

# Campus Landscape as Infrastructure: A Case Study

University of Houston-Clear Lake Master Plan and Hurricane Harvey

Katharyn Hurd and Andrew Sullivan  
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# Agenda

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- 01 A Campus in a Bayou Landscape
- 02 Stormwater Management
- 03 Campus Resiliency Tested
- 04 Master Plan Impacts



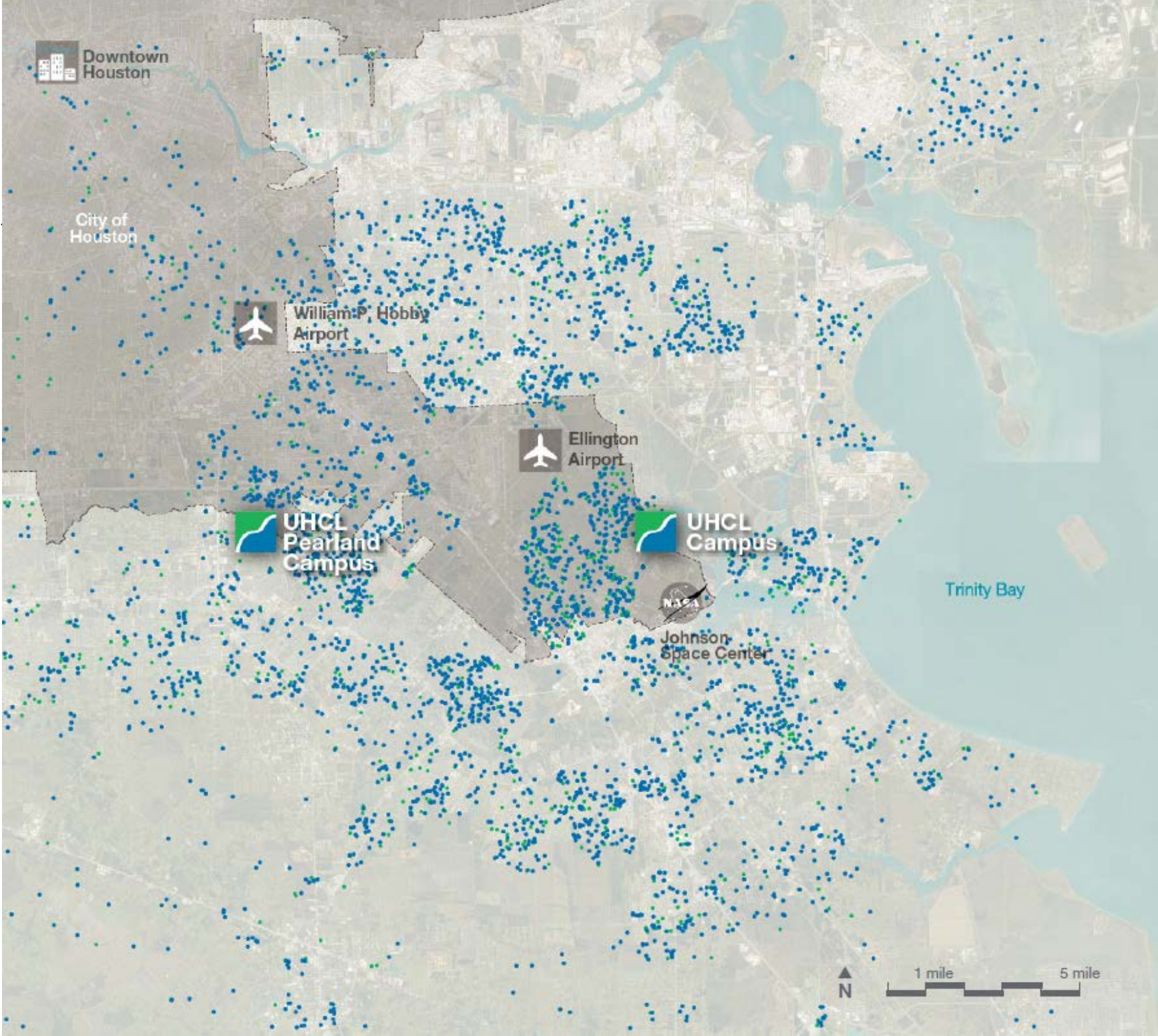


# 01 A Campus in a Bayou Landscape





# UHCL Regional Context

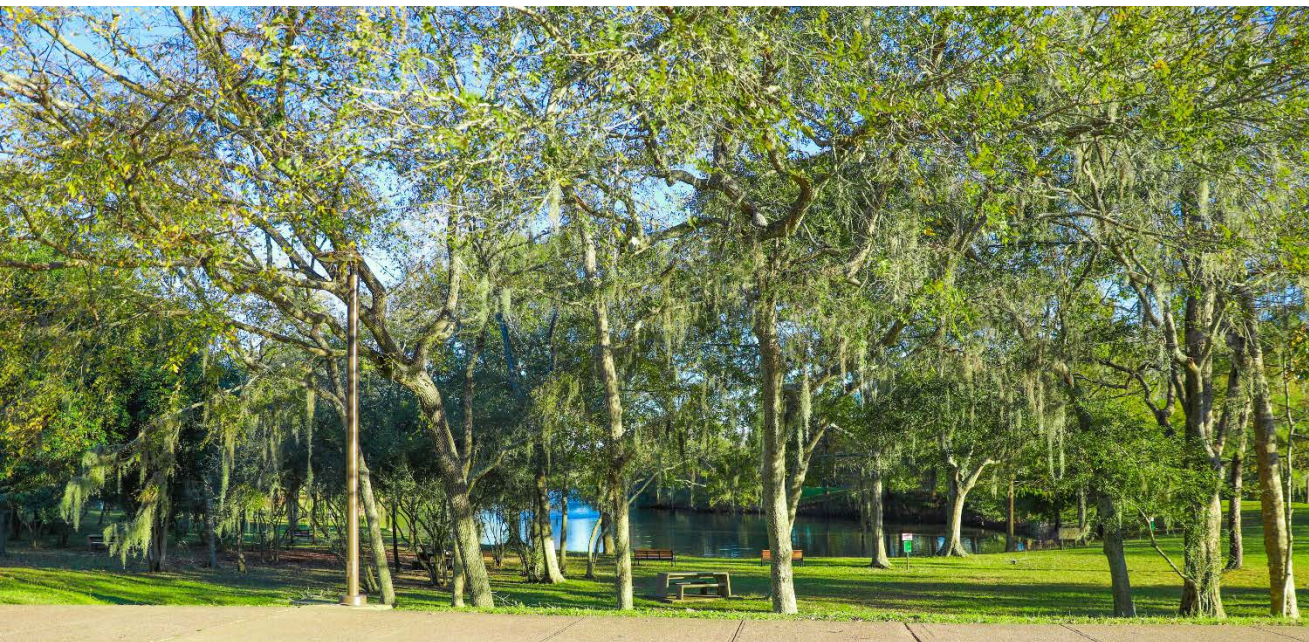


- Undergraduate Students
- Graduate Students





# Ecological Context



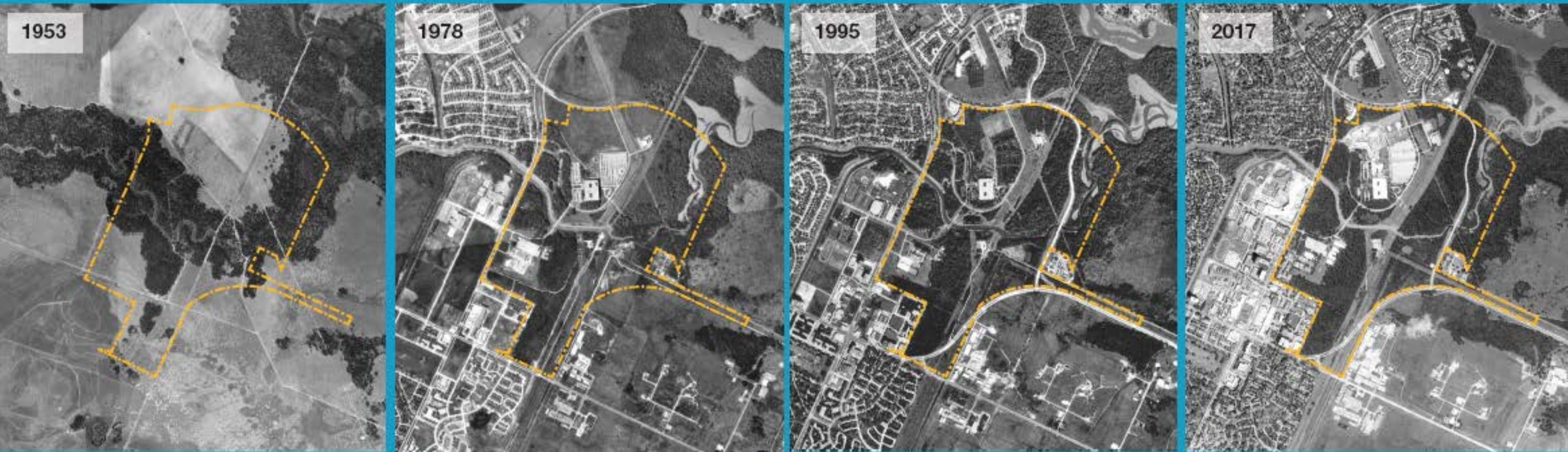
Campus Landscape as Infrastructure: A Case Study  
UHCL Master Plan and Hurricane Harvey





