



University of Houston
DOWNTOWN

Lessons Learned From Hurricane Harvey

Presenters

David Bradley
Vice President, Administration & Finance

Chris McCall
Assistant Vice President, Facilities Management (Retired)
Campus Planning

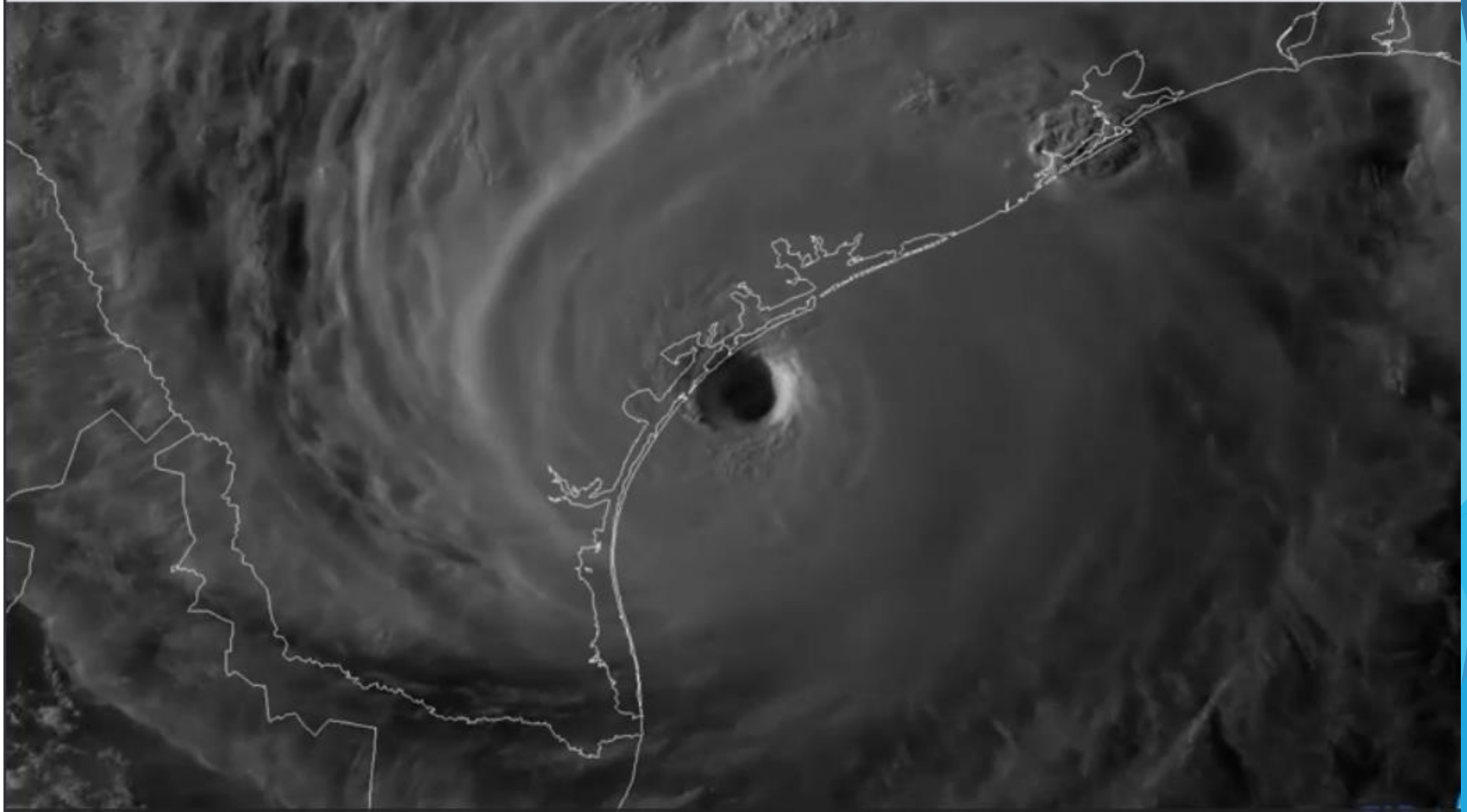
Elisa Olsen
Executive Director, University Relations

