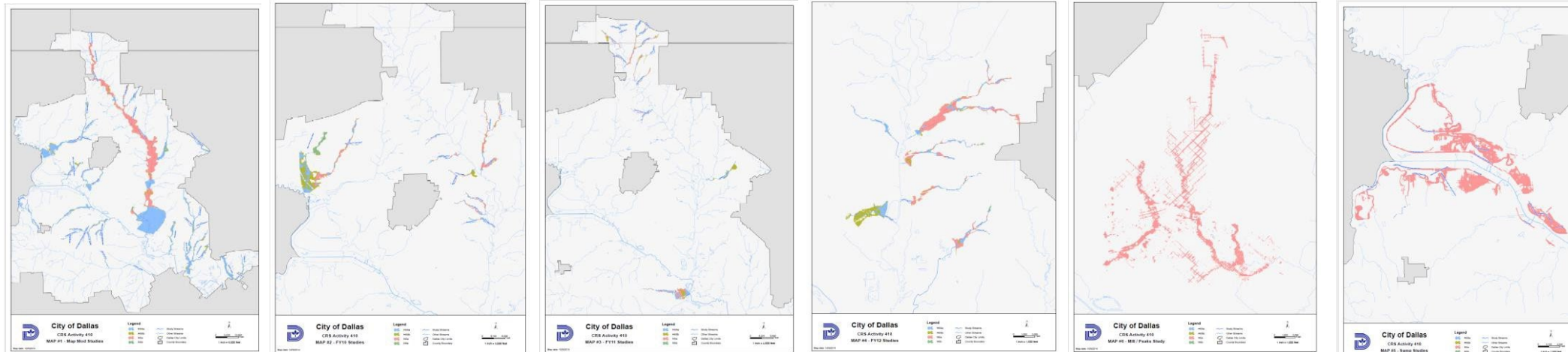


ACHIEVING TEXAS' TOP RATING FROM FEMA'S CRS PROGRAM | DALLAS CRS CLASS 4 ACTIVITIES

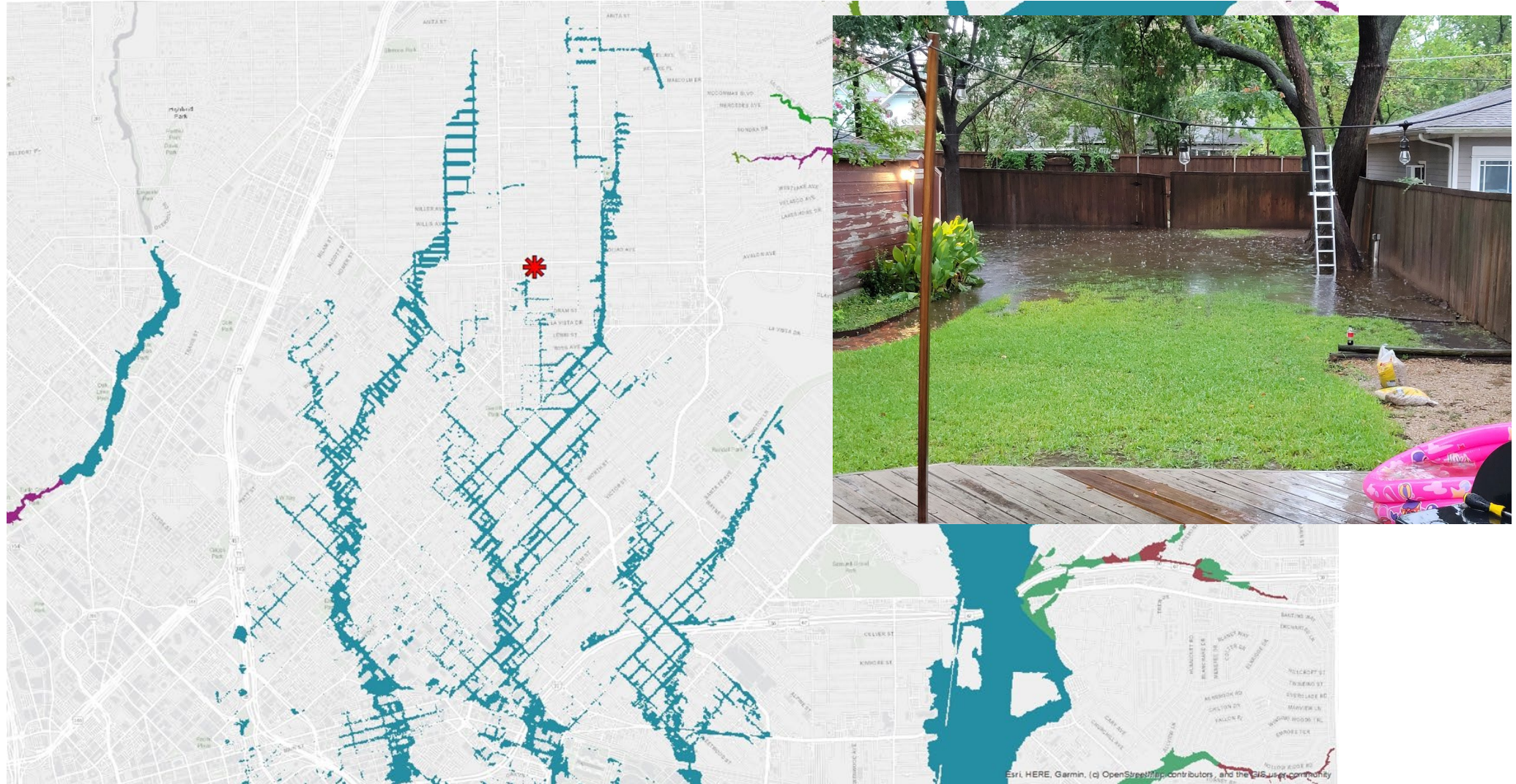
410 FLOODPLAIN MAPPING – 71 POINTS

OBJECT: IMPROVE QUALITY OF MAPPING USED TO IDENTIFY AND REGULATE DEVELOPMENT

