



# Resiliency Reimagined

PROTECTING HOUSTON'S FUTURE, TODAY

**Briefing for the Greater Houston  
Local Emergency Planning Committee**

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TODAY'S AGENDA


Introduction of the Houston Community College Resiliency Team

HCC's Goals and Objectives for the Resiliency Center of Excellence: Overview

The Role of the Resiliency Operations Center and Training Facility

Next Steps: Adaptation and Adoption of the Resiliency Center of Excellence for and with the GHLEPC

- Current Workforce and Skills Gaps
- Alignment with Resilience and Facilities-Infrastructure Requirements
- Customization of Curricula and Content
- Eligibility and Access to Workforce Funds




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## AN UNCERTAIN HORIZON

Over the last several years, the Greater Houston community has faced incredible challenges.

2015 MEMORIAL DAY FLOOD      2016 TAX DAY FLOOD      2017 HURRICANE HARVEY      COVID-19 GLOBAL PANDEMIC      2021 WINTER STORM URI

  
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# Transforming Strength into Resiliency

AS WE LOOK TO THE FUTURE:

- How do we train the next generation of first responders?
- How do we prepare Houstonians for the next natural disaster?
- How do we fortify our economy and infrastructure against calamity?

**How do we transform Houston Strength into Houston Resiliency?**

  
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# A Bold Vision for Houston's Future

Houston Community College (HCC) envisions a more resilient Houston.

**The Proposal:** To create the first-in-the Nation "Resilience Center of Excellence" Operations Training Center to connect residents, employers, civic and community organizations, neighborhoods, and small businesses with appropriate levels of education and awareness to reduce loss of life and well-being, and increase economic stability through risk mitigation.

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# One College–One Community

Community resiliency is more than responding to major flood events – it includes disasters like fires, oil spills and leaks, pandemics, and freezes. This initiative is about skill mastery for ALL potential disaster scenarios.

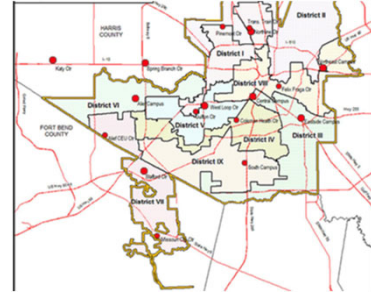
HCC Centers of Excellence are existing nexuses of education and training located across the greater Houston region. Each provides education around critical elements of resiliency:



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# A One Community Vision

Connect Our Campuses to the Resilience of Citizens, Neighborhoods, Businesses by Serving Urgent Pre-Disaster and Risk Mitigation Adjacent to Our Footprint ("**Resiliency Lily Pads**")\*



\* Overlay HCC Campuses and COEs with County Offices, Facilities, Libraries,

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## Initial Community, Industry, Public Sector Engagement: 2019-2021 Boot Camp and Roundtables Input

Skills & Talent Development

Entrepreneurship/  
Innovation Investment

Facilities & Infrastructure

Pre-Disaster & Persistent Risks-Challenges

Target Workforce, Engagement:

- At-Risk Populations- Unempowered Majority- Newly Unemployed - Veterans - Youth & Student

### Example Sector/Industry Oriented:

- Energy, Alt Energy
- Health, Wellbeing
- Design, Build, Construct
- Advanced Manufacturing
- Facilities, Infrastructure Operations

### Example Integrated Solution Oriented:

- Drone and Rapid Response
- Assessment, Communications
- Microgrid of Energy, Water
- Green and Sustainable Infrastructure

### Example Innovation, Unique Opportunity Oriented:

- Post Disaster Debris Scrap, Reuse
- Neighborhood Preparation Across Public and Private Sector Asset "Fortification"
- Insurance Driven Retrofits

### Resilience Focused: Disaster vs. Persistent Challenges and Scenario-Setting Training

- Industry- Corporate Senior Leaders | First Responders-Incident Managers | Community Leaders-Faith-Based Institutions-Citizens | Public Sector Agencies

Tactical, Simulated, In-Field Best Practices - Leverage Equipment/Tech Providers - Remote, Virtual, Artificial Intelligence Driven - Multiple Strategies for Deploying Information, Knowledge, Learning - Comprehensive HCC Approach to Physical AND Virtual Program Delivery

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## Addressing Harris County Goals for Resiliency and Sustainability, Equity and Inclusion

**Reformed environmental protection, monitoring, and enforcement.** The County has allocated over \$11 million to build a state-of-the-art air monitoring network, increased the size of the pollution control department by over 50%, and added resources for HazMat First Responders. The actions taken thus far represent the most significant enhancement of County environmental protections in at least 30 years.

