



# **CONSTRUCTION CODE MODERNIZATION PROJECT - HOUSTON'S 2021 CODE ADOPTION**

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**HOUSTON  
PUBLIC WORKS**

**PRESENTATION TO  
TRANSPORTATION, TECHNOLOGY AND  
INFRASTRUCTURE COMMITTEE**

**JULY 13, 2023**

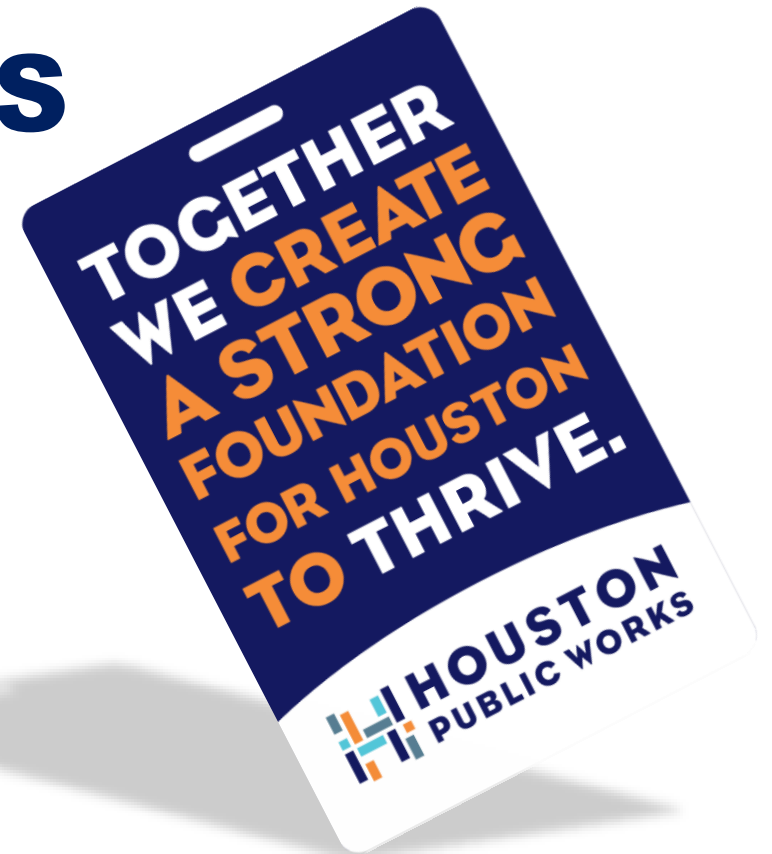


# HOUSTON PUBLIC WORKS

## PURPOSE

together we create a strong foundation  
for Houston to thrive

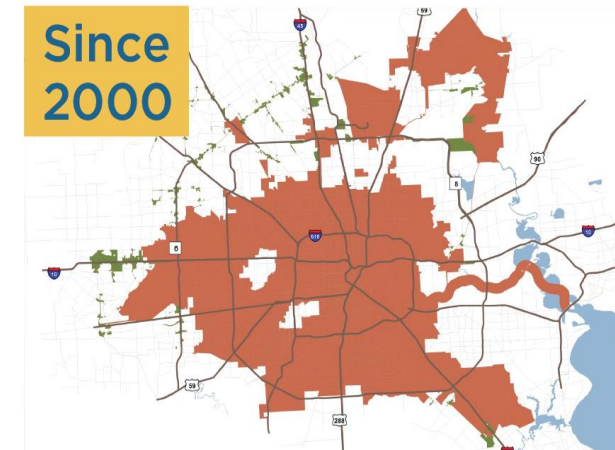
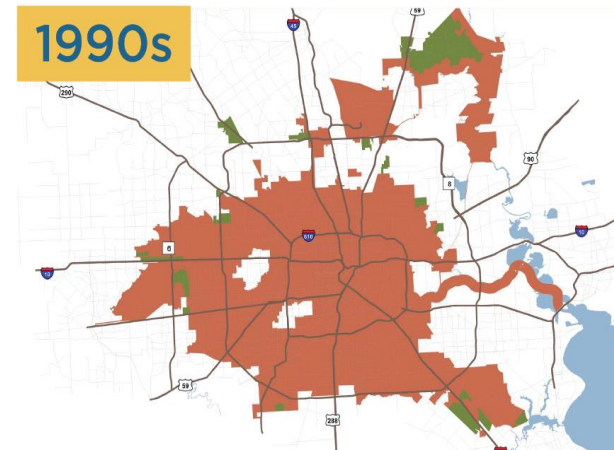
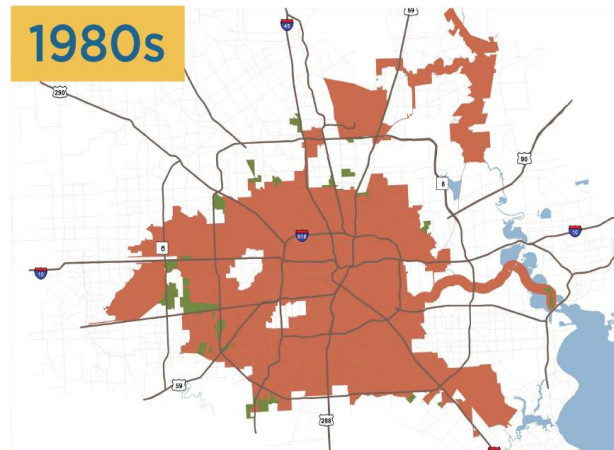
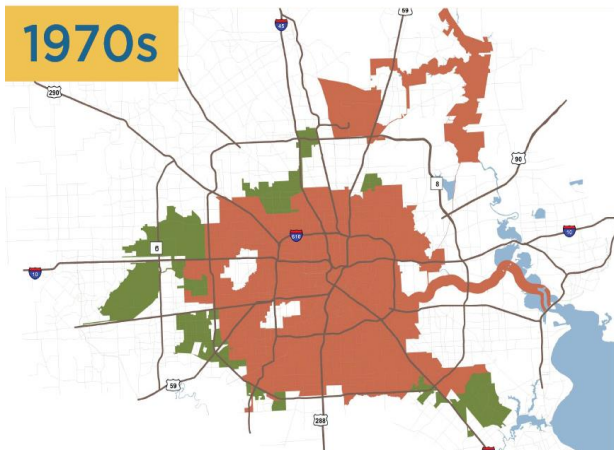
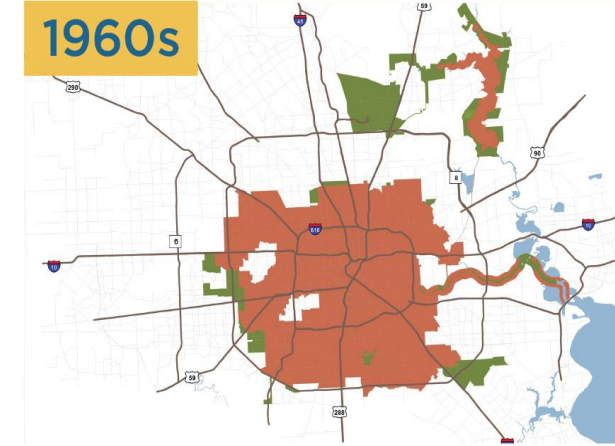
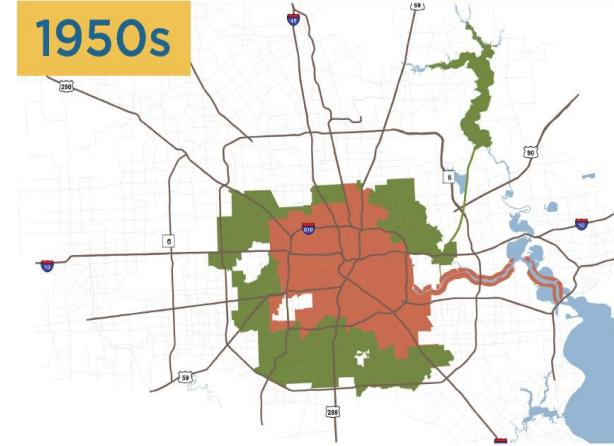
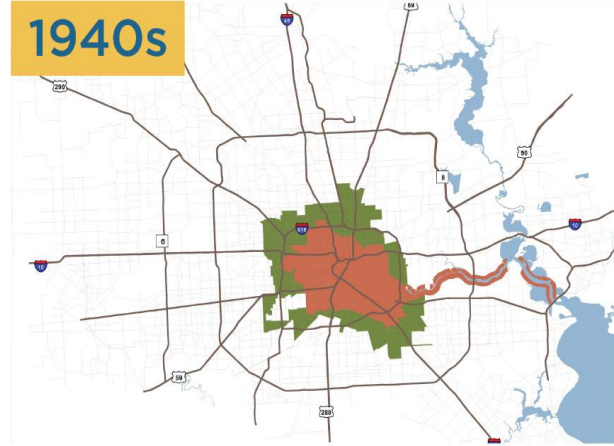
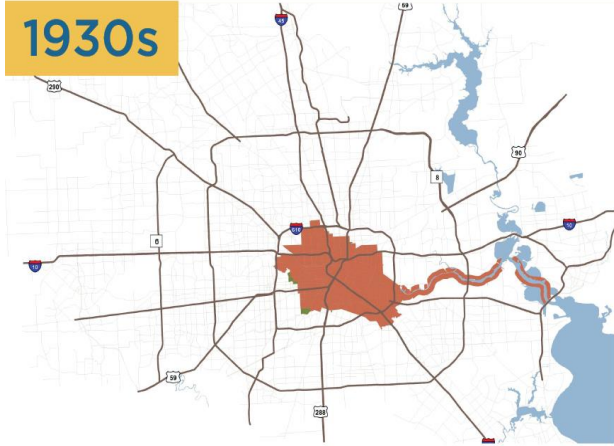
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## 5 TO THRIVE VALUES

respect | ownership | communication | integrity | teamwork

# HOUSTON LOOKING BACK AND LOOKING FORWARD

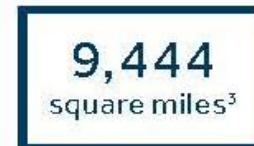
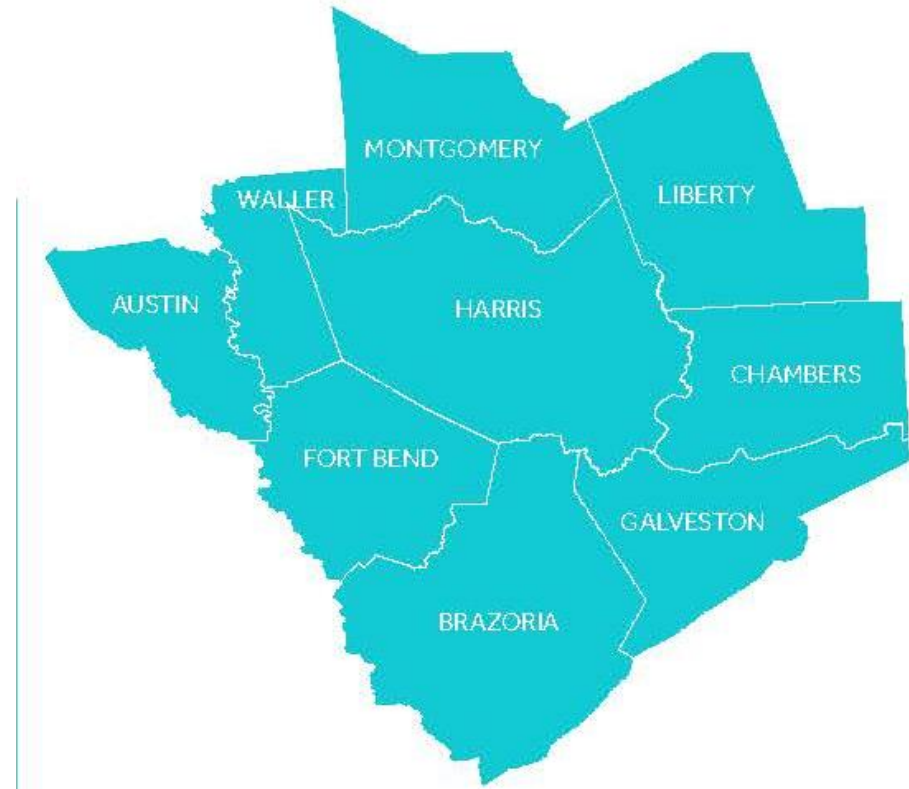


# THE REGION

The Houston-The Woodlands-Sugar Land Metropolitan Statistical Area (MSA) contains nine Texas counties:

Austin, Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery and Waller.

Within these nine counties are 124 incorporated cities and 33 Census Designated Places.



HOUSTON  
MSA



HARRIS  
COUNTY



CITY OF  
HOUSTON

# CLIMATE CHANGE AND BUILDING CODES



# IMPACT OF CLIMATE CHANGE

## Hurricane Harvey in 2017

In August 2017, here at home in Houston, we had 52 inches of rain in a 5-day period

- 31% of structures in 100- and 500-year floodplain
- 19% of structures outside the floodplain
- \$2.5 billion in damaged city facilities and infrastructure

## From Extreme Cold to Heat

- Winter Storm Uri in Feb. 2021
  - ERCOT was four and half minutes away from complete collapse
- Heatwave July 2022
  - Record setting July comes on the heels of our hottest June on record and second hottest May



# IMPORTANCE OF BUILDING CODES



**2017**

**2008  
(1970)**

**2001**

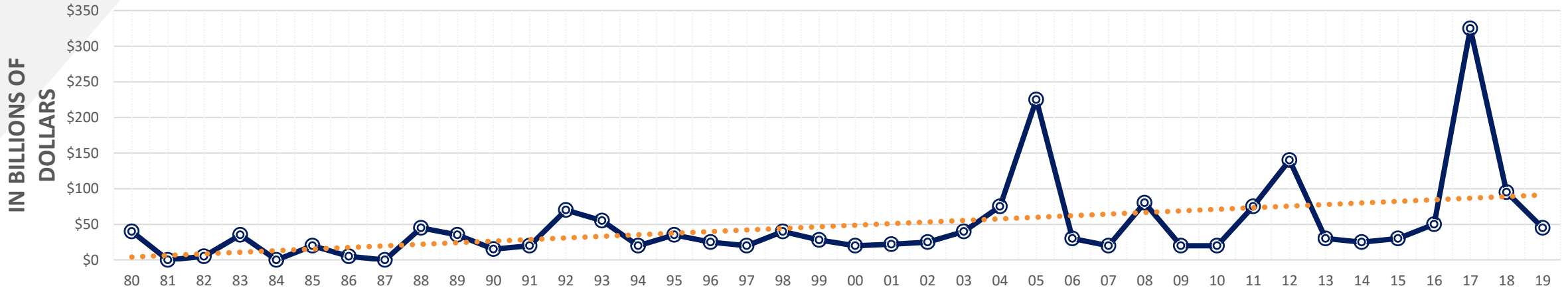
**1972**

**2000**



# CLIMATE CHANGE BY THE NUMBERS

## NATURAL DISASTERS NUMBER AND COST OF BILLION-DOLLAR IN UNITED STATES

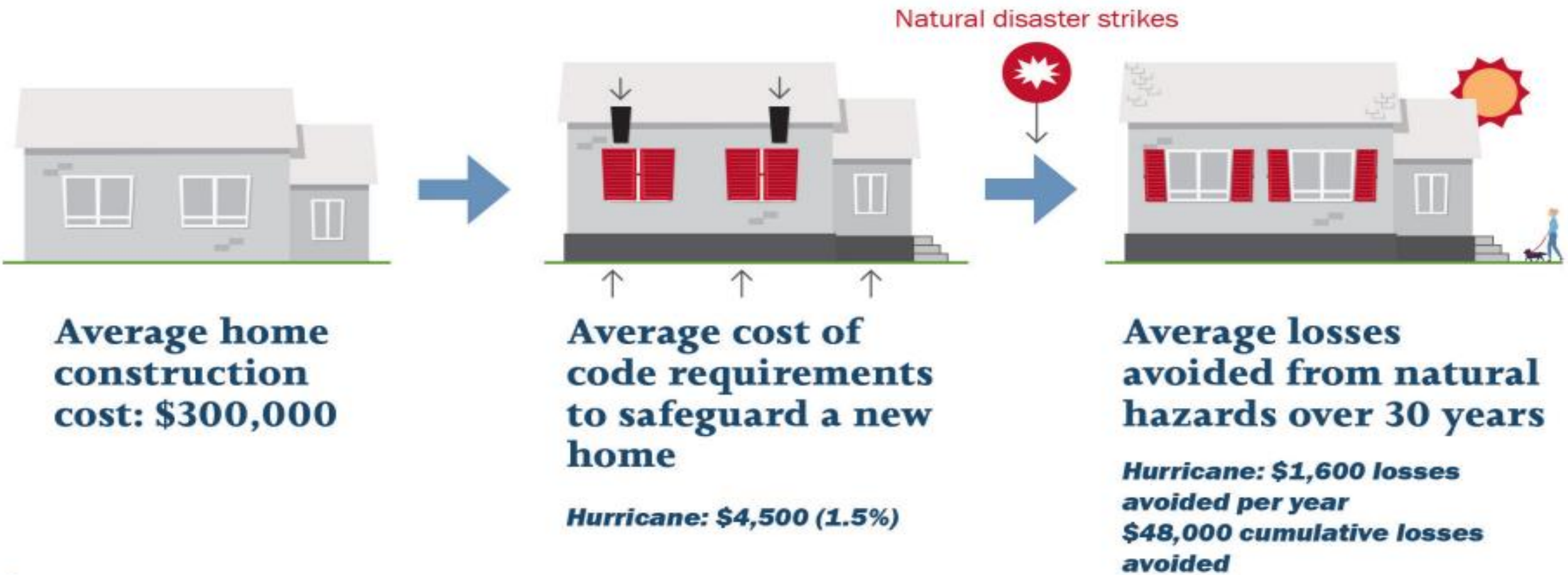


**EVERY \$1 SPENT ON MITIGATION IN NEW  
CODE CONSTRUCTION SAVES \$11 IN  
DISASTER REPAIR AND RECOVERY COSTS**



# BUILDING CODES SAVE

## Building Codes Generate Big Benefits at a Low Cost



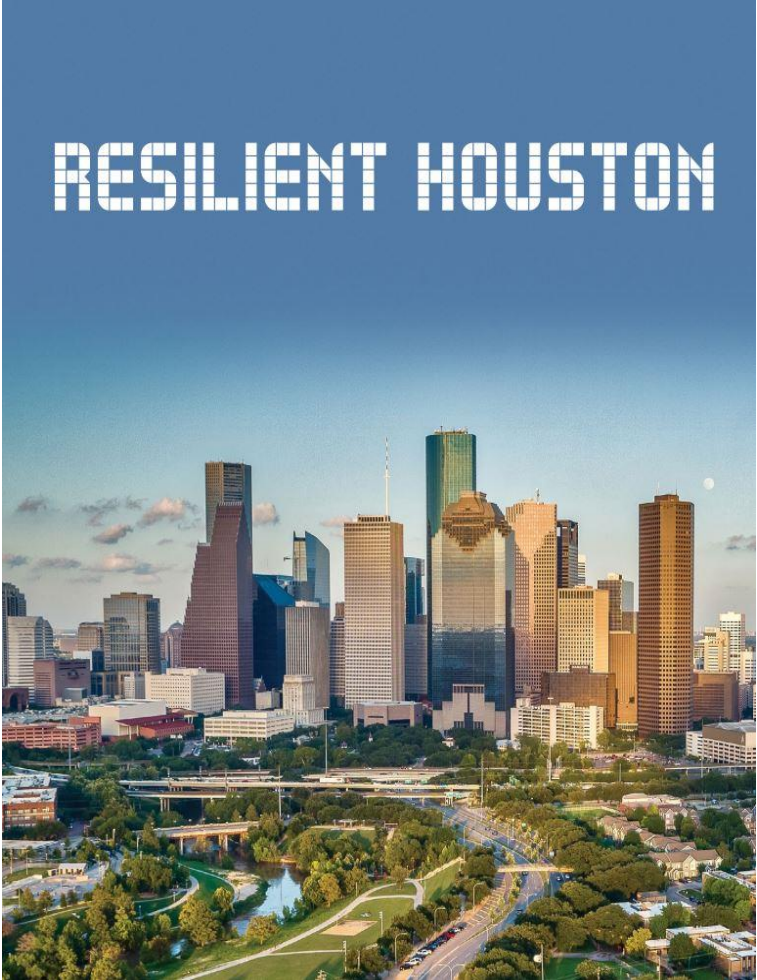
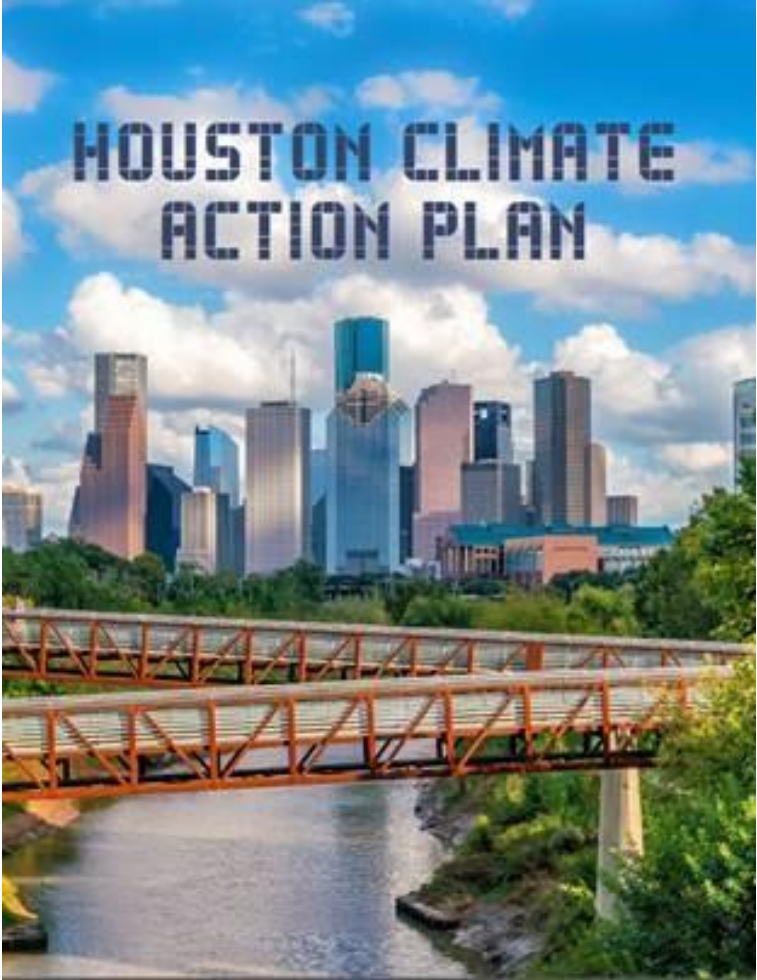
**Sources:**

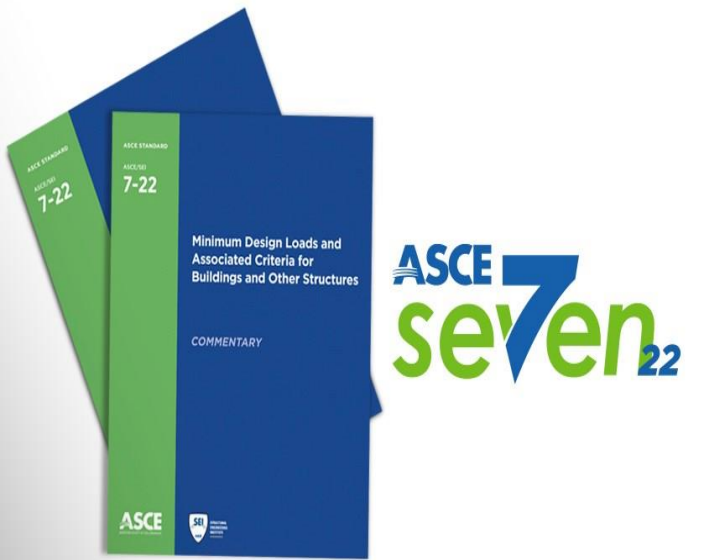
FEMA, "Building Codes Save: A Nationwide Study," 2020; (source of cost data).  
NIBS, "Natural Hazard Mitigation Saves: 2019 Report," 2019; (source of dollar spent on mitigation).

# **BUILDING CODES HOUSTON'S RESILIENT STRATEGY**



# CLIMATE CHANGE AND RESILIENT HOUSTON BUILDING CODES MAKE A STRONG FOUNDATION





# HOUSTON'S RESILIENT UPDATES

- ASCE 7-2022 Update
- Solar-Ready Appendix
- EV-Ready Appendix



# BUILDING ON AND CONNECTING EXISTING EFFORTS



# 2021 BUILDING CODE ADOPTION PROCESS



# HOUSTON CONSTRUCTION CODE ADOPTION HISTORY

1994 Adopted by Council:  
November 26, 1996  
Effective Date:  
January 25, 1997

1997 Adopted by Council:  
January 12, 2000  
Effective Date:  
March 12, 2000

2000 Adopted by Council:  
May 15, 2002  
Effective Date:  
July 15, 2002

2006 Adopted by Council:  
November 3, 2010  
Effective Date:  
December 31, 2010

2012 Adopted by Council:  
November 10, 2015  
Effective Date:  
January 1, 2016

2015 Adopted by Council:  
December 1, 2021  
Effective Date:  
April 1, 2022

# CONSTRUCTION CODE MODERNIZATION PROJECT STRUCTURE AND PROCESS





# CONSTRUCTION CODE MODERNIZATION PROJECT

## COMMUNITY STAKEHOLDERS

- Air Alliance for Houston
- American Fire Sprinkler Association (AFSA)
- American Fire Systems (AFS)
- American Institute of Architects (AIA)
- American Society of Civil Engineers (ASCE)
- American Society of Plumbing Engineers (ASPE)
- American Society of Sanitary Engineering (ASSE)
- ASHRAE
- Associated Builders & Contractors of Texas
- Associated General Contractors (AGC) - Houston
- Association of Chief Operating Engineers
- Audubon Houston
- Building Commissioning Association (BCxA)
- Building Officials Association of Texas (BOAT)
- Construction Industry Council-Houston Branch (HCIC)
- Construction Specifications Institute (CSI) Houston Chapter
- Greater Houston Builders Association (GHBA)
- Greater Houston Texas Restaurant Association (GHTRA)
- Greentown Labs
- Harris County Flood Control District
- Historic Buildings
- Historic Houston
- Hotel & Lodging Association of Greater Houston (H&LAGH)
- Houston Apartment Association (HAA)
- Houston Archeological and Historical Commission and AIA Historic Resource Committee
- Houston Building Owners & Managers Association (BOMA)
- Houston Business Roundtable (HBR)
- Houston Contractors Association (HCC)
- Houston Galveston Area Council (HGAC)
- Houston Gulf Coast Building & Construction Trades Association (HGCBCTA)
- Houston Habitat
- Houston Housing Collaborative (HHC)
- Independent Electrical Contractor (IEC)
- Institute of Real Estate Management (IREM)
- International Association of Plumbing & Mechanical Officials (IAPMO)
- International Code Council (ICC)
- Mechanical Contractors Association of Houston (MCAA)
- NAIOP, the Commercial Real Estate Development Association
- National Association of Manufacturers (NAM)
- National Electrical Contractors Association (NECA)
- National Fire Sprinkler Association (NFSA)
- National Systems Contractors Association (NSCA)
- New Hope Housing
- Sierra Club
- Society of Fire Protection Engineers (SFPE)
- South Central Partnership for Energy Efficiency as a Resource (SPEER)
- Super Neighborhood Representatives
- Texas Community Watershed Partners
- Texas Institute of Building Design (TIBD)
- Texas Society of Architects
- Texas Water Quality Association (TWQA)
- University of Houston (UH)
- Urban Land Institute (ULI)
- US Green Building Council (USGBC) of Houston (USGBC)
- Water Quality Association (WQA)

# CONSTRUCTION CODE MODERNIZATION PROJECT STRUCTURE AND PROCESS

**TFG-1  
Commercial**

12 Community Participants

28 City Staff

23 Meetings = 1,179 Hours

**TFG-2  
Residential**

7 Community Participants

26 City Staff

18 Meetings = 765 Hours

**TFG-3  
Energy Conservation**

6 Community Participants

13 City Staff

13 Meetings = 325 Hours

**TFG-4  
Mechanical, Electrical, and Plumbing**

17 Community Participants

20 City Staff

11 Meetings = 523 Hours

# PUBLIC COMMENT OPPORTUNITIES

## TFG-1 Commercial

108 Days

Published 3  
times

58 Proposals

## TFG-2 Residential

93 Days

Published 2  
times

33 Proposals

## TFG-3 Energy Conservation

70 Days

Published 2  
times

52 Proposals

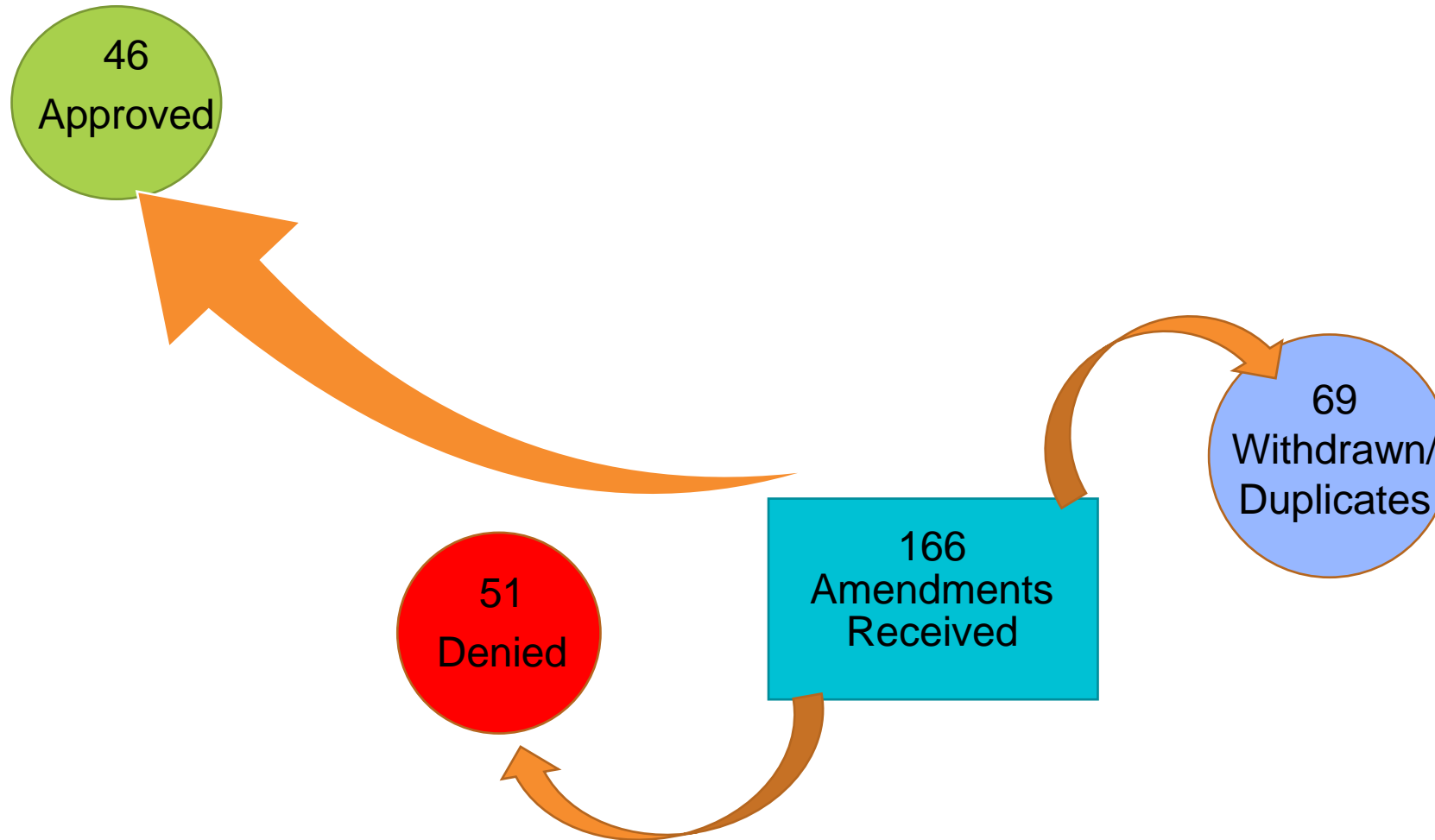
## TFG-4 Mechanical, Electrical, and Plumbing

67 Days

Published 2  
times

23 Proposals

# AMENDMENTS PROCESSED TO DATE\*



\*As of 06.30.23

# WHAT TO EXPECT – 2021 SIGNIFICANT CODE CHANGES - HOUSTON

## ASCE 7-2022 Standard Update



1

Updates to rain, wind and tornado loads for more resilient construction

2

Improves roof underlayment in high wind regions and water infiltration in hurricane prone regions

3

Expands the Risk Categories for certain Institutional occupancies and other high-risk occupancies

# WHAT TO EXPECT – 2021 SIGNIFICANT CODE CHANGES - HOUSTON

## Break Tanks for Fire Pumps



1

Previous code required break tanks for any installation of a fire pump

2

Eliminates the mandatory requirement for a break tank with a fire pump installation

3

Perform hydraulic calculations to determine if city water supply will fall below 20 psi prior to needing a break tank

# WHAT TO EXPECT – 2021 SIGNIFICANT CODE CHANGES - HOUSTON

## Water Dispensers (Drinking Fountains)



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1

Confusion on the requirements for installation of drinking fountains

2

Prior to 2015 drinking fountains could be eliminated

3

New amendment will allow substitution of 50% of drinking fountains with other water dispensing methods

# CONSTRUCTION CODE MODERNIZATION

## CONTACT US



For general information, email us at:

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For updates on the CCM project:

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# THANK YOU!



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