- New Study (NS)
- Leverage (LEV)
- Higher Study Standards (HSS)
- Cooperating Technical Partner (CTP)



ACHIEVING TEXAS' TOP RATING FROM FEMA'S CRS PROGRAM | DALLAS CRS CLASS 4 ACTIVITIES

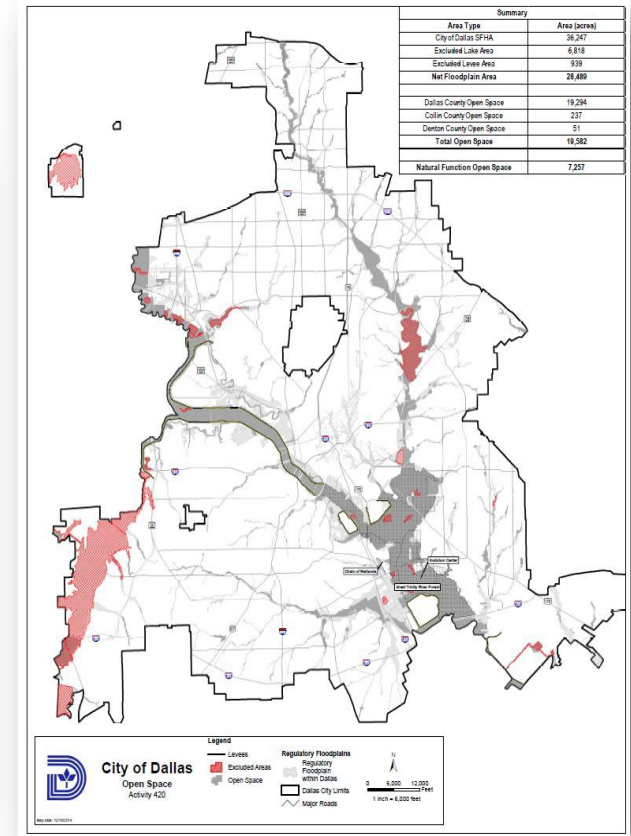
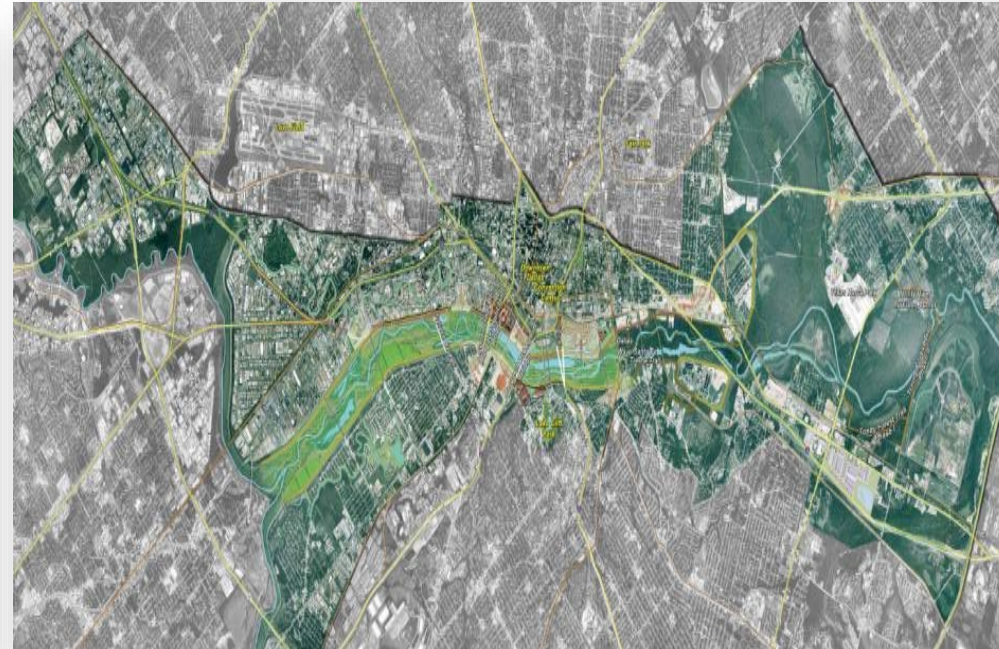


