Disaster Preparedness Peer Call Series:
In the Eye of the Storm

Wednesday, February 21, 2018
Introductions

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FORT BEND COUNTY
HURRICANE HARVEY IMPACTS
Hurricane Harvey / Fort Bend County Impacts

Estimated % FBC Land Area Inundated by Floodwater: 20%

Total Estimated Residents Impacted: 200,000

FBC Emergency Operations Total Phone Calls: 25,564

Total Number of Rescues: 9,945

Fatalities Reported within Fort Bend County: 3

Number of Homes Damaged: 6,824

Source: Fort Bend County Office of Emergency Management, 10/27/17
Public Transportation Impacts

- Damages to Public Transportation Buildings: NONE
- Damages to Public Transportation Buses: NONE
- Total Number of buses/drivers staged at Peak: 80
- Est. Direct Participation Rescues: 2,000
- Transportation Employees with personal Damages: 31
- Number of Days Activated at EOC: 8
- Post Harvey Transit Ridership Trip Increase: 11%
## IT’S THE SAME AND ITS DIFFERENT

<table>
<thead>
<tr>
<th>Readiness</th>
<th>NIMS/ EOC Plans (Annex S)</th>
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<tbody>
<tr>
<td></td>
<td>Exercises</td>
</tr>
<tr>
<td></td>
<td>Situational Awareness</td>
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<tr>
<td></td>
<td>Experience (Go-Kit, Process)</td>
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<td></td>
<td>After Action Review</td>
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<tr>
<td>Planning</td>
<td>Notification –Staff/Contractors</td>
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<td></td>
<td>Equipment/Staffing ID</td>
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<td>Event Specific Tools</td>
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<td>Event Action Plan</td>
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<td>Daily Action Plan</td>
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<tr>
<td>Response</td>
<td>Deployment - Implement the Plan</td>
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<td></td>
<td>Respond to Situational issues</td>
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<td>Recovery</td>
<td>Assess Public Need</td>
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<td></td>
<td>Assess Staff/Contractor Needs</td>
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<td>Implement Recovery Plan</td>
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<td>After Action Review</td>
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PLANNING TOOLS

NATIONAL WEATHER SERVICE
HURRICANE HARVEY
PLANNING TOOLS

DRAINAGE, LEVY, ARMY CORP
Stage/Flow Measurement Locations:

- Bryan
- Hempstead
- San Felipe
- Richmond
- Rosharon
- FM1093
- FM1489
- FM723
- I-69

USGS Gage
FBCDD Field Measurements
FBCDD Field Measurements

4 Additional Bridge Locations to Supplement USGS/NWS Forecast Data

Appx. 3-Hours between Measurements

Field Measurements relayed to FBCEOC

Input into Spreadsheet and Emailed to WGRFC
HURRICANE HARVEY

Brazos River
Forecast of 59’ at Richmond

8/27/17
PLANNING TOOLS

LOCAL
TAKE US 90 WEST TO US 17 AT HALLETTSVILLE
INTERACTIVE ROAD CLOSURE MAP

http://fbcoem.org/fort-bend-county-road-closures/
Fort Bend County MUDs & LIDs to be Evacuated

Legend

- Red - Mandatory
- Yellow - Voluntary
SPECIFIC LEVEE CHALLENGES:

• Limited Evacuation Routes
  – Local Streets
  – Major Highways
• Very Quick Rise
• Watershed Overflows
• 59’ Forecast extended beyond effective HEC-RAS Cross Sections
• Record Levels for Extended Duration
• Access to Levees due to High Water
• Minimal Amount of Levee Freeboard at Forecast Levels
• Amount of Information that Needed to be Conveyed
• Emergency Services
Evacuation Zones

Date: 8/3/2017

Legend - Evacuation Zones
- MANDATORY
- VOLUNTARY
- Fort Bend County Line

Scale: 0 to 20 Miles
WEBSITE PRESENTING INUNDATION MAPPING RESULTS

- Various elevations
- Address Search Tool

COORDINATION WITH OTHER JURISDICTIONS

EVACUATION ORDERS ISSUED BASED ON BEST AVAILABLE INFORMATION
Brazos at Richmond
Peak Elevation

55.19’ on Friday, Sept. 1st at 1:00AM

Highest Elevation since May 1915 (102 Years)

