Welcome & Housekeeping
Opening Remarks
Purpose

1. Receive new updates from state and federal partners regarding new Individual Assistance factors that affect future federal disaster declarations.

2. Discover recovery housing resources available to local jurisdictions beyond FEMA assistance.

3. Share your questions and concerns directly with state and federal partners, and participate in discussions that are centered around making south Texas communities more resilient for future disasters.

4. Allow our voluntary organizations, private sector, local jurisdictions, state and federal partners to join in on the conversation to ensure our south Texas communities are supported following future disasters.
11 Futureproofing Recommendations

44 Eye of the Storm Recommendations
EYE OF THE STORM
Report of the Governor’s Commission to Rebuild Texas

www.RebuildTexas.Today/EyeoftheStorm
Commission To Rebuild Texas Offers Post-Harvey Recommendations To Legislature

- 178 pages, five chapters, 44 recommendations
- Wide-ranging recommendations to help Texas better prepare for future catastrophic storms in the wake of Hurricane Harvey
- A&M University System extensive resources dedicated to recovery process
- Report Contributors include: A&M System, TAMU, TAMU-Galveston, TDEM, TEEX, AgriLife Extension, TFS, Veterinary Medicine, Rice University, and the private sector
- Recommendations offered in the report will require the cooperation of Congress and the federal government

- The report recommended prioritizing more than 4,000 potential projects and establishing a study committee to evaluate and propose options for a state-local partnership to help future-proof Texas against flood events on a watershed basis.
Agenda – Jun. 5-6, 2019

Wednesday June 5, 2019

10:00 AM  Welcome and Opening Remarks
10:15 AM  Hazard Mitigation
12:30 PM  LUNCH BUFFET (Provided in Hotel Meeting Room)
2:00 PM  Recovery Resources: Beyond FEMA

Thursday, June 6, 2019

8:15 AM  Continental Breakfast (Provided in Meeting Room)
9:00 AM  Facing Future Federal Disaster Declarations
11:00 AM  The Way Ahead - Facilitated Discussion
12:00 PM  End of Summit

RebuildTexas.today/EyeOfTheStorm  nerrtc@teex.tamu.edu
Hazard Mitigation
Flood Insurance

Jeffrey LaCour, FEMA Texas Recovery Office

RebuildTexas.today/EyeOfTheStorm

nerrtc@teex.tamu.edu
NFIP for Local Leaders
TEXAS RECOVERY OFFICE OUTREACH INITIATIVE
South Texas Recovery Housing Summit

June 5th and 6th 2019

Jeffrey LaCour
• NFIP – National Flood Insurance Program

• What is Flood Risk?

• Flood Hazard Mapping and FIRMs
Flood Risk?

Any situation involving exposure to a Flood danger, harm or loss.

“While levees can help reduce flood risk…they do not eliminate the risk.”
Flood Insurance/Group Flood Insurance

- Brief definition of flooding is any form of rising water in which 2 properties are affected—one being yours
- **Structure Coverage**
  - Max coverage $250,000
- **Contents coverage**
  - Contents is an optional addition, except for Preferred Risk Policy.
  - Max coverage $100,000 coverage for Actual Cash Value
- **Wait Period**
  - Typically - 30-days from purchase until effective.
- Average pay out for Harvey for NFIP was $112K (March 2018)

- **Group Flood Insurance**
  - Available during a Presidential Declared event
  - If qualified for an IA grant a GFIP will be purchased in the amount of $600
  - Policy is good for 3 years
  - Must maintain insurance on the property forever
  - Max amount on the policy is 33,500 this includes structure and dwelling
  - Average IA pay-out for Harvey was $6000
Insurance Misconception

- **Misconception:**
  “I’m already covered—my homeowners policy covers flooding.”

- **Fact:**
  Most insurance policies do not cover flooding; only flood insurance covers flood damage.

  Renters and Business owners should also consider flood insurance for contents.

- **Misconception:**
  “I don’t live in a flood zone.”

- **Facts:**
  - Floods are the #1 natural disaster in the United States.
  - If it can rain, it can flood.
  - FIRMs do not show localized flooding from drainage ditches/sewers/road ponding.
  - To some degree overland flooding…but not property to property drainage problems.
What is a FIRM and a Flood Zone?

Flood Insurance Rate Map

- Identifies the flood zones

  - SFHA (high risk)
    - A, AE, AO, AH, VE, V etc. (Aqua)
      - 1% annual chance flood

  - Non-SFHA (low to moderate risk)
    - B, C and X (Shaded – orange or gray color & non-Shaded)
      - Orange/Gray area – outlines areas protected by Levees
      - Even the non-shaded is a flood zone – a minimal risk.

- Used for rating flood insurance policies

- Are subdivided by panels to cover jurisdictional boundary.

- Shows what the BFE is within the flood zones

- FIRM’s show Costal and Riverine flood risk

Find your zone at https://msc.fema.gov/portal/home
Cost of Flood Damage?

2,500 sq ft, one-story home with possessions worth $50,000

<table>
<thead>
<tr>
<th>Interior Water Depth (Inches)</th>
<th>Cost to Home</th>
<th>Cost to Personal Property</th>
<th>Combined Loss Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&quot;</td>
<td>$23,635</td>
<td>$3,172</td>
<td>$26,807</td>
</tr>
<tr>
<td>2&quot;</td>
<td>$23,720</td>
<td>$3,172</td>
<td>$26,892</td>
</tr>
<tr>
<td>3&quot;</td>
<td>$24,370</td>
<td>$4,917</td>
<td>$29,287</td>
</tr>
<tr>
<td>4&quot;</td>
<td>$31,345</td>
<td>$7,207</td>
<td>$38,552</td>
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<tr>
<td>5&quot;</td>
<td>$31,425</td>
<td>$13,914</td>
<td>$45,339</td>
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<tr>
<td>6&quot;</td>
<td>$37,260</td>
<td>$14,777</td>
<td>$52,037</td>
</tr>
<tr>
<td>7&quot;</td>
<td>$37,691</td>
<td>$17,700</td>
<td>$55,391</td>
</tr>
<tr>
<td>8&quot;</td>
<td>$38,122</td>
<td>$20,624</td>
<td>$58,746</td>
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<tr>
<td>9&quot;</td>
<td>$38,553</td>
<td>$23,547</td>
<td>$62,100</td>
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<td>10&quot;</td>
<td>$38,983</td>
<td>$26,470</td>
<td>$65,453</td>
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<tr>
<td>11&quot;</td>
<td>$39,414</td>
<td>$29,394</td>
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<tr>
<td>12&quot;</td>
<td>$39,845</td>
<td>$32,317</td>
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<td>24&quot;</td>
<td>$44,325</td>
<td>$43,001</td>
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<td>36&quot;</td>
<td>$47,905</td>
<td>$46,633</td>
<td>$94,538</td>
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<tr>
<td>48&quot;</td>
<td>$53,355</td>
<td>$50,000</td>
<td>$103,355</td>
</tr>
</tbody>
</table>
Structure Elevation Impact Insurance Rates

The elevation is just one factor, others include: when was the structure, has it flooded in the past, etc.

EVERY Structure has a risk…
generally the higher the structure the less the risk.

High Risk = $$$
Medium Risk = $$
Lower Risk = $
Living in Texas means we have a flood risk even with heavy rain.
- Tax Day 2016 and Memorial Day 2015 – not with a tropical system

Flood Risk is from multiple sources.

Flood insurance allows individual property owners to manage their risk.
- Buy policies that cover the structure AND contents.
Contact Information

Angela Harrison, Insurance
Cell 470-557-2794 | Angela.Harrison@fema.dhs.gov

Yho-Meka Conway, Insurance
Cell 470-572-0803 | Yho-Meka.Conway@fema.dhs.gov

Jeffrey LaCour, CFM, Floodplain Management
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Gilbert L. Giron, CFM
Regional Flood Insurance Liaison
FEMA Region 6 Mitigation Division
Floodplain Management and Insurance Branch
Phone: 940-383-7253
Gilbert.giron@fema.dhs.gov

NFIP Hotline
1-800-427-4661
www.fema.gov/nfip
# Floodplain Management & Insurance Support to Harvey Impacted NFIP Participating Communities

<table>
<thead>
<tr>
<th>Floodplain Management + Hazard Performance Analysis</th>
<th>Community Education</th>
<th>Insurance + Zone Determinations</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Community Assistance Contact Meetings</td>
<td>• Outreach to homeowners, insurance agents, &amp; realtors</td>
<td>• Congressional Inquiries</td>
</tr>
<tr>
<td>• Access to and creation of related data and map products</td>
<td>• Training</td>
<td>• Mapping Mailbox Flood Zone Determinations (support to Public Assistance program)</td>
</tr>
<tr>
<td>• Community Assistance Visits</td>
<td>• Other technical assistance</td>
<td>• Duplication of Benefits Reviews (support to Grants)</td>
</tr>
<tr>
<td></td>
<td>• External Affairs content creation</td>
<td>• Temporary Housing Flood Zone (support to Individual Assistance program)</td>
</tr>
</tbody>
</table>
Community Education

- Provide education on the importance of understanding flood risk and liabilities to stakeholders
- Build rapport, established and maintain relationships with various stakeholder groups outside the response phase
- FEMA Moonshot Goals:
  - Double insurance coverage and quadruple investment in Mitigation by 2020
  - Community Events
    - Home Shows, Hurricane Preparedness Expo’s, Fairs
    - FloodAware presentations with NOAA / National Weather Service
    - FEMA External Affairs content creation
  - Outreach to Homeowners Associations, Insurance and Real Estate Agents
NFIP Outreach to HOAs

<table>
<thead>
<tr>
<th>Description</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Emails-includes follow up</td>
<td>1041</td>
</tr>
<tr>
<td>Counties</td>
<td>15</td>
</tr>
<tr>
<td>Estimated Population</td>
<td>4,910,559.00</td>
</tr>
<tr>
<td>Potential #Homes</td>
<td>1,636,853.00</td>
</tr>
<tr>
<td>HOA/Property Management Pledged to place on site</td>
<td>238</td>
</tr>
<tr>
<td>Confirmed on Sites/Newsletter</td>
<td>9</td>
</tr>
<tr>
<td>Confirmed # Homes</td>
<td>1,478,850.00</td>
</tr>
<tr>
<td>Estimated Population Confirmed</td>
<td>4,436,550.00</td>
</tr>
<tr>
<td>Publications Dropped off HOAs</td>
<td>3</td>
</tr>
</tbody>
</table>
Reaching a Broader Audience with Social Media Content
What are CACs?

- CAC: Community Assistance Contact
  - Telephone call or brief visit to a community
  - Establish or Re-establish contact with NFIP Communities
  - Enhance a working relationship between the State, FEMA and the NFIP Communities to create a greater awareness of the NFIP and its requirements
Data Availability

*This data includes FEMA and Non-FEMA Data and can mapped or shared with various degrees of protection to personal information.*

**Bio-Physical Watershed Characteristics**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waterways and Sub-watersheds</td>
<td></td>
</tr>
<tr>
<td>Number and percentage of residences</td>
<td>located in SFHA</td>
</tr>
<tr>
<td>Topography/Geology</td>
<td></td>
</tr>
<tr>
<td>Soil Composition</td>
<td></td>
</tr>
<tr>
<td>Drainage Class</td>
<td></td>
</tr>
<tr>
<td>Flood Frequency Class</td>
<td></td>
</tr>
<tr>
<td>Hydric Soil Rating</td>
<td></td>
</tr>
<tr>
<td>Natural Resources</td>
<td></td>
</tr>
<tr>
<td>Parks, Forests, and Wildlife</td>
<td></td>
</tr>
<tr>
<td>Wetlands</td>
<td></td>
</tr>
<tr>
<td>Floodplains</td>
<td></td>
</tr>
<tr>
<td>Designation</td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td></td>
</tr>
<tr>
<td>Aquifers/ Water wells</td>
<td></td>
</tr>
<tr>
<td>Water Quality</td>
<td></td>
</tr>
<tr>
<td>Hazardous Waste Sites</td>
<td></td>
</tr>
<tr>
<td>Brownfield and Superfund</td>
<td></td>
</tr>
<tr>
<td>Drainage, Hydrology, and Hydraulics</td>
<td></td>
</tr>
<tr>
<td>Stream Gages</td>
<td></td>
</tr>
<tr>
<td>Hydromodification</td>
<td></td>
</tr>
<tr>
<td>Hydraulic Structures</td>
<td></td>
</tr>
</tbody>
</table>

This data includes FEMA and Non-FEMA Data and can mapped or shared with various degrees of protection to personal information.
Data Availability

This data includes FEMA and Non-FEMA Data and can mapped or shared with various degrees of protection to personal information.

Socio-Economic Watershed Characteristics

- Land Cover
  - From National Land Cover Database and NOAA’s Coastal Change Analysis Program
  - Details change in land cover from 2001 to 2011
- Demographic and Socio-Economic Conditions
  - Population
  - Business/Industry
  - Housing Type and Value
  - Education
  - Employment

- Social Vulnerability Index (SoVI)
- Gross Domestic Product
  - GDP Sectors
  - Daily Totals
  - Percent in SFHA
- Flood-related loss data
  - NFIP Claims
  - Individual Assistance Claims
  - Public Assistance Repairs
  - Grants Data
  - Repetitive Loss Data
Data Availability

This data includes FEMA and Non-FEMA Data and can be mapped or shared with various degrees of protection to personal information.

