



# A GREEN SHIELD

Using Nature to Rebuild a More Resilient Houston for People and Wildlife

*Jaime González, Houston Urban Conservation Programs Manager*





















Photo: Hana Abuelaish





Photo: Hana Abuelaish









Crystal Inn

VALERO  
\$2.19  
\$2.25  
\$2.99

HOWELL LAKES  
From the \$779k

HOWELL LAKES  
From the \$779k

HOWELL LAKES  
From the \$779k  
CALL TODAY

SPEED LIMIT  
35

HOUSES  
741-52



An aerial, high-angle photograph of a densely packed urban area, likely a slum or informal settlement. The buildings are multi-story and closely packed, with many balconies and windows. A large commercial airplane is flying overhead in the sky, providing a sense of scale. Three large, semi-transparent red circles are overlaid on the image, each containing a statistic. The overall scene is one of intense urban density and rapid growth.

**70%**

of the global population will  
be living in cities by 2050

**80%**

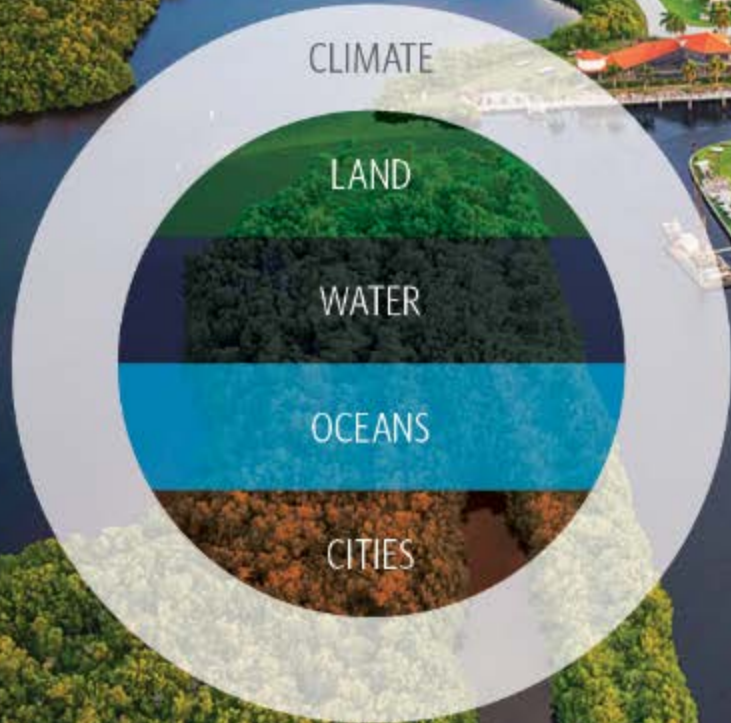
of the world's resources will  
be used by global cities

**\$5 Trillion**

will be needed annually until  
2030 to invest in the creation  
of infrastructure that supports  
9 billion people



# PROTECTING OUR FUTURE



Conserving nature and the value it provides while responding to the rapidly growing demand for food, water and energy.