Hossein Shahrokhi
Associate Vice President, Information Technology/CIO

Hurricane Harvey - General

- Landfall at Rockport, TX - Saturday, August 26, 2017 at 6am
- Stalled over SE Texas and poured rain for most of three days
- Nederland, TX - south of Beaumont - 60.5 inches of rain over the three day period
- Pearland, TX - south of Houston - 9.92 inches of rain over a 90 minute period

Harvey Sat 1



4 Day Rainfall Totals

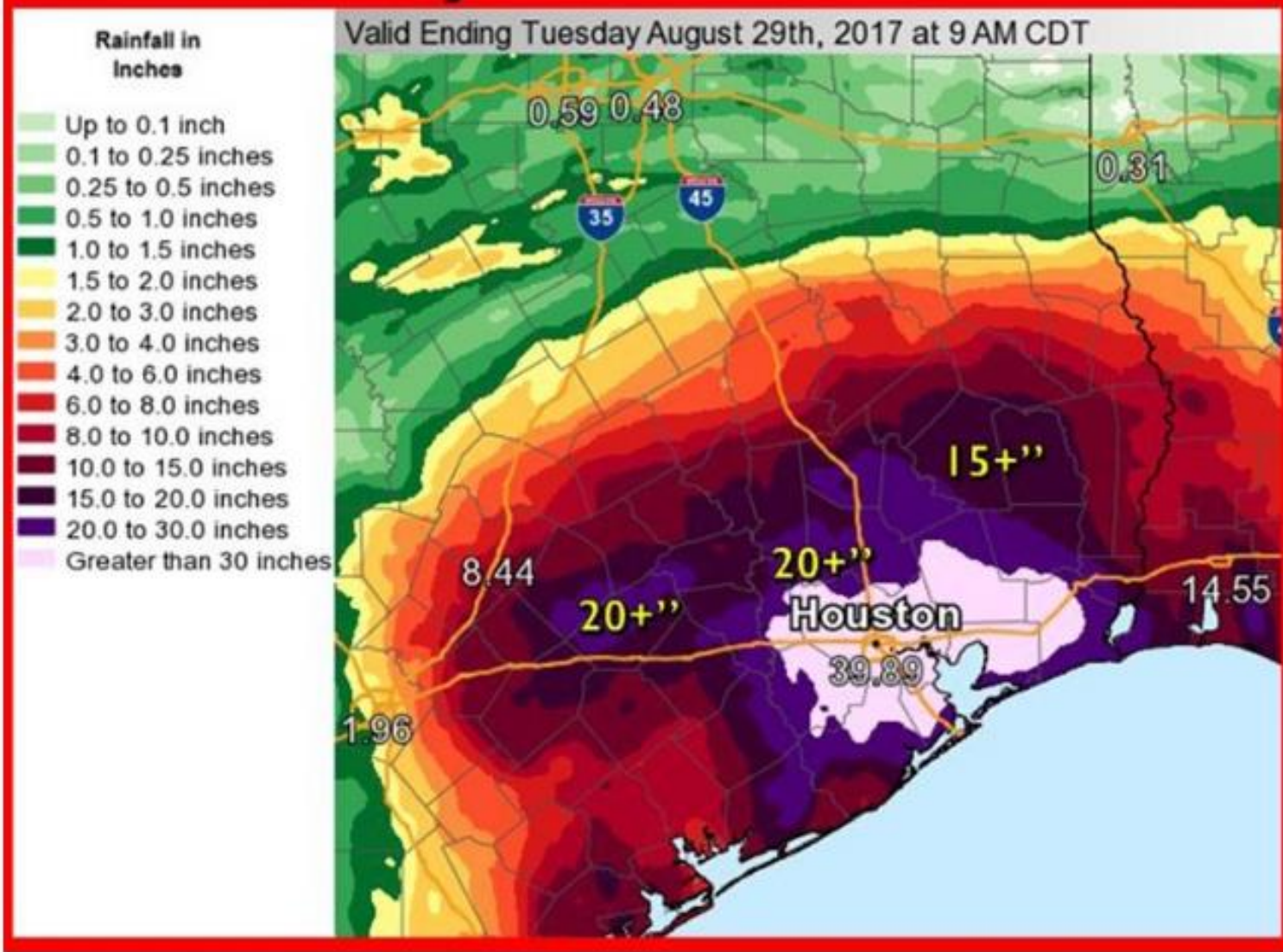


Figure 3. Observed precipitation from Harvey as of 9 am CDT Tuesday, August 29, 2017. The Houston area has received over 30" of rain (pink colors). Image credit: NWS.

