

# CLIMATE CHANGE **ARMOR**

**HOUSTON**

**GALVESTON BAY**

**SITE**

**LEAGUE CITY**

**GULF OF MEXICO**

Climate Change Armor is designed to protect the community from flooding events and sea level rise and thereby reduce the physical and social vulnerability of the city.



## STORM SURGE INUNDATION & HISTORICAL HURRICANES (SLOSH MAXIMUM OF MAXIMUMS)

2008  
HURRICANE - IKE  
\$28.5 BILLION

LEAGUE CITY

SITE

3  
CATEGORY

4  
CATEGORY

5  
CATEGORY  
STORM SURGE INUNDATION

INUNDATION DEPTH

UP TO 3' ABOVE GROUND

GREATER THAN 3' ABOVE GROUND

GREATER THAN 6' ABOVE GROUND

GREATER THAN 9' ABOVE GROUND

### TEXAS HISTORICAL HURRICANES 1851-2014

ALONG ANY 15 MILE SEGMENT OF THE TEXAS COAST  
THE FREQUENCY OF A NORMAL HURRICANE IS 5 YEARS  
EVERY 5

MAJOR HURRICANE IS 15 YEARS  
EVERY 15

SLOSH model MOMs are an ensemble product of maximum storm surge heights. MOMs represent the worst case scenario for a given category of storm and initial water level under ideal storm conditions. -- NOAA

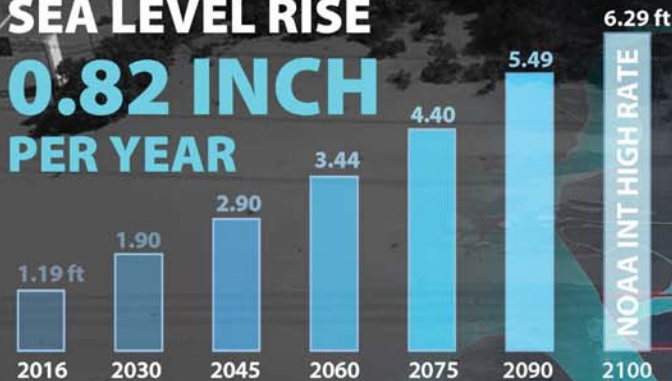


FLOOD PLAIN CHANGE (CURRENT AND WITH SEA LEVEL RISE)