# OUR AMBITIONS

Improving water quality and mitigating flooding



Alleviating poor air quality and heat islands



Protecting coastal communities



Safeguarding biodiversity

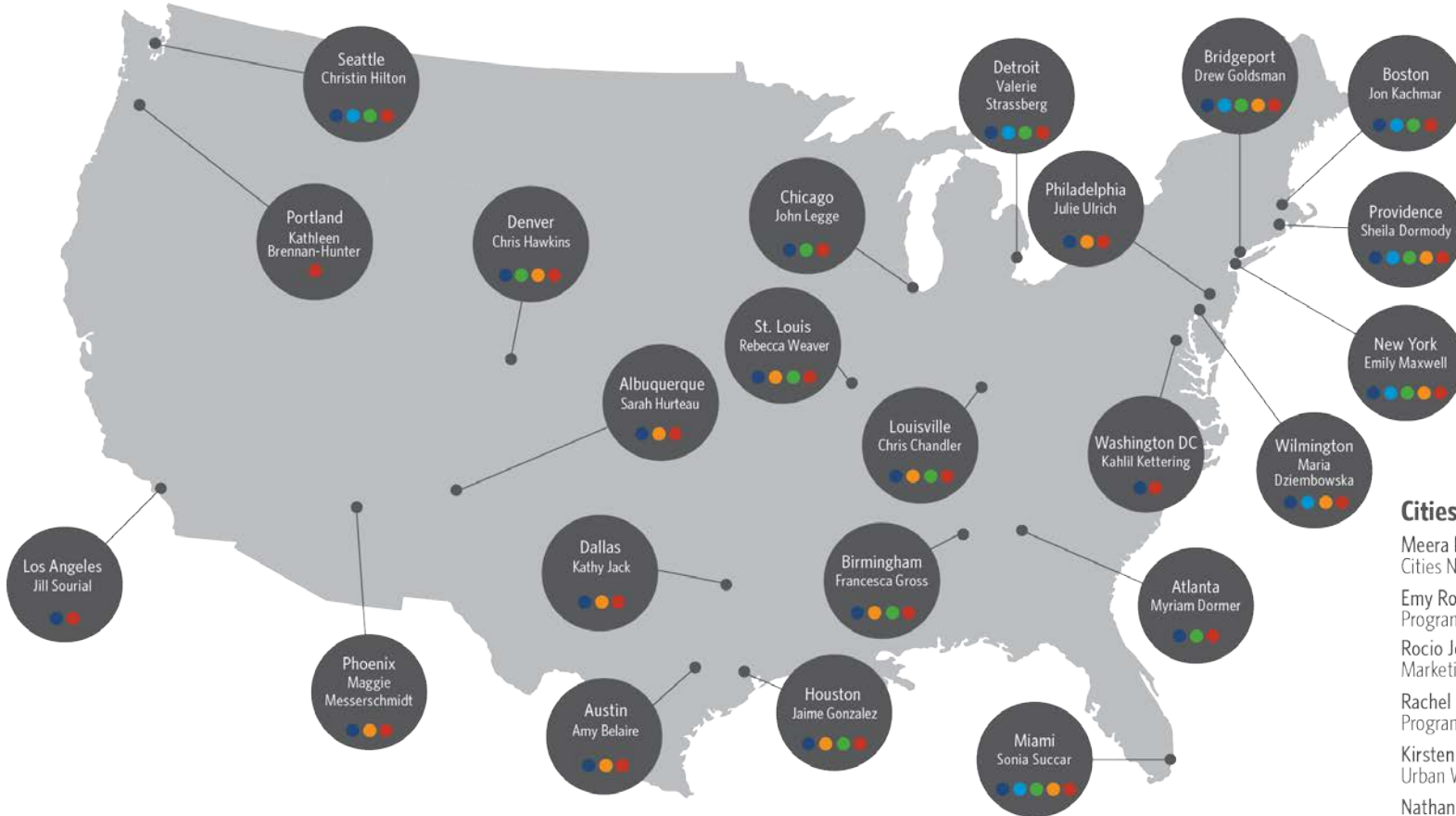


Connecting people and nature





# CITIES NETWORK: A COLLABORATIVE APPROACH

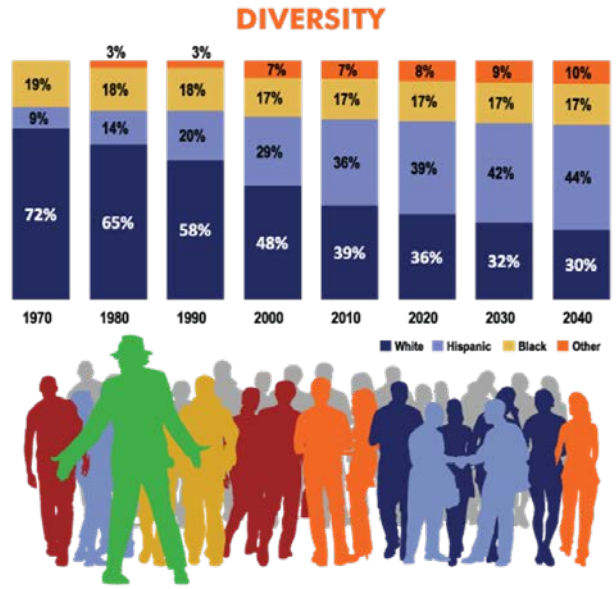
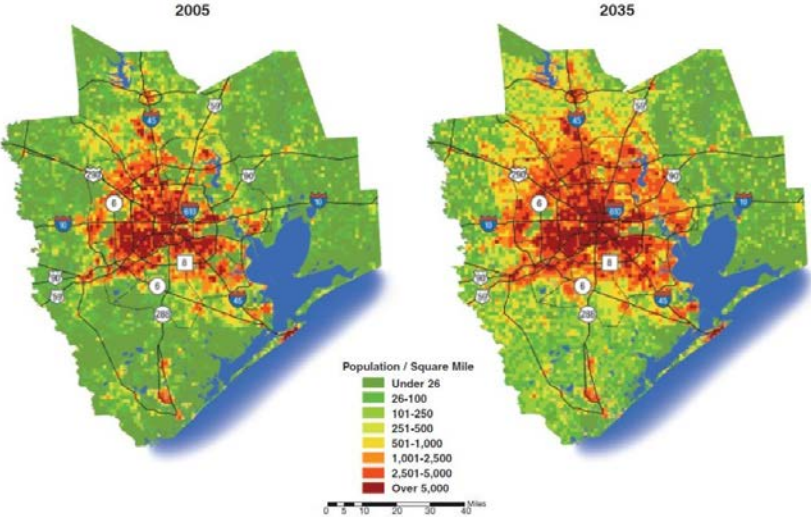


## Cities Network Staff

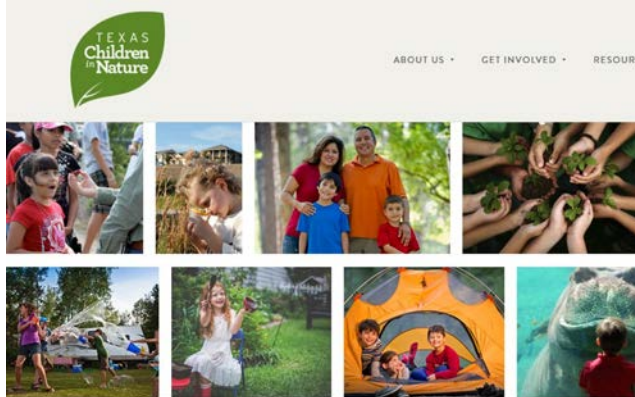
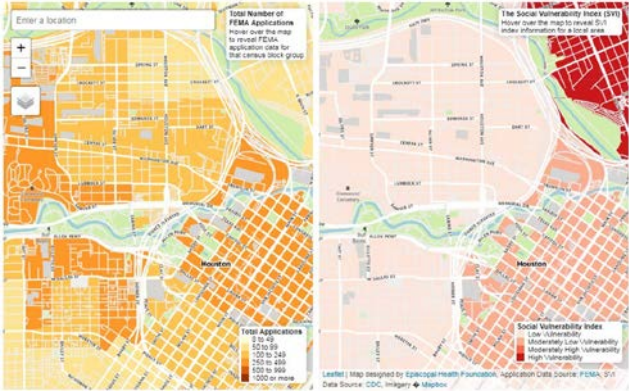
- Meera Bhat  
Cities Network Director
- Emily Rodriguez  