Brazos at Richmond
USGS Field Measurement Comparison

<table>
<thead>
<tr>
<th>NO.</th>
<th>Date</th>
<th>Gage Height</th>
<th>Flow</th>
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</thead>
<tbody>
<tr>
<td>1053</td>
<td>June 1, 2016</td>
<td>54.64’</td>
<td>106000 cfs</td>
</tr>
<tr>
<td>1066</td>
<td>August 31, 2017</td>
<td>54.97’</td>
<td>124000 cfs</td>
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</tbody>
</table>
Lessons Learned:

Importance of Conveying Information to Public

Mass Communication

Social Media

GIS – Maps

Working with Other Jurisdictions

Proactive Training/Exercises Beforehand
“Harvey is head and shoulders above all other multi-day rain events that have ever occurred in the continental United States”

- Texas State Climatologist John Nielsen Gammon

<table>
<thead>
<tr>
<th>Rank</th>
<th>Rainfall</th>
<th>Location</th>
<th>Year</th>
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<tbody>
<tr>
<td>1.</td>
<td>34.72″</td>
<td>Harvey 2017</td>
<td></td>
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<tr>
<td>2.</td>
<td>21.39″</td>
<td>Texas 1899</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>20.50″</td>
<td>Beulah 1967</td>
<td></td>
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<tr>
<td>4.</td>
<td>18.37″</td>
<td>Louisiana 1940</td>
<td></td>
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<tr>
<td>5.</td>
<td>18.06″</td>
<td>Texas 1994</td>
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After all damage totals come in Hurricane Harvey is expected to be 1\textsuperscript{st} or 2\textsuperscript{nd} costliest natural disaster in United States history.
When the Smoke Clears...
Lessons from the Lake County Fires

Mark Wall, GM
Lake Transit Authority
Challenged Population

- Population: 64,030
- Poverty Level: 24%
- Total Persons with Disabilities: 19.6%
  - Ambulatory Disability: 10.6%
  - Cognitive Disability: 7.4%
- Senior Population:
  - 2010 Census: 17.8%
  - 2020 Forecast: 24%
## 2015-16 Lake County Fires

<table>
<thead>
<tr>
<th>Fire</th>
<th>Date</th>
<th>Acres</th>
<th>Structures</th>
<th>Homes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rocky</td>
<td>7/29/2015</td>
<td>69,636</td>
<td>96</td>
<td>43</td>
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<tr>
<td>Jerusalem</td>
<td>8/9/2015</td>
<td>25,118</td>
<td>27</td>
<td>6</td>
</tr>
<tr>
<td>Valley</td>
<td>9/12/2015</td>
<td>76,067</td>
<td>1,955</td>
<td>1,281</td>
</tr>
<tr>
<td>Clayton</td>
<td>8/13/2016</td>
<td>3,929</td>
<td>300</td>
<td>188</td>
</tr>
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</table>
VALLEY FIRE FROM SPACE
The Valley Fire burned brightly last night, even through a fairly thick cloud layer. Meanwhile, the Butte Fire’s rate of advance slowed. NASA’s VIIRS satellite - 9/13/2015.
Disaster Services

Need A Shower?

We’ll help you get one!

Lake Transit will be running a shuttle between
8:00 am and 4:00 pm Saturday, 9/19/15
Call 994-3334
FTA Funding Assistance

- FEMA has primary authority.
- When a disaster affects public transit, an FTA – FEMA Memo of Agreement gives primary authority to FTA when Congress authorizes ER funding.
- State DOT with FTA approval may be able to allocate additional 5311 funds if available.
- FTA Emergency Relief Manual
Emergency Grant Expenses

- Emergency Transit Operations
  - Emergency Evacuations
  - Valley Fire Ride Assistance Program
  - Special Shuttle Services
- Vehicle lease as needed.
- Free fares
- Supplemental Rate/Wage Increase
Guiding Principles

• Support those who are displaced.
  ◦ Employee Assistance and Wage Increase
  ◦ Special services for shelters, etc.
  ◦ Assign a field representative.

• Be a responsive, reliable community institution that people rely upon.
  ◦ Restore services quickly

• Communicate – website, social media, news releases, field representative.
Outcomes

- Ridership increased 11%
- Enhanced Community Partnerships
- Improved community transit awareness and support.
- Improved employee morale
- Both the County and Lake Transit are better prepared for future emergencies.
Thank You

National Rural Transit Assistance Program
888-589-6821
info@nationalrtap.org
nationalrtap.org
facebook.com/nationalrtap
@nat_rtap

Recording, slides, and handout will be posted at nationalrtap.org/Peer-Program/Peer-Calls. Transcripts available upon request.