Additional Datasets

• Aerial Photography
  • Overlay impervious surface data to show where development has occurred
  • Pre- and Post-event imagery to show where change has occurred
• Property Boundary Information (parcels)
  • Show properties in relation to flood zone data
• LiDAR
  • Elevation values at a given location
## GIS Products

<table>
<thead>
<tr>
<th>Product Description</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flood Related Declared Disasters in Harvey Declared Counties (2000 – 2018, Regional)</td>
<td>PDF Map, Available</td>
</tr>
<tr>
<td>Flood Related Declared Disasters in Harvey Declared Counties (2000 – 2018, Regional)</td>
<td>PDF Map, In Progress</td>
</tr>
<tr>
<td>Social Vulnerability Index (2016, Community)</td>
<td>Interactive PDF</td>
</tr>
<tr>
<td>Jurisdictional Boundaries Map (2018, Community)</td>
<td>Interactive PDF</td>
</tr>
<tr>
<td>Parcel Data: Pre-FIRM vs Post-FIRM + Flood Zones (+ Prelim &amp; Change) (2017, Community)</td>
<td>Interactive PDF</td>
</tr>
<tr>
<td>NFIP Underinsured Areas Heat Map (2018, Community)</td>
<td>Still to be developed</td>
</tr>
<tr>
<td>Pre-Harvey vs Post-Harvey Active NFIP Policies Change Map (June 2018, Community)</td>
<td>Still to be developed</td>
</tr>
<tr>
<td>Critical Infrastructure + Levees (2015</td>
<td>2018, Community)</td>
</tr>
<tr>
<td>Active Costed Permanent Works Public Assistance Projects (July 2018, Community)</td>
<td>Interactive PDF</td>
</tr>
<tr>
<td>Mitigation Grant Projects: Category + Harvey NFIP / IA Claims (2000 – 2018, Community)</td>
<td>Interactive PDF</td>
</tr>
<tr>
<td>Repetitive Loss / Severe Rep Loss: Magnitude of Loss + Pre- vs. Post-Harvey (June 2018, Community)</td>
<td>Interactive PDF</td>
</tr>
<tr>
<td>Repetitive Loss / Severe Rep Loss by CID Boundary (June 2018, Community)</td>
<td>Still to be developed</td>
</tr>
<tr>
<td>NFIP Policies by CID Boundary (2018, Community)</td>
<td>Interactive PDF</td>
</tr>
<tr>
<td>Potential Sites with Incomplete AW-503s (2018, Community)</td>
<td>Still to be developed</td>
</tr>
<tr>
<td>Impervious Surfaces: High Medium Low (2011, Community)</td>
<td>Still to be developed</td>
</tr>
<tr>
<td>Impervious Surfaces: New Development (2011, Community)</td>
<td>Still to be developed</td>
</tr>
<tr>
<td>NFIP Claims by CID Boundary (2018, Community / Full Extent)</td>
<td>Interactive PDF</td>
</tr>
<tr>
<td>Repetitive Loss / Severe Rep Loss by CID Boundary (June 2018, Community)</td>
<td>Interactive PDF</td>
</tr>
<tr>
<td>Pre-Harvey Active NFIP Policies (June 2018, Community)</td>
<td>Still to be developed</td>
</tr>
<tr>
<td>Adopted Higher Standards (2018, Regional)</td>
<td>Still to be developed</td>
</tr>
<tr>
<td>Firm Horizontal Boundary Change Layer (2018, County)</td>
<td>KMZ</td>
</tr>
<tr>
<td>Harvey IA Claims (by Flood Zones) (June 2018, County)</td>
<td>KMZ</td>
</tr>
<tr>
<td>Active Costed + Un-Costed Permanent Works Public Assistance Projects (July 2018, County)</td>
<td>Interactive PDF</td>
</tr>
<tr>
<td>Harvey NFIP Claims (by Flood Zones) (June 2018, County)</td>
<td>KMZ</td>
</tr>
<tr>
<td>Post-Harvey Active NFIP Policies (June 2018, County)</td>
<td>KMZ</td>
</tr>
<tr>
<td>Contour Topography Data for Approx. A Zone BFE Determination (Best available, County)</td>
<td>Still to be developed</td>
</tr>
</tbody>
</table>
Flood Related Declared Disasters

(2000 – 2018, Regional)
Harvey IA / NFIP
Critical Infrastructure + Growth
Effective / Prelim FIRM + Change
Pre-FIRM vs. Post-FIRM

Parcel centroids symbolized by Effective FIRM
Parcel centroids symbolized by Preliminary FIRM
Parcel centroids symbolized by Prelim FIRM + Change Layer shown

Pre-FIRM Buildings
- Regulatory Floodway
- 1% Annual Chance Flood Hazard - A
- 1% Annual Chance Flood Hazard - V
- 0.2% Annual Chance Flood Hazard
- Area with Reduced Risk Due to Levee
- Area of Minimal Flood Hazard
- Area Not Included

Post-FIRM Buildings
- Regulatory Floodway
- 1% Annual Chance Flood Hazard - A
- 1% Annual Chance Flood Hazard - V
- 0.2% Annual Chance Flood Hazard
- Area with Reduced Risk Due to Levee
- Area of Minimal Flood Hazard
- Area Not Included
# Harvey Claim Count by Effective Flood Zone

<table>
<thead>
<tr>
<th>Harvey IA Claims</th>
<th>Flood Zone</th>
<th>Fort Bend County Unincorporated</th>
</tr>
</thead>
<tbody>
<tr>
<td>IA Claims Outside SFHA</td>
<td>X- Unshaded</td>
<td>4930</td>
</tr>
<tr>
<td></td>
<td>Area with Reduced Risk Due to Levee</td>
<td>1789</td>
</tr>
<tr>
<td></td>
<td>0.2% Annual Chance Flood Hazard</td>
<td>2819</td>
</tr>
<tr>
<td>IA Claims Inside SFHA</td>
<td>1% Annual Chance Flood Hazard - A</td>
<td>372</td>
</tr>
<tr>
<td></td>
<td>1% Annual Chance Flood Hazard - V</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Regulatory Floodway</td>
<td>127</td>
</tr>
<tr>
<td></td>
<td>Unknown</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9538</td>
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<table>
<thead>
<tr>
<th>Harvey NFIP Claims</th>
<th>Flood Zone</th>
<th>Fort Bend County Unincorporated</th>
</tr>
</thead>
<tbody>
<tr>
<td>NFIP Claims Outside SFHA</td>
<td>X- Unshaded</td>
<td>400</td>
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<td></td>
<td>Area with Reduced Risk Due to Levee</td>
<td>475</td>
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<tr>
<td></td>
<td>0.2% Annual Chance Flood Hazard</td>
<td>166</td>
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<tr>
<td>NFIP Claims Inside SFHA</td>
<td>1% Annual Chance Flood Hazard - A</td>
<td>633</td>
</tr>
<tr>
<td></td>
<td>1% Annual Chance Flood Hazard - V</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Regulatory Floodway</td>
<td>172</td>
</tr>
<tr>
<td></td>
<td>Unknown</td>
<td>0</td>
</tr>
</tbody>
</table>

|                         |                                                  | 1041                            |
|                         |                                                  | 805                             |
Repetitive Loss / Severe Repetitive Loss
KMZ files

Datasets available as KMZ:

- Hurricane Harvey IA and NFIP Claims
- RL/SRL + Mitigated
- NFHL (Public)
- Change Layer
Repellitive Loss and Grants

Pasadena: Of 248 RL, 45 mitigated
Of 110 SRL, 59 mitigated
Repetitive Loss Update Worksheet (AW-501)

- Must be completed by the local Floodplain Administrator
- Informs insurance underwriting (WYO / NFIP Direct) that mitigation has been performed and property flood risk has changed since RL/SRL stats was incurred
- Mitigation Activities may include:
  - Demolition left as green space
  - Demolition and rebuild above BFE / higher standards
  - Elevation above BFE / higher standards
  - Flood proofing (non-residential)
- If X zone, property owner should contact FPA before starting work to ensure compliance and the community needs to provide a signed statement that shows mitigation was approved
- If structure incurs loss after the AW-501 is completed, it may be re-categorized as a RL/SRL property
- Form + cover sheet needs to be submitted via fax to
  Sherry Harper at 201-748-1869
  OR mailed to
  Ms. Sherry Harper, AICP, CFM
  Insurance Services Office, INC.
  2382 Susan Drive Crestview, FL 32536
  OR emailed to
  sharper@iso.com
- Copy of AW-501 also needs to be sent to property owner who will need to provide the following to their Insurance Agent
  - Property Value Updates based on Fair Market Value (Tax Assessment, Appraisal)
  - Mitigation Actions (EC, Photos before and after, source of funding, permits, signed statement if B,C, or X zone)
  - Invalid Loss History Associations
What comes next?

Community Assistance Visits

- A scheduled visit to predetermine communities
- A tour of the community’s flood hazard area
- A comprehensive assessment of the community’s floodplain management program
- Help the community to understand effective flood loss reduction measures and how to implement them

- 3-4 per quarter for the next 3-5 years
- Post-disaster CAVs in Harvey impacted communities
Conclusion

- Our goal is to exchange data by providing resources, educational and training opportunities to community FPA’s to make their community better prepared for any type of flooding event.

- Our outreach initiatives will help us in reaching FEMA’s overall goal of increasing policy count by 2020.
TRO Mitigation FMI + HPA Teams

**FMI - Austin**
Floodplain Management
  Jeffrey LaCour
  Shanika Hettige

Floodplain GIS
  Tracy Houston
  Lee Jennell Schmidt

Mapping Mailbox
  Cameron Nelson
  Vanessa Popov

Admin
  Margie Funkhouser

**FMI - Houston**
Angela Harrison
Janey Pinkney
Lauren Schmied
Yho-Meka Conway

**HPA**
Celeste Vences
  JJ Munoz
Karen Eldridge
  Paloma Alaniz
William Henry Snow
Angela Harrison
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470-557-2794

Jeffrey LaCour
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202-705-9440

Yho-Meka Conway
yho-meka.conway@fema.dhs.gov
470-572-0803
Flood Maps

Manuel Razo, Texas Water Development Board

RebuildTexas.today/EyeOfTheStorm

nerrtc@teex.tamu.edu
South Texas Recovery Housing Summit

Manuel J. Razo, GISP, CFM
Community Assistance Program and Cooperating Technical Partners Team Lead
Agenda

• Flood Map Development
• Flood Maps for Planning
• Flood Map Tools
Hydrology

https://files.dnr.state.mn.us/assistance/backyard/healthyrivers/course/200/201_10.htm
Atlas 14

This map of Texas shows the amount (in inches) that 100-year 24-hour precipitation estimates have increased when comparing the new NOAA Atlas 14 estimates with the old TP-40 estimates. Sept. 27, 2018
Hydraulics
Combining the Data

LiDAR + Hydrology + Hydraulics
Flood Insurance Rate Map Development Process

**Phase 0 Investment**
- Base Level Engineering (BLE)
- 9-12 months

**Phase 1 Discovery**
- Identify Community Needs
- 9-12 months

**Phase 2 Risk Identification & Assessment**
- BLE refinement + detailed engineering analysis
- 18-24 months

**Phase 3 Regulatory Product Update**
- Flood Insurance Rate Map Update
- 18-24 months
Phase 0 – Base Level Engineering
Welcome to the Base Level Engineering Viewer.

Base Level Engineering assessments are produced using high resolution ground data to create technically credible flood hazard information that may be used to expand and modernize FEMA's current flood hazard inventory.

View Base Level Engineering Data
Access all available Base Level Engineering data without GIS software.
- Click the DATA LAYERS button to add or remove map layers.
- Click the LEGEND tab to view an explanation of all data shown.
- Click the MAP VIEW button to open or close a second viewing window for side-by-side comparisons.

Estimated Base Flood Elevation Viewer

Download Datasets & Models
Download the Base Level Engineering data presented in the viewer.
- Click the DATA LAYERS button and add the DOWNLOADABLE DATA layer.
- Click shaded areas in the map to open a dialog for choosing datasets to download.

Property Look Up
Where data is available, produce a property-specific report with estimated base flood information.
- Click the REPORT tab to create a flood risk report for a specific location.

Click a topic to get started!

www.InFRM.us/estBFE
Run Site Specific Report

1. Enter your address or a City, Stream, Watershed name to zoom in

2. or CLICK “My Location” to zoom in based on your current location

3. Once ZOOMED in, use “Map Click” to place the locator & run report

www.InFRM.us/estBFE
Report Features

1% and 0.2% Estimated Flood Depths & Estimated BFE values

<table>
<thead>
<tr>
<th>Flood Event</th>
<th>Estimated Flood Depth*</th>
<th>Estimated Base Flood Elevation*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Percent (100 Year)</td>
<td>3.7 feet above land surface</td>
<td>265.8 feet NAVD 1988</td>
</tr>
<tr>
<td>0.2 Percent (500 Year)</td>
<td>6.4 feet above land surface</td>
<td>291.6 feet NAVD 1988</td>
</tr>
</tbody>
</table>

* The information included in this report is based on the location marker shown in the map. Results are not considered an official determination.
How can Base Level Engineering data be used?

- Permitting
- Mitigation Planning
- Insurance Rating
Base Level Engineering Availability
Phase 1 - Discovery

Mapping needs
Flood risk concerns
Development plans
Watershed wide planning
Mitigation efforts
Phase 2 – Risk Identification & Assessment

Select Project Area

Gather Information

FEMA, state, local, and tribal officials collect current and historic flood-related data including:

- Hydrology
- Infrastructure
- Hydraulics
- Land use
- Existing maps

18-24 month process
Phase 3 – Regulatory Product Update

- Preliminary Work Maps Released
- Preliminary FIRM Released
- 90-Day Appeal Period
- Letter of Final Determination Issue
- FIRM Becomes Effective
- Flood Risk Review Meeting
- CCO Meeting
- Appeals Resolved
- 6-Month Adoption/Compliance Period
- 18-24 month process
Flood Insurance Rate Map

- Insurance requirements
- Policy rating
- Floodplain management
- Mitigation planning
Why are Flood Insurance Rate Maps important?