Program Manager
- Rocio Johnson  
Marketing Manager
- Rachel Mulbry  
Program Specialist
- Kirsten Evans  
Urban Water Project Director
- Nathan Woiwode  
Risk Reduction Project Manager
- Rachel Holmes  
Conservation Education Specialist



# OUR SHIFTING & EXPANDING POPULATION



FEMA Application and Social Vulnerability Map

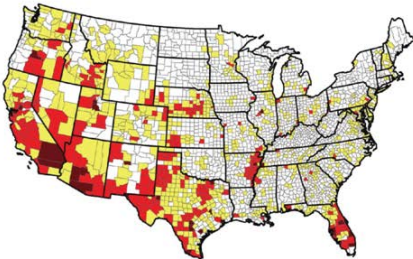




# OUR CHANGING WATER

## Water Supplies Projected to Decline

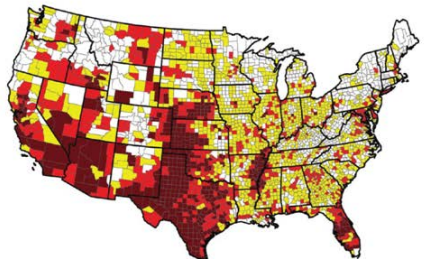
No Climate Change Effects



Water Supply Sustainability Risk Index (2050)

