



PIONEERED BY THE
ROCKEFELLER FOUNDATION



RESILIENT HOUSTON

Climate Action Plan
Working Group Members
Update

June 17, 2019

RESILIENT LOS ANGELES



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City of Houston

RESILIENT HOUSTON STRATEGY PROCESS

In August 2018, Houston became a member of 100 Resilient Cities.



RESILIENT HOUSTON
STRATEGY PROCESS

On the 1-year anniversary
of Hurricane Harvey.

100RC Global Network



Global Network by the Numbers

Globally

6

continents

47

countries

21

languages

40,000 - 21,000,000

population range

84

Chief Resilience Officers

\$3.3 billion+

raised to implement resilience projects

56

Resilience Strategies

U.S. & Canada

17

Resilience Strategies

801

concrete, actionable initiatives

1061

community groups engaged

\$450 million+

catalyzed in non-city investment



A city's ability to maintain essential functions is threatened by both **acute shocks** and **chronic stresses**.



Source: SC National Guard

Sudden shocks or accumulating stresses can lead to social breakdown, physical collapse, or economic decline.

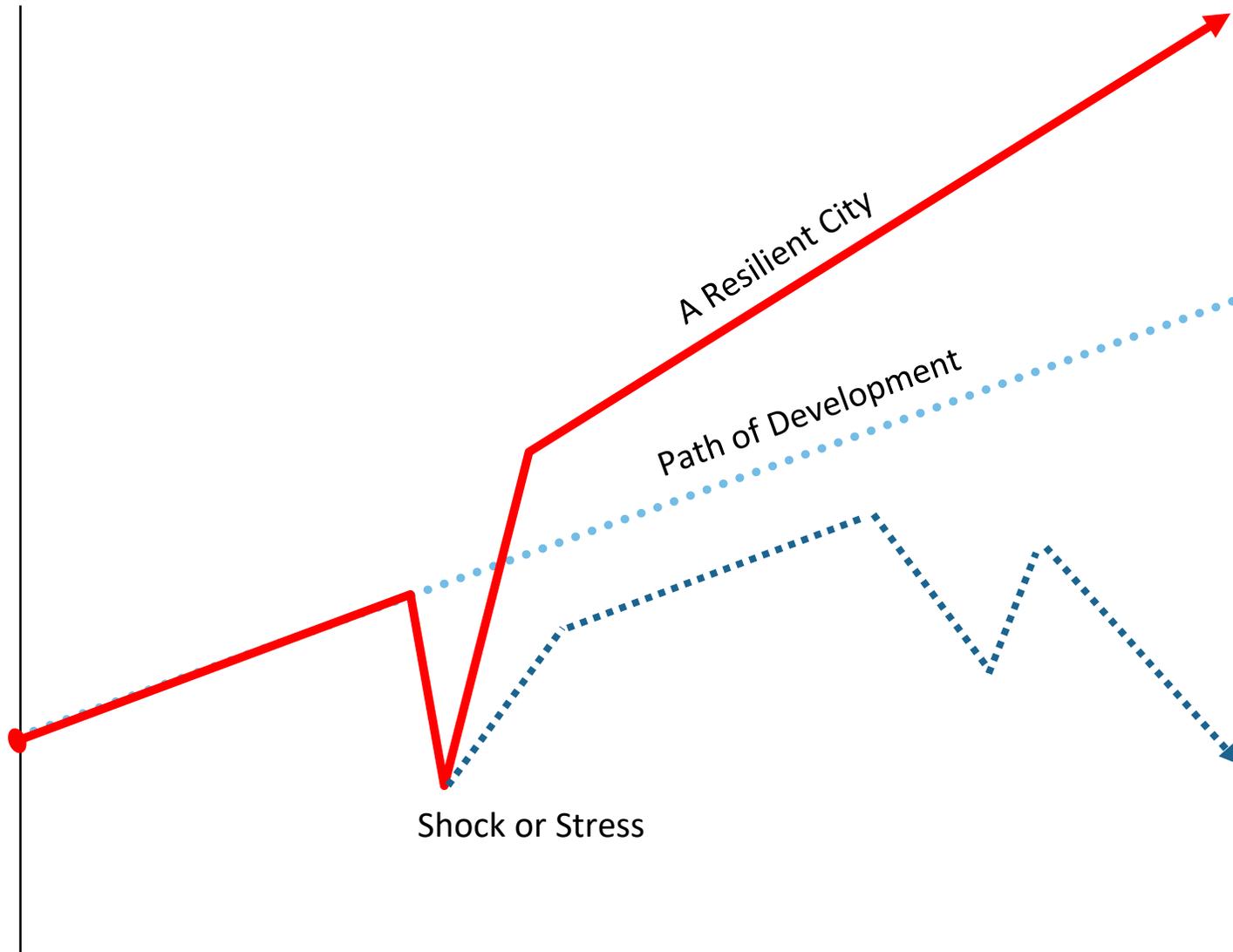
What are acute **shocks**?