- Communicate flood risk to a community and its residents
- Informs local floodplain management regulations
- Determines insurance rates and need to purchase insurance through the National Flood Insurance Program
- Sets minimum floodplain standards and building standards for the community
- Determine how much insurance coverage is available.
Digital Flood Insurance Rate Map Status
National Flood Hazard Layer

https://msc.fema.gov/nfhl
NFHL Google Earth
Mapping Assistance as a FEMA Cooperating Technical Partner

- Goal: Facilitate updates to Flood Insurance Rate Maps (FIRMs)

- TWDB Tasks:
  1. Base Level Engineering (Phase 0)
  2. Discovery (Phase 1)
  3. Detailed flood risk studies/enhance models (Phase 2)

- TWDB does **not** create FIRMs
Texas is no stranger to flood. With its diverse geography and extensive, hurricane-prone coastline, the state frequently leads the nation not only in structural damage but also in loss of lives related to flooding events. Given the deadly nature of floods and the rapid timeframe in which they can occur, being ready for the next event is essential. We list the most critical steps to take in each stage of the flood.
Reservoirs In Flood Stage

A lake is defined to be in flood stage and shows up on this map when the most recent instantaneous water level is above flood pool lower bound which is conservation pool elevation for water supply reservoirs and dead pool elevation for exclusively flood control reservoirs.

Flood height percent is defined as the ratio of water level above flood pool lower bound to flood space available between flood pool lower and upper bounds expressed as a percentage. The flood pool lower bound is conservation pool elevation for water supply reservoirs and dead pool elevation for exclusively flood control reservoirs. Flood pool upper bound is the maximum design water level, or dam top when this level is not available.

Addicks
Latest Measurement: 2019-02-25 11:45
- Water Level Above Datum (ft): 68.99
- Water Level Into Flood Pool (ft): 4.19
- Flood Pool Height (ft): 40.32
- Flood Height Percent: 3.7%

Amon G Carter
Latest Measurement: 2019-02-25 11:00
- Water Level Above Datum (ft): 929.70
- Water Level Into Flood Pool (ft): 6.70
- Flood Pool Height (ft): 18.00
- Flood Height Percent: 3.9%
Thank You!!!

Manuel J. Razo, GISP, CFM
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Building and Development Standards

Dr. Walter Peacock, Texas A&M University

RebuildTexas.today/EyeOfTheStorm nerrtc@teex.tamu.edu
Planning for Disaster Resilience: Considering a Broader Mitigation Portfolio

Walter Gillis Peacock
Dept. of Landscape Architecture and Urban Planning
Hazard Reduction and Recovery Center
Texas A&M University
Discuss the meaning of disaster resilience and how we generally think of disasters

Discuss various forms of mitigation policies and actions and their adoption by Jurisdictions along Gulf & Atlantic Coast and along the Texas Coast

Discuss factors that influence the adoption of these policies
What is disaster resilience?

Resilience is the ability of a **community** and the **bio-physical systems**, upon which they depend, to:

- *resist* or absorb the impacts (deaths, damage, losses, etc.) of natural hazards,
- *rapidly* recover from those impacts, and
- *reduce future vulnerabilities through* *adaptive* strategies

(Peacock et al. 2008 RAVON).
More Formalized Dimensions of Resilience

* Resistance or Diminished impact
  * **Robustness**: the ability to resist disruption and failure and continue functioning effectively (Bruneau et al., 2003; Tierney and Bruneau 2007)

* Rapid, Restoration, or rebound
  * **Rapidity**: the timely resolution of disaster-related challenges (Bruneau et al., 2003)
The nature, quality or trajectory of recovery implies learning/adaptation such that we see:

- Improvements in mitigation status
  - Enhancing robustness
  - Reducing future loss potential
  - Reducing future failure probabilities
- Reduction of preexisting vulnerabilities
  - Reduced hazard exposure and risk
  - Reduced social vulnerabilities
- Sustainable Disaster Recovery: improvements in the triple bottom line...
  - Enhanced economic sustainability
  - Enhanced ecological sustainability
  - Enhanced social sustainability
Three Dimensions of Resilience

Robustness captures the ability to withstand potential hazard impacts, which implies solid mitigation planning and implementation.

Rapidity captures how quickly restoration or recovery levels are achieved, which clearly points to the importance of recovery planning.

Enhancement captures the quality of recovery processes in terms of learning and adapting – in other words, mitigation must again be critical.
Disasters are still treated as acute issues, but they are really symptomatic of chronic issues.

The scientific consensus is that natural disasters, not simply “natural” events, they are an outcome of an interaction between biophysical systems, human systems and their built environment.

Human action and inaction is in large measure driving these trends:

- We continue to develop and expand into high hazard areas
- Increasing hazard exposure and risk
- Our buildings and infrastructure (the built environment) are often based on designs and methods that are appropriate given hazard exposure and risks
- As we develop we often destroy or compromise natural resources such as wetlands that can mitigate against disaster losses.
The simple and more traditional view of disaster impacts

**Disaster Agent Characteristics**
- Characteristics of Hazard
  - Speed of onset
  - Perceptual cues
  - Intensity
  - Scope
  - Duration
  - Probability of occurrence

**Physical Impacts**
- Casualties
  - Deaths
  - Injuries
  - Illnesses
- Property destruction
  - Buildings
  - Contents
  - Vehicles
  - Infrastructure
  - Animals and crops
- Environmental degradation & habitat loss

**Social Impacts**
- Psychological impacts
  - PTSD, Anxiety, Depression, Substance Abuse, etc.
- Demographic impacts
  - Population displacement, dislocation, and loss, etc.
- Economic impacts
  - Business loss, interruption, market instability, etc.
- Political impacts
  - Leadership loss & change, violence, instability, etc.

**Resiliency Outcomes**
- Recovery (speed and quality)
- Adaptation
**Disaster Impact Model**

**Pre-event hazard management planning/actions**

- Hazard Mitigation
- Preparedness & Response
- Recovery

**Community characteristics**

**Disaster Agent Characteristics**

- Physical Impacts
- Social Impacts

**Physical Vulnerability**

- Physical Exposure

**Social Vulnerability**

- Psychological impacts: PTSD, Anxiety, Depression, Substance Abuse, etc.
- Demographic impacts: Population displacement, dislocation, and loss, etc.
- Economic impacts: Business loss, interruption, market instability, etc.
- Political impacts: Leadership loss & change, violence, instability, etc.

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- Animals and crops

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**Resiliency Outcomes:**
- Recovery (speed and quality)
- Adaptation
Hazard Management Interventions

Hazard Mitigation

- Actions taken to reduce or eliminate long-term risk to people and property from natural hazards and their effects” (FEMA, 2009)
- “pre-impact actions that provide passive protection at the time of disaster impact” (Lindell, Prater, Perry)
- (Will come back to this in a moment)

Emergency Preparedness Practices

- Pre-impact actions that provide the human and material resources needed to support active responses at the time of hazard impact (Lindell and Perry 2000)
- Emergency assessment actions (forecast), hazard operations (short term actions taken to protect), pop. protection (evacuation/warning), incident management actions.

Recovery Preparedness practices

- Pre disaster recovery planning for coordinated effective recovery actions.
**Pre-event hazard management planning/actions**

**Pre-event hazard management planning/actions**

**Hazard Mitigation**

**Preparedness & Response**

**Recovery**

**Community characteristics**

**Disaster Agent Characteristics**

**Disaster Characteristics**

- Speed of onset
- Perceptual cues
- Intensity
- Scope
- Duration
- Probability of occurrence

**Characteristics of Hazard**

- Casualties: Deaths, Injuries, Illnesses
- Property destruction: Buildings, Contents, Vehicles, Infrastructure, Animals and crops
- Environmental degradation: habitat loss

**Physical Impacts**

- Psychological impacts: PTSD, Anxiety, Depression, Substance Abuse, etc.
- Demographic impacts: Population displacement, dislocation, and loss, etc.
- Economic impacts: Business loss, interruption, market instability, etc.
- Political impacts: Leadership loss & change, violence, instability, etc.

**Resiliency Outcomes:**

- Recovery (speed and quality)
- Adaptation
Community Characteristics

The pre-existing community characteristics that shape and determine the specific impacts of hazard agents:

* Hazard exposure
* Physical vulnerability
* Social Vulnerability

These are to a large extent knowable and potentially predictable

* Unfortunately they are often ignored or neglected
* And yet, they must be the basis for resiliency planning when it comes to emergency management interventions: Mitigation, Response, and Recovery Planning
* Indeed, they are the fact basis for all comprehensive community planning & resiliency planning
* Plans should/must be based on an understanding and assessment of these pre-existing community characteristics.
Community Characteristics: The Fact Basis for good planning

Critical elements in guiding effective resiliency planning should be the convergence of these three:

- Hazard exposure
- Physical vulnerability
- Social Vulnerability

The overlap represents hotspots that are prime targets for resiliency planning issues whether considering mitigation, recovery, or other planning activities.
The Old View: The Disaster Cycle

- Disaster Preparedness
- Disaster Response
- Hazard Mitigation
- Disaster Recovery

The cycle is circular, indicating a continuous process.
A Newer View…

Hazard Management Interventions

Hazard Mitigation

- Actions taken to reduce or eliminate long-term risk to people and property from natural hazards and their effects” (FEMA, 2009)
- “pre-impact actions that provide passive protection at the time of disaster impact” (Lindell, Prater, Perry)

Forms of Mitigation:

- Structural vs Non structural
  - Structural: Engineering solutions (dams, levees, etc)
  - Non-structural: policy related solutions, land-use planning
  - But these distinctions can be arbitrary and confusing.
    - Building Codes are a policy distinction, yet can refer to “structural” changes in the way our homes and buildings are constructed
Types of Mitigation Actions

Hazard Source Control

- Often associated with technological hazards, but relevant to natural Hazards
  - controlling fire, fire suppression, fuel controls
  - chemical (using non-toxic chemicals, preventing leaks, reducing quantities, etc.).

Community Protection works

- Usually refers to major public safety works: dams, levees, seawalls, river channelization, canals, landslide control, industrial hazard controls

Land-Use Practices

- Subdivision regulation, tax incentives, density bonuses, acquisition of land/development rights, zoning, etc.
- Implemented through: risk communication, incentives, and sanctions
Types of Mitigation Actions

Building Construction practices
- Building codes and strengthening components
- Structural protections from flood, wind, seismic, etc.
- Retro-fitting programs
- Special utility codes

Natural Resource preservation and restoration
- Preserving and restoring “natural” resources and the services they provide
  - Wetlands
  - re-vegetation and reforestation
  - dune protection
  - Protected areas
Types of Mitigation Actions

Risk communication, education, and outreach
- Targeting accurate risk and vulnerability assessment
- Signage to educate the public on different hazard exposure
- Hazard disclosure for property transfers etc.
- Comprehensive education programs within schools

Social infrastructure development
- Community and neighborhood based organizations, vulnerable population organizations (faith and non-faith based)
- Promoting non-profits and other community based organizations that address chronic vulnerability issues (food banks, women’s shelters, habitat, housing programs, etc.)
- Partnerships and reciprocal agreements (intra and inter community)
- Housing programs, maintenance, and equitable neighborhood infrastructure improvements and maintenance
Safeguard Mitigation Policies and Strategies Gulf & Atlantic Coasts and focus on Texas Coastal jurisdictions
Specific Hazard Mitigation Policies and Strategies: 12 types 47 in all

1. Specific Hazard Mitigation Policies and Strategies: 12 types 47 in all
2. Use and Development Regulations (8)
   - Subdivision ordinance; Planned unit development; Special districts; Agricultural or open space zoning; Performance zoning; setback ordinance; Storm water retention requirements, and
3. Shoreline Regulations (3)
   - Termination of shoreline development to water-dependent uses; Restrictions on shoreline armoring; Restriction on dredging/filling;
4. Building Codes and Special Hazards Standards (5)
   - Code; Wind hazard resistance for new home; Flood hazard resistance for new home; Retrofit for existing building; Special utility
5. Natural Resource Protection (6)
   - Land protection; Habitat protection/restoration; Protected areas; Vegetation protection; Coastal vegetation protection; Environment
6. Information Dissemination/ Awareness Programs (5)
   - Education for hazard mitigation; Citizen involvement in hazard planning; Seminar on hazard mitigation practices for developers;
7. Incentive Programs (3)
   - Federal Incentive Programs (2)
     - Participation in the National Flood Insurance Program (NFIP);
   - Property Acquisition Programs (3)
     - Fee simple purchases of undeveloped lands; Acquisition of developments and easements; Relocation of existing structures out of hazardous areas.
8. Financial Tools (3)
   - Lower tax rates; Special tax assessment; Impact fees or special assessments
9. Critical public/private facilities policies (3)
   - Requirements for locating public facilities and infrastructure; Requirements for locating critical private facilities and infrastructure; Using municipal service areas to limit development
10. Public-private sector initiatives (2)
    - Land trusts; Public-private partnerships
11. Utilizing Professionals: (4)
    - Hiring professionals to identify suitable building sites; Hiring professionals to develop special building techniques; Hiring...
Development regulation and land use management (Gulf and Atlantic)

- Resid. subdivision ordinances (1030): 96.3% Yes, 3.7% No
- Zoning (1059): 92.8% Yes, 7.2% No
- Storm water retention (1031): 92.7% Yes, 7.3% No
- Hazard setbacks (970): 85.0% Yes, 15.1% No
- Special overlay districts (987): 82.8% Yes, 17.2% No
- Planned unit development (977): 80.7% Yes, 19.3% No
- Ag./open space zoning (951): 76.1% Yes, 23.9% No
- Performance zoning (907): 39.8% Yes, 60.2% No
Development regulation and land use management (Texas)

- Resid. subdivision ordinances (76): 93.4% Yes, 6.6% No
- Zoning (82): 67.1% Yes, 32.9% No
- Storm water retention (77): 81.8% Yes, 18.2% No
- Hazard setbacks (70): 75.7% Yes, 24.3% No
- Special overlay districts (70): 57.1% Yes, 42.9% No
- Planned unit development (73): 71.2% Yes, 28.8% No
- Ag./open space zoning (65): 44.6% Yes, 55.4% No
- Performance zoning (68): 32.4% Yes, 67.6% No
<table>
<thead>
<tr>
<th>Standard</th>
<th>Percentage distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building code (1037)</td>
<td>96.0% Yes, 4.0% No</td>
</tr>
<tr>
<td>Flood hazard standards (905)</td>
<td>66.4% Yes, 33.6% No</td>
</tr>
<tr>
<td>Special wind hazard standards (864)</td>
<td>52.6% Yes, 47.5% No</td>
</tr>
<tr>
<td>Local utility standards (871)</td>
<td>42.4% Yes, 57.6% No</td>
</tr>
<tr>
<td>Retrofit standards (882)</td>
<td>34.6% Yes, 65.4% No</td>
</tr>
</tbody>
</table>
3. Building Standards