Hurricane Harvey - Houston/Harris County

- The NWS office in Houston recorded all-time record rainfall on both Saturday, August 26th (14.5 inches) and Sunday, August 27th (16 inches)
 - They actually had to add 2 new colors to their Rain Index...
- August 2017 was the wettest month ever recorded for Houston (39.1 inches) since they started keeping records in 1892
- At the peak of Harvey-driven flooding, it is estimated that 25-30 percent of Harris County was submerged (444 square miles)

Hurricane Harvey - UH Downtown

- UHD is located at the confluence of two major bayous, Buffalo and White Oak
- Newer buildings (beginning in 1995) were all built well above existing 100-year flood level
- The original One Main Building, constructed in 1929, was at a lower elevation
 - Large structure (632,000 gsf) housing many critical university functions
 - The central plant supporting a 4-building cluster is located on the 1st floor of OMB



- EXISTING UHD PROPERTY
- PROPOSED BUILDING
- PEDESTRIAN ROUTE
- MAIN STREET CORRIDOR
- PROPOSED PROPERTY ACQUISITION BOUNDARY

SHEA STREET BUILDING

STUDENT LIFE BUILDING
GIRARD STREET GARAGE AND WELCOME CENTER

ONE MAIN BUILDING AND ACADEMIC BUILDING
WILLOW STREET PUMP STATION

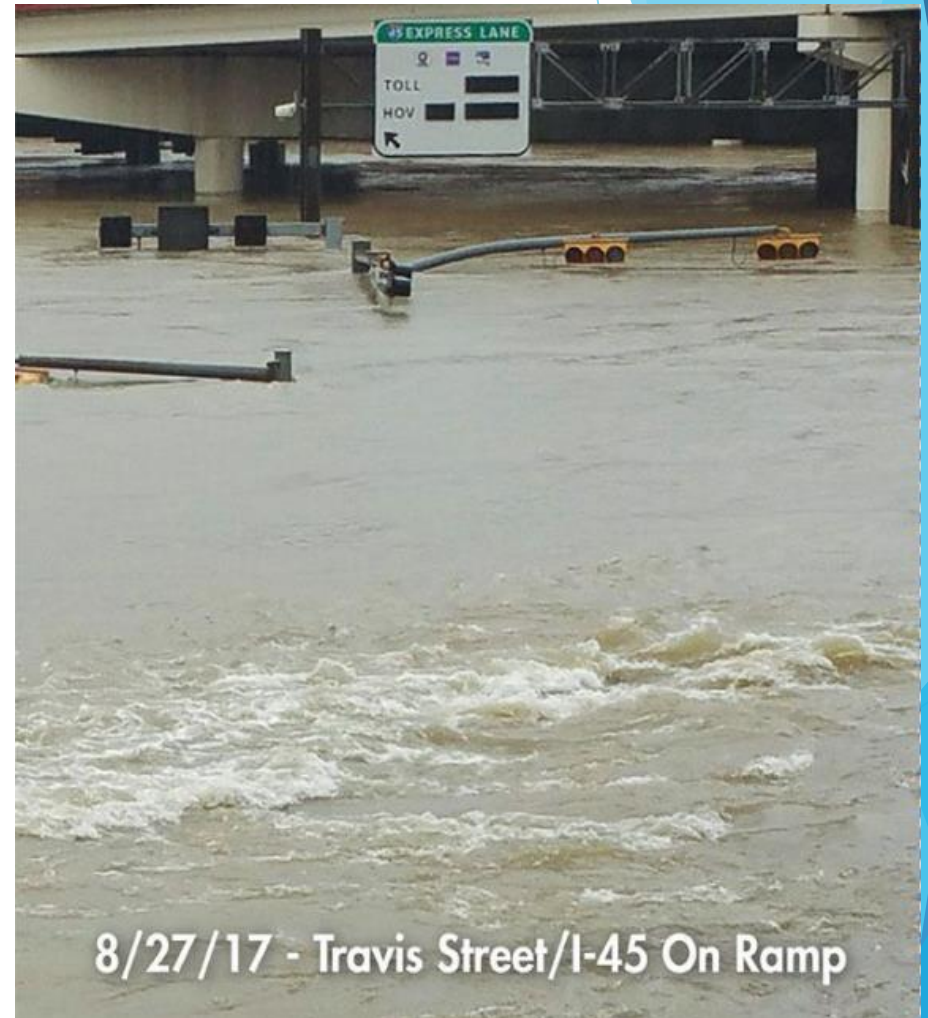
COMMERCE STREET BUILDING



- EXISTING UHD PROPERTY
- PROPOSED BUILDING
- PEDESTRIAN ROUTE
- MAIN STREET CORRIDOR
- PROPOSED PROPERTY ACQUISITION BOUNDARY