ACHIEVING TEXAS' TOP RATING FROM FEMA'S CRS PROGRAM | DALLAS CRS CLASS 4 ACTIVITIES

420 OPEN SPACE PRESERVATION – 1,199 POINTS

OBJECT: PREVENT FLOOD DAMAGE BY KEEPING LANDS OPEN, PROTECT NATURAL FUNCTIONS

- Open Space Preservation (OSP)
- Natural Functions Open Space (NFOS)

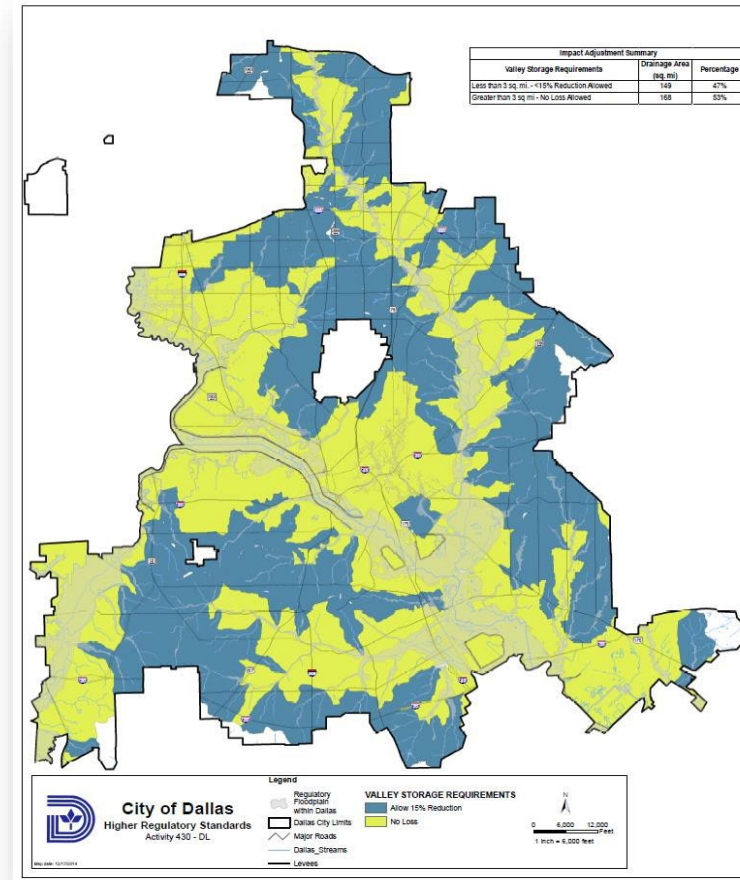


ACHIEVING TEXAS' TOP RATING FROM FEMA'S CRS PROGRAM | DALLAS CRS CLASS 4 ACTIVITIES

430 HIGHER REGULATORY STANDARDS – 253 POINTS

OBJECT: PROTECT EXISTING AND FUTURE DEVELOPMENT

- Development Limitations (DL)
- Freeboard (FRB)
- Cumulative Substantial Improvements (CSI)
- Building Code (BC)
- Local Drainage Protection (LDP)
- Regulations Administration (RA)