# Campus Evolution

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▲ Campus Evolution: 1953 - 2017 (Google)



# Campus Landscape



- |                   |                     |
|-------------------|---------------------|
| Forest            | Utility Parcel      |
| Lawn              | Utility Easement    |
| Water             | Sidewalk/Plaza Area |
| Hardscape/Streets | Play Court          |
| Floodplain        | Recreation Field    |



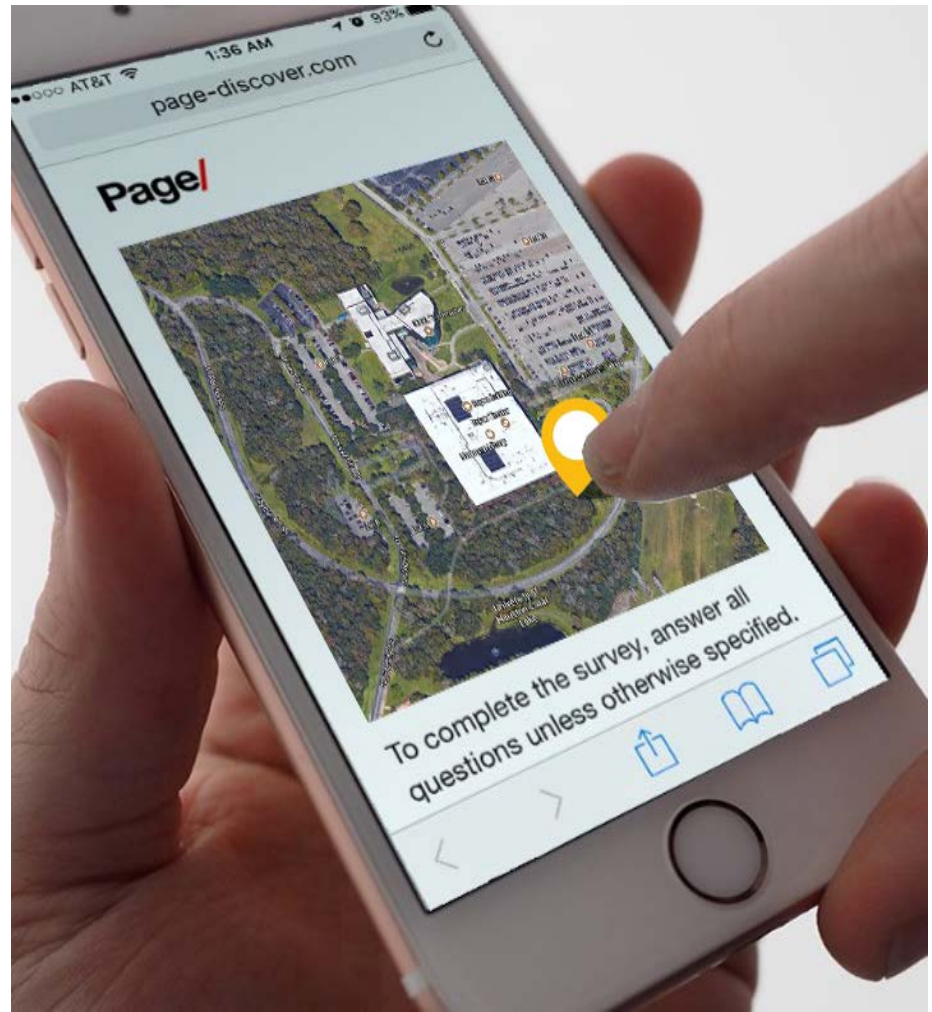
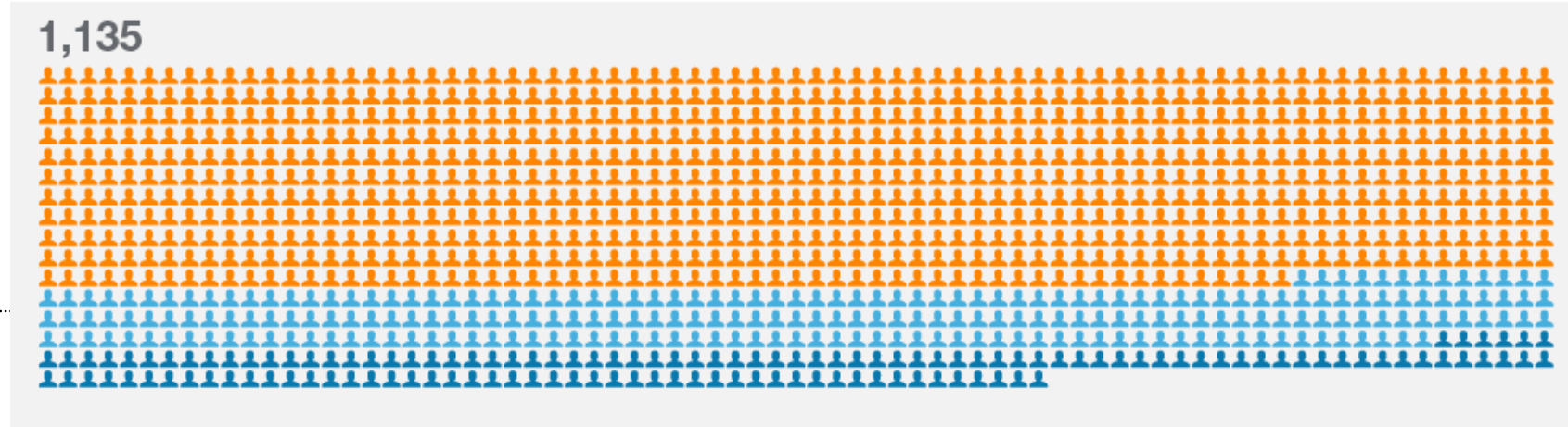