![Building Codes and Special Hazard Standards (Texas)]

- **Building code (81)**: Yes (82.7) / No (17.3)
- **Flood hazard standards (64)**: Yes (62.5) / No (37.5)
- **Special wind hazard standards (69)**: Yes (78.3) / No (21.7)
- **Local utility standards (65)**: Yes (49.2) / No (50.8)
- **Retrofit standards (65)**: Yes (38.5) / No (61.5)
Natural Resource Protection (Gulf and Atlantic)

- Wetland protection (952): 86.0% Yes, 14.0% No
- Environmental impact (1003): 82.9% Yes, 17.2% No
- Protected areas (890): 79.2% Yes, 20.8% No
- Habitat protection/restoration (868): 71.2% Yes, 28.8% No
- Coastal/shoreline veg. prot. (558): 59.3% Yes, 40.7% No
- Dune protection (416): 36.1% Yes, 63.9% No
Natural Resource Protection

Natural Resource Protection (Texas Coast)

- Wetland protection (54): 57.4% Yes, 42.6% No
- Environmental impact (77): 72.7% Yes, 27.3% No
- Protected areas (53): 54.7% Yes, 45.3% No
- Habitat protection/restoration (53): 45.3% Yes, 54.7% No
- Coastal/shoreline veg. prot. (37): 37.8% Yes, 62.2% No
- Dune protection (35): 34.3% Yes, 65.7% No
Public Information and Awareness programs (Gulf & Atlantic)

- Public education (951): 78.4% Yes, 21.6% No
- Citizen involvement HMP (947): 77.4% Yes, 22.6% No
- Engaging seminars on haz. mit. (943): 49.8% Yes, 50.2% No
- Hazard disclosures (897): 43.5% Yes, 56.5% No
- Hazards zone signage (914): 31.6% Yes, 68.4% No
Public Information and Awareness

Public Information and Awareness (Texas)

- Public education (71): 76.1% Yes, 23.9% No
- Citizen involvement HMP (71): 73.2% Yes, 26.8% No
- Planning seminars on haz. mit. (71): 59.2% Yes, 40.8% No
- Hazard disclosures (70): 54.3% Yes, 45.7% No
- Hazards zone signage (70): 40.0% Yes, 60.0% No
Local Incentives for Environmentally Sensitive/Hazardous Areas

Local Incentive Tools (Gulf & Atlantic)

- Cluster development (921): 56.0% Yes, 44.0% No
- Density bonuses (921): 56.0% Yes, 44.0% No
- Transfer development rights (901): 25.9% Yes, 74.1% No
Local Incentives for Environmentally Sensitive/Hazardous Areas

Local Incentive Tools (Texas)

- **Cluster development (62)**
  - Yes: 21.0
  - No: 79.0

- **Density bonuses (62)**
  - Yes: 21.0
  - No: 79.0

- **Transfer development rights (62)**
  - Yes: 14.5
  - No: 85.5
Federal Incentives and mitigation programs

Federal incentive programs (Gulf & Atlantic)

- Participate in NFIP (1008): 94.0% Yes, 6.0% No
- Participate in CRS (1008): 66.9% Yes, 33.1% No
Federal Incentives and mitigation programs

### Federal Incentive programs (Texas)

- **participate in NFIP (74)**
  - Yes: 94.6%
  - No: 5.4%

- **participate in CRS (74)**
  - Yes: 70.3%
  - No: 29.7%
### Property Acquisition Programs (Gulf & Atlantic)

- **Fee simple purchase (931)**
  - Yes: 57.4%
  - No: 42.6%

- **Acquisition dev. rights/easments (925)**
  - Yes: 49.4%
  - No: 50.6%

- **Relocation of structures (923)**
  - Yes: 28.7%
  - No: 71.3%
Property Acquisition Programs

Property Acquisition programs (Texas)

- Fee simple purchase (61) 37.7
- Acquisition dev. rights/easments (61) 27.9
- Relocation of structures (62) 24.2

Percentages: 62.3, 72.1, 75.8
Financial Tools

Financial Tools (Gulf & Atlantic)

- Lower tax rates (894): 19.9% Yes, 80.1% No
- Impact fees (886): 15.6% Yes, 84.4% No
- Social tax assessments (887): 13.4% Yes, 86.6% No
Financial Tools

Financial Tools (Texas)

- Lower tax rates (63)
  - Yes: 19.0%
  - No: 81.0%

- Impact fees (63)
  - Yes: 14.3%
  - No: 85.7%

- Social tax assessments (63)
  - Yes: 17.5%
  - No: 82.5%
Private-public Sector Initiatives

Public–private sector initiatives (Gulf & Atlantic)

- Land trusts (928)
  - Yes: 49.7%
  - No: 50.3%

- Private partnerships (920)
  - Yes: 44.9%
  - No: 55.1%
Private-public Sector Initiatives

Private/Public Sector Initiatives (Texas)

- Land trusts (65)
  - Yes: 20.0
  - No: 80.0

- Public-private partnerships (65)
  - Yes: 26.2
  - No: 73.8
### Top 20 Policies

#### Gulf & Atlantic
- Residential subdivision ord. 96.3
- Building code 96.0
- Participate in NFIP 94.0
- Zoning 92.8
- Storm water retention 92.7
- Professionals - Writing plans 87.2
- Professionals - Technical expertise 87.0
- Utilities hazard requirements 86.0
- Hazard setbacks 85.4
- Special Overlay Districts 85.0
- Planned unit development 84.7
- Protected areas 81.5
- Public education 81.2
- Citizen involvement HMP 79.4
- Cultural/open space zoning 77.4
- Wetland protection 76.1
- Participation in HMP 74.7
- Participate in CRS 71.2
- Environmental impact 65.8

#### Texas
- Participate in NFIP 94.6
- Resid. subdivision ordinances 93.4
- Professional - Technical expertise 84.9
- Building code 82.7
- Professionals - Writing plans 82.7
- Storm water retention 81.8
- Public facilities hazard requirements 79.0
- Special wind hazard standards 78.3
- Public education 76.1
- Hazard setbacks 75.7
- Citizen involvement HMP 73.2
- Environmental impact 72.7
- Critical private facilities hazard requirements 72.1
- Planned unit development 71.2
- Participate in CRS 70.3
- Zoning 67.1
- Windstorm/roof inspections 66.2
- Restrictions on dredging/filing 64.0
- Flood hazard standards 69.9
- Participate in Flood Mitigation 64.0
Factors Influencing Mitigation

- Number of personnel
- Training
- Support within jurisdiction
- Stakeholder support for general planning
- Budget allocation
- Financial sources
- Data sources

- Coordination & work with other jurisdiction/s
- Intra and Inter jurisdictional Agency Agreements
- Administrative Staff-time allocation
- Stakeholder/positional leader commitment

Hazard Exposure
- Hazard experience (10 coastal hazards)
- Hazard vulnerability/risk profile (flooding and surge)

State planning environ
- Planning mandate
- Enabling legislation
- Policy environment

Capacity
- Number of personnel
- Training
- Support within jurisdiction
- Stakeholder support for general planning
- Budget allocation
- Financial sources
- Data sources

Commitment
- Coordination & work with other jurisdiction/s
- Intra and Inter jurisdictional Agency Agreements
- Administrative Staff-time allocation
- Stakeholder/positional leader commitment

Mitigation Policies and Strategies
- Land use/development regs
- Shoreline regs
- Natural resource protection
- Building standards
- Information dissemination/awareness
- Property acquisition
- Financial tools
- Local incentives tools
- Federal incentive programs
- Critical public and private facilities
- Private-public sector initiatives
- Professionals

Socio-Demographic Profile
- Population size
- Social vulnerability
- Population change
- Median home value

Jurisdiction characteristics
- Planning authority/discretion
- Jurisdiction type (county and municipality)
- CMZ/ non-CMZ
- Rural/Urban
Jurisdictional Characteristics

Planning Authority/Discretion

* Home rule: considerable variation across states and major differences in Texas
  * Municipalities much more comprehensive in approaches
    * Development regulations and Land-use planning Land Development approaches; Building Codes, and Critical public/private
    * Also overall

Comprehensive planning versus no planning

* Jurisdictions with comprehensive/general plans displayed more comprehensive HM policies/strategies

Hazard Mitigation Plans, do they make a difference?

* Limited to no difference between jurisdictions with or without a LHMP
Capacity

Capacity: essentially the ability of a community/jurisdiction to do what “it” needs or wants to do; undertake actions, develop and implement policies and strategies; ability to respond effectively to change, etc.

Typical indicators: financial, human, physical and social capital/resources.

- We employed:
  - budget,
  - personnel,
  - training,
  - intra governmental support,
  - community support for planning,
  - additional financial resources,
  - data and informational resources.
Capacity

Findings:

- Capacity has a positive effect on the overall extent to which HM policies and strategies are utilized
  - Particularly significant for: Building standards/codes; implementing federal incentives, and property acquisition programs (3 of 12) and overall.

Rough order of indicator importance.

- data and informational resources,
- additional financial resources
- community support for planning
- intra governmental/agency support
- training
- budget, personnel
Commitment

Commitment: essentially concerned with “buy-in” to the goals of mitigation, endorsement, investment of resources, involvement, promoting actions toward mitigation goals

Indicators are diverse: capturing the degree of dedication, engagement, or buy in by politicians as well as jurisdictional and extra-jurisdictional agencies and constituencies/stakeholders.

- We employed:
  - inter-jurisdictional agreements,
  - intra-governmental involvement & buy-in,
  - MOUs among community organizations/associations,
  - involvement with state agencies
  - FTE allocation of agency personnel.
Commitment

Findings:

* Commitment: positive and extremely important impact on the overall extent to which HM policies and strategies are utilized
  
* Findings suggests increasing (nonlinear) payoff for commitment
  
* Particularly significant for: development regulations, resource protection, information dissemination, local incentives, financial tools, property acquisition, critical facility policies, pub-private initiatives, building professionals (9 of 12) individual program program areas and overall.

* Rough order of indicator importance:
  
  * intra-governmental involvement
  * inter-jurisdictional agreements
  * FTE allocation of agency personnel
  * involvement with/by state agencies
  * MOUs among community organizations
Findings:

- **Hazard Experience**: Positive effect
  - Financial tools, critical/public private facility placement, public/private initiatives and overall

- **Hazard Exposure**
  - **flood plain area**: Positive effect
    - Shoreline, natural resource protection, building standards, information dissemination/education, using professionals, and overall
  - **Surge zone**: positive effect
    - Local incentive programs
Implications for Promoting Resiliency through Mitigation

*Enhance Jurisdictional capacity*
- Data/information, additional financial resources/incentives, and community support for planning

*Enhance jurisdictional commitment*
- Intra-governmental involvement/political buy-in, inter-governmental agreements, dedication of agency time, involvement with state agencies

*Seek the programs that addresses triple bottom lines*
- Promote and enhance spending that addresses multiple efforts
  - Environmental restoration/preservation AND mitigation, social vulnerability
  - Housing quality/efficiency AND physical and social vulnerabilities

*Effectively employ windows of opportunity*
- Mitigation and Recovery planning…
Implications for Promoting Resiliency through Mitigation

Recognize variability in planning authority/discretion
- Promoting and develop appropriate programs and strategies depending on authority
- Consider and promote upgrading of authority/discretion when appropriate

Promote comprehensive planning and the inclusion of mitigation and recovery elements

Promote consistency among planning efforts
- Mitigation Plans are important, but they are part (a very small part) of the process
- All planning efforts: comprehensive, transportation, water conservation, special district, development, school, etc. should all have mitigation components, elements
- There must be consistency.
Promote consistency among planning efforts
(All Efforts)
Web Sources at Texas A&M University

Reduction and Recovery Center: 
http://hrrc.arch.tamu.edu/
Texas Atlas: http://texasatlas.arch.tamu.edu/fv/texas_atlas/
Texas Coastal Atlas: http://texasatlas.arch.tamu.edu/fv/coastal_atlas/
South Texas Hurricane Study Atlas: http://texasatlas.arch.tamu.edu/fv/rgv_hes/
Hazard Mitigation Planning: beyond the basics: http://mitigationguide.org/
Institute for Sustainable Communities: http://ifsc.tamu.edu/
Target Communities: https://ttc.arch.tamu.edu/
Department of Landscape Architecture and Urban Planning: http://laup.arch.tamu.edu/
Drainage and Irrigation Systems

Ian Black, Harris County Flood Control District
South Texas Recovery
Housing Summit

“Drainage and Irrigation Systems”

Alan R. Black, P.E.
Director of Operations
Harris County Flood Control District
Agenda

• Introduction to HCFCD
• HCFCD Channels
• Harvey and HCFCD Gage System
• Harvey Damages and Repairs
• Building Resiliency
• Questions
Harris County Flood Control District

• A special purpose district created in 1937 by the Texas legislature

• In response to floods that devastated the Houston-area in 1929 and 1935

• Serves as a local partner to leverage federal tax dollars for flood damage reduction

• Harris County Commissioners Court serves as our board of directors or governing body
OUR MISSION

Provide flood damage reduction projects that work, with appropriate regard for community and natural values.
Devise the Plans

- Evaluate the existing environment
- Conduct engineering and hydrological analyses
- Develop and compare alternatives
  - Include community and natural considerations
- Prepare construction plans
Implement the Plans

- Widen and deepen our bayous and creeks
- Excavate large stormwater detention basins
- Voluntary home buyouts
  - Severe repetitive loss
  - Floodplain restoration
Maintain the Infrastructure

- Maintain more than 2,500 miles of bayous and creeks and more than 130 stormwater detention basins
  - More than 35,000 acres of right-of-way!
- Perform routine cyclical maintenance
- Implement vegetation management program
  - Selective clearing of invasive species
  - Planting native grasses, trees and wildflowers
Types of Flooding

**COASTAL**
- Ocean and large lake coastlines
- Tropical Storms & Hurricanes exacerbate flood chance/reach
- Storm surge likely
- Wave action possible

**MAJOR RIVER**
- Expansive natural floodplain
- Major Rivers and Streams
- Low-lying riverbeds
- Flood water gather and spread
- Streams drain slowly

**OVERLAND/LOCAL DRAINAGE**
- Local drainage overwhelmed
- Ditches, swales, and pipe systems unable transport all flood water
- May occur ANYWHERE
1. County/Municipal neighborhood drainage and HCFCD infrastructure pre-dates current criteria. Neighborhood streets are re-graded and re-constructed by the City with more inlets and bigger storm sewers to get the water out of the neighborhood faster.
2. That increased flow is mitigated in a new stormwater detention basin that HCFCD constructs in consultation with the City who then maintains the basin. Water is held in the basin and slowly released through a restricted outfall pipe.
3. The stormwater detention basin also provides greenspace and opportunities for recreation such as public parks, which the City constructs and maintains.
4. Because the increased flows are mitigated in the stormwater detention basin, the water flows to the HCFCD maintained channel in unchoked and deep and removes flood risk.
Harris County Flood Control District does **NOT**:

- Regulate land development
- **Adopt Flood Insurance Rate Maps (FIRMs)**, which are used to set flood insurance rates and to regulate land development.
- **Have jurisdiction over drainage for highways and streets**, including roadside ditches and storm sewers.
Maintenance berms and backslope drainage systems required on both sides of channel.
Confirm side slope with geotechnical analysis.
Harvey
and
HCFCD Gage System
Goal of Flood Warning System

Provide accurate and consistent rainfall, stage, and other data on a reliable real-time basis in a useful form to Harris County officials, HCFCD, NWS, other agencies, and the public to facilitate making decisions before, during and after storm events to reduce the risk of property damage, injuries, and loss of life.
How Much Water Is 1 Trillion Gallons?