- 500 YEAR FLOOD PLAIN
- 100 YEAR FLOOD PLAIN
- FLOOD WAY

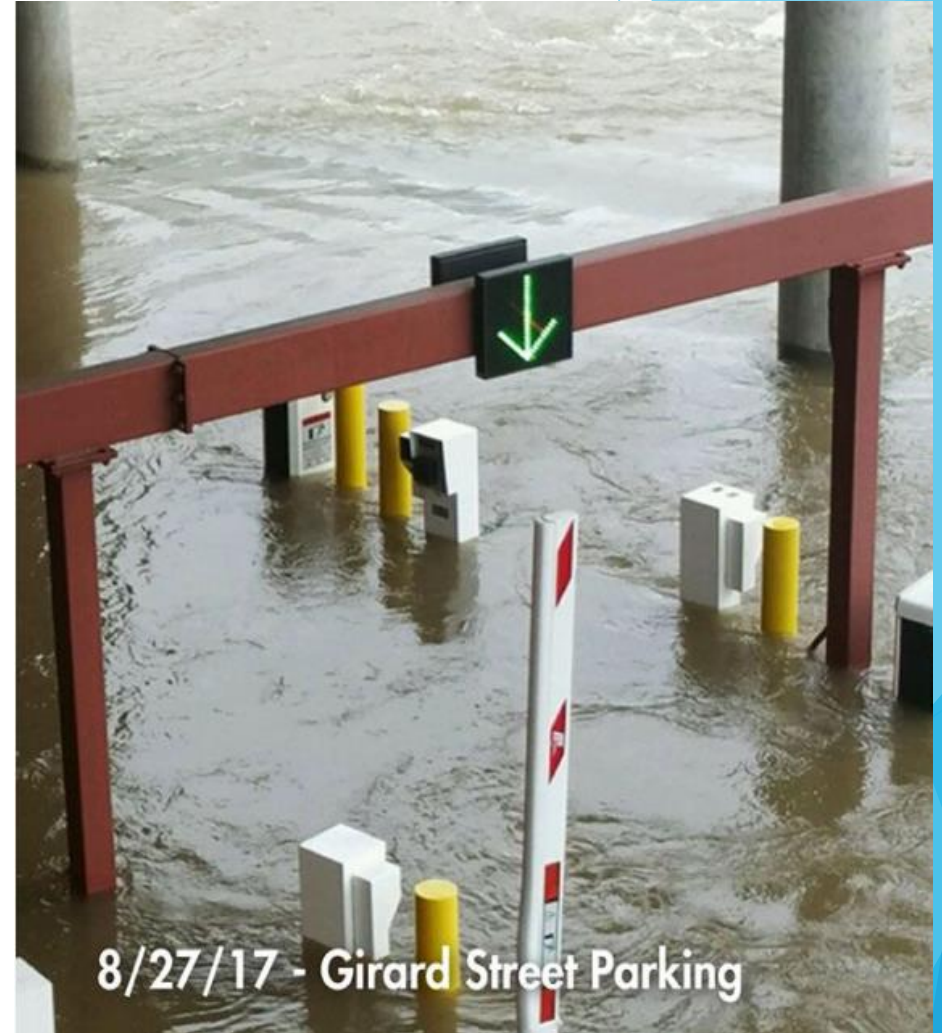




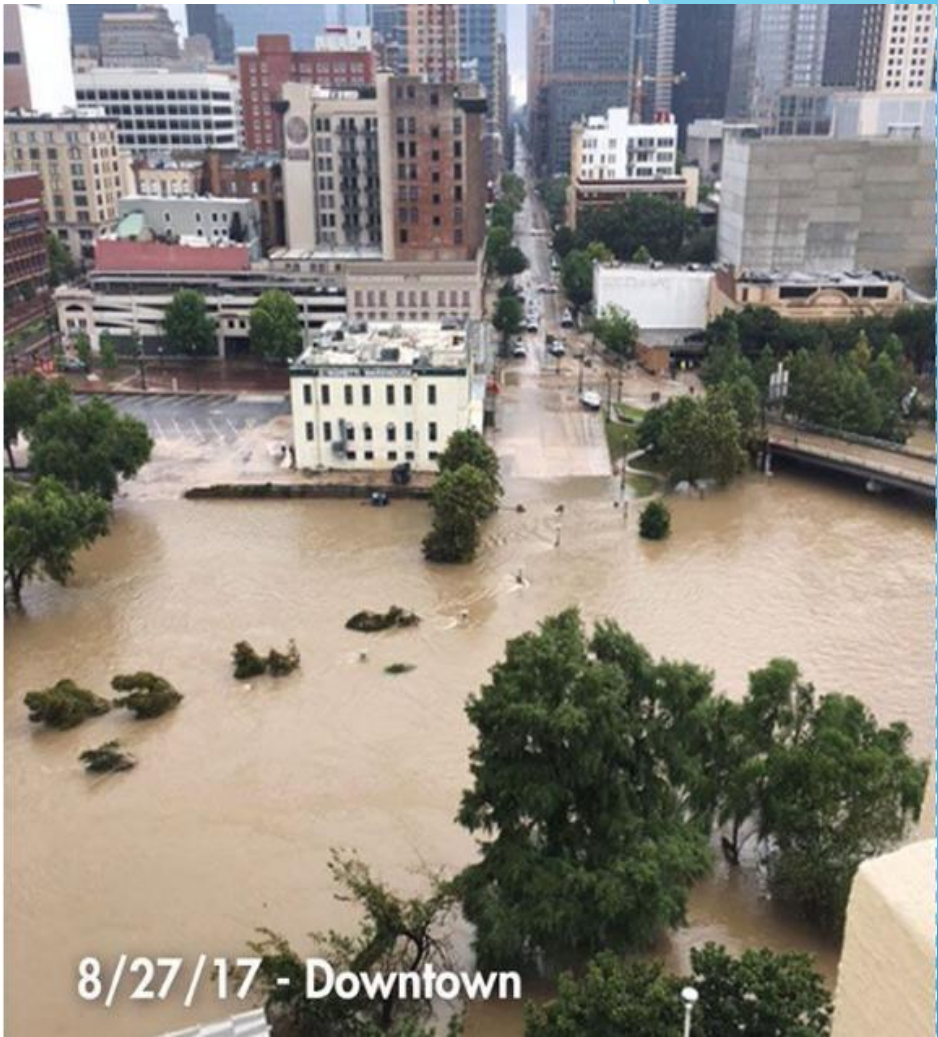


8/27/17 - Girard Street

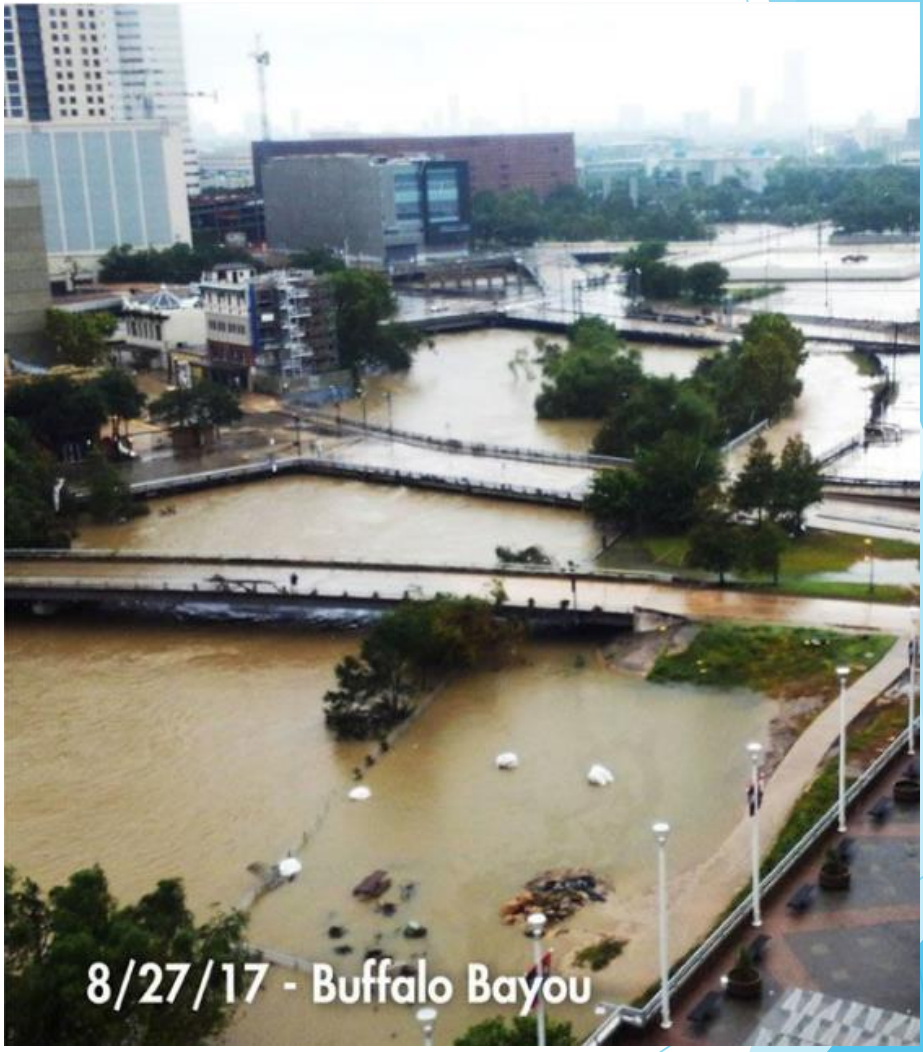




8/27/17 - Girard Street Parking



8/27/17 - Downtown



8/27/17 - Buffalo Bayou



UHD

August 26-29, 2017

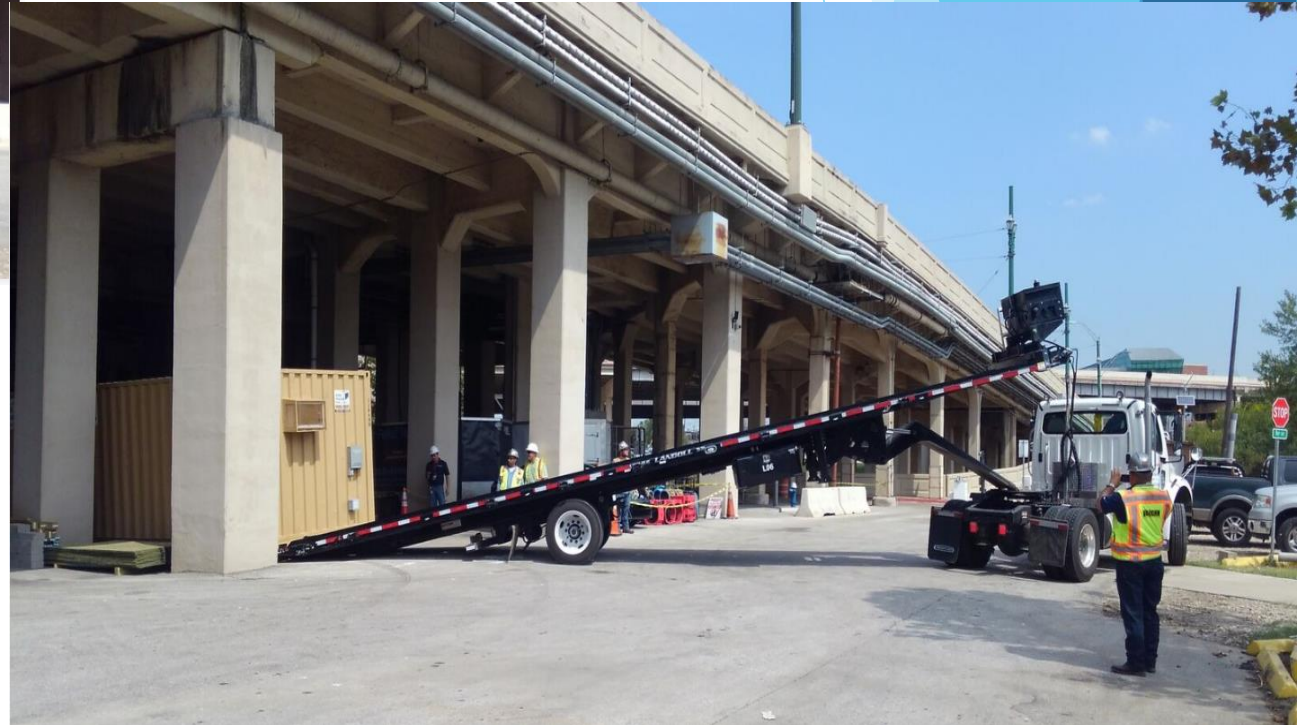
Lessons Learned

- Police/Facilities Management - Chris
- IT/Communications - Hossein, Elisa
- General - CFO perspective - David

Lessons Learned - Police

- Prepare with the expectation that the campus will be inaccessible for an extended period
 - Group A / Group B - could not be executed as planned
- Diversify the Ride-out Team
 - Police personnel are on-site to do police work
 - Should not be asked or expected to serve as Facilities or IT technicians
 - Will see this as a 'Lesson Learned' by FM and IT leadership as well

Lessons Learned - Facilities



<https://youtu.be/Eiew8t3Xedc>

Lessons Learned - Facilities (cont.)

- Getting accurate, timely information is critical
