Hurricane Harvey
2-YEAR REPORT AND UPDATE

STEPS TOWARD IMPLEMENTATION

Stephen C Costello, P.E.
March 4, 2020
HURRICANE HARVEY

IMPACT

52 total Inches of rain

150,000+ Homes Damaged*

*FEMA reported Individual Assistance Claims. Recent data models estimate the total number of homes damaged at 209,000

37,000 Houstonians in Shelters
HURRICANE HARVEY

IMPACT

125 BILLION IN ESTIMATED DAMAGES

Bayou Flooding
Reservoir Release
Highway Inundation
INTERAGENCY INVOLVEMENT

HURRICANE HARVEY

RECOVERY

$2B*
CITY FACILITIES & INFRASTRUCTURE
FEMA PUBLIC ASSISTANCE

$1.3B
BUILD IT FORWARD
HUD HOUSING

$300M*
RESILIENCE PROJECTS
FEMA HMGP

FLOOD RESILIENCE

$600M*
NEIGHBORHOOD DRAINAGE
HUD INFRASTRUCTURE

*Estimated

*Estimated, including local match

STATE PARTNERS
TDEM   GLO   TDEM   GLO
## HURRICANE HARVEY
### PUBLIC ASSISTANCE

<table>
<thead>
<tr>
<th>DAMAGES</th>
<th>EXAMPLES</th>
<th>COST ESTIMATES</th>
<th>SUBMITTED TO FEMA</th>
<th>OBLIGATED</th>
<th>FUNDING RECEIVED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category A - Debris Management</td>
<td>Citywide debris removal, Lake Houston debris</td>
<td>$259M</td>
<td>$100M</td>
<td>$129.7M</td>
<td>$77.6M</td>
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<tr>
<td>Category B - Emergency Repairs</td>
<td>Facility clean up, police and fire overtime</td>
<td>$190M</td>
<td>$163.7M</td>
<td>$132.9M</td>
<td>$120.3M</td>
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<tr>
<td>Category C - Roads &amp; Bridges Repair</td>
<td>West Lake Houston Pkwy bridge</td>
<td>$65M</td>
<td>$2.8M</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Category D - Stormwater</td>
<td>Drainage channels</td>
<td>$10M</td>
<td>$96,000</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Category E - Buildings</td>
<td>City assets - City Hall, fire stations, libraries, etc.</td>
<td>$625M</td>
<td>$129.5M</td>
<td>$46.7M</td>
<td>$27.5M</td>
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<tr>
<td>Category F - Water/Wastewater Utility</td>
<td>Pump Stations and drinking water facilities</td>
<td>$1.1B</td>
<td>$51.9M</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Category G - Other</td>
<td>Parks, flooded vehicles</td>
<td>$40M</td>
<td>$32M</td>
<td>$29.8M</td>
<td>$16M</td>
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<tr>
<td>Category Z - Management Costs</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$2.2B</strong></td>
<td><strong>$496.86M</strong></td>
<td><strong>$355.1M</strong></td>
<td><strong>$257.4M</strong></td>
</tr>
</tbody>
</table>

*$165M in expedited funding
HURRICANE HARVEY
PUBLIC ASSISTANCE

CITY HALL
CITY HALL ANNEX
MUNICIPAL COURTS

611 WALKER
CITY HALL ANNEX PARKING GARAGE
HOMEOWNER ASSISTANCE PROGRAM

Repairs and rebuilds Harvey-damaged homes and provides reimbursement for work already completed for homeowners

KEY FACTS

$440 M total funding available

2024 GOAL
4,000-5,000 homeowners receive assistance

HOMEBUYER ASSISTANCE PROGRAM

Helps Houstonians realize the dream of homeownership by providing up to $30,000 to buy a home

KEY FACTS

$21 M total funding available

2024 GOAL
700 homebuyers receive down payment and closing cost assistance
HURRICANE HARVEY

HOUSING

MULTIFAMILY PROGRAM

Creates high quality rental homes that Houstonians can afford in transit-oriented, resilient developments across the city.