- Enough to cover Harris County 33 inches deep
- Enough to fill the Astrodome 3,200 times
- The same amount that goes over Niagara Falls in 15 days

How Much Rain Fell?

- Average Annual Rainfall: 50 Inches
- Rainfall at Clear Creek: 47.4 Inches
- Average Rainfall From Harvey: 33 Inches

Flooding Impact

It is estimated that Harvey flooded more than 150,000+ structures in Harris County.
Harvey House Flooding

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Harvey</td>
<td>154,170</td>
</tr>
<tr>
<td>Allison</td>
<td>73,000</td>
</tr>
<tr>
<td>4-18-16</td>
<td>9,840</td>
</tr>
<tr>
<td>5-25-15</td>
<td>6,335</td>
</tr>
<tr>
<td>6-19-06</td>
<td>3,370</td>
</tr>
</tbody>
</table>

11% total structures in Harris County flooded
105,340 or 68% outside 1% floodplain
HCFCD Damages Countywide
Harvey Damages and Repairs
Horseshoe Creek (U106-00-00)
S. Mayde Creek (U101-00-00) at Greenhouse Rd
NRCS Erosion Repair
NRCS Erosion Repair

FEMA PA Repair
NRCS Erosion Repair

NRCS Concrete Repair

FEMA Pipe Repair
Recovery and Repairs

Underway

• $150 million repair investment
  - $80 million from NRCS
  - $17 million from FEMA
  - $2 million from USACE
  - $51 million local (HCFCD)
Building Resiliency
Bond Approved on Aug. 25

- **237** projects across all watersheds
- **38** projects added based on community input ($400M+)

\[
\begin{align*}
\text{Bond funds} & \quad \text{Partner funds} \\
\$2.5B & \quad \sim\$2.3B \\
+ & \quad = \\
\sim\$4-5B & \quad \text{Total}
\end{align*}
\]
Bond Planning

• Planning $5B in Projects over 10 years
  • Readiness
  • Benefits
  • Opportunities (and timing) for Federal funding
  • Local Partners
  • Staff Resources

• Reporting System
  • Full transparency
  • Similar to Bond Program interactive map
  • https://www.hcfcd.org/2018-bond-program/
Bond Progress
By the Numbers

• $2.1 Billion in 146 Projects “in motion”
• 104 Local Neighborhood Studies (HCED)
• $320 Million in active construction
  • Active projects 79% complete
• $236 Million left to advertise in 2019 construction advertisements this year
• Spending is $25 Million per month
To date, $71 Million in local funds has secured an additional $255 Million in Harvey related federal funds
Large Diameter, Deep Tunnels

EVEN AFTER THE SIGNIFICANT INVESTMENTS WE’VE MADE, MUCH OF HARRIS COUNTY IS STILL IN A FLOODPLAIN. HURRICANE HARVEY EXCEEDED ALL EXPECTATIONS, BUT IT ALSO MAGNIFIED A PROBLEM WE’VE SEEN REPEATEDLY IN RECENT YEARS: PEOPLE ARE HURTING, PROPERTY VALUES ARE HURTING. BUSINESSES ARE THINKING TWICE ABOUT REBUILDING.

WHAT CAN WE DO? Other communities have discovered that constructing safer underground solutions in large diameter tunnels has alleviated long-standing flooding problems. Large diameter tunnels might be the missing piece we’ve been searching for to prevent future flooding across Harris County.

Large diameter tunneling is a new approach for flood control, but tunneling is a mature construction industry with experienced contractors. Its costs are competitive with other flood control projects. The technology is advanced, and tunneling exploits places with soft soils and high groundwater tables in Harris County.

When it rains, heavy, fast-moving waters need to be removed. Possible tunnel routes to supplement the existing community and storage systems, and move the system to a safe level through the 3rd most populated county in the country, are shown on Figure 5. Unique benefits of these tunnels include:

- Large-diameter tunnels are like the Express 450 lane on a highway. They handle excess flow when the system is at peak capacity.
- Public rights-of-way can be used without major impacts to existing infrastructure and with minimal property acquisitions.
- Tunneling is complementary to existing flood-control solutions. Further development facilities can become integral locations and sediment traps. Existing channel improvements move smaller tunnels and lower overall cost.
- The tunnels would be located 100 and 150 feet deep, avoiding infrastructure conflicts.
- Environmental, community, and neighborhood impacts are minimized.
- Harris County slopes toward the bay, even slightly. The change in elevation is enough to convey a substantial amount of floodwater by gravity through tunnels. Pumping may not be necessary.

REAL, TANGIBLE BENEFITS

Public Safety
Diversifying floodwater transport keeps it off the streets and away from people. This results in better and safer mobility when evacuation may be necessary.

Property Benefits
Tunnels provide more space below, reducing the size of floodplains, decreasing the potential for damage, and reducing insurance premiums. Lower risk of damage encourages re-investment.

Jobs
Although large-diameter tunnel construction requires specialized expertise, it will create hundreds of local jobs and opportunities for local businesses to be involved.
Bond Progress
www.MAAPNext.org

FLOOD INSURANCE RATE MAP (FIRM) UPDATE TIMELINE

Harris County Flood Control District, in partnership with the communities it serves, and with funding from FEMA, will be embarking on an update of the flood hazard information available to the public. This multi-year project will engage community leaders and technical staff in the development of updated flood hazard information.

**Milestone Responsibility**
- **HCFCD**
- **FEMA**

**2019 PROJECT KICK OFF**
- **DEVELOP MODELS & MAPPING***
  - **FEB Phase 1**
  - **MARCH Phase 2**

**2020**
- **APR Phase 1**
  - **Preliminary Maps (FIRMs) Released by FEMA**

**2021**
- **OCT Phase 2**
  - **Public Appeal & Comment Period**
  - **Maps available to public**

**2022 SPRING/ SUMMER**
- **PRELIMINARY MAPS (FIRMs) RELEASED by FEMA**

**18-24 MONTHS TYPICAL**

- **PUBLIC APPEAL & COMMENT PERIOD**
  - **3-6 MONTHS**
  - **REVISE MODELS & MAPPING* AS NEEDED**
  - **REVISED PRELIMINARY MAPS (FIRMs) (IF REQUIRED)**

- **LETTER OF FINAL DETERMINATION**
  - **3-6 MONTHS**

- **MAPS (FIRMs) RELEASED EFFECTIVE**
  - **6-9 MONTHS**
  - **6 MONTHS**

**Activities in this box outline Federal due process requirements to ensure affected property owners are provided formal means to appeal and comment on the changes prior to the issuance of final effective maps.**

**MODELS AND MAPPING**
- The following data is included in the initial development of Models and Mapping:
  - Terrain (Ground Data)
  - Field Surveys
  - Floodplain Extents
  - Hydrologic Models
  - Flood Risk Products

Models and mapping will be revised as necessary based on technical data delivered during Appeal and Comment period.
Questions

www.hcfcd.org

alan.black@hcfcd.hctx.net
Texas Recovery Housing Summit

Ways to provide feedback:

- At this meeting
- Email: nerrtc@teex.tamu.edu
Recovery Resources: Beyond FEMA
Tropical Texas
Behavioral Health

Onika Flores, Service Area Manager, Adult MH Services

RebuildTexas.today/EyeOfTheStorm
Tropical Texas Behavioral Health:
Overview of Services

Presented by:

Monika Flores, LPC
Service Area Manager, Adult MH Services
mflores@tthb.org
956-289-7177
The region’s mental health authority for over 50 Years

We serve 3 counties: Hidalgo, Cameron and Willacy

4 locations valley wide: Edinburg, Weslaco, Harlingen, Brownsville
Supporting the Community in Time of Disaster

- Dispatch rapid response team
- Debriefing of critical incident
- Triage/crisis screening
- Brief intervention
- Addressing grief and loss
- Community resource linkage
Symptoms

- Anxiety
- Depression
- Survivors guilt
- Flash backs
- Nightmares
- Sleep disturbance
- Appetite disturbance
- Interpersonal conflict

What is depression like? It's like drowning, except you can see everyone around you breathing.
These symptoms can lead to:

- Acute Stress Disorder
- Post-traumatic Stress Disorder
- Mood Disorders
- Anxiety Disorders
- Substance Abuse Disorders
TTBH is an outpatient mental health facility targeting the following populations:

- Intellectual & Developmental Disabilities
- Child/Adolescent Mental Health Services
- Adult Mental Health Services
- Crisis Interventions are serviced by the Mobile Crisis Outreach Team (MCOT)
Children & Adolescent Services

Services are provided to children & adolescents from ages 3 - 17 with a diagnosis of mental illness who exhibit serious emotional, behavioral, and/or mental health disorders.
Adult Mental Health Services

Services are provided to Adults ages 18 years and older

Priority Diagnosis:
- Bipolar
- Schizophrenia
- Major Depression
- Schizoaffective Disorder
Services Available

- Skills Training and Symptom Management
  - Parent Skills Training
- Cognitive Behavioral Therapy
- Targeted Case Management
- Psychiatric Evaluation & Follow-Up
- Medication Training & Support Services
- Psychosocial Rehabilitation & Symptom Management (individual and group)
- Supported Employment
- Supportive Housing
- Co-Occurring Psychiatric and Substance Abuse Disorders
- Drop In Center
- Detox/ After Care
Mobile Crisis Outreach Team (MCOT) provide crisis intervention & resolution services to any community member in crisis within the Hidalgo, Cameron, & Willacy county who:

- Crisis services are provided 24 hours a day, 365 days a year
- Services are conducted on both a voluntary and involuntary basis.
- A TIBH physician is available at all times
- Emergency care is provided within 1 hour
What is a Crisis?

Crisis: when a person is at an immediate risk of hurting himself/herself or others. Situation will vary depending on the person’s emotional state and factors in their surrounding environment.

Examples of a crisis situation:
- Person reports overdosing
- Person threatens suicide or thoughts of hurting him/herself or others
- Person displays uncharacteristic behavior, such as being verbally aggressive, throwing objects, excluding self from others, etc.
Crisis Intervention & Resolution Services

- An **assessment** of person’s needs is conducted
- **Stabilize** the person’s emotions and family functioning at time of crisis and family
- On-going **support & intervention** is provided
- Determination of the best **crisis resolution** is made, using the least restrictive treatment option
- **Referral** to community services
- **Follow-up** services after crisis intervention
TTBH Crisis Hotline:
1-877-289-7199

* 24/7 help is available *
* Collect calls are accepted *
What is CCP?

- Funded by the Federal Emergency Management Agency (FEMA)

- Requires a Presidential declaration of disaster for Individual Assistance for short-term behavioral health support when disaster response needs are beyond States’ capacity

- Administered through an interagency Federal partnership between FEMA and the Substance Abuse and Mental Health Services Administration (SAMHSA) Center for Mental Health Services
What CCP offers the community:

- **CCP Interventions**
  - Individual
  - Family
  - Group

- **Provide Resources**
  - Community linkage
  - Referrals
Preventing Compassion Fatigue

Organizational strategies:
- Openly discussing, recognizing, and educating on compassion fatigue.
- Proper debriefing.
- Regular breaks.
- Mental health days.
- Peer support.
- Assessing and changing workloads.
- Provide access to professional development opportunities.
- Balancing direct time services and administrative time.
CCP has been able to make contact with 13,739 survivors in Cameron and Hidalgo County.

CCP has been able to make successful referrals:
- Several referrals to the Salvation Army for clothing.
- Referral to UMCOR who were able to assist a survivor fix his roof.
- Referral to First Baptist Church in Weslaco who aided a survivor with a new refrigerator.
- Successfully obtained medical equipment for survivor from a donation.
- Assisted several survivors complete their FEMA appeal letters.
- Made referrals to Legal Aid where survivors were able to obtain free legal assistance and successfully receive FEMA monetary assistance.
- Made referrals to Tropical Texas Behavioral Health for long term treatment.
Any Questions?
Alternative Housing Options

Christa Lopez, Director, Texas General Land Office

RebuildTexas.today/EyeOfTheStorm  nerrtc@teex.tamu.edu
Texas General Land Office

Disaster Housing, Innovation, and Lessons Learned

“We work to rebuild communities, to put Texans back in their homes, and to help businesses recover after the trauma of disaster.”