# Development Constraints





# Stakeholder Engagement



MyUHCL Survey  
**1,135**  
TOTAL RESPONSES





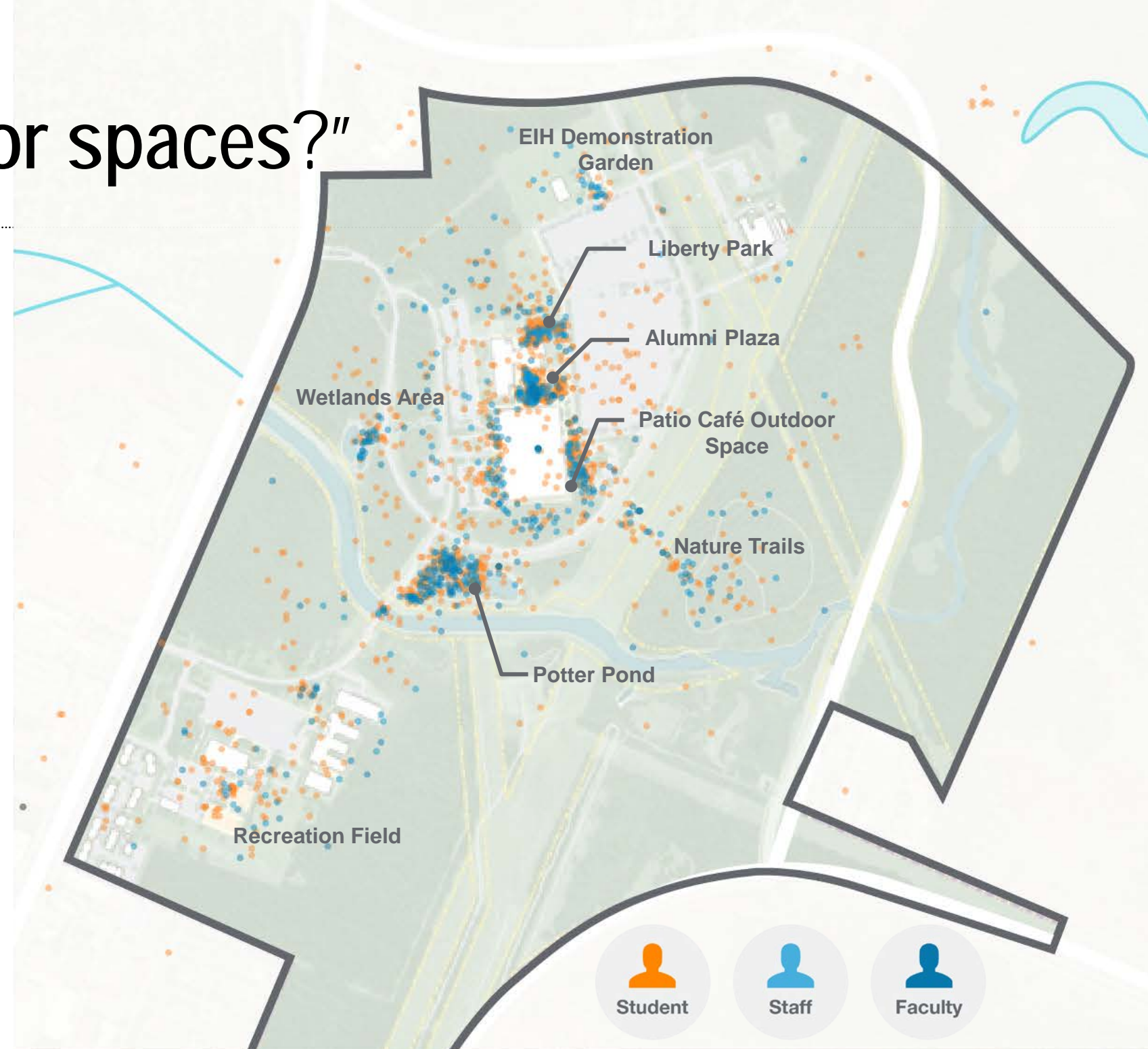
# "What are your favorite outdoor spaces?"

