This Place Called Houston

Jim Blackburn
August 28, 2020

Image Isabelle Chapman
Allen Brothers and Houston, 1836

"with the advantage of capital and improvement." – They'd bought the land only days before the ad first appeared and hadn't yet spent a dollar to develop it. There wasn't a single building on the 8,850 acres.

The ads ran in the United States and Europe. One showed a drawing of Houston: a pretty little lake, rolling hills and, off in the distance, blue mountains. Mountains?

Lisa Gray, Houston Chronicle, 2008

City of Houston Incorporated, June, 1837
Civil War – 1861-1865
“Juneteenth” – June 19, 1865

• Ashton Villa, Galveston
General Gordon Granger, Union Army in Occupation of Texas, June 19, 1865 –

General Order #3 –
250,000 slaves in Texas emancipated
Houston 1900

Population:
Harris County (Millions)

Houston (Millions)

- Houston: 44,643
- Harris: 63,786

1860 1900 1960 2000 2015

0.00 0.50 1.00 1.50 2.00 2.50
Horse and Buggy late 1800s
Automobiles Early 1900s
Galveston Hurricane 1900

Houston Benefits From This Storm
COMEY PLAN

ORIGINAL PROPOSED BAYOU GREENSPACE

COMEY PLAN

1912
Port of Houston and Panama Canal – Both Opened 1914
Jesse Jones 1931

Organized Houston Banks –

Cajoled Bankers Into Putting Up Reserves To Stop Failures

Houston emerges from depression in excellent financial shape
Chemical Industry Post WW II
Foley’s Downtown - Lunch Counters Integrated August 1960

Population: Houston & Harris County

- **Houston**: 938,000
- **Harris**: 1.243 Million

Graph showing population growth from 1860 to 2015.
Astrodome Opens 1965
8th Wonder of the World
Offshore Technology Conference Starts 1969

• Symbol of Houston as global oil and gas center

• Today
• 110 Countries
• Participate
NASA Manned Spacecraft Center Mission Control

“Houston, we have a problem”
April 14, 1970
Population, 2000

- **Harris County (Millions):**
  - **Harris:** 3.43 Mill
  - **Houston:** 1.95 Mill

- **Houston (Millions):**
  - 5.00
  - 4.00
  - 3.00
  - 2.00
  - 1.00
  - 0.50
  - 0.00

- **Net Domestic Migration:**
  - New York
  - San Francisco
  - Los Angeles
  - Houston

- **Map:**
  - United States
  - Net Domestic Migration
    - +200,000
    - +100,000
    - -20,000
    - -100,000
Tropical Storm Allison 2001
Harris County Carbon Emissions 2002 – We’re Also #1
Katrina and Rita - 2005
Hurricane Ike 2008  Missed Us - $24 Billion in Damages
In Texas, the summer of 2011 has been both the hottest and driest on record. The drought has cost billions in economic losses, mainly due to agricultural impacts and from wildfires. Credit: John Nielsen-Gammon, Texas State Climatologist.
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Houston Bayou Greenways Bond Issue $100 million, Nov 2012
Population, 2015

The time has come for a new global climate deal.
COP 21: 30 November - 11 December, Paris

Population: 2015

<table>
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<th>Year</th>
<th>Harris County (Millions)</th>
<th>Houston &amp; Harris County (Millions)</th>
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<td>2015</td>
<td>2.50</td>
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Harris: 4.4 Mill
Houston: 2 Mill
Carbon Dioxide Over 800,000 Years
Houston In the 21st Century – Fly or Die? It Depends on “Place”
Houston In the 21st Century

What Kind of Place Could/Should We Be?

- An ecological place – Houston’s best-kept secret
- A carbon solution place – the dark horse
- A place that lives with water – doable
- An equitable place – a tough one but we have begun
Columbia Bottomlands
CARBON STORAGE FOR COMMON TREE SPECIES OF THE COLUMBIA BOTTOMLANDS BY AGE CLASS

- **LIVE OAK**
  - 10.28
  - 8.32
  - 8.03
  - 7.40

- **SUGAR HACKBERRY**
  - 10.28
  - 8.32
  - 8.03
  - 7.40

- **WATER OAK**
  - 5.09
  - 3.64
  - 3.06
  - 3.01

- **GREEN ASH**
  - 5.86
  - 5.34
  - 5.10
  - 5.09

- **AMERICAN ELM**
  - 4.06
  - 3.64
  - 3.06
  - 2.69

- **CARBON STORAGE (METRIC TONS/TREE)**

- **AGE (YEARS)**
  - 0
  - 10
  - 20
  - 30
  - 40
  - 50

- **Values:**
  - 0.76
  - 0.59
  - 0.43
  - 0.32
  - 0.24
Gray Catbird

A Bird of the Thickets
Carbon Dioxide Removal and the Coastal Marsh

1. CO2 In Atmosphere
2. Photosynthesis in Marsh Plant
3. Carbohydrate deposited in plant and roots
4. Carbohydrate becomes carbon in soil
5. Some CO2 back to the atmosphere
Roseate Spoonbill