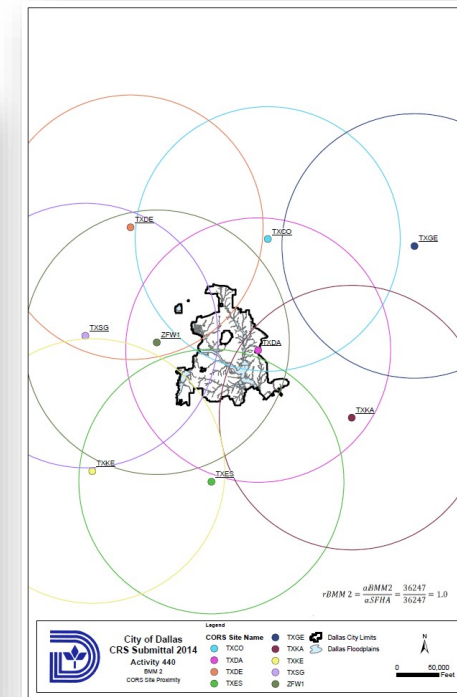
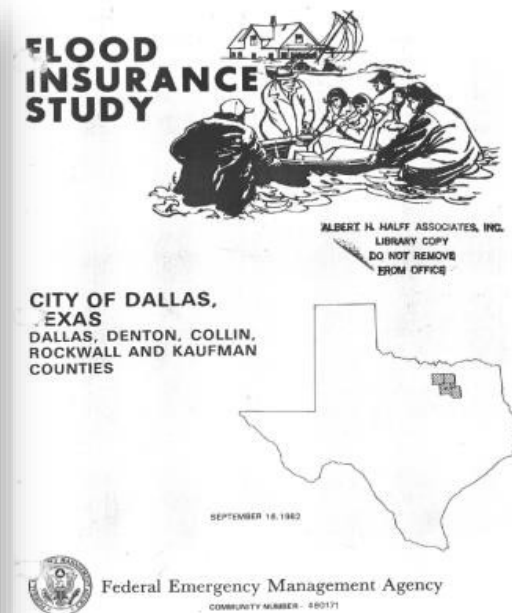
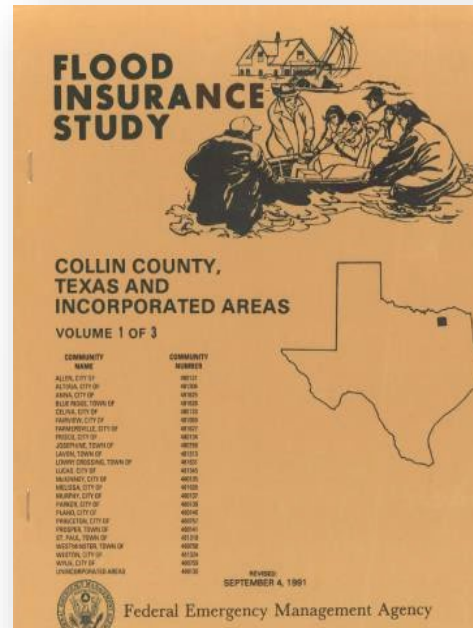
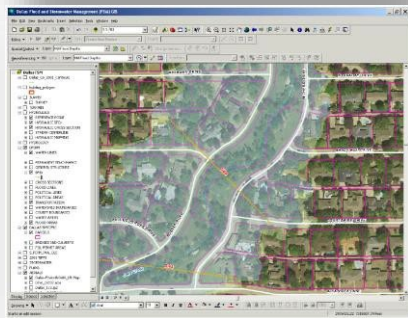
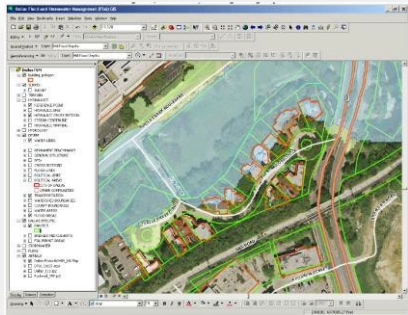


ACHIEVING TEXAS' TOP RATING FROM FEMA'S CRS PROGRAM | DALLAS CRS CLASS 4 ACTIVITIES

440 FLOOD DATA MAINTENANCE – 179 POINTS

OBJECT: MAKE COMMUNITY FLOODPLAIN DATA MORE ACCESSIBLE, CURRENT, ACCURATE

- Additional Map Data (AMD)
- FIRM Maintenance (FM)
- Benchmark Maintenance (BMM)



ACHIEVING TEXAS' TOP RATING FROM FEMA'S CRS PROGRAM | DALLAS CRS CLASS 4 ACTIVITIES

450 STORMWATER MANAGEMENT – 112 POINTS

OBJECT: PREVENT FUTURE DEVELOPMENT FROM INCREASING HAZARDS

- Stormwater Management Regulations (SMR)
- Erosion and Sedimentation Control Regulations (ESC)
- Water Quality Regulations (WQ)