"The **Plaza** and **Potter Pond**"

"**All the grounds** are great for walking or just eating outside. Sometimes I just walk around to take a break."

"I love our green spaces - I'm always looking for **deer, rabbits, hawks, and alligators.**"

"We need safer pathways so groups can explore and learn more about the **wildlife on campus.**"






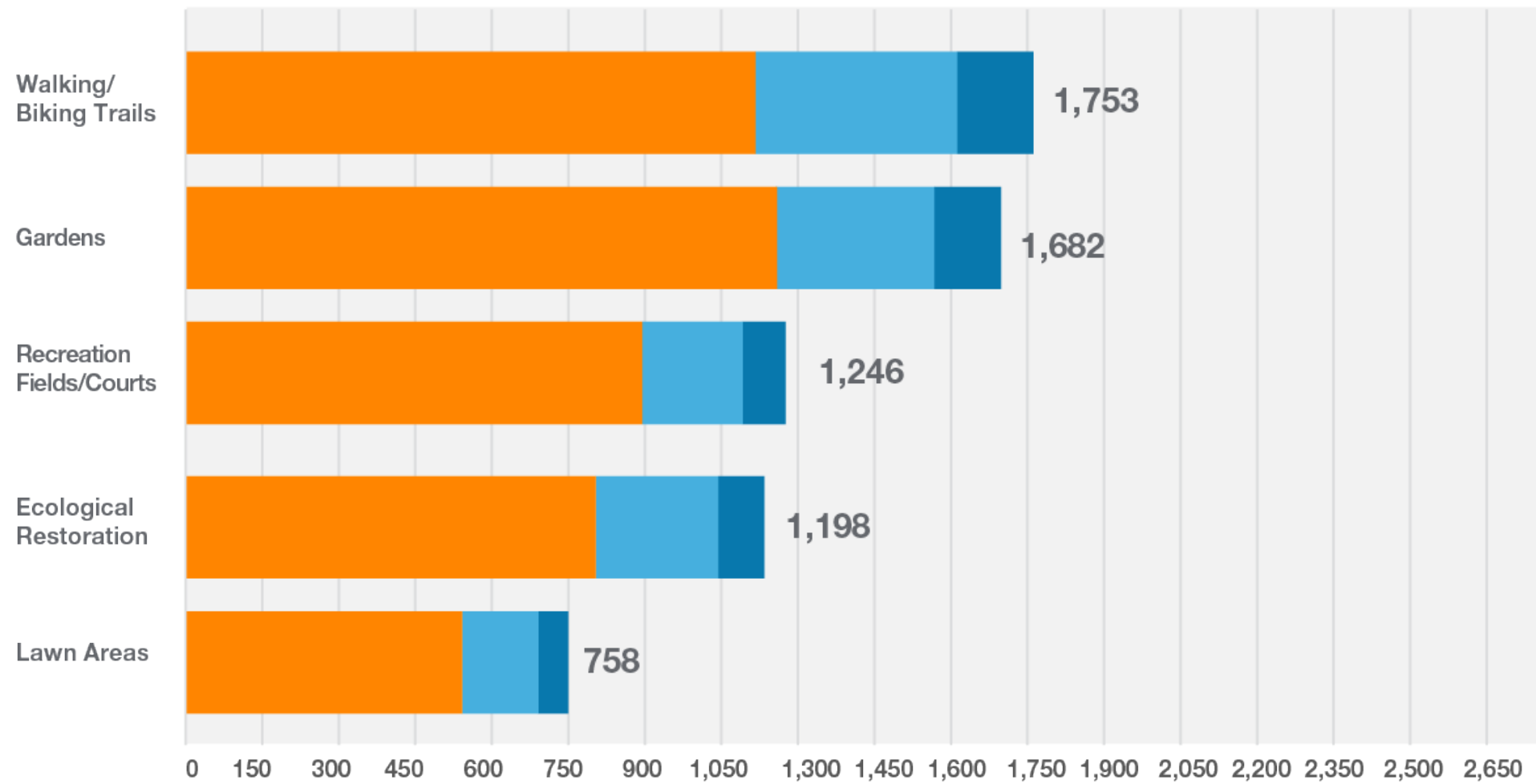


# “Which outdoor spaces would you like to see?”



Top survey responses:

-  **#1 Walking/Biking Trails**
-  **#2 Gardens**
-  **#3 Recreation Fields/Courts**





# 02 Stormwater Management





# Stormwater Management Techniques

RETENTION PONDS



WETLANDS





# 03 Campus Resiliency Tested



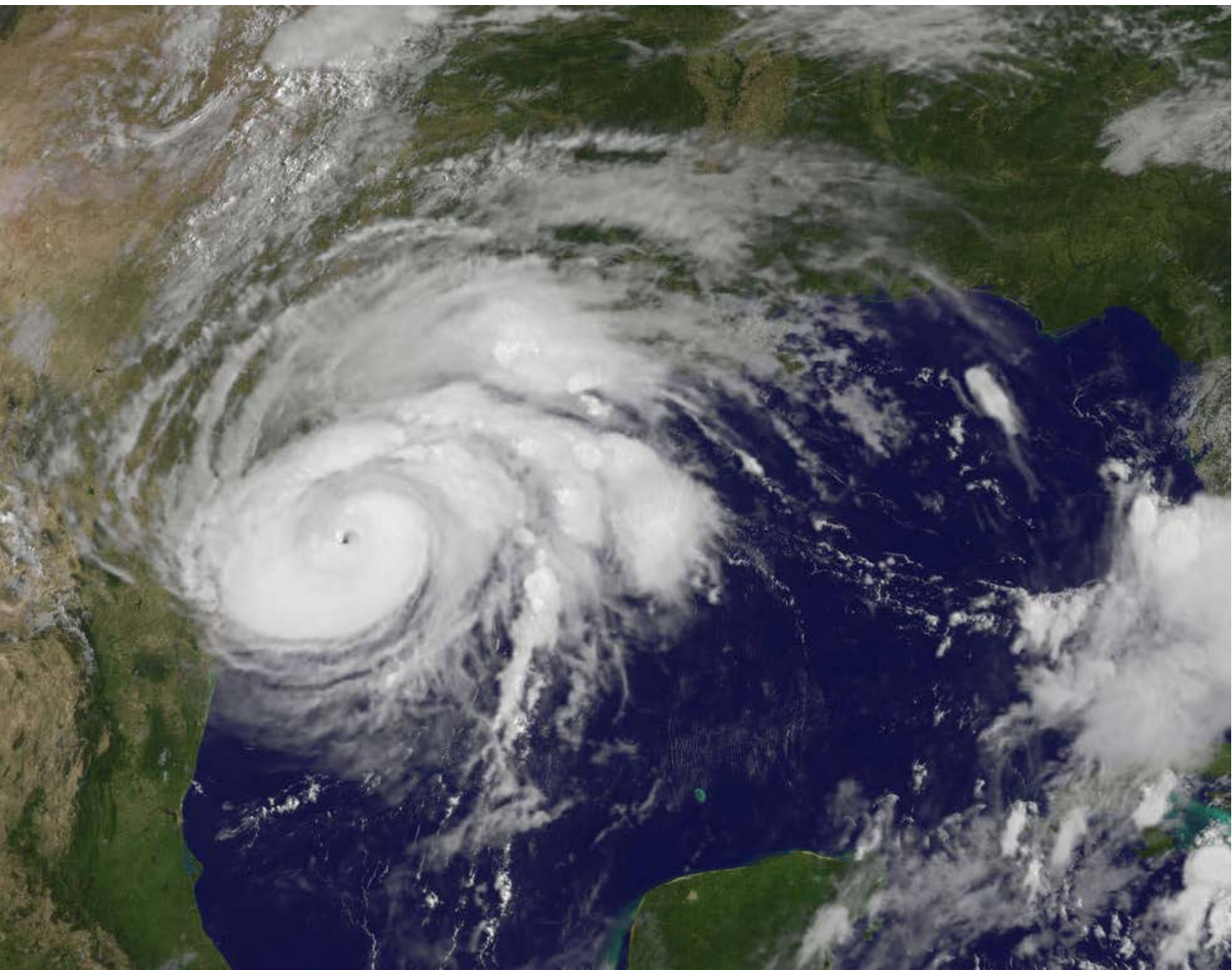


# 2017 Hurricane Harvey



## HURRICANE HARVEY

A closer look at Houston's biblical floods



### 51 inches: Five Houstonians brave America's worst storm



By Mike Hixenbaugh, David Hunn, and Mark Collette

Harvey: Terror, heartbreak and heroism as five Houstonians brave America's worst storm