 - Initially will come from on-site PD personnel
- Communication is critical
 - With the leadership team, departmental personnel
- Resources are critical
 - Long-time service providers that know your campus
 - Material suppliers already under cooperative contract
 - Specialty providers - Restoration, HazMat, Equipment

Lessons Learned - Facilities (cont.)

- **Fiduciary responsibilities**
 - Documenting/record-keeping
 - Reporting requirements, likely to be post-event audits
 - Involve insurance carriers early/know their expectations
- **Relationships are critical**
 - University departments (PD, EH&S, Others)
 - Service partners/material suppliers
 - Local public entities
 - City, Utilities, Transportation, Highway

Lessons Learned - Information Technology

- Prepare with the expectation that the campus will be inaccessible for an extended period
 - Personnel/Critical Services (diesel fuel)
- Have an IT generalist on the Ride-out Team
- Strengthen Testing Program
 - End-to-end full tests, even if inconvenient
 - Don't want to find out during the real thing that critical devices don't work as they should

Lessons Learned - Information Technology (cont.)

- Continually strengthen ties with the Comm team
 - High level of interdependence during emergencies
 - Don't compete with social media - incorporate
- Look for opportunities to move certain services to the cloud
 - Redundant website in the cloud with automated redirect
- Simple more likely to work best

Lessons Learned - Communications

- Embrace and integrate vast social media infrastructure into Emergency Plan
 - UHD social media users say emergency communications are their #1 interest (re UHD Facebook, Twitter, etc)
 - Highly effective, Inexpensive
- Have multiple contingency platforms ready to go
- Cross-train Communications team members so that each pivotal person has a back-up

Lessons Learned - Communications (cont.)

- Understand that without domain name servers, your domain name stops working, even if the underlying website is still available
- Provide communicators with ‘Go Kits’
 - Instructions for infrequently used systems
 - Contact information for key personnel
 - Tools, devices (ex., MIFI, power bricks/inverters)
- Practice, practice, practice

Lessons Learned - CFO Perspective

- It can always get worse...
 - Plan for the seemingly unimaginable
 - TS Allison
- Have the resources/reserves that will enable you to act independently, and move fast
- Fiduciary Responsibilities
 - Be thinking about what's coming after the event passes - documentation/record-keeping
 - Think about what insurance carriers are going to want to see (dealing with that now)

Lessons Learned - CFO Perspective (cont.)

- Be thinking about mitigation
 - What can be done to make things go better next time
 - Ex., UHD's recent move to convert emergency generators to run on natural gas
- Have a plan, and practice your plan
- Be on-site as much as possible, as soon as possible
- Find ways to turn the negative into a positive
 - https://youtu.be/z_63cqNnUk4
 - [Campus Safety Magazine](#)