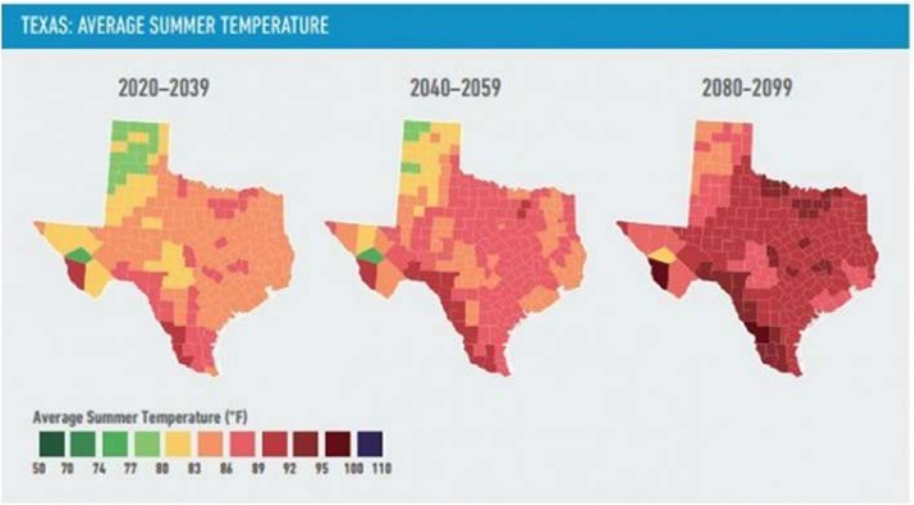
- Extreme (29)
- High (271)
- Moderate (821)
- Low (2020)

Climate Change Effects



Water Supply Sustainability Risk Index (2050)

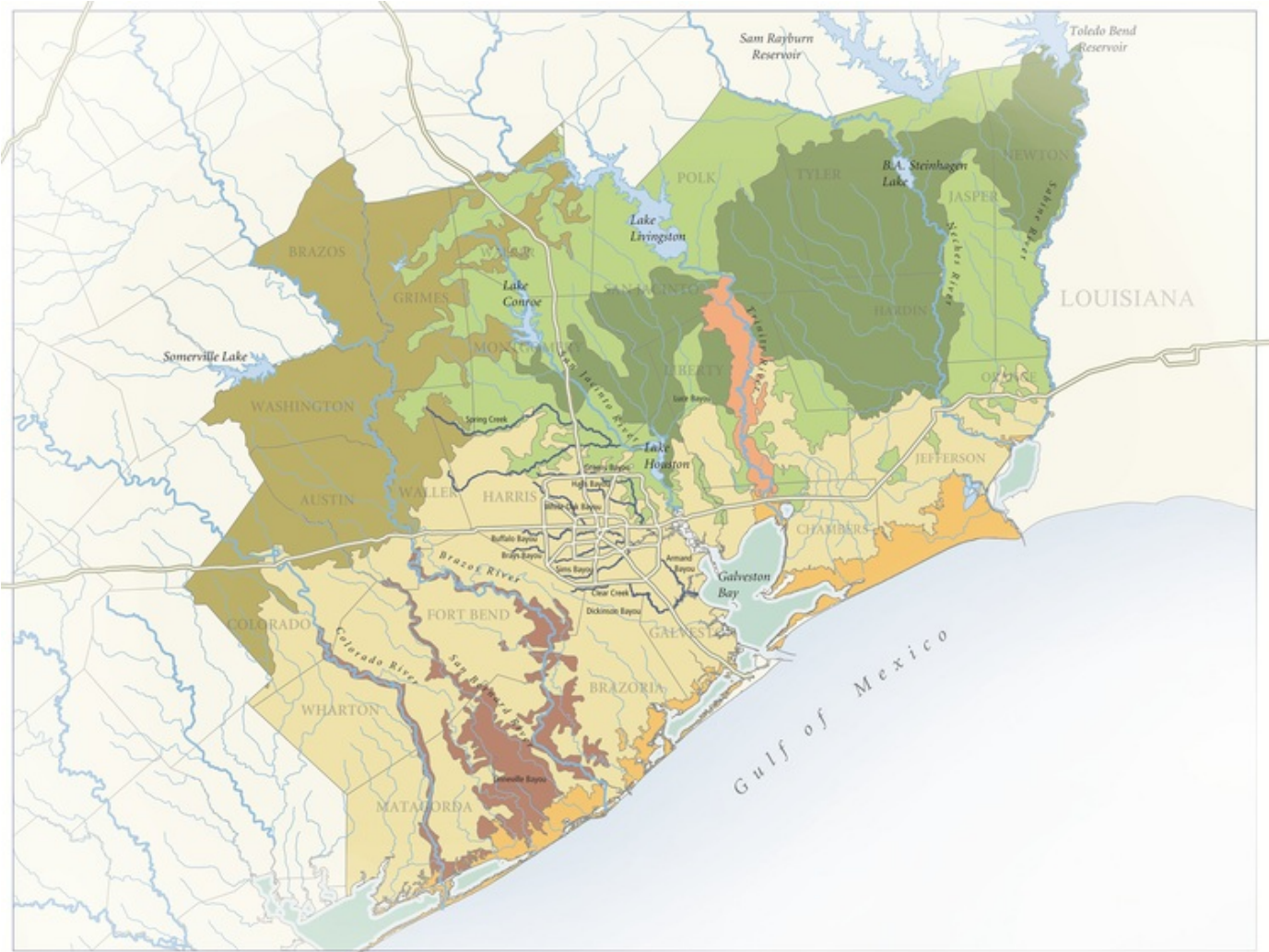
- Extreme (412)
- High (608)
- Moderate (1192)
- Low (929)