**Taking steps to develop a climate action plan for Harris County.** County officials are studying nationwide best practices to use in developing our own County Climate Action Plan (CAP).

**Taking steps to transition to a green fleet.** County officials are working with Evolve Houston, a nonprofit focused on increasing vehicle electrification in Harris County, to conduct a fleet electrification analysis with the eventual goal of transitioning Harris County's fleet to electric vehicles.

**Requiring that all new County facilities follow LEED energy efficiency standards.** Harris County currently owns and maintains 9 LEED Certified Buildings, including LEED Platinum for the first government facility in the gulf coast region.

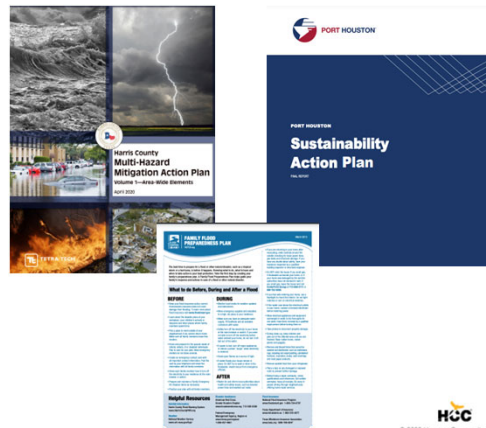
**Promoting sustainability in our infrastructure developments.** Harris County Engineering Department is a member of the Institute for Sustainable Infrastructure and employs more than 30 Envision Sustainability Professionals, a program that provides a holistic framework for evaluating and rating the community, environmental, and economic benefits of all types and sizes of infrastructure projects.



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## Alignment with Local Goals

- Skills and Workforce: Inclusive Sustainability and Resilience
- Entrepreneurship and Investment: Engage Innovation Hubs, Economic Opportunity and Equity, Economic Development Across All of Harris County
- Facilities, Infrastructure: Promote and expand sustainability, green infrastructure, alternative mitigation in Hazard Mitigation, Flood Control, and County Facilities



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## Harris County: Resilience Training

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## Lessons Learned: County and City Commonalities

**In Weather- and Pandemic-Centric Disasters, communities have identified and sought workforce prepared to maintain public services, while the private and philanthropic sectors continue to deliver complimentary resources and continuity of operations**

### Essential Critical Infrastructure Workers

**Characteristics of the “New Resilient Workforce”:**

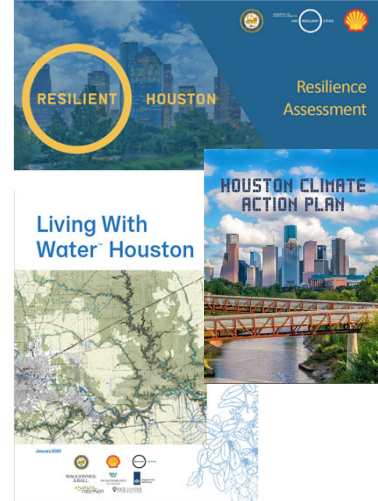
- Competencies not Sectors
- Skills not Degrees
- Active Not Passive Employees
- Access not Permission-Based Inclusion

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## Alignment with City of Houston Goals

- Skills and Workforce: Design, Develop, Build, Operate and Maintain Resilient Infrastructure, Facilities (Public and Private); **Engage 500K in Resilient-Disaster Preparedness**;
- Entrepreneurship and Investment: Increase flood mitigation and resilient infrastructure by \$50 Billion; **Design, develop, deploy alternative technologies-equipment-practices** for flood mitigation, resilience
- Facilities, Infrastructure: Promote and expand **green-, sustainable-, resilient residential and commercial development**; Leverage city assets as platforms for alternative, unique mitigation