George P. Bush
Texas General Land Office Commissioner
FEMA Direct
Housing Mission
FEMA provided funding and technical support to the Texas General Land Office (GLO). The GLO administered the short-term housing programs.

- 525 DALHR
- 2,848 MHU/RVs
- 135 Direct Lease

Intermediate Housing Recovery
Direct Housing Mission Purpose

Direct Housing Mission provides assistance to eligible households displaced by a federally declared disaster, when other resources are not available.

Direct Housing Mission may provide options:
- Direct Leasing,
- Multi-Family Lease and Repair, and
- Manufactured Housing

Alternate Housing Options
- Permanent Housing Construction (PHC) or as it was called in Texas for Hurricane Harvey, Direct Assistance for Limited Home Repair (DALHR)

determines which option is available for disaster.
Direct Housing Eligibility: DALHR

- Disaster homeowner of primary residence.
- Eligible repairs cannot exceed more than 50 percent of the market value of the home and may not exceed $60,000 cap set by FEMA.
- Repairs needed to make the home livable are not covered by insurance or an SBA loan.
- A home located within the Special Flood Hazard Area (SFHA) will not be considered for DALHR repairs unless in accordance with applicable federal and local laws, regulations and ordinances and can be repaired in the cost limits.
- To prevent a duplication of benefits, participants will be required to provide documentation and receipts for used FEMA financial repair assistance and/or turn all unused assistance received for home repair to FEMA or decline DALHR assistance and keep any financial repair assistance already received.
- Eligible, the DALHR repair process will take 90 days to complete.
MHUs, Travel Trailers (or non-motorized RVs) are provided as temporary housing solution and not intended to be a permanent housing option for flood survivors.

Temporary permits must be obtained to place a temporary housing unit on private property or in a commercial park. All relevant permits will be obtained from the local jurisdiction having authority.

Units cannot be placed in floodways.

Unit placement must be in accordance with all local rules and regulations, including HOAs/POAs and ordinances.
Direct Housing Eligibility: Direct Lease

Direct lease uses properties that would not generally be available to the public, such as corporate properties to house survivors.

In addition, properties must provide complete and independent living facilities for one or more households, including for space for living, sleeping, and cooking.

Properties must be located in a designated direct housing mission county or a contiguous county.

Owners whose units are used in a temporary housing will enter a contract with FEMA. Before a contract is signed, the properties will be evaluated to meet these minimum requirements:

- Effectiveness, in-line with Fair Market Value;
- Landlord’s ability to manage and provide maintenance services; and
- Proximity to community services.
Innovative Housing Solutions
Alternative Housing Solutions
Shipping Containers

<table>
<thead>
<tr>
<th></th>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
<td>$27,000</td>
<td>$139,000</td>
</tr>
<tr>
<td>Construction Time</td>
<td>4 weeks</td>
<td>10 weeks</td>
</tr>
</tbody>
</table>

Limitations
The quickest that a container home can be built is 4 weeks, which would mean an interim housing solution would need to be identified.

Solution for Construction
Via a pre-placed contract, the vendor could be required to have an inventory of a specified number of units built using GLO-identified specs to be delivered within a week of the disaster event (assuming it is safe to deploy the unit). This could be a "head start", reducing the quantity of interim housing needed.

Wind Rating
110 to 150 mph

Advantages vs. Backyard
Both feasible
### Alternative Housing Solutions

**Modular Homes**

<table>
<thead>
<tr>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0,000.00</td>
<td>$200,000.00</td>
</tr>
</tbody>
</table>

- Modular homes cannot be completed without site prep (i.e. foundation/utilities setup). People would have to be housed in the interim while the units are being built.

- Under a formal contract, the vendor could be required to have an inventory of a specified number of units built using GLO-identified specs to be delivered within a week of the disaster declaration (when it is safe to deploy the unit). This could be a "head start", reducing the amount of interim housing needed.

- Units can be built to location-specific code.

- Backyard installation
## Alternative Housing Solutions

**Kit Homes**

<table>
<thead>
<tr>
<th></th>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Price</strong></td>
<td>$6,789.00</td>
<td>$35,000.00</td>
</tr>
<tr>
<td><strong>Completion</strong></td>
<td>30 days</td>
<td>6 weeks</td>
</tr>
</tbody>
</table>

Unit installation cannot be completed without site prep (i.e. foundation/utilities setup). Additionally, the interior of the homes would need to be finished after assembling the shell.

If a kit or kits are picked out ahead of time, the finish-out "list" can be created and VOAD’s can be used to complete the assembly and finish-out of these units.

- Wind up to 120mph
- Backyard installation
Alternative Housing Solutions 3-D Printed Homes

<table>
<thead>
<tr>
<th>3D printed homes</th>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>$</td>
<td>4,000.00</td>
<td></td>
</tr>
</tbody>
</table>

24 hours

Unit installation cannot be completed without site prep (i.e. foundation/utilities setup); additionally, the most efficient use of this technology is to build a cluster of homes together.
GLO Contact Information

/sta Lopez
christa.lopez.glo@recovery.texas.gov

//recovery.texas.gov/

“The GLO stands ready to help our state maximize the use of this disaster recovery funding to build back stronger and more resilient communities.”

~ George P. Bush, Commissioner

christa Lopez christa.lopez.glo@recovery.texas.gov
Texas Department of Housing and Community Affairs

Michael Lyttle, Chief of External Affairs, Texas Dept. Of Housing and Community Affairs

RebuildTexas.today/EyeOfTheStorm nerrtc@teex.tamu.edu
TDHCA Disaster Response

June 5, 2019
Role, Funding

**Disaster Relief Role**
- Not a first responder.
- Help local administrators assist eligible impacted households
- Immediate, short term community service, housing support
- Long term affordable housing options

**Disaster Relief Funding**
- No designated disaster relief funds
- Use deobligated, discretionary program funds
- Funds subject to availability
- Must follow program rules
- May require NOFA
Applicants, Beneficiaries

**Applicants**
- Designated eligible entities
- Units of local government
- Nonprofit organizations
- Public Housing Authorities

**Beneficiaries**
- Vary by funding source, program
- Low to moderate income
- Priority assistance may be given
## Immediate, Short Term Activities

<table>
<thead>
<tr>
<th>Shelter Support</th>
<th>Community Services Block Grant Program</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Food</td>
</tr>
<tr>
<td></td>
<td>• Gas</td>
</tr>
<tr>
<td></td>
<td>• Toiletries</td>
</tr>
<tr>
<td></td>
<td>• Medical items</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Temporary Housing Assistance</th>
<th>Low Income Home Energy Assistance Program</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Hotel vouchers</td>
</tr>
</tbody>
</table>
# Long Term Activities: Housing Help

<table>
<thead>
<tr>
<th>Home Repair</th>
<th>Homeowner Rehabilitation Assistance (HRA) Program</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>* Stick built home rehabilitation, reconstruction</td>
</tr>
<tr>
<td></td>
<td>* Manufactured housing unit replacement</td>
</tr>
<tr>
<td></td>
<td>* Refinance existing mortgage</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rent Payment Assistance</th>
<th>Tenant Based Rental Assistance (TBRA) Program</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>* Rental subsidies up to 60 months</td>
</tr>
<tr>
<td></td>
<td>* Security, utility deposit</td>
</tr>
<tr>
<td></td>
<td>* Self-sufficiency program</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Homebuyer Assistance</th>
<th>Homebuyer Assistance (HBA) Program</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>* Down payment, closing cost assistance</td>
</tr>
<tr>
<td></td>
<td>* Rehabilitation for accessibility modifications</td>
</tr>
</tbody>
</table>
### Long Term Activities: HOME Program

<table>
<thead>
<tr>
<th>Disaster Types</th>
<th>Federal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>State</td>
</tr>
<tr>
<td></td>
<td>Natural</td>
</tr>
<tr>
<td></td>
<td>Man-made</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Applicants</th>
<th>Units of local government</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nonprofit organizations</td>
</tr>
<tr>
<td></td>
<td>Public Housing Authorities</td>
</tr>
</tbody>
</table>

| Availability            | Areas that do not directly receive HUD funds |

<table>
<thead>
<tr>
<th>Beneficiaries</th>
<th>Income eligible</th>
</tr>
</thead>
</table>
## Long Term Activities: Multifamily

<table>
<thead>
<tr>
<th>Oversight</th>
<th>TDHCA Coordination</th>
<th>Property Owner Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multifamily properties funded by TDHCA</td>
<td>Update unit availability status</td>
<td>Disaster-related casualty loss</td>
</tr>
<tr>
<td>No oversight of:</td>
<td>Provide vacancy information online</td>
<td>Recapture relief for casualty losses</td>
</tr>
<tr>
<td>Market rate properties</td>
<td></td>
<td>Information to provide emergency housing for displaced households</td>
</tr>
<tr>
<td>PHA properties</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Help for Texans

Visit www.tdhca.state.tx.us

Call 512-475-3800 or 800-525-0657
Help for Texans
www.tdhca.state.tx.us

Find help in 3 easy steps!
1. Select the type of assistance needed
2. Enter the Texas city or county
3. Click “Find Help”
Help for Texans

Assistance Provider Results

TDHCA funds local organizations (providers) who in turn help those in need. The providers below may get funding through TDHCA or other resources. Select one from the list to get a description of services and more contact information. Contact them and apply for help. Please let the assistance provider know if you need a reasonable accommodation as a person with a disability or language assistance as a person with limited English proficiency.

<table>
<thead>
<tr>
<th>Organization</th>
<th>City</th>
<th>Phone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Texas Information and Referral Network (Dial 2-1-1)</td>
<td>AUSTIN</td>
<td>1 - (877) 541-7905</td>
</tr>
<tr>
<td>West Texas Aging and Disability Resource Center</td>
<td>BIG SPRING</td>
<td></td>
</tr>
<tr>
<td>USDA Rural Development - Fort Stockton</td>
<td>FORT STOCKTON</td>
<td>1 - (432) 336-7585</td>
</tr>
<tr>
<td>Buckner Children &amp; Family Ser., Inc., dba Buckner Family Place</td>
<td>LUFKIN</td>
<td>1 - (936) 637-3300</td>
</tr>
<tr>
<td>Midland County Housing Authority</td>
<td>MIDLAND</td>
<td>1 - (432) 570-4155</td>
</tr>
<tr>
<td>Midland Housing Authority</td>
<td>MIDLAND</td>
<td>1 - (432) 682-0011</td>
</tr>
<tr>
<td>Permian Basin Community Centers</td>
<td>MIDLAND</td>
<td>1 - (432) 570-3333</td>
</tr>
<tr>
<td>City of Odessa Community Development Department</td>
<td>ODESSA</td>
<td>1 - (432) 335-4820</td>
</tr>
<tr>
<td>US Department of Housing and Urban Development</td>
<td>WASHINGTON</td>
<td>1 - (800) 543-9378</td>
</tr>
</tbody>
</table>

The Assistance Provider list above is provided for informational purposes only. The Texas Department of Housing and Community Affairs (TDHCA) does not guarantee the availability of funding. This information listed is voluntarily submitted, and TDHCA does not edit, control, or attest to the accuracy or completeness of any of the information made available for the site. Additionally, TDHCA does not endorse any specific organization listed on this site.

For questions or comments please email us at: info@tdhca.state.tx.us
Contact Information

TEXAS DEPARTMENT OF HOUSING AND COMMUNITY AFFAIRS

221 E. 11th Street, Austin, TX 78701
P.O. Box 13941, Austin, TX 78711-3941

512-475-3800  www.tdhca.state.tx.us
800-525-0657  info@tdhca.state.tx.us
Joint Housing Solutions Working Group

Michael Lyttle, Chief of External Affairs, Texas Dept. Of Housing and Community Affairs

RebuildTexas.today/EyeOfTheStorm nerrtc@teex.tamu.edu
Texas Joint Housing Solutions Working Group

Purpose:

- The Texas Joint Housing Solutions Working Group (JHSWG) is a collection of state and federal agencies and organizations who work to identify resources that can address temporary housing unmet needs and solutions that allow survivors to transition to permanent housing.
Texas Joint Housing Solutions Working Group
Texas Joint Housing Solutions Working Group

Key Facts

• Commissioned by the Governor

• Meeting regularly since September 2017; longest running disaster housing group in state’s history

• Membership includes local, state, and federal government, nonprofit, and other stakeholder organizations

• Significant logistical support from FEMA Integrated Recovery Coordination (IRC); ongoing assistance from FEMA IRC, HUD, TDEM, and GLO
Texas Joint Housing Solutions Working Group

• Membership broken down into subgroups

• Subgroups formed on priority topics:
  • Unmet Needs Data
  • Transitional Planning
  • Elderly & Disability Integration
  • Income Challenges
  • Local Government Affairs
  • State Disaster Housing Preparedness Plan
Texas Joint Housing Solutions Working Group

First-time successes:
Used MAX.gov repository for meeting information and action items

Prepared Hurricane Harvey Survivor Resource List for storm survivors with unmet needs (Fall 2018); list continues to be updated regularly

Prepared FAQs regarding disaster case management

Worked on developing additional approaches to deliver resources to survivors based on disaster recovery efforts to date (e.g., Aransas County Housing & Job Fair)
Texas Joint Housing Solutions Working Group

First-time successes:

Shared community-based events for survivors and direct service organizations (HOPE Now, etc.)

Shared housing programs, inventory, and announcements/developments

Working with Long Term Recovery Groups in SE Texas to facilitate housing/assistance fairs in July 2019

Shared employment training programs and relevant grant/funding opportunities
Texas Joint Housing Solutions Working Group

Lessons Learned:
As in other states which have frequent disasters, Texas should continue the JHSWG during “blue sky” periods to help state be prepared; work regularly with TDEM; update information on state programs

Case management must be stood up quickly after disaster; one main database for storm survivor key information

JHSWG to keep active and current list of existing resources to provide to case managers when activated
Texas Joint Housing Solutions Working Group

Lessons Learned:

Encourage JHSWG members through their own organizations to help get critical messaging out to storm survivors.

