



3 | 30 | 300

SOLVING FLOOD-BASED
CONTAMINATION IN
FENCELINE COMMUNITIES

18 IN. OF SEA LEVEL RISE SINCE 1950
11-25 IN. INCREASE IN FUTURE 30 YEARS

35,000 AC
LOSS OF INTERTIDAL MARSH HABITAT



BLUE CRAB



EASTERN OYSTER