A Bird of the Coastal Marshes
The Mottled Duck

A Texas Native of the Prairie Potholes
Bobby Tudor’s Vision
HOUSTON: LEADING THE ENERGY TRANSITION

- Commit to lower carbon emissions
- Develop new technologies that address the dual challenge: meeting global energy demand while lowering the world’s carbon footprint
- Leverage Houston’s strength in natural gas
- Lead development of Carbon Capture, Use, and Storage
- Be leaders in energy efficiency, conservation, and sustainability; smart city technology
The image presents a diagram illustrating the different scopes of greenhouse gas emissions in a company's value chain. The scopes are:

- **Scope 1 (Direct)**: Emissions from the reporting company's facilities, such as company vehicles, leased assets, and the processing of sold products.
- **Scope 2 (Indirect)**: Emissions from the production of purchased electricity, steam, heating, and cooling for own use.
- **Scope 3 (Indirect)**: Emissions from various upstream and downstream activities, including purchased goods and services, leased assets, investments, franchises, and the end-of-life treatment of sold products.

The diagram also shows key activities within each scope, such as waste generated in operations, transportation, and energy-related activities.

Source: [Link to the source](https://saylordotorg.github.io/text_the-sustainable-business-case-book/section_08/d6f6e72c6167122a739893205efed7cc.jpg)
Scope 1 and 2 Carbon Emissions

15 Companies With Strong Houston-Region Connections

Total = 538,500,000 metric tons
At 1 t/acre = 538,500,000 acres.
At 2 t/acre = 270,000,000 acres.
At 4 t/acre = 135,000,000 acres.
Scopes 1 and 2 vs. 1, 2 and 3

122 MM t CO₂/yr

610 MM t CO₂/yr

Compiled from publicly available information
TWO CONCEPTS OF CARBON CAPTURE AND STORAGE
TWO CONCEPTS OF CARBON CAPTURE AND STORAGE
Baker Institute Soil Carbon Storage Standard
Our Flooding Problem Is Bad and Will Worsen If We Fail To Learn and Adapt
Flood Literacy

Watersheds of Harris County and Houston
OFF THE CHARTS
TROPICAL STORM ALLISON PUBLIC REPORT

UNPRECEDENTED DAMAGE
UNPRECEDENTED RELIEF
UNPRECEDENTED RECOVERY
Tax Day Flood April 2016
Harvey 2017

4-day, 500-Year Storm = 21 inches

Harvey – 40+ inches
Four Day Peak Rainfall Frequency
Hurricane Harvey, August 25 - 29, 2017

Exceedance Probability (year)
- 0.05% - 0.02% (2,000 - 5,000yr)
- 0.02% - 0.005% (5,000yr - 20,000yr)
- .005%+ (20,000yr+)

Based on HFCD Rainfall Sages
Areas With Increased 100 Year Rainfall
1% Annual Chance, 24-Hour Rainfall Depths

- 14.01" to 15.00"
- 15.01" to 16.00"
- 16.01" to 17.00"
- 17.01" to 18.00"
- 18.01" to 18.80"

AFTER ATLAS 14

Legend:
- 11.01 - 12.00
- 12.01 - 13.00
- 13.01 - 14.00
- 14.01 - 15.00
- 15.01 - 16.00
- 16.01 - 17.00
- 17.01 - 18.00
- 18.01 - 18.80
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24 HOUR RAINFALL TOTALS
ENDING THURSDAY
Preliminary Data

Imelda
Sept 18-19, 2019
Would You Drive Using Only Your Rear-View Mirror?

• In our watersheds, we are planning based on 17 to 18 inches in 24 hours but we have seen much more.

• We are not warning our people about the true risk of larger rainfall events.
HONESTY

OBsolesTET And DANGEROUS

HONESTY
FEMA Storm 36
Small Cat 4 -
This Event
Would Destroy
Houston’s
Economic and
Ecological
Future
Galveston Bay Park Plan
Levee

Compatible with Corps Coastal Spine

Compatible with Port Project 11 to Widen Houston Ship Channel
Galveston Bay Park Plan Vision
This Place Called Houston – Are We Looking Forward or in the Rear View Mirror?
You May Also Be Interested In:

The United States’ Green Future: Economy + Environment

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ONLINE, SYNCHRONOUS

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