63%

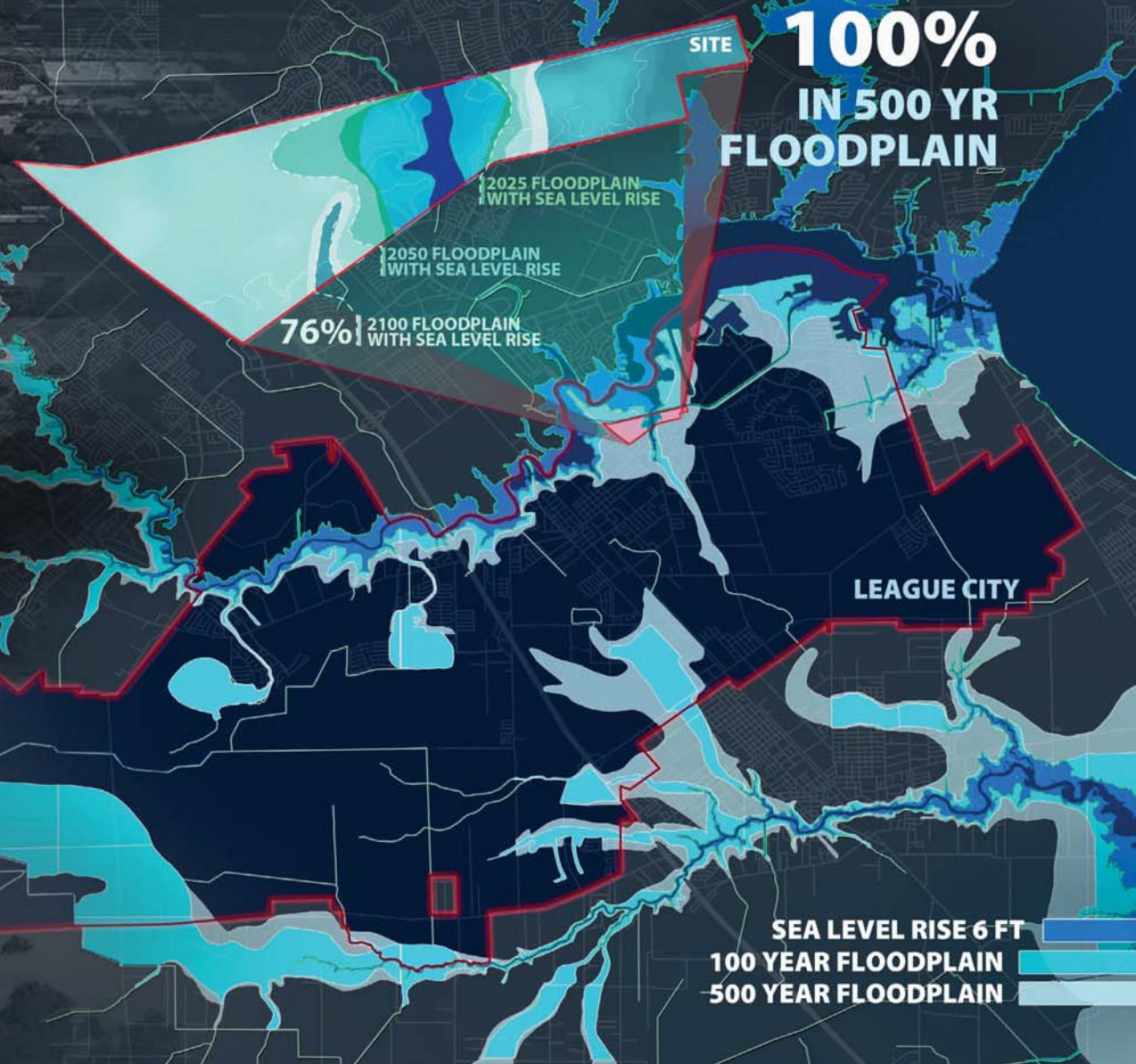
57867 PEOPLE  
IN LEAGUE CITY  
AT RISK

SEA LEVEL RISE  
0.82 INCH  
PER YEAR