KEY FACTS

$350 M total funding available

2024 GOAL

1,600 affordable rental units created or repaired

PUBLIC SERVICES

Provides services to underserved Houstonians to help them overcome social and economic barriers.

KEY FACTS

$60 M total funding available
HAZARD MITIGATION GRANT PROGRAM (HMGP)

Supports recovery efforts by providing assistance to enact mitigation measures to reduce the risk of loss of life and to property.

**STATE**

$1B*

Available for Texas

**LOCAL**

$300 M*

Available for Houston, Including local match

**MATCH**

25% This program requires local governments to match 25% of the total funding.

The application process is lengthy, requiring various steps of review.

AWARDED

- Inwood Golf Course Detention
- Lake Houston Dam

UNDER REVIEW

- North Canal
- TIRZ 17 Detention

ALTERNATE

- Individual Home Mitigation

OTHER PROJECTS

- West Fork Dredging
- Fifth Ward Urban Drainage
- Keegans Bayou Improvement
- Ruffino Landfill Detention
- Sunnyside Detention
- Country Creek/Westwood Detention
- Pine Gully & Plum Creek
- Turkey Gully

*Pursuing Other Sources of Funding
HURRICANE HARVEY
POLICY

TIRF
$857 MILLION

- $638 MILLION
  HARVEY RECOVERY LOCAL MATCH

- $127 MILLION
  FOR FUTURE APPROPRIATIONS OR TO IMPLEMENT INITIAL STATE FLOOD PLAN

- $47 MILLION
  UPDATE FLOOD RISK MAPS THROUGHOUT THE STATE

FIF
$793 MILLION

FUTURE INFRASTRUCTURE PROJECTS

OTHER FIF
$350 MILLION

- $150 MILLION
  SOIL AND WATER CONSERVATION BOARD DAM INFRASTRUCTURE PROJECTS

- $200 MILLION
  GENERAL LAND OFFICE US ARMY CORPS OF ENGINEERS PROJECTS

$365 MILLION
FEMA PUBLIC ASSISTANCE* TOTAL COST OVER $3.1B LOCAL SHARE 10%

$273 MILLION
FEMA HAZARD Mitigation Program* $3.3B REQUESTED FEDERAL SHARE CAPPED AT $620.6M
HURRICANE HARVEY

POLICY

TOTAL PROJECT COST

10% OF TOTAL PROJECT COST
NON-FEDERAL

90% OF TOTAL PROJECT COST
FEDERAL

7.5% OF TOTAL PROJECT COST
STATE

2.5% OF TOTAL PROJECT COST
LOCAL
OVERCOMING CHALLENGES

HURRICANE HARVEY

BILLIONS

Funding to Individuals
- NFIP
- SBA

Funding to COH (FEDERAL)
- HUD CDBG-MIT
- HUD CDBG-DR HOUSING
- FEMA PA*

Leveraging Existing Programs
- COUNTY BONDS**

Future Appropriations

Rainy Day $200 M

Other

*Estimated
**Funding for Harris County Flood Control District projects, many of which are located in the City of Houston or link to City projects.
HURRICANE HARVEY

LOOKING AHEAD

- Continued interdepartmental and interagency collaboration to advance Housing, HMGF, and PA programs.
- Expediting the release of funding assistance to individuals through the various Housing programs.
- Obtain approval for FEMA TIRZ 17 Underground Detention project and home mitigation applications.
- Finalizing FEMA PA reviews for all Houston Public Works project submittals.
- Moving forward with the recovery, repair, reconstruction, and mitigation of GSD facilities.
- Programming the use of future HUD CDBG-MIT funding.
- Monitoring policy, like the HELP Act, to ensure rules are conducive for more efficient future recoveries that minimize bureaucratic delays.
- Focusing on continuous improvement to expand our knowledge of disaster recovery.
- Coordinating with local agencies for implementation of SB500 and HB1824 for debris and sediment removal of the West Fork San Jacinto River and Lake Houston.
- Advancing the Donated Resources program.
- Building new partnerships with the private sector to bridge our funding gap for resilience and recovery projects.
- Implementing city-wide readiness initiatives, such as Alert Houston and Emergency Response Plan Actions.