- Cyber attack
- Disease outbreak
- Earthquake
- Extreme temperatures
- Fire
- Hazardous materials accident
- Hurricane
- Infrastructure or building failure
- Insect-borne disease
- Rainfall flooding
- Riot/civil unrest
- Snow/winter storms
- Terrorism
- Tornadoes/wind storms
- Water quality

What are chronic **stresses**?

- Aging infrastructure
- Crime & violence
- Changing demographics
- Climate Change
- Drought/water shortages
- Food shortages
- Economic diversity and vibrancy
- Education quality and access
- Energy affordability/continuity
- Environmental degradation
- Healthcare
- High unemployment
- Homelessness
- Inclusiveness
- Land use & availability

Shocks and stresses can bring opportunities for cities to evolve, and in some circumstances, transform.



URBAN RESILIENCE

Is the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt, and thrive no matter what kinds of **chronic stresses** and **acute shocks** they experience.

100 RESILIENT CITIES STRATEGY PROCESS

The **Strategy** is a tactical roadmap to build resilience that articulates the city’s resilience priorities and specific initiatives for short-, medium-, and long-term implementation.



Phase 1 Pre-Workshop Survey

What do you see as Houston's most important existing efforts to strengthen and build the resilience of the city?



Phase 1 Stakeholder Engagement Workshops



Agenda Setting Workshop

November 8, 2018

Buffalo Bayou Partnership

Living With Water Convening

November 8-9, 2018

University of Houston



Resilience Assessment



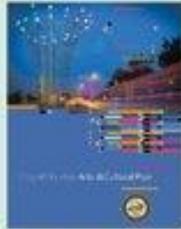
RESILIENT HOUSTON
STRATEGY PROCESS

The slide features a background image of a city skyline at dusk with a park in the foreground. A large yellow circle on the left contains the text "RESILIENT HOUSTON". In the top right corner, there are logos for the City of Houston, the 100 Resilient Cities initiative (pioneered by the Rockefeller Foundation), and the Shell logo. The main title "Resilience Assessment" is written in large yellow letters on the right side. Below the title, the date "May 17, 2019" is displayed. At the bottom, a yellow banner contains the URL: <https://www.houstontx.gov/mayor/Resilient-Houston-Resilience-Assessment-2019may.pdf>

Building on Existing Efforts



My Brother's Keeper
(2015-)



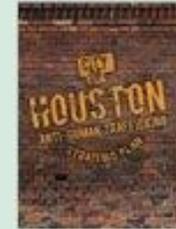
Arts & Cultural Plan
(2015)



Houston Bike Plan
(2014-2017)



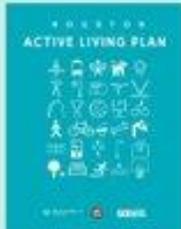
Houston Technology and
Innovation Task Force
Report (2017)



Anti-Human
Trafficking Strategic
Plan (2017)



Health Disparities and
Health Inequity Report
(2019)



Active Living Plan
(2017)



Rising Together: A
Roadmap to Confront
Inequality (2017)



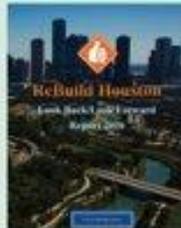
Welcoming Houston
(2017)



Complete
Communities
(2018-)



Plan Houston (2015)



ReBuild Houston
(2011-)



Aging Agenda
(2016)