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**U.S. Drought Texas**

**A Decade of Challenging Disasters, Incidents, Impacts**

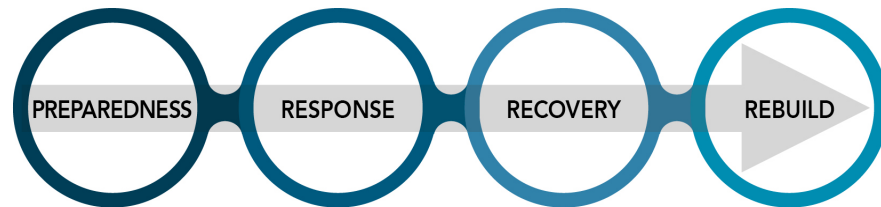
**5 Day Precipitation Amounts in**

- Harvey continued record breaking 45 to over 50 in continued rainfall
- Cedar Bayou
- Berry Bayou
- League City
- Mary's Creek
- Goose Creek
- Greens Bayou
- Buffalo Bayou
- Ad...

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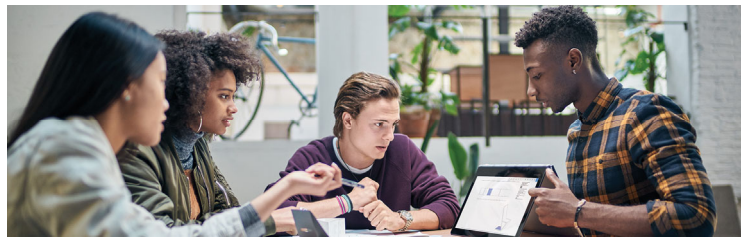
# Our Pathway to Resiliency



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## Our Mission Statement:

- ***“...Design and deliver 21<sup>st</sup> century skills, workforce, and talent development for 500,000 Houstonians; thereby creating a new generation of resilient, future risk mitigated fellow citizens, neighbors, and industries from loss of life, well-being and economic competitiveness...”***



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# HCC Resiliency Curricula Development Teams



## Opportunity Working Groups

Based on the Seven Initial Targets for Regional Resilience



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## Examples of Employment, Competencies for Resilient Workforce\*

- Skills Trades**  
(average starting wage= \$79,500)
- Rescue, Recovery Transportation Vehicle Upgrade, Maintenance
  - Plumber, Electrician, HVAC Installation, Retrofit
  - Debris Material Removal, Reuse
  - Building, Landscape, and Facilities Retrofit (including Sustainability, Energy)

- Internet of Things/Data Sciences**  
(average starting wage= \$90,000)
- AI, Predictive Analytics, GIS Mapping
  - Simulation, Visualization and Modeling
  - Sensors, Meters, Data Curation, Information Management
  - Real-Time Monitoring, Operational Systems, Situational Awareness from Drones

- Professions**  
(average starting wage= \$98,000)
- Medical Emergency Triage and Community Health
  - Coastal and Inland Restoration
  - 3D, Virtual Reality Content for Resilience-Focused Engineering, Architecture, and Technical Services
  - Disaster Case Management
  - Preparedness, Response Customer Engagement

\* Source: 2019 Regional Boot Camp, 2019-2020 Sub-Regional Focus Groups, REMI/Industry Analyses, Local Employment Demand