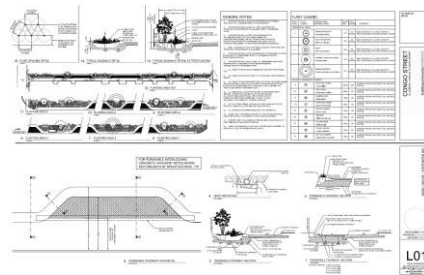
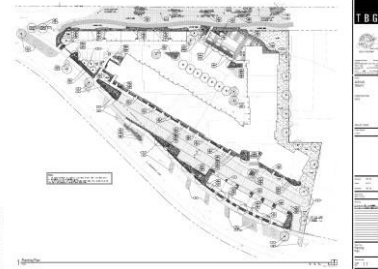
PEROT MUSEUM OF NATURE AND SCIENCE
Dallas, Texas

Design Team: Perot
Architect: Perot
Construction Team: Perot
November 18, 2009

Design Team: Perot
Architect: Perot
Construction Team: Perot
November 18, 2009

Design Team: Perot
Architect: Perot
Construction Team: Perot
November 18, 2009

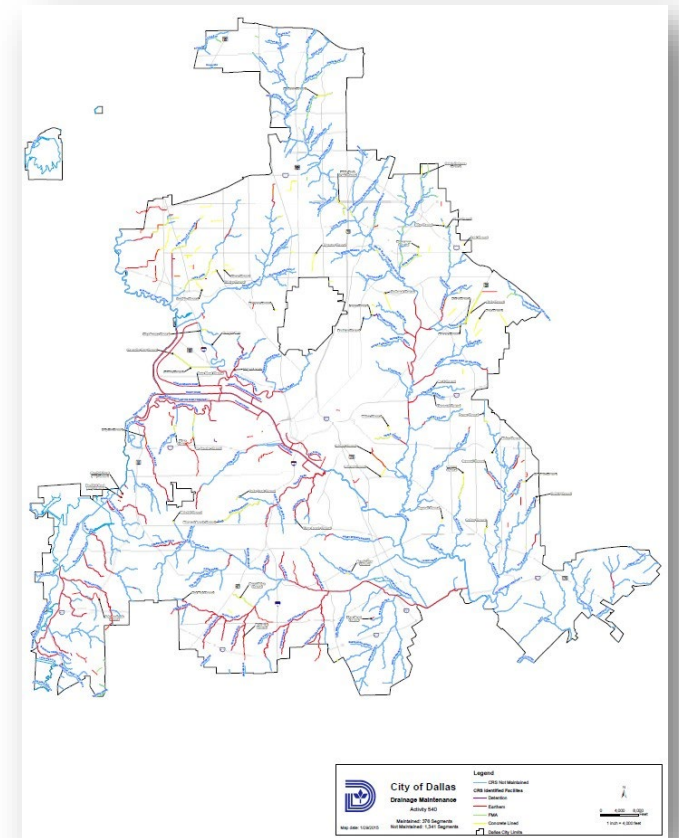
Design Team: Perot
Architect: Perot
Construction Team: Perot
November 18, 2009



ACHIEVING TEXAS' TOP RATING FROM FEMA'S CRS PROGRAM | DALLAS CRS CLASS 4 ACTIVITIES

500 SERIES – FLOOD DAMAGE REDUCTION

Activity	Points			% Communities Credited*
	Max Possible	Dallas Earned	Average Points Earned	
500 Flood Damage Reduction	5042	635	661	
510 Floodplain Management Planning	622	295	175	64%
520 Acquisition and Relocation	2250	153	195	28%
530 Flood Protection	1600	0	73	13%
540 Drainage System Maintenance	570	187	218	43%

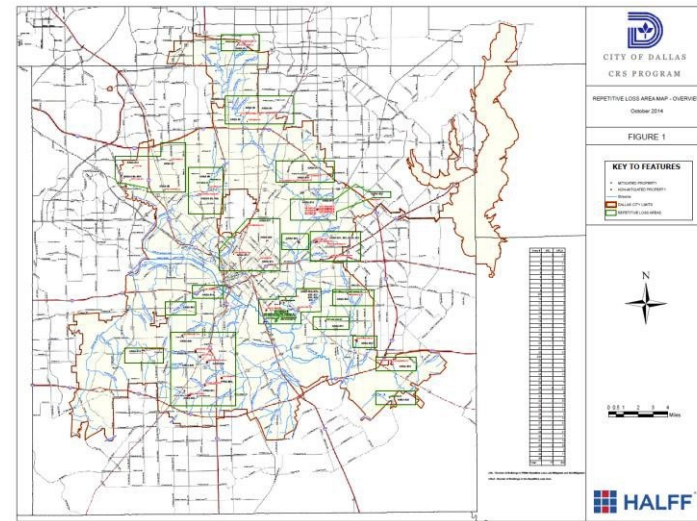


ACHIEVING TEXAS' TOP RATING FROM FEMA'S CRS PROGRAM | DALLAS CRS CLASS 4 ACTIVITIES

510 FLOODPLAIN MANAGEMENT PLANNING – 295 POINTS

OBJECT: CREDIT OVERALL STRATEGY TO REDUCE ADVERSE IMPACT OF THE HAZARD

- Floodplain Management Planning (FMP)
- Repetitive Loss Area Analysis (RLAA)
- Natural Floodplain Functions Plan (NFP)