More focused events based on data analysis (housing, job fairs in areas defined as having largest need).

86th Texas Legislature passed a large package of bills which include many of these concepts stemming from the Governor’s Rebuild Texas Report.
THANK YOU

MICHAEL LYTTLE
DIRECTOR OF EXTERNAL AFFAIRS

221 E. 11th Street, Austin, TX 78701
P.O. Box 13941, Austin, TX 78711-3941
www.tdhca.state.tx.us
512-475-4542
michael.lyttle@tdhca.state.tx.us
Salvation Army

Cathy Clark, Associate Director, Emergency Disaster Services, The Salvation Army- TX

RebuildTexas.today/EyeOfTheStorm  nerrtc@teex.tamu.edu
Agenda – Jun. 5-6, 2019

Wednesday June 5, 2019

0:00 AM  Welcome and Opening Remarks
0:15 AM  Hazard Mitigation
2:30 PM  LUNCH BUFFET (Provided in Hotel Meeting Room)
1:00 PM  Recovery Resources: Beyond FEMA

Thursday, June 6, 2019

1:15 AM  Continental Breakfast (Provided in Meeting Room)
1:00 AM  Facing Future Federal Disaster Declarations
1:00 AM  The Way Ahead - Facilitated Discussion
2:00 PM  End of Summit

RebuildTexas.today/EyeOfTheStorm  nerrtc@teex.tamu.edu
Hazard Mitigation Continued...
Facing Future Federal Disaster Declarations
New DRRA Impacts to Individual Assistance

Elizabeth Redfearn, FEMA Region 6

RebuildTexas.today/EyeOfTheStorm  nerrtc@teex.tamu.edu
Disaster Recovery Reform Act of 2018

Impacts on Individual Assistance

June 6, 2019

Elizabeth M. Redfearn
Supervisory Information Management Program Specialist
Individual Assistance
FEMA Region 6
DRRA Summary

- Signed by the President October 5, 2018
- Includes almost fifty provisions
- Represents most comprehensive emergency management reform since Post Katrina Emergency Management Reform Act in 2006
- Includes many reforms that FEMA and the emergency management community have long sought
Section 1211

Section 1211: State Administered Housing

(a) Authorizes FEMA to provide grants to State, Tribal or Territorial governments to directly administer temporary and permanent housing construction

(b) Allows state or local governments who implement cost-effective housing solutions be reimbursed under certain conditions
Section 1211(a)

Key Points

- After *State-Managed Direct Housing Grant Guide* is developed, FEMA Regions will work with interested States, Tribes, and Territories to help them build capacity and develop required strategies, administrative plans, and implementation vehicles.

- State, Tribal or Territorial governments administering such programs are to abide by all Federal laws applicable to FEMA's management/contracting of programs.

- States, Tribes, and Territories are not required to manage program in order to receive Direct Housing or Permanent Housing Construction under section 408.
Section 1211(b)

Key Points

- Under a provision separate from the grant authority, requests for reimbursement for locally implemented housing solutions must be received within a period of 3 years from date of declaration and State/Local/Tribal governments will be reimbursed if locally implemented housing solution:
  - Costs 50% or less than comparable FEMA solution or whatever locally implemented solution costs, whichever is lower
  - Complies with local housing regulations/ordinances
  - Is implemented within 90 days of the disaster
Section 1212

Section 1212: Expanded Individuals and Household Program (IHP) Assistance

- Amends Stafford Act Section 408(h) to increase amount of financial assistance authorized for IHP assistance
Section 1212

Key Points

- Provides separate, equal maximum grant amounts for Housing Assistance and Other Needs Assistance under the Individuals and Households Program (IHP)
- Retroactive to disasters declared on/after August 1, 2017
- FY19 maximum grant is $34,900
- Excludes rental assistance and accessibility-related real and personal property costs from maximum grant amounts
Section 1213: Multi-Family Lease and Repair

a) Amends Stafford Act Section 408(c) to authorize FEMA, within its Multi-Family Lease and Repair Program (MLRP), to:

- Allow repairs on properties within this program to be above lease agreement value
- Include properties in designated counties approved for Direct Housing and areas impacted by disasters outside those counties
Section 1213

Key Points

- FEMA will issue final policy memo and updated implementation procedures
  - Policy memo will be incorporated into next version of Individual Assistance Policy and Program Guide (IAPPG)
- Previous statutory language required repairs to Multi-Family Lease and Repair (MLR) properties be less than value of lease agreement
Section 1213

Key Points (cont.)

- FEMA will increase use of MLR by changing allowable cost ceilings to a method that demonstrates MLR is cost-effective compared to other temporary housing options

- Increasing use of MLR will benefit communities by increasing homeowners’ residual values and having a positive effect on housing stock
Section 1216

Section 1216: IA Debt Waiver and Recoupment Statute of Limitations

a) For assistance provided during disasters on or after 10/28/2012, provides FEMA the authority, notwithstanding 31 USC 3716(e), to waive IA debts where there is FEMA error, there is no fault of the debtor, and collection of debt would be against equity and good conscience.
Section 1216

Key Points

- FEMA loses authority if OIG determines that FEMA’s error rate exceeds 4% a year

- Establishes a 3 year statute of limitations on IA debt collection for any disaster declared on or after 1/1/2012
Section 1230

Section 1230: Common Interest Communities, Condos, and Co-Ops

a) Requires FEMA to provide a report and legislative proposal on how to provide eligibility for assistance for common areas in condominiums and housing cooperatives (IA)
Section 1230

Key Point

- Draft report is in concurrence
Section 1232 and 1239: Declaration Factors

a) Section 1232 directs FEMA to give greater consideration to the declaration factors for severe local impact and recent multiple disasters in making recommendations to the President

b) Section 1239 directs FEMA to review factors considered when evaluating a request for a declaration, specifically the estimated cost of assistance (i.e., the per capita indicator) and update regulations accordingly
Section 1232 and 1239

Key Points

- Updated Declaration Factors for IA went into effect June 1, 2019 and include:
  1. State Fiscal Capacity* and Resource Availability
  2. Uninsured Home and Personal Property Losses*
  3. Disaster Impacted Population Profile
  4. Impact to Community Infrastructure
  5. Casualties
  6. Disaster Related Unemployment

* Principal factor for the Individual and Households Program
Questions?

Elizabeth M. Redfearn
Supervisory Emergency Management Program Specialist
Individual Assistance
FEMA Region 6
Email: elizabeth.redfearn@fema.dhs.gov
Office: 940-297-0107
Cell: 940-535-8266

Individual Assistance Program and Policy Guide
https://www.fema.gov/individual-assistance-program-and-policy-guide
The Future of Individual Assistance/Public Assistance

herri LaCour, Texas Division of Emergency Management
Texas Division of Emergency Management

Texans Taking Care of Texans
## Major Disaster Declarations Since 1953*

<table>
<thead>
<tr>
<th></th>
<th>State</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.</td>
<td>Iowa</td>
<td>61</td>
</tr>
<tr>
<td>9.</td>
<td>Alabama</td>
<td>62</td>
</tr>
<tr>
<td>8.</td>
<td>Arkansas</td>
<td>62</td>
</tr>
<tr>
<td>7.</td>
<td>Kentucky</td>
<td>64</td>
</tr>
<tr>
<td>6.</td>
<td>Louisiana</td>
<td>65</td>
</tr>
<tr>
<td>5.</td>
<td>Florida</td>
<td>72</td>
</tr>
<tr>
<td>4.</td>
<td>New York</td>
<td>73</td>
</tr>
<tr>
<td>3.</td>
<td>Oklahoma</td>
<td>83</td>
</tr>
<tr>
<td>1.</td>
<td>California</td>
<td>97</td>
</tr>
</tbody>
</table>
# Major Disaster Declarations Since 1953

<table>
<thead>
<tr>
<th>State</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEXAS</td>
<td>97</td>
</tr>
<tr>
<td>EMER</td>
<td>14</td>
</tr>
<tr>
<td>FMAG</td>
<td>243</td>
</tr>
<tr>
<td>TOTAL</td>
<td>349</td>
</tr>
</tbody>
</table>

- The Lone Star State has recorded 97 **Major Disasters** in 65 years.

- 1 EVERY 8.1 MONTHS
Major Disasters in Texas Since 2010

- 2010 – Present:
  - Major Disaster Declarations – 14
  - Emergency Declarations – 2
  - Fire Management Assistance Declaration (FMAG) – 64
Texas By the Numbers

182 of 254 counties under an open disaster from 2015-2018

72% of the counties in Texas

24.3 million people in these counties under one of 7 major disaster declarations

28 million = 86% of the Texas population is living in a county under a major disaster declaration
Texas Sized Costs!

Top 6 PA federally declared disasters in Texas*

- #1 Hurricane Harvey - $6,254,626,709
- #2 Hurricane Ike – $2,223,530,859
- #3 June 2001 Storms – $433,646,186
- #4 Hurricane Rita – $368,161,445
- #5 May 2015 Floods – $159,510,514
- #6 Hurricane Dolly – $68,763,890
To qualify for federal assistance after a disaster, states must meet a pre-established, population based damage threshold.

<table>
<thead>
<tr>
<th>Thresholds</th>
<th>Amount</th>
<th>Equivalent (AU)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Texas</td>
<td>$37,718,342</td>
<td>AU$54.7</td>
</tr>
<tr>
<td>Arkansas</td>
<td>$4,257,240</td>
<td>AU$6.1</td>
</tr>
<tr>
<td>Louisiana</td>
<td>$6,618,723</td>
<td>AU$9.6</td>
</tr>
<tr>
<td>Oklahoma</td>
<td>$5,476,972</td>
<td>AU$7.9</td>
</tr>
<tr>
<td>New Mexico</td>
<td>$3,006,401</td>
<td>AU$4.3</td>
</tr>
</tbody>
</table>
Texas Population Growth

- Large and growing population compounds disaster numbers
- 2010 Texas population*: 25,145,561
- 2018 Texas population estimate: 28,701,845
- Estimated population increase of 3,556,284 residents

* U.S. Census Bureau 2010 Census
Challenges

- Federal assistance could be much harder to receive with higher state thresholds
- The new criteria factors for an Individual Assistance declaration have changed
- New IA factors consider the fiscal situation of the state and local jurisdictions
- We don’t know what these changes look like
- What does this mean?
What can we do?

- Work together now to find ways to recovery without the expectation of federal assistance
- Come together in summits like these to find solutions for recovery including housing and infrastructure
- Ensure we are planning for recovery as well as we plan for disaster response
- WORK TOGETHER!
Texas – Strong **Partners** in Disaster Response

- Local jurisdictions
- Regional Organizations (RACs)
- Voluntary Organizations
- Special Response Teams (Emergency Medical Task Force [EMTF], Texas Task Force 1, Public Works Response Team [PWRT])
- Local volunteer special response teams (Search One, TEXSAR, TCSAR, AASAR)
- Private Sector
- State Government (TDEM and the Emergency Management Council)
- Federal Government (FEMA, USGS, NWS)
- Media (TV, Print, Social)
Importance of Private Sector

• Private sector partners have the financial capacity to provide resources at the onset of a disaster and promptly help survivors
• An estimated 25 percent of businesses don’t open again after a major disaster, according to the Institute for Business and Home Safety.
• Re-opening businesses helps to stabilize the local economy after a disaster
Funding and Management

DBG-DR Grant Portfolio

- 23 Grants
  - $87 Billion in Active Grants
- 8 Grantees
  - 30 States & Territories
  - 28 Local Governments

Management of Disaster Grants

HUD Headquarters

- Manage large grants (IA, FL, LA, MS, TX, NY, NJ, PR, USVI, WV, NYC, Lower Manhattan Dev. Corp)

HUD CPD Field Offices

- Manage all other grants
Funding has appropriated the following CDBG Disaster Recovery Funding:

- **$1.6 billion** to assist recovery from Events in 2018
- **$2.8 billion** to assist recovery from Events in 2017
- **$300 million** to assist Community Mitigation in areas affected by events in 2015, 2016 and 2017
- **$7.4 billion** to assist recovery from Events in 2017
- **$400 million** to assist recovery from Events in 2016 & 2017
- **$1.805 billion** to assist recovery from the Midwest floods and other Events in 2016
- **$500 million** to assist recovery from the Louisiana floods and other Events in 2016
- **$300 million** to assist recovery from Hurricane Patricia, and other flood events occurring in 2015
- **$16 billion** to assist recovery from Hurricane Katrina, Rita, and Wilma
- **$15.18 billion** after sequester
- **$400 million** to assist recovery from multiple disasters occurring in 2011
- **$100 million** to assist recovery in areas affected by storms and flooding from March 2010 through May 2011
- **$6.1 billion** to assist recovery from all 2008 disasters, including Hurricanes Ike, Gustav and Dolly

FY 2008 - $300 million to assist recovery from the Midwest floods
FY 2008 - $3.0 billion to supplement the LA homeowner assistance program
FY 2006 - $16.7 billion to assist the victims of Hurricanes Katrina, Rita, and Wilma
FY 2005 - $150 million to assist recovery from multiple disasters
FY 2004 - $2.783 billion to assist recovery efforts
FY 2001 - $700 million to assist recovery efforts
FY 1999 - $20 million to assist recovery from multiple disasters
FY 1998 - $130 million to assist recovery from multiple disasters
FY 1997 - $500 million to assist recovery from upper Midwest floods
FY 1996 - $50 million to assist recovery from multiple disasters
FY 1995 - $39 million to assist with recovery from the Oklahoma City bombing
FY 1994 - $180 million to assist with recovery from Tropical Storm Alberto
FY 1994 - $225 million for the Northridge Earthquake
FY 1994 - $425 million for the recovery from the earthquake in Southern California and Midwest Floods
FY 1993 - $85 million to assist with recovery from Hurricanes Andrew, Iniki, and Typhoon Omar
BG-DR Recovery Process 2019
The Disaster is Presidentially Declared

Congress
- Approves CDBG-DR Appropriation.