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Domain	Business/Employee Description	Launch Fall 2022	Option 2	Option 3	Option 4
<b>Public Safety + Rescue</b>	Focused on delivery of Traditional First Responders (Police, Fire, EMS) with Citizen and Corporate Responders). Critical Targets: Retirement Centers, Community & Neighborhood Centers, Large Corporate or Operating "Campuses"; Aligns the Transportation (e.g. Fleet Owners-Management - Rescue Vehicles, Drivers, Maintenance-Retrofit) for the Delivery of Rescue Personnel, Materials, Other Equipment. In advance of HRCO Completion - addresses use of HCC Campuses (Parking Lots, Open Areas, etc.), Infrastructure as potential "Resilience Lily Pads" in coordination with hyper-local community needs for preparedness and response.	Project Management for Resiliency	Business Continuity Specialists	Interprofessional and Transdisciplinary: Team Building and Communications	OSHA and other Required Compliance
<b>Medical Triage</b>	Focused on the Medical Personnel (Nursing, Pharmacy, Medical Technicians, Medical Records, and Community Health Workers) across public and private hospital, medical centers, private emergency delivery, pharmacies, and community-based health care).	Interprofessional and Transdisciplinary: Team Building and Communications	OSHA and other Required Compliance	Project Management for Resiliency	Business Continuity Specialists
<b>Facilities and Construction</b>	Focuses on Real-Estate Residential-Multifamily, Commercial, and Industrial Developers, Building Owners and Operators, Large-Scale Distribution Centers. Purposely Includes Engineering, Architect, and Design Companies AS WELL AS Installation Companies addressing operating systems (HVAC, Plumbing, Electrical). Includes Support Services and Assessment by Insurance and Reinsurance Carriers.	Business Continuity Specialist	OSHA and other Required Compliance	Project Management for Resiliency	Interprofessional and Transdisciplinary: Team Building and Communications
<b>Debris Removal and Reuse</b>	Focuses on Public Sector Designated Debris Management Contractors, Providers AS WELL AS Private Sector Companies Delivering Large-Scale Removal-Cleaning Services. Includes Mold and Material, Automotive and Large Appliance Removal and Reuse (Including Electronics).	OSHA and other Required Compliance	Interprofessional and Transdisciplinary: Team Building and Communications	Business Continuity Specialists	Project Management for Resiliency
<b>Drones and Internet of Things (IoT)</b>	Focuses on the coordination among FAA, State and Local Approved Operators (Pilots, Support), coupled with Sensors, Optical, Information and Data Gathering Technology Providers and/or Network Architects for Leveraging IoT platforms into the Public and Private Emergency Operations. Additionally engages with Education-Training of Scenarios, Remote Learning, and Autonomous Vehicle Communications. Supports Facilities and Infrastructure Assessment of Pre-Disaster Vulnerability and Event Loss Scenarios, AND Public Safety -Rescue Teams.	Project Management for Resiliency	Interprofessional and Transdisciplinary: Team Building and Communications	OSHA and other Required Compliance	Business Continuity Specialists
<b>Disaster Case Management</b>	Focuses on Pre-Disaster Preparedness and Response (Immediate), and then Recovery and Rebuild (Near-Term) Individuals and Teams Organized to Assist with Resource Allocation, Personal and Community Benefits, Health and Human Safety Integration, Financial Management (Banking, Other Services) Required for Reducing Long-Term Consequences from Disasters. Supports National and Regional Disaster Management Consulting Firms, Engineering and Project Management Firms, AS WELL AS Government and Community Disaster Programs (FEMA, SBA, EDA, etc.).	Interprofessional and Transdisciplinary: Team Building and Communications	Business Continuity Specialists	Project Management for Resiliency	OSHA and other Required Compliance



## Resiliency Operations Center (ROC)

At the core of the Resilience Center of Excellence is the Resiliency Operations Center (ROC). At this one-of-a-kind complex to be built on the HCC Northeast Campus, up to 3,000 to 4,000 citizens, corporate and small business managers, and first responders a year will safely train in controlled but authentic field and virtual simulations.

Our Vision for Public Safety and Rescue

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RESILIENCY OPERATIONS CENTER

RESILIENCY OPERATIONS CENTER

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The Corporate College@HCC

- Business entities as clients
- Closed enrollment
- Hired by contract
- At client's chosen site
- Client-focused training

What's The Difference?

HCC Continuing Education

- Individuals as customers
- Open enrollment
- Acceptance by application
- On campus
- Curriculum-focused education

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## Work-Based Learning & Industry Partnerships

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### Apprenticeship

Registered apprenticeship is on-the-job training and classroom instruction that prepares students for highly-skilled jobs in various industries.

### Industry Partners

Medium to Large  
Core Industries:

- Construction
- IT
- Education
- Healthcare
- Advanced Manufacturing
- Logistics
- Culinary
- Automotive

### Community Learning

Partnerships with both corporations and community organizations to provide:

- Community Training
- Summer Camps
- Digital Skills


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# Questions?



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## Follow-up Contacts

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