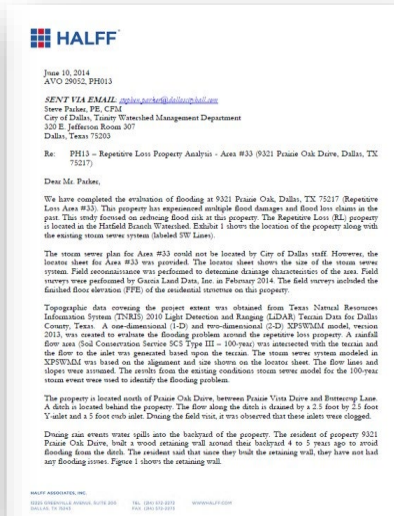
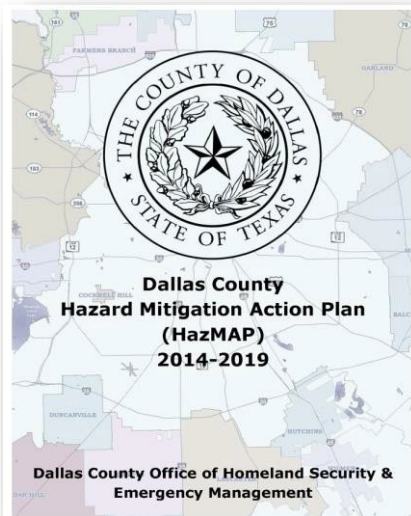
City Of Dallas
Repetitive Loss Plan

Implemented Through The
Trinity Watershed
Management Department

Original Plan Developed June 2009
Plan Updated October 2014



This plan contains information protected by the Privacy Act.
For Internal Use Only.



ACHIEVING TEXAS' TOP RATING FROM FEMA'S CRS PROGRAM | DALLAS CRS CLASS 4 ACTIVITIES


540 DRAINAGE SYSTEM MAINTENANCE – 265 POINTS

OBJECT: KEEP CHANNELS AND STORAGE BASIN CLEAR OF DEBRIS

- Chanel Debris Removal (CDR)
- Problem Site Maintenance (PSM)
- Capital Improvement Program (CIP)
- Stream Dumping Regulations (SDR)

Channel/Creek Rating

INSPECTION	DATE	INSPECTOR	STATUS	SCORE	REMARKS
INSPECTION	03/10/2015	...	0	...	...
INSPECTION	03/10/2015	...	1	...	...
INSPECTION	03/10/2015	...	0	...	...
INSPECTION	03/10/2015	...	1	...	...
INSPECTION	03/10/2015	...	0	...	...
INSPECTION	03/10/2015	...	3	...	...
INSPECTION	03/10/2015	...	1	...	...
INSPECTION	03/10/2015	...	0	...	...
TOTAL			100%	...	...



THE TRINITY
DALLAS

Trinity Watershed Management Department
Standard Operating Procedure Summary for
Drainage System Maintenance

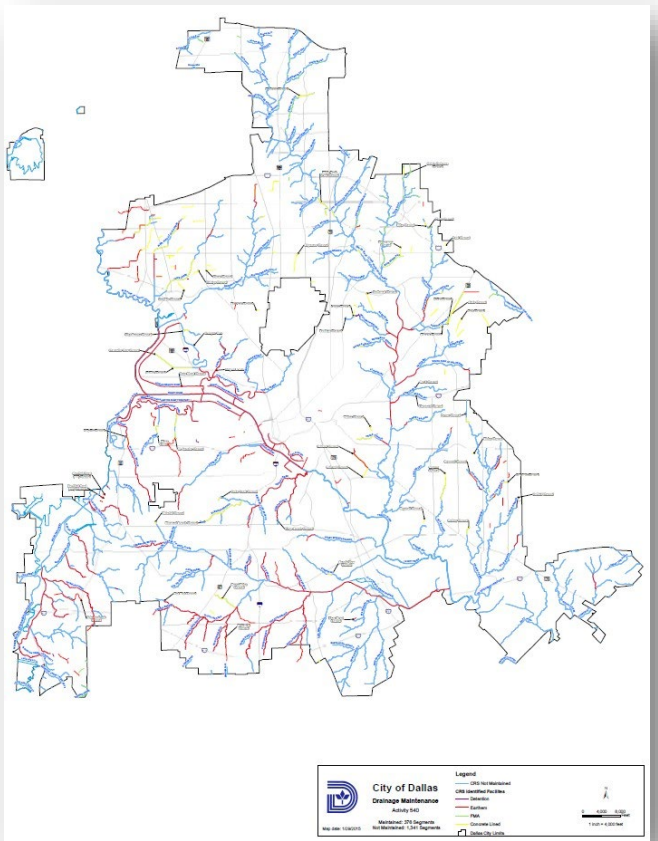
Updated March 2015 for FEMA CRS Program Review