- » Floodwaters gone in South Houston, but no sign of FEMA
- » Part 3: Bayside picks up the pieces after storm
- » Part 2: Battered Rockport area is down, but not out
- » Part 1: Tivoli's 'uninhabitants' on their own after a direct hit

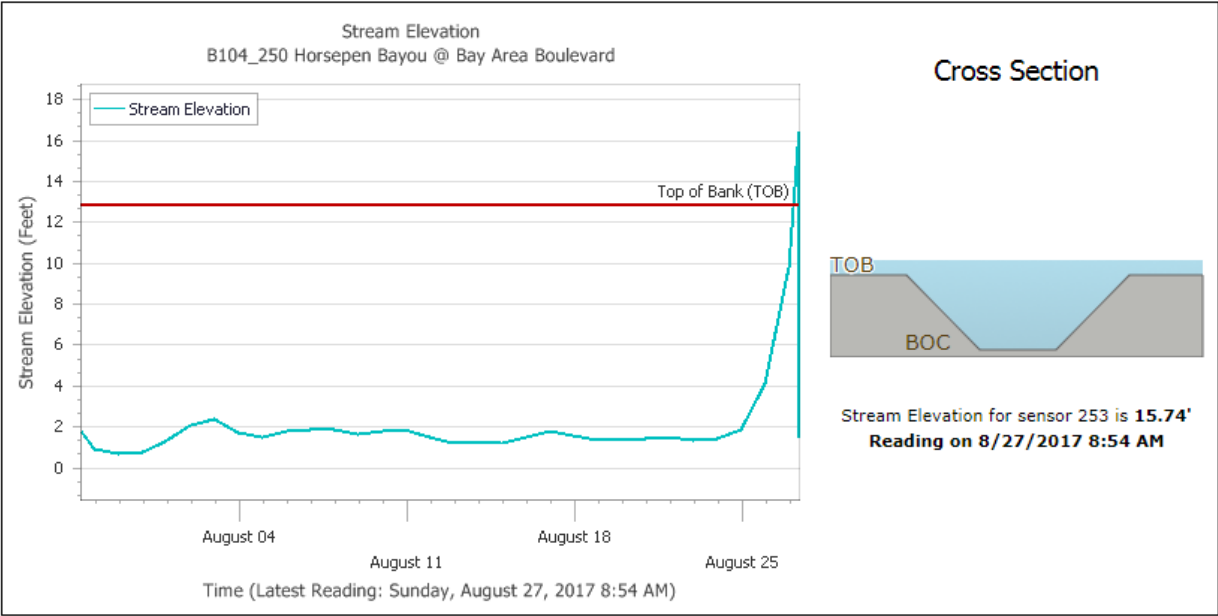
#### LATEST HARVEY NEWS

- Preview Your Future: Welcome to the Chronicle's new entertainment section
- Harvey didn't scare Halloween in Katy
- Amid discrimination claim, a small uptick in Hispanic Houston ISD principals
- System rigged against homeowners when it comes to floods
- County OKs more flood buyouts, clears way for purchase of SRO
- ICYMI: Investors and homeowners unaware of reservoir flood dangers, records show
- Insurance industry learning key lessons from Hurricane Harvey
- Suspect caught after Galveston shooting during Hurricane Harvey
- Contemporary art museum builds partnerships
- Liberty County olive farm survives Harvey ravages
- Olive farm survives Harvey ravages
- Friendswood gets a 'Mule' to help with storm recovery
- Tilman Fertitta: 'Not many can own a team in their hometown'





# 2017 Hurricane Harvey



Export to Excel

Sensor	Reading Date	Elevation
253	8/27/2017 8:54 AM	15.74'
253	8/26/2017 11:58 PM	9.85'
253	8/25/2017 11:48 PM	4.14'
253	8/24/2017 11:03 PM	1.86'
253	8/23/2017 10:45 PM	1.42'
253	8/22/2017 11:49 PM	1.38'
253	8/21/2017 11:47 PM	1.50'
253	8/20/2017 11:31 PM	1.40'
253	8/19/2017 11:33 PM	1.37'
253	8/18/2017 11:23 PM	1.35'
253	8/17/2017 11:47 PM	1.56'
253	8/16/2017 11:45 PM	1.78'
253	8/15/2017 10:24 PM	1.51'
253	8/14/2017 11:26 PM	1.20'

Flood Frequency	Elevation
10% (10-year)	11.60'
2% (50-year)	13.30'
1% (100-year)	14.00'
.2% (500-year)	15.70'

Historical Storm

Date	Event	Elevation
6/19/2001	Allison	14.63'
6/19/2006		6.60'
8/16/2007	Erin	9.10'
9/13/2008	Ike	11.20'
4/18/2009		11.30'
5/13/2015		13.40'
8/27/2017	Harvey	15.70'

High water mark elevations are approximate.



