

Harvey Fact Sheet

THE STORM

- Harvey not only broke historical records. It also broke imaginary records PMP - probable maximum rainfall
- In 4 days - everyone got no less than a 2,000 year event because of the rain.
- Everyone in a two day period got a 500 year event
- Not a typical hurricane for us, it was a flooding event
- Easily the worst flood event to ever impact the greater Houston area.
- Harris County Flood Control District reported initially 136,000 estimated homes damaged
- 39 lives were lost
- Hands down, it is very likely to be the second most destructive natural disaster in our nation's history, second to Katrina. But the math is still out on that.
- Set the astounding record of 34.72 inches of heavy rainfall over a 10,000 square mile area
- Total rainfall amounts ranged from 25 to 47 inches across the county.
- 1 trillion gallons of water fell during four days that Harvey stalled over Harris County
- That equals to the water that would run Niagara Falls for 15 days, OR fill the Astrodome 3,200 times
- In the end, the 2-4 day totals will average between a 25,000 year flood event and well over a 50,000 year flood event
- 80% of the county was under at least 1.5 feet of water

Damaged Harris County Assets

Road: \$21,747,736.31
Bridge: \$5,096,672.04
Park: \$9,027,754.46
Flood Control: \$7,012,435.00
Building: \$50,841,965.21
Total: \$93,726,563.02

Historic and catastrophic are simply understatements

THIS IS A HURRICANE WE HAVE TRAINED FOR

<p>HCOHSEM RESPONSE</p>	<ul style="list-style-type: none"> • We were eyeing Harvey a full week out before landfall (Sunday) • Harris County’s Regional Joint Information Center fully activated on Tuesday • By Wednesday, we were the first Emergency Operations Center to activate for the then potential storm • A day later, we escalated to Level 1 (Max Readiness) • Harris County EOC was activated Aug. 23-Sept. 15 • More than 400 people representing more than 55 agencies were at Houston TranStar • Returned to Level 4 (normal operations) on September 27 • Still operating 7 days a week for recovery efforts
<p>ANNEX A: WARNING</p>	<ul style="list-style-type: none"> • The NWS issued 72 Flash Flood Warnings and 157 tornado warnings • HCOHSEM Regional JIC distributed multiple Harris County Alerts and Regional Emergency Notifications. • Wireless Emergency Alerts • Clear Channel Outdoor Warnings
<p>ANNEX B: COMMUNICATIONS</p>	<ul style="list-style-type: none"> • ARES provided support from Communications Center • 9-1-1 Call Systems were Overwhelmed • 56,000 calls in the first 15 hours • An average of 8,000 calls a day
<p>ANNEX C: SHELTER & MASS CARE</p>	<ul style="list-style-type: none"> • Red Cross opened 6 shelters <ul style="list-style-type: none"> - We are not a sheltering command for hurricanes; we rely on the red cross • City of Houston - George R. Brown Convention Center - 7,000 occupants • Harris County - NRG Center Shelter Managed by BakerRipley -7,409 • Began more than a dozen shelters • Shelters were closed as of Friday, 10/27/17
<p>ANNEX E: EVACUATION</p>	<ul style="list-style-type: none"> • The City of Seabrook, Taylor Lake Village, Nassau Bay, El Lago, La Porte and Shoreacres issued voluntary evacuation orders. • Mandatory evacuation order was issued

	<p>for homes along the base of the Inverness Forest Levee on Aug. 27 and lifted on Aug. 31.</p> <ul style="list-style-type: none"> • Mandatory evacuation for Northwood Pines subdivision in Spring on Sept. 4. • City of Houston issued a mandatory evacuation residents of flooded homes on the west side on Sept. 4. <p>If we had to do it all over again, we would still not issue an evacuation order for Harris County based on flood threat</p>
<p>ANNEX F: FIREFIGHTING/ SEARCH AND RESCUE</p>	<ul style="list-style-type: none"> • Coordinated assets and rescues along with Harris County Fire Marshal’s Office (HCFMO), Harris County Sheriff’s Office (HCSCO) and United States Coast Guard (USCG). • More than 200 private boats*- mostly Cajun Navy • (*HCFMO) • HCFMO - 1,000 • Fire Departments- 40,071 (HFD- 7,770) • Law Enforcements- 19,993 (HPO- 5,000) • Total number of rescues - 61,064 • Unknown number of rescues by citizen responders • 60% more high water rescue assets in the county than we had for Tax Day Flood
<p>ANNEX G: LAW ENFORCEMENT</p>	<ul style="list-style-type: none"> • Pasadena and Pearland imposed curfews from 10 p.m. to 7 a.m. • City of Houston enforced a citywide curfew from midnight to 5 a.m. from Aug 30- Sep 5. • There was 10 more days of West Houston curfew from Sep 5- Sep 15. • Significant resources for traffic safety • Extensive rescue coordinates <p>Flooded:</p> <ul style="list-style-type: none"> • HPD = 500