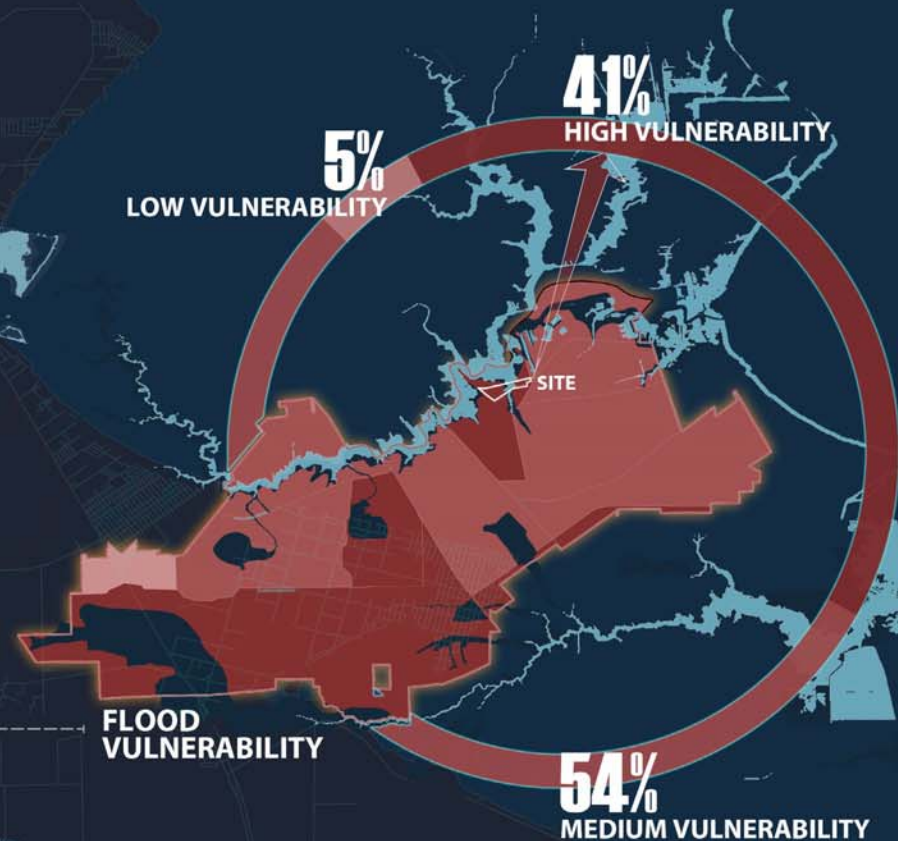
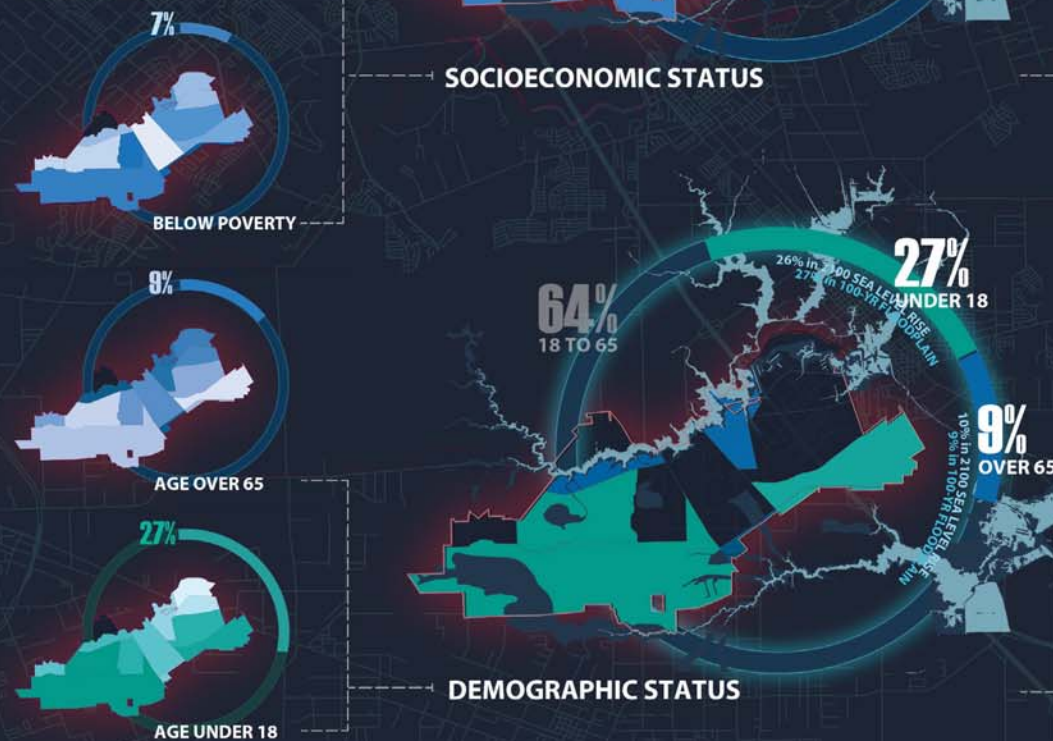
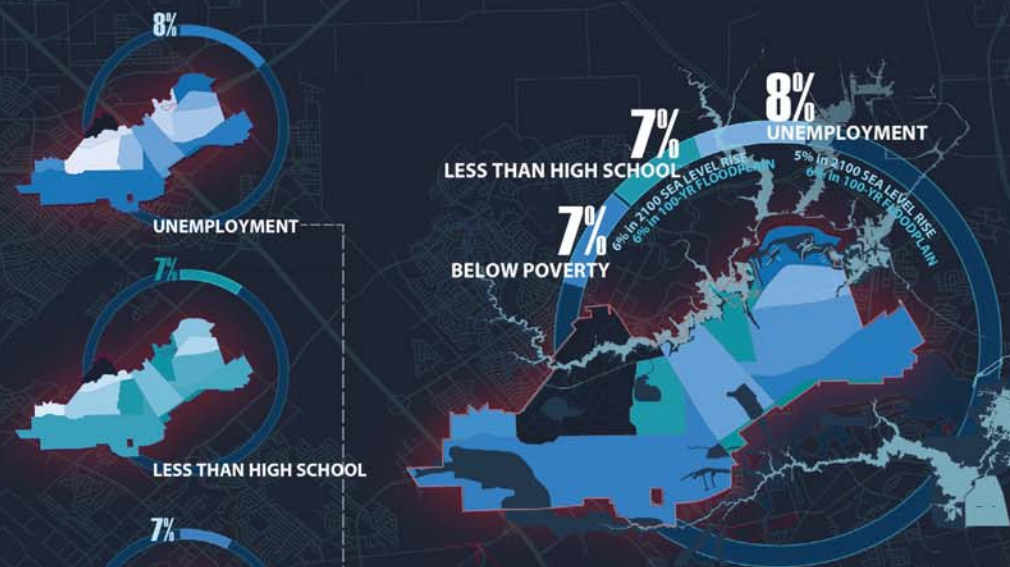
6.29 FT IN 2100