Contents

- Program Overview2
- Annual Inspection:2
- Maintenance:2
- Trinity River Levee Maintenance4
- Dam Maintenance4
- Response to Citizen Complaints4

Attachments:

- City of Dallas Drainage System Map
- Channel / Creek Rating Inspection Form
- ISO Manual – Drainage Channel Process
- City of Dallas - Severe Thunderstorm Response Guidelines



ACHIEVING TEXAS' TOP RATING FROM FEMA'S CRS PROGRAM | DALLAS CRS CLASS 4 ACTIVITIES

600 SERIES – WARNING AND RESPONSE

Activity	Points			% Communities Credited*		
	Max Possible	Dallas Earned	Average Points Earned			
600 Warning and Response		790	369	446		
610 Flood Warning and Response		395		225		20%
620 Levees		235		115		1%
630 Dams		160		29		25%

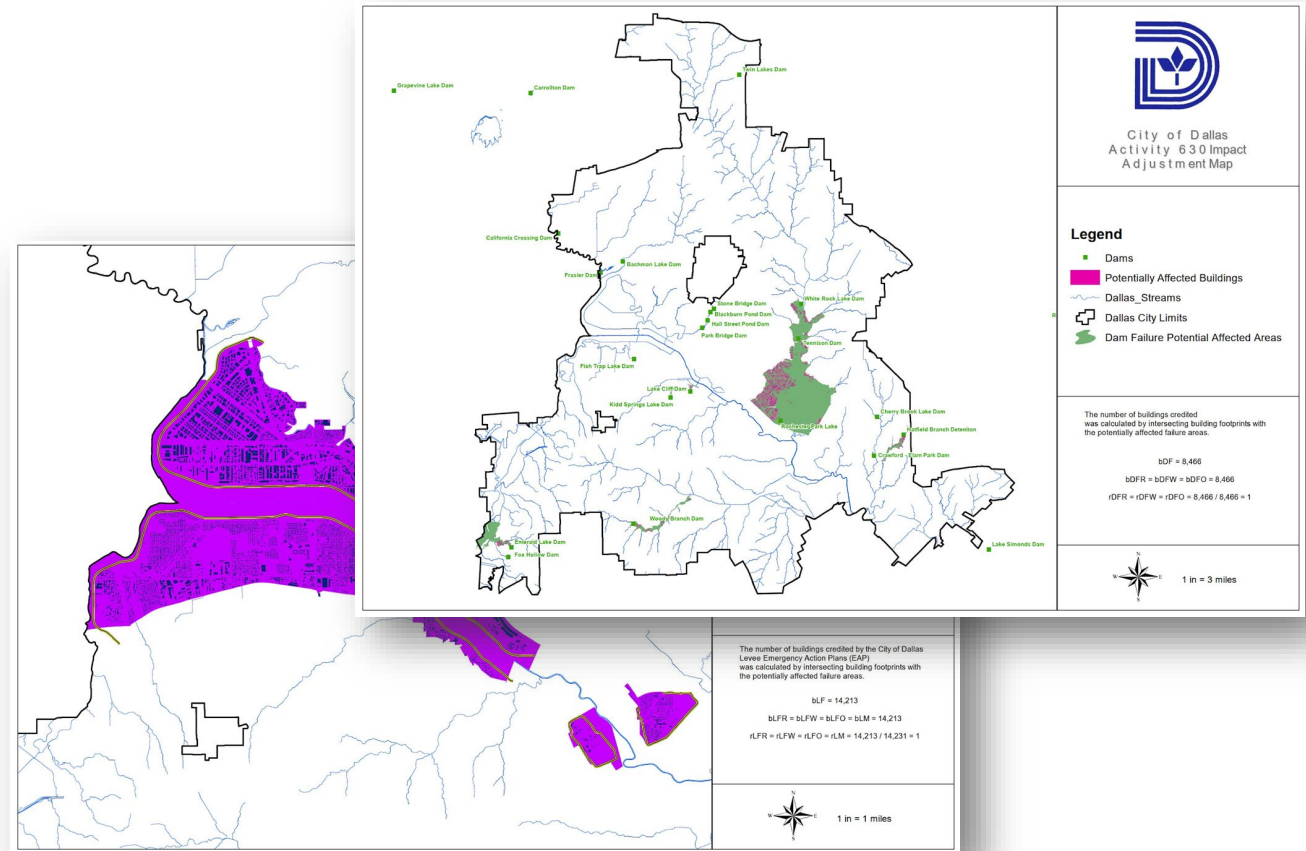


ACHIEVING TEXAS' TOP RATING FROM FEMA'S CRS PROGRAM | DALLAS CRS CLASS 4 ACTIVITIES

600 WARNING AND RESPONSE

OBJECT: IDENTIFY FLOOD THREAT, DISSEMINATE WARNINGS, FLOOD RESPONSE ACTIVITIES