Source: American Climate Prospectus



# ON HABITAT & WILDERNESS





# OUR INEQUALITIES

## HOW PLANTS CAPTURE PARTICULATE MATTER (PM)

**DIESEL EXHAUST PARTICLE**

- Solid Carbon Cores (0.01-0.08 mm)
- Absorbed Hydrocarbons
- Liquid Condensed Hydrocarbon Particles
- Solid Carbon



### Vegetation Barrier

Greenbelt scenarios in which vegetation acts as a barrier to air flow, altering airflow patterns and pollution plume trajectory in addition to deposition (Steffens et al. 2012) (Lin et al. 2012)

### Deposition

The physical capture of particulate matter on the leaves and bark of trees and plants. The greater surface area and the rougher or stickier the leaf and bark, the higher the deposition rate (Fuller 2009).

**Vegetated barriers are most effective if planted close to the pollution source in highly polluted areas.**









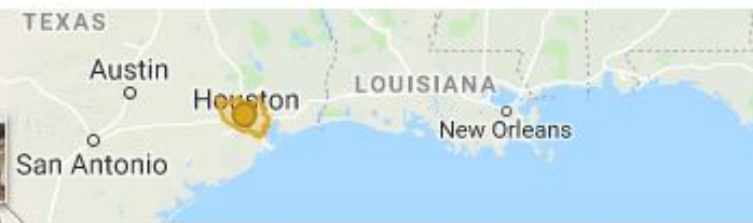






Places > North America (inc. ocean) (Continent) > United States (Country) > Texas (State) >