Data Source: <https://coast.noaa.gov>





# FLOOD VULNERABILITY

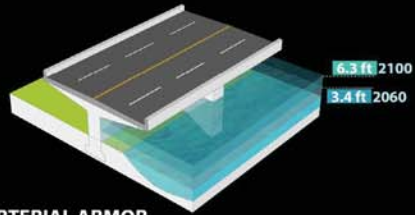


**100-YEAR FLOODPLAIN**   
**2100 SEA LEVEL RISE ( 6 IN)**

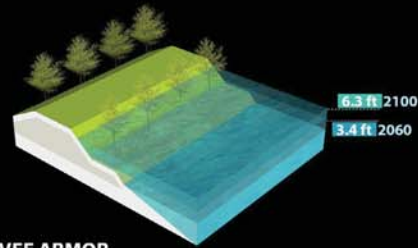
Data Source: <http://www.census.gov/> <http://www.coast.noaa.gov>

# ARMOR TOOLKIT

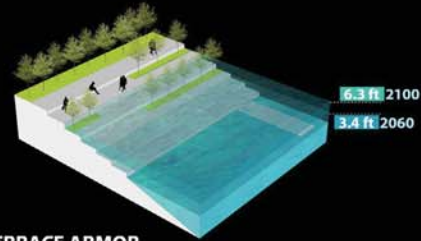
HIGH - COST



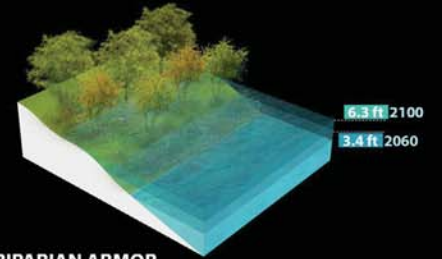
ARTERIAL ARMOR



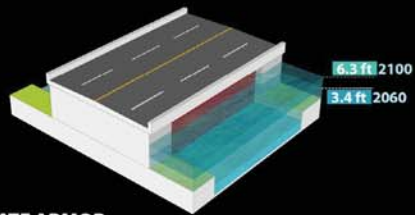
LEVEE ARMOR



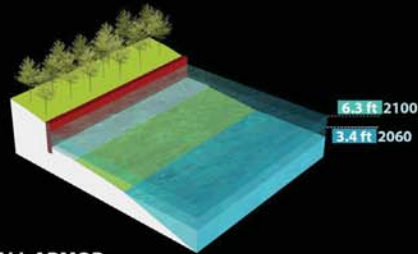
TERRACE ARMOR



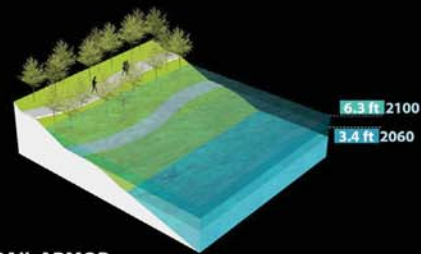
RIPARIAN ARMOR



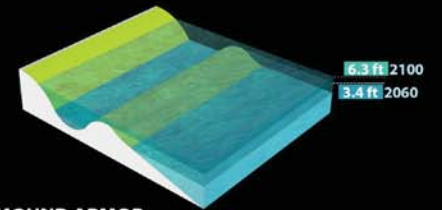
GATE ARMOR



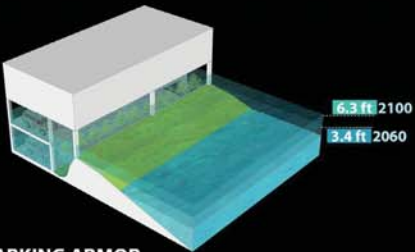
WALL ARMOR