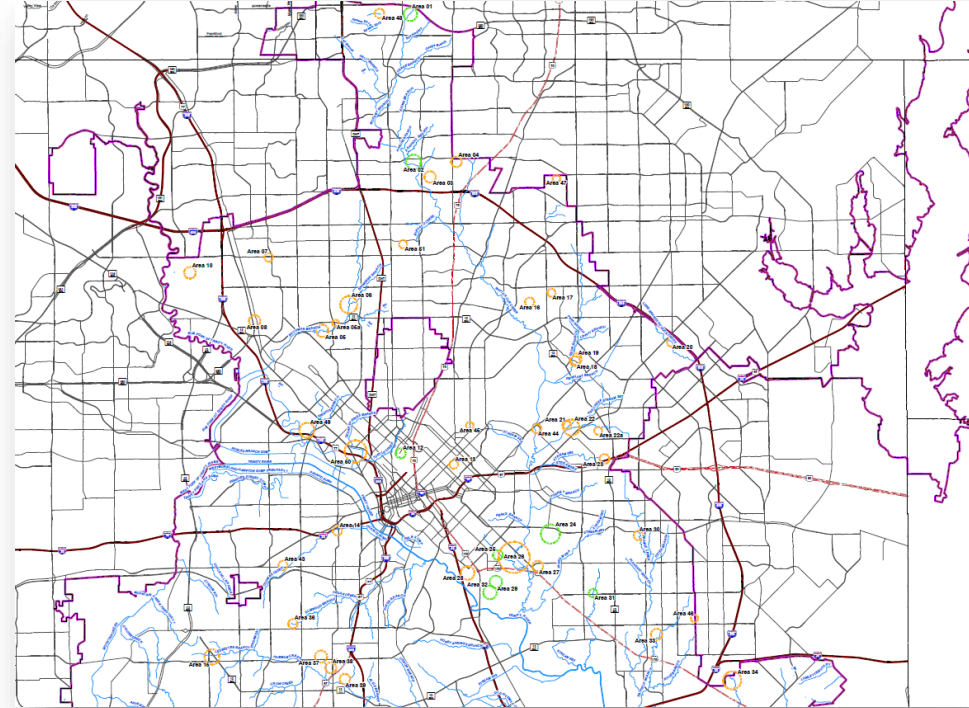
- 610: FLOOD WARNING AND RESPONSE
 - Flood threat recognition system (FTR)
 - Emergency warning dissemination (EWD)
 - Flood response operations (FRO)
- 620: LEVEES
 - Levee failure threat recognition system (LFR)
 - Levee failure warning (LFW)
 - Levee failure response operations (LFO)
- 630: DAMS
 - State Dam Safety Program (SDS)
 - Dam Failure Response Operations (DFO)



ACHIEVING TEXAS' TOP RATING FROM FEMA'S CRS PROGRAM |

WHY DO WE DO THIS

- Repetitive Loss Properties
- Insurance Premiums and Impacts
- Risk Rating 2.0
- Political Impact



ACHIEVING TEXAS' TOP RATING FROM FEMA'S CRS PROGRAM | LESSONS LEARNED

- Low Hanging Fruit
- Investment vs Return
- Staff Burden
- Organization
- Use Your Neighbors



CITY OF DALLAS JOURNEY TOWARDS BECOMING A CRS CLASS 4 | CLOSING



Contacts:

Kim Dewailly | 214-948-4619

kimberly.dewailly@dallascityhall.com

Jack Young | 214-217-6676

jyoung@halff.com