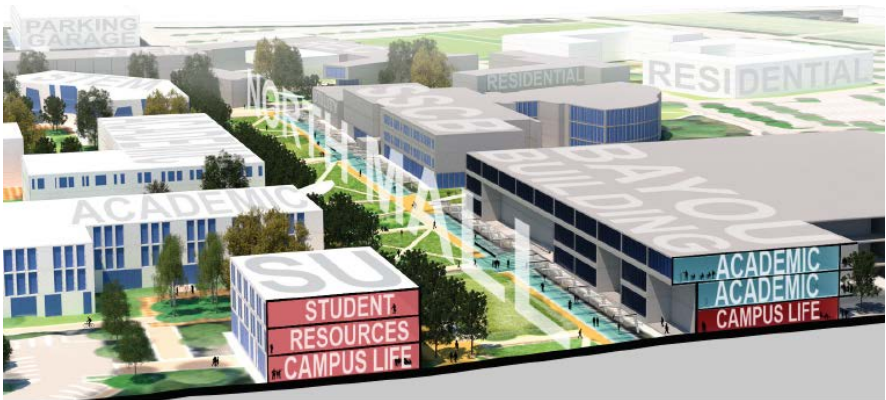
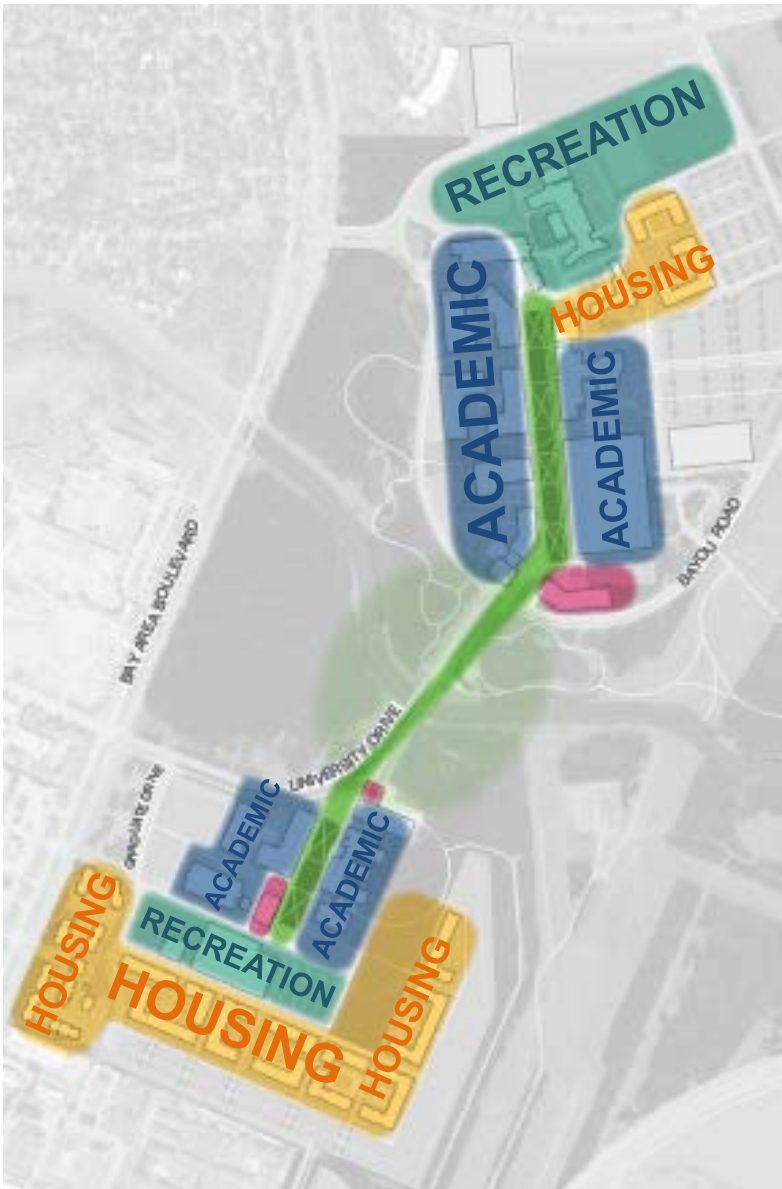


# 04 Master Plan Impacts





# UHCL Campus Master Plan



- ① Campus Mall
- ② Residential Neighborhood
- ③ Gathering/Activity Plaza
- ④ Outdoor Recreation
- ⑤ Nature Trails





# UHCL Campus Master Plan