HUD
- Calculates and announces allocations.
- Publishes a Notice in the Federal Register.
- Awards CDBG-DR Funds.

States and Local Governments
- Administers CDBG-DR grant program directly; or
- Distributes funds to subrecipients or subgrantees.
Why HUD and CDBG?

HUD administers Community Development Funds
Managing Disaster Grants since 1992

Flexibility of the CDBG Program
– Waivers and alternative requirements
No annual appropriation for CDBG-DR

Statutory authority is via individual supplemental appropriations

CDBG Regulations apply, unless modified by Federal Register Notice.

- FR Notice outlines what a grantee can do and did and did not waive specific to a particular appropriation
Purpose of CDBG-DR Funds

Focus on long-term recovery efforts

Last defense funding to address unmet need other federal programs have not yet addressed

Funds **SUPPLEMENT** and fill remaining gaps

CDBG-DR cannot **SUPPLANT** other federal funds

Timing of funds from Congress appropriating funds to funds hitting the ground varies
UD CDBG-DR Role and Responsibility

Review CDBG-DR Action Plans and manage CDBG-DR funds

Provide CDBG-DR grantees with guidance and technical assistance

Monitoring CDBG-DR grantees to ensure performance and compliance
DBG-DR Grantee Role and Responsibility

Design and implement recovery programs to meet unmet recovery needs

Establish internal controls to ensure performance and compliance; monitor subrecipients

Provide technical assistance to subgrantees and subrecipients
DBG-DR Grantee Role and Responsibility

Review project applications to ensure that all activities are eligible

Ensure that activities are compliant with all other requirements such as Section 3 and affirmatively furthering fair housing

Track progress to ensure timely recovery
Grantee creates, publishes, and submits CDBG-DR Action Plan

Citizens review and comment on CDBG-DR Action Plan

HUD reviews and accepts CDBG-DR Action Plan

Grantee implements activities and draws funds
DBG-DR Appropriation Laws

CDBG-DR funds must be used for:

“...necessary expenses related to disaster relief, long-term recovery, and restoration of infrastructure, housing, and economic revitalization...”
DBG-DR Requirements

Each CDBG-DR activity must:

– Address a disaster-related impact (direct or indirect) in a Presidential-declared area for the covered disaster
– Be a CDBG eligible activity
– Meet a CDBG national objective
Disaster-related activities are those that are able to demonstrate a logical connection between the impacts of the covered disaster and the activity’s contribution to community recovery.

Examples:

– Rebuilding homes and infrastructure damaged by the disaster
– providing assistance to affected business owners
Housing Recovery

Description
Activities that lead to restoring and improving the housing stock.

Examples
- New construction
- Rehabilitation/reconstruction
- Single family or multifamily
- Owner or rental
Eligible Restoration of Infrastructure

**Description**
Activities that rebuild or replace impacted infrastructure.

**Examples**
- Road and Bridge Repair
- Water & Wastewater Facilities
- Limited flexibility for “buildings for the general conduct of government”
Economic Development

**Description**
Activities that serve to address job losses, impacts to tax revenues, and impacts to business.

**Examples**
- Job training and workforce development
- Loans and grants to businesses
- Improvements to commercial/rental districts
Demonstrating Tie to the Disaster

The entity responsible for the recovery activity must document how its:

– Addressing a disaster-related impact
– Restoring housing, infrastructure, or the economy
Caution
Ineligible CDBG-DR Activities

Activity does not respond to an identified disaster-related impact

Restriction(s) in the appropriation laws

Activity is ineligible per the CDBG regulations (and a waiver has not been granted)

Activity fails to meet a CDBG national objective
Mitigation or preparedness activities that are not part of rebuilding efforts are generally ineligible as CDBG-DR recovery activities.

Other federal agencies provide funds specifically for mitigation and preparedness

– Federal Emergency Management Agency (FEMA) Hazard Mitigation Grant Program
Purchasing equipment is typically an ineligible activity.

When may the purchase of equipment be CDBG eligible?

- Fire protection equipment if considered to be an integral part of a public facility
- Equipment that constitutes all or part of a public service
- Equipment that is attached to a structure, and becomes an integral fixture
Waivers

The Secretary may provide waivers or specify alternative requirements if such waiver is not inconsistent with the overall purpose of Title I of the Housing and Community Development Act of 1974.

The Secretary may not waive requirements related to fair housing, nondiscrimination, labor standards, and the environment.
resources

CDBG Disaster Recovery website:
https://www.hudexchange.info/programs/cdbg-dr/

Supplemental Appropriations and Federal Register Notices

CDBG-DR grantees

HUD CPD representatives
CBDG-DR

Emeralda Sanchez, Texas General Land Office

RebuildTexas.today/EyeOfTheStorm  nerrtc@teex.tamu.edu
work to rebuild communities, to put Texans back in their homes, and to help businesses recover after the trauma of disaster.”

George P. Bush
Texas General Land Office Commissioner
Since 2011, GLO-CDR is implementing projects and programs across Texas, utilizing more than **$13 billion** in HUD CDBG-DR funds.

These funds are helping Texans to recover from:

- Hurricanes Rita, Ike, Dolly and Harvey
- 2011 Wildfires
- The 2015/2016 Storm and Flood Events

**Mitigations Funds ($4.3 Billion)**

- HUD Federal Register Notice pending

**2018 Floods ($46.4 Million)**

- HUD Federal Register Notice pending
CDBG-DR Funding Process

HUD Helping Your Community Recover After Disaster Video

This video uses illustrations to describe how HUD helps communities recover after a disaster.

Watch the Video
Funding Timeline

0 – 12 Months
- Disaster Declaration
  - FEMA/TDEM
- Congressional Appropriation/
  HUD Publishes Federal Register

12 – 24 Months
- United States Department of
  Housing and Urban Development
- Method of Distribution &
  Fund Allocation

15 – 27 Months
- General Services Administration

14 – 26 Months
- SBA Loans & Private Insurance
- 3 – 24 Months
  - GLO Publishes Action Plan
CDBG-DR State Action Plan

- The Governor designates the State Agency responsible.
- Based on requirements defined in the Federal Register, GLO-CDR assesses damage data, then prepares and publishes a proposed **Action Plan for Disaster Recovery** (Action Plan).
- GLO-CDR submits the final Action Plan – including any comments made – to the designated HUD office for approval.

**STATE ACTION PLAN**

Because every disaster is unique and presents its own challenges and requirements, each Federal Register is also unique. In turn, each Action Plan will contain very specific rules and regulations in response to the corresponding Federal Register. Further, as Amendments to either are needed and executed, GLO-CDR staff must stay current on all Action Plan activities.
## Hurricane Harvey

### CDBG-DR Recovery Programs

<table>
<thead>
<tr>
<th>Program</th>
<th>Funding</th>
<th>Administrator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homeowner Assistance Program</td>
<td>$1.33 billion</td>
<td>GLO (AECOM, GrantWorks, IEM)</td>
</tr>
<tr>
<td>(outside City of Houston &amp; Harris County)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buyout and Acquisition</td>
<td>$275 million</td>
<td>Local Subrecipients</td>
</tr>
<tr>
<td>(outside City of Houston &amp; Harris County)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Homeowner Reimbursement</td>
<td>$100 million</td>
<td>GLO (Workforce Group)</td>
</tr>
<tr>
<td>(outside City of Houston &amp; Harris County)</td>
<td></td>
<td></td>
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<tr>
<td>Affordable Rental</td>
<td>$450 million</td>
<td>GLO</td>
</tr>
<tr>
<td>(outside City of Houston &amp; Harris County)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infrastructure</td>
<td>$413 million</td>
<td>Local Subrecipients</td>
</tr>
<tr>
<td>(outside City of Houston &amp; Harris County)</td>
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<td></td>
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<tr>
<td>Economic Revitalization</td>
<td>$100 million</td>
<td>GLO (NASI)</td>
</tr>
<tr>
<td>City of Houston</td>
<td>$1.28 billion</td>
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**Harvey CDBG-DR State Programs**

**Single Family Homeowner Assistance ($1.33 Billion):**
Provides funding for rehabilitation and reconstruction of owner-occupied single family homes damaged by Hurricane Harvey.

**Flood Buyouts and Acquisitions ($275 Million):**
Eligible homeowners are able to sell their home to a local government at a pre- or post-storm fair market value and move out of harm’s way by relocating outside of a floodplain to a lower-risk area.

**Homeowner Reimbursement ($100 Million):**
Allows homeowners to be reimbursed for certain out-of-pocket expenses incurred for repairs to their home including reconstruction, rehabilitation or renovation up to $50,000.
Harvey CDBG-DR State Programs

Affordable Rental ($450 Million):
Provides funding for rehabilitation, reconstruction and new construction of affordable multi-family housing projects in areas impacted by Hurricane Harvey.

Local Infrastructure ($413 Million):
Repairs, enhances and restores infrastructure for local communities impacted by Hurricane Harvey as part of a comprehensive long-term recovery program.

Economic Revitalization ($100 Million):
Provides for interim assistance to businesses impacted by Hurricane Harvey through deferred forgivable loans and loans in exchange for job creation or retention.

Local, Regional and State Planning ($137 Million):
Coordination Texas public universities, the GLO will conduct planning studies in the impacted areas with the purpose of promoting sound long term recovery.
What is Harvey HAP?

Helps homeowners affected by Hurricane Harvey:
- Repair and rehabilitate
- Reconstruct
- Reconstruct
- Improve a damaged home so that it is stronger against natural disasters
- Elevating homes above flood level
- Temporary relocation assistance
Buyouts and Acquisitions are both acquisitions of real property, the intended end use for the property is what distinguishes a “buyout” from an “acquisition”.

**BUYOUT**

- reduce risk from future flooding or in the hazard that led to the property’s Disaster Risk Reduction by converting the property to open space, recreational, or floodplain and wetlands
- may use the property for pre-disaster or post-disaster property values

**ACQUISITION**

- may use the property for redevelopment activities while ensuring resiliency and mitigating the impact of future disasters
What is Homeowner Reimbursement Program?

The Homeowner Reimbursement Program can help homeowners recover up to $50,000 in out-of-pocket expenses for home repairs due to Hurricane Harvey.
Multifamily Rental Program

quire, rehabilitate, reconstruct or construct new affordable rental housing.

Rehabilitation and reconstruction are prioritized.
Harvey Direct Allocations

**Harris County**
$1.24 Billion
- Housing Programs
- Infrastructure Programs

**City of Houston**
$1.28 Billion
- Housing Programs
- Public Service Program
- Economic Revitalization Program
billion
Federal/Presidential
Declarations for Texas
By County
2015, 2016 & 2017

DISASTER LIST:
• Hurricane Harvey 2017
  DR-4332 (Aug. 23, 2017)
  ... 
  • "Floods 2016"
    DR-4272 (June 11, 2016)
    DR-4269 (April 25, 2016)
    DR-4266 (March 19, 2016)
  ... 
  • "Floods 2015"
    DR-4245 (Nov 25, 2015)
    DR-4237 (May 28, 2015)

- Council of Government
- Texas Counties
- Declared Counties

County Designations as of February 5, 2019

Data Source: FEMA Disaster Assistance Counties - https://www.fema.gov/disaster/state-tribal-government/
Author: Texas General Land Office - Community Development and Relocation Program
Projection: NAD 1983 Texas Statewide Mapping System

www.surveymonkey.com/r/GLO_Mitigation
# CDBG-DR Mitigation Funding

<table>
<thead>
<tr>
<th>DISASTER EVENT</th>
<th>GRANTEE</th>
<th>CDBG-DR AWARDS FOR MITIGATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017 Hurricane Harvey</td>
<td>State of Texas</td>
<td>$4,074,456,000</td>
</tr>
<tr>
<td>2016 Floods</td>
<td>State of Texas</td>
<td>$169,748,000</td>
</tr>
<tr>
<td>2015 Floods</td>
<td>Houston, TX</td>
<td>$61,884,000</td>
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<tr>
<td>2015 Floods</td>
<td>San Marcos, TX</td>
<td>$24,012,000</td>
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<tr>
<td>2015 Floods</td>
<td>State of Texas</td>
<td>$52,985,000</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>$4,383,085,000</strong></td>
</tr>
</tbody>
</table>
CDBG-DR Mitigation Funding

Mitigation:

Effort to reduce loss of life and property by lessening the impact of disasters.

Plan Development:

Makes administrative regulations and turns them into actionable programs.

Blueprint that proposes to HUD and stakeholders how it intends to spend the funds.
2018 Floods CDBG-DR Funding

6,400,000

Disaster Declaration DR-4377-TX

UD Federal Register Notice Funding

Eligible Counties Cameron, Hidalgo, and Jim Wells
For More Information

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http://recovery.texas.gov/

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512-475-5041
Agenda – Jun. 5-6, 2019

Wednesday June 5, 2019

0:00 AM  Welcome and Opening Remarks
0:15 AM  Hazard Mitigation
2:30 PM  LUNCH BUFFET (Provided in Hotel Meeting Room)
1:00 PM  Recovery Resources: Beyond FEMA

Thursday, June 6, 2019

1:15 AM  Continental Breakfast (Provided in Meeting Room)
1:00 AM  Facing Future Federal Disaster Declarations
1:00 AM  The Way Ahead - Facilitated Discussion
2:00 PM  End of Summit

RebuildTexas.today/EyeOfTheStorm  nerrtc@teex.tamu.edu
Where Do We Go From Here?

RebuildTexas.today/EyeOfTheStorm

nerrtc@teex.tamu.edu
Way Forward - Follow on Issues

Action Items

- 
- 
- 
- 

Unresolved Issues

- 
- 
- 
- 

Others

- 
- 
- 
- 

RebuildTexas.today/EyeOfTheStorm

nerrtc@teex.tamu.edu
Texas Recovery Housing Summit

Ways to provide feedback:
- At this meeting
- Email: nerrtc@teex.tamu.edu
Eye of the Storm Report

RebuildTexas.today/EyeOfTheStorm
Closing Remarks
Questions?