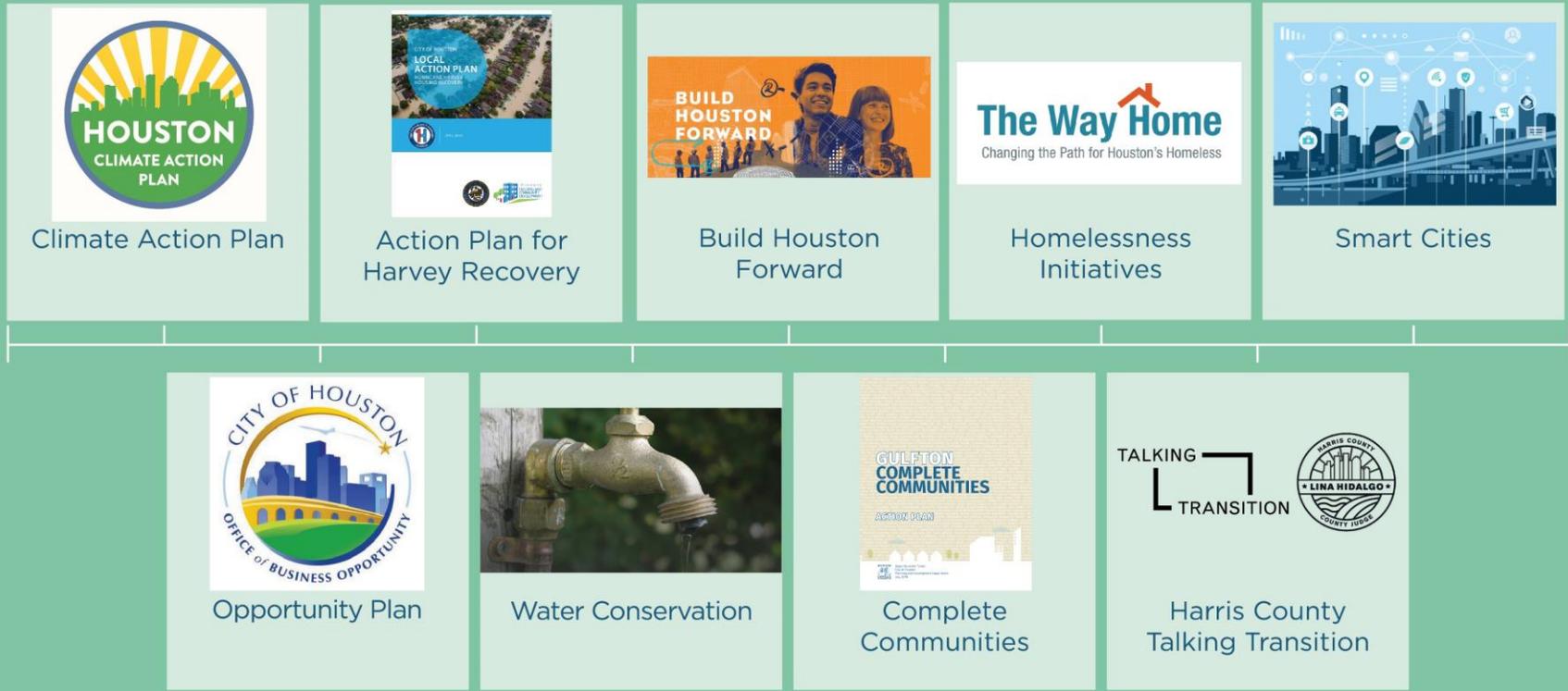


State of Housing
Affordability and
Vulnerability (2018-)