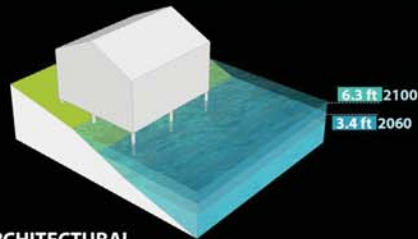
TRAIL ARMOR



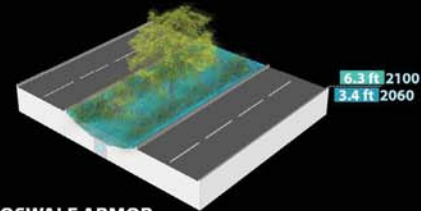
MOUND ARMOR



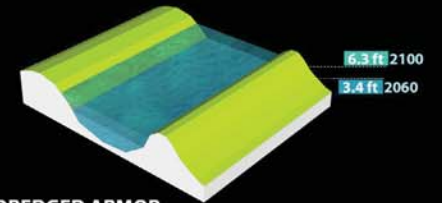
PARKING ARMOR



ARCHITECTURAL  
ARMOR



BIOSWALE ARMOR



DREDGED ARMOR

LOW - COST

STRUCTURAL

NON-STRUCTURAL



FLOOD FUNCTIONALITY

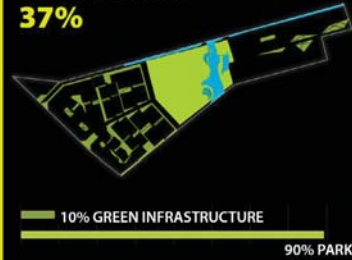




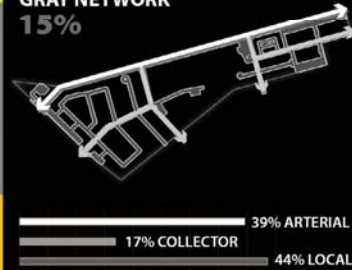
# MASTER PLAN



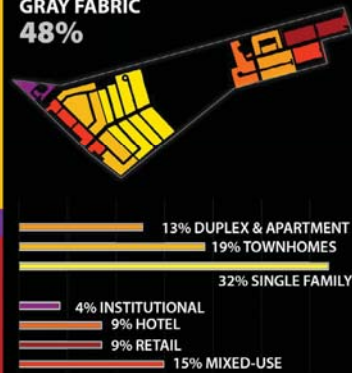
LAND USE PERCENTAGE  
GREEN NETWORK  
**37%**



GRAY NETWORK  
**15%**

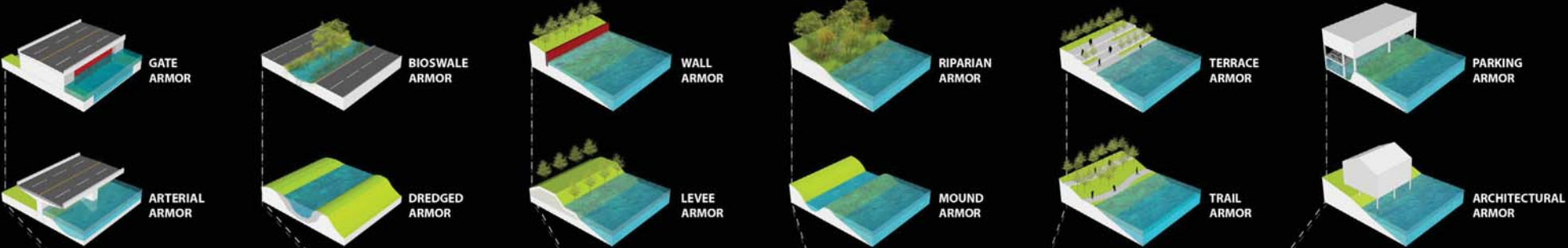


GRAY FABRIC  
**48%**





# ARMOR PLACEMENT



15% GRAY NETWORK      37% GREEN NETWORK      48% GRAY FABRIC      COMMUNITY DENSITY