## Harris County, TX, US County



Species

Observations

Projects

People

About Harris

2809 of 2993 confirmed

Search for species

Search

Colors ▾

Establishment ▾



Threatened

All life

Animals

Arthropods

Chelicerates

 Arachnids

Hexapods

 Insects

Chordates

Vertebrates



**Monarch**  
(*Danaus plexippus*)



**Green Anole**  
(*Anolis carolinensis*)



**Gulf Fritillary**  
(*Agraulis vanillae*)



**Brown Anole**  
(*Anolis sagrei*)

# OUR INEQUALITIES



## Cities Connecting Children to Nature



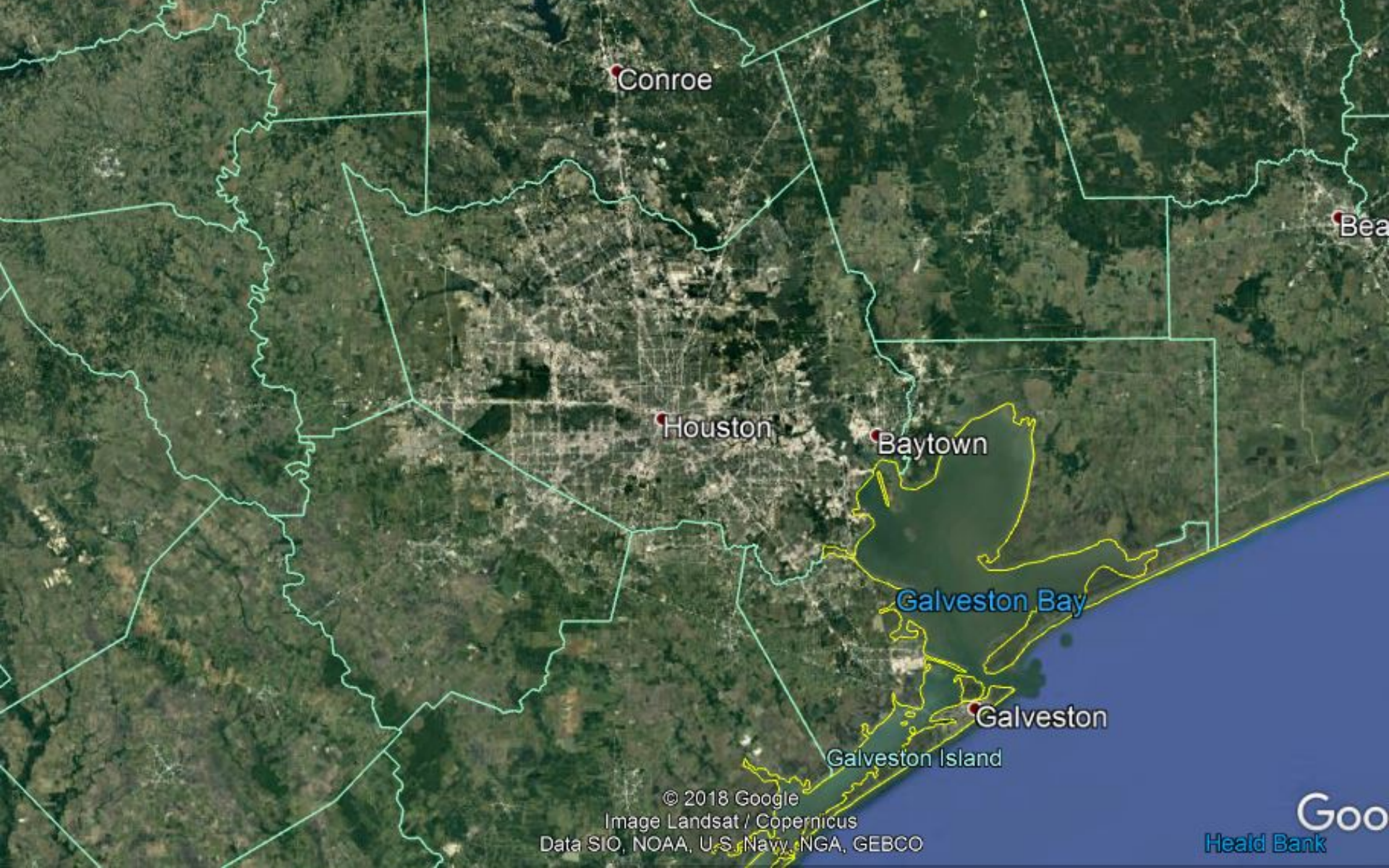
The Cities Connecting Children to Nature (CCCN) initiative helps city leaders and their partners ensure that all children have the opportunity to play, learn and grow in nature, from urban parks and community gardens to the great outdoors.



# What About *Houston?*







Conroe

Bea

Houston

Baytown

Galveston Bay

Galveston

Galveston Island

© 2018 Google  
Image Landsat / Copernicus  
Data SIO, NOAA, U.S. Navy, NGA, GEBCO

Go  
Head Bank



# HOUSTONIANS



# QUESTIONS?