	<ul style="list-style-type: none"> • SO=200 +
<p>ANNEX H: HEALTH & MEDICAL SERVICES</p>	<ul style="list-style-type: none"> • HCPH sent out a number of messages warning residents of to avoid hazards presented by flood waters: downed power lines, sewage contamination, rusted nails and the possibility of critters in the water — everything from snakes to spiders to alligators. • HCPH reported people in shelters suffering from respiratory and gastrointestinal problems, physical injuries and mental issues. • Care for medically fragile • SETRAC and CMOC • Evacuated Ben Taub • Integration into rescue ops • Much of their work goes unnoticed
<p>ANNEX I: PUBLIC INFORMATION</p>	<ul style="list-style-type: none"> • Regional Joint Information Center activated Aug. 22-Sept. 15. • 698 Media Inquiries • 650 Media Interviews • 2,418 Social Media Posts • 9 Nextdoor Posts • 45 Harris County Alerts • 259 News Releases • 322,000 visits to the readyharris website during the activation • 25 News Conferences • 42 JIC Staff • 11 HCSO Deputies • The ReadyHarris app was downloaded 8,201 times during the Harvey activation, more downloads than January- July 2017 combined <p>History:</p> <ol style="list-style-type: none"> 1. Katrina, Rita, Ike 2. 10th year anniversary 3. The advantage of social media history
<p>ANNEX J: RECOVERY</p>	<ul style="list-style-type: none"> • HCOHSEM working with various Harris County departments, the State of Texas and FEMA on recovery. • Harris County assessing damages.

	<ul style="list-style-type: none"> • Harris County Flood Control District reported 136,000 estimated homes damaged. • 17 DRC's in Harris County opened in total (14 still open) • 1 VRC opened in Harris County • \$506,875,489 for disaster assistance* • \$383,101,968 for housing assistance* • \$123,772,521 for other needs* • Debris removal ongoing - PID receiving an average of 300 calls per day at its call center. • HCPH Health Issues (mosquito spraying and neighborhood canvassing) • VOAD has 60,000 volunteers on its database. 7000 Catholic Charity volunteers donated 3,000 hours toward storm response. 55 agencies volunteered for Harvey recovery. <p>EM and response get a lot the attention but... Long term recovery commute</p>
<p>IMMEDIATE RECOVERY</p>	<p>Disaster Recovery Centers - 14 open, 1 pending Disaster Supplemental Nutritional Assistance Disaster Case Management Muck and Gut Volunteer Reception Center</p> <p>Debris- More Than 500,000 Cubic Yards Of Debris Have Been Removed (Tax Day Floods were 50,000)</p> <p>Residents can call 2-1-1 for immediate help</p>
<p>LONG TERM RECOVERY</p>	<ul style="list-style-type: none"> • Mitigation • Housing • Community needs • 10% increase in apartment rentals from overdraft and short of supply
<p>THE JOINT FUND</p>	<ul style="list-style-type: none"> • Mayor Sylvester Turner and County Judge Ed Emmett established the Hurricane Harvey Relief Fund that will accept tax deductible flood relief donations for victims that have been affected by the recent floods. • Ghcf.org/hurricane-relief or 800-924-5985 • \$75 mm + raised
<p>ANNEX T:</p>	<ul style="list-style-type: none"> • Extraordinary influx of donations • It overwhelmed non-profits who manage

<p>DONATIONS MANAGEMENT</p>	<p>donated goods</p> <ul style="list-style-type: none"> • Highlighted needs of non-profit partners • Most donated goods were not needed then but will be needed later • Opened up Harvey Relief Hub
<p>LESSONS LEARNED</p>	<p>Sheltering plan</p> <p>Incorporating citizen responders/community participation into response and not just preparedness</p> <p>Uniform a collaborative approval to recovery</p> <p>Harness creativity of this responding to this incident</p> <p>Empower citizens to respond locally/ Harvey Relief</p>
<p>FURTHER MITIGATION</p>	<p>We have never seen a disaster of this sort:</p> <ul style="list-style-type: none"> • Harnesses opportunity • Texas sized problem but we can fix it with local initiative • Federal scheme priority- relief over many • Narrow window to keep the federal government interested in investing in Harvey Recovery <p>3 pillars of recovery when getting federal dollars:</p> <p>Get as much money as you can Get it as quickly as you can Give back as little as possible</p>
<p>REAL ESTATE</p>	<ul style="list-style-type: none"> • Housed our first person on 9/15 • We housed 936 people in 42 days • A team of 113 people (American Red Cross, AmeriCorps NCCC, TA, and “The Housing Team”) contributed to the process of re-housing • 600 million square feet of commercial real estate space in the Houston metropolitan area, or 38% of Houston’s total gross leasable area, was impacted by the flooding • 149 million square feet of space was revealed to be inundated with water

	<ul style="list-style-type: none">• The hardest hit multifamily submarket is Southwest Houston where 35,000 units, or 45% of the submarket, are in a flood zone or were shown to be inundated as of August 29• The value of buildings at risk rises to \$75.1 billion• Apartment buildings known to be surrounded by water as of August 29 were valued at \$3.3 billion• In Katy Freeway West, two million square feet were inundated. This represents 6.3% of all office space.• Katy Freeway West is the second largest office submarket in Houston, with 19.1 million square feet; it hosts several major oil companies, such as Shell, BP, and ConocoPhillips• Total office space considered at risk is estimated at 69.5 million square feet, or 11.4% of the total square feet at risk
DEBRIS	<ul style="list-style-type: none">• Debris removal ongoing• 3 debris removal passes• To date 500,000 cubic yards of debris collected (50,000 cubic yards total for Tax Day Flood)