BUILDING ON EXISTING PARTNER EFFORTS

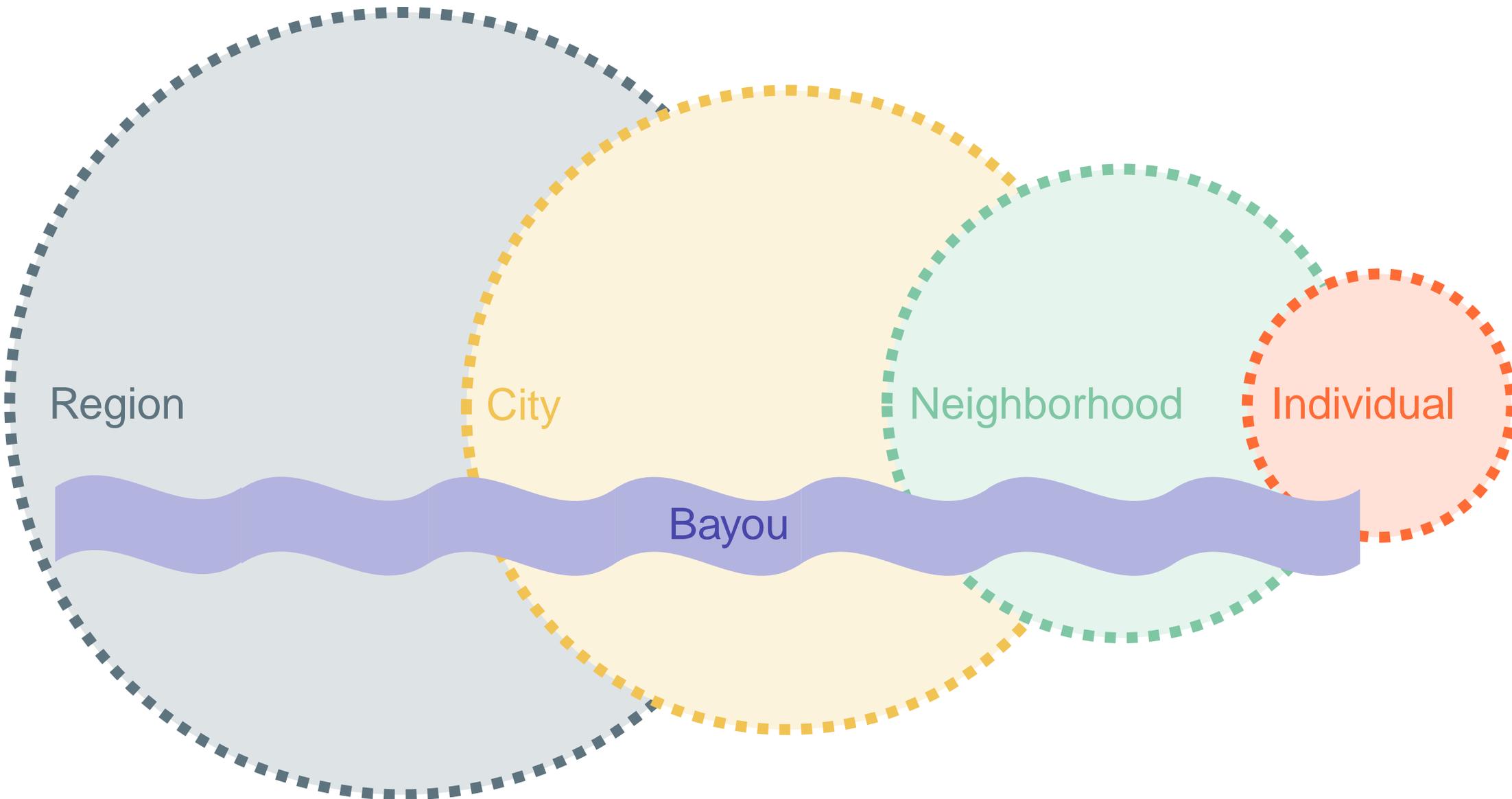


ALIGNING WITH CONCURRENT EFFORTS



Please contact Chief Resilience Officer Marissa Aho at marissa.aho@houstontx.gov to share additional concurrent efforts.

Framing resilience at multiple scales



Priority Shocks and Stresses for Houston

Equity + Inclusion

- Poor education quality or access
- Poverty/ inequity
- Lack of health care access
- Lack of equal economic opportunity for all
- Linguistic Isolation
- Environmental injustice

Infrastructure + Economy

- Cyber attack
- Infrastructure failure
- Aging infrastructure
- Overreliance on one industry
- Lack of economic diversity
- Slow recovery from Harvey
- Population growth
- Energy transition
- Oil & gas downturn

Health + Safety

- High winds/tornados
- Hazardous materials incidents
- Extreme cold
- Terrorism
- Health emergency
- Poor air quality
- Crime and violence
- Environmental degradation
- Mental/behavioral health

Housing + Mobility

- Poor transportation network quality
- Lack of affordable housing
- Land use and urban sprawl
- Homelessness
- Lack of pedestrian safety and accessibility
- Displacement

Water + Climate

- Flooding
- Hurricanes
- Coastal storms
- Drought
- Extreme heat
- Wildland fire
- Hail & Lightning
- Climate change
- Sea level rise / storm surge
- Subsidence

Discovery Areas for Phase 2

Achieving Equity and Inclusion

How do we overcome disparities and ensure that all Houstonians can succeed?

Building Forward

How do we build back better after disaster – and build new – in ways that will stand up to shocks and stresses?

Improving Health and Safety

How can all Houstonians have the access, information, and opportunity to live safe and healthy lives?

Integrating Housing and Mobility

How can we ensure that development, land use, and transportation patterns serve our needs?

Living With and Without Water

How can we adapt our urban environment to respond to climate change?

Actions Template

1 GREEN STORMWATER INFRASTRUCTURE INCENTIVES

Establish incentives program to stimulate private sector investment in green stormwater infrastructure (GSI) to increase the number of projects that capture water for reuse, improve water quality, and reduce flooding risk.

Through the support of the Houston Endowment, the City of Houston is in the process of completing a one-year study that provides recommendations to encourage the use of GSI in the private sector. Greater implementation of GSI in private land development projects will allow project sponsors, the City, and the

area around these projects to realize economic, social, and environmental benefits, as well as enhanced resilience. Green infrastructure strategies will vary between simpler solutions, such as swales and parkway basins, and larger projects, such as underground infiltration galleries under key streets and alleys, where

the water supply benefits are greatest.

Shocks/Stresses

- Urban Heat
- Hurricane
- Air Quality
- Severe Storms

Timeframe



Short Term

Partners

HAA / ACEC / HREC / Houston Public Works / Planning / Greater Houston Builders Association / Houston Parks Board / Mayor's Office / ULI – Houston / Private-sector partners

Funding Tools

Tax Abatement / Grant Funding

Implementation

- Partnerships
- Smart Cities
- Metrics
- Communication & Awareness

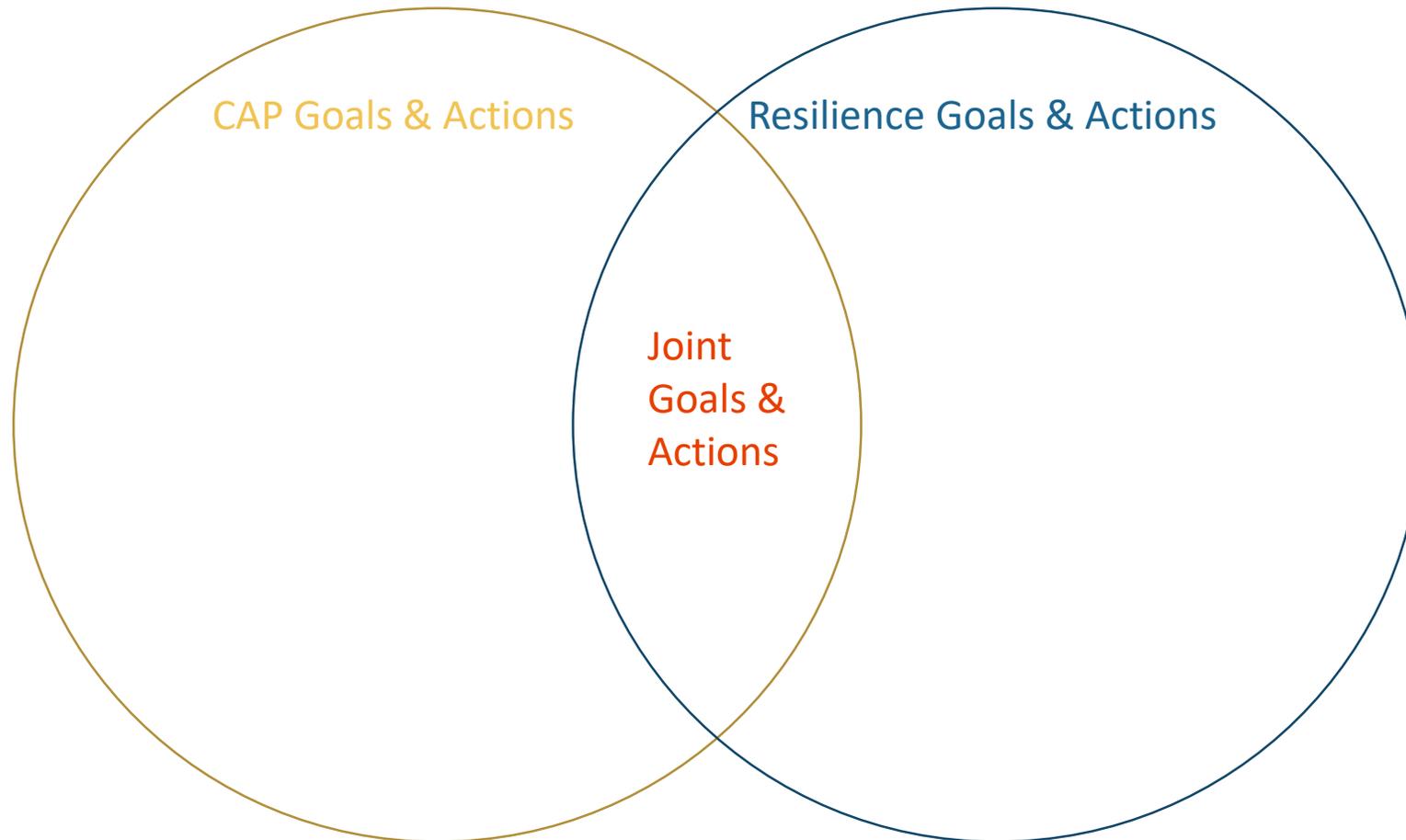
How to craft an effective action:

1. Think across agency and industry silos
2. Address multiple shocks and stresses at the same time by maximizing co-benefits
3. Consider impacts at multiple scales
4. Strive for equitable outcomes
5. Identify performance indicators and funding streams
6. Account for implementation challenges

Designing for co-benefits – Resilient New Orleans Example



Leveraging and Connecting CAP and Resilience Actions

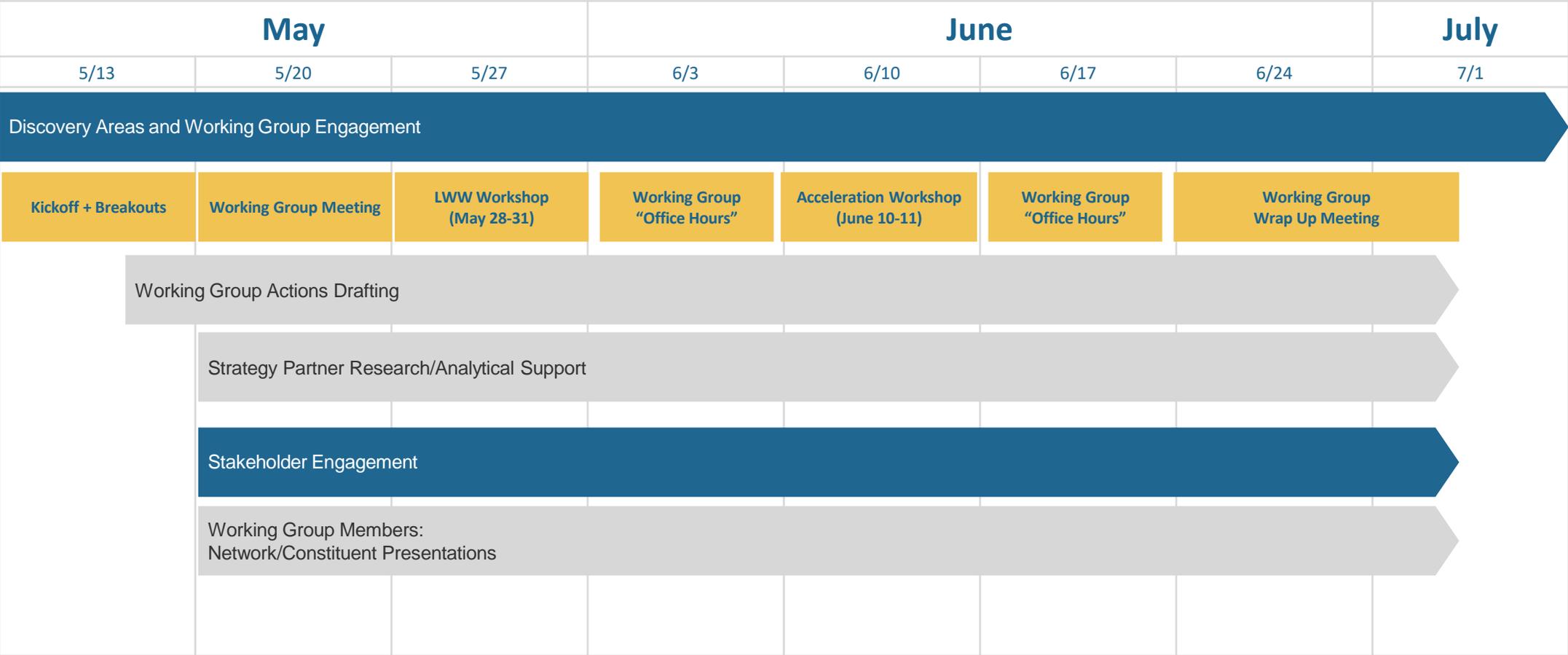


Leveraging and Connecting CAP and Resilience Actions

DRAFT

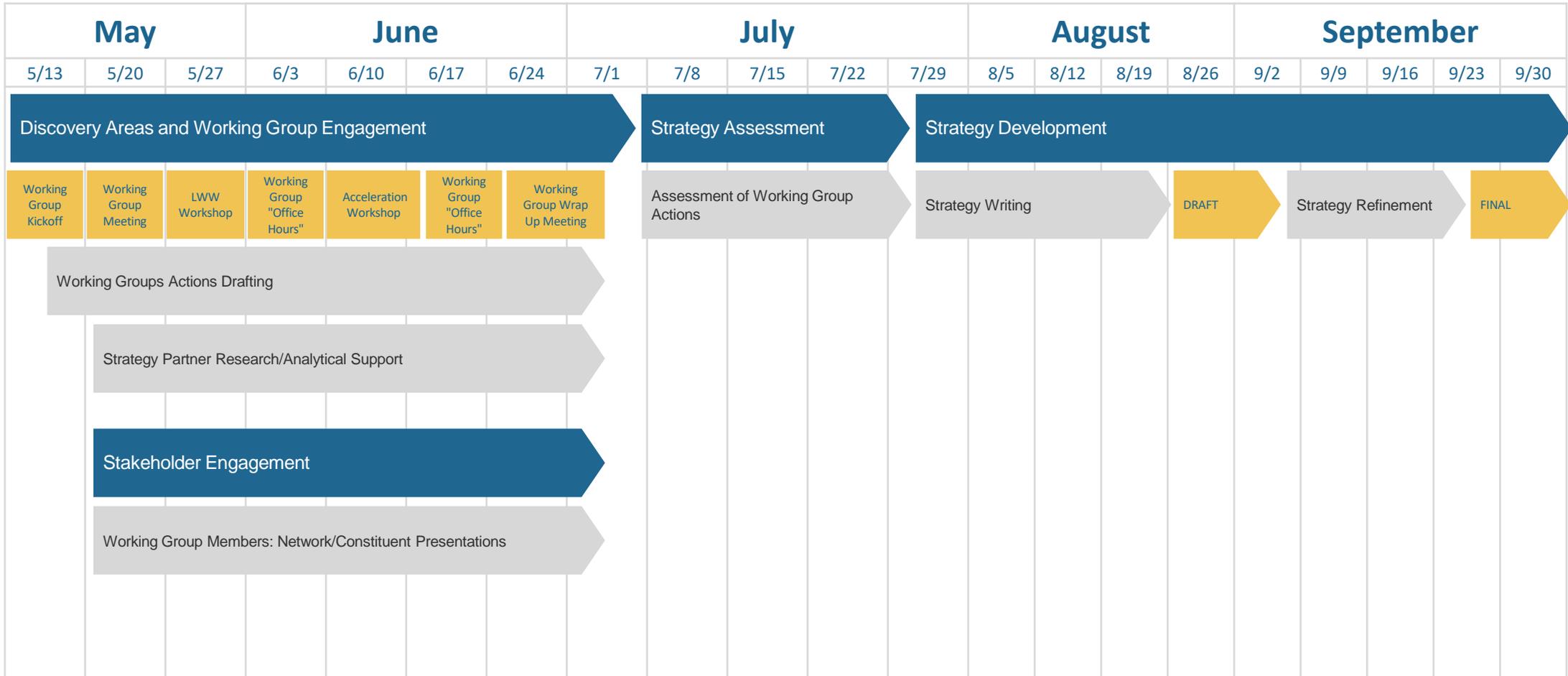
1. Waste/Materials Management
 - Waste reduction and landfill diversion
 - Promote building materials and designs more resistant to flooding
2. Energy Transition
 - EVs and renewables
 - Renewable energy generated within the City limits
 - Enhance community resilience through solar, storage, microgrids, etc.
 - Carbon Capture as economic development/workforce opportunity
3. Multi-modal transportation system
 - Equity in mobility
 - Reduce VMT/Increase development that supports walkable/bikeable neighborhoods served by transit
4. Buildings
 - Energy performance and efficiency
 - Workforce development

Project Timeline



Phase Task Milestone Notes

Project Timeline



Phase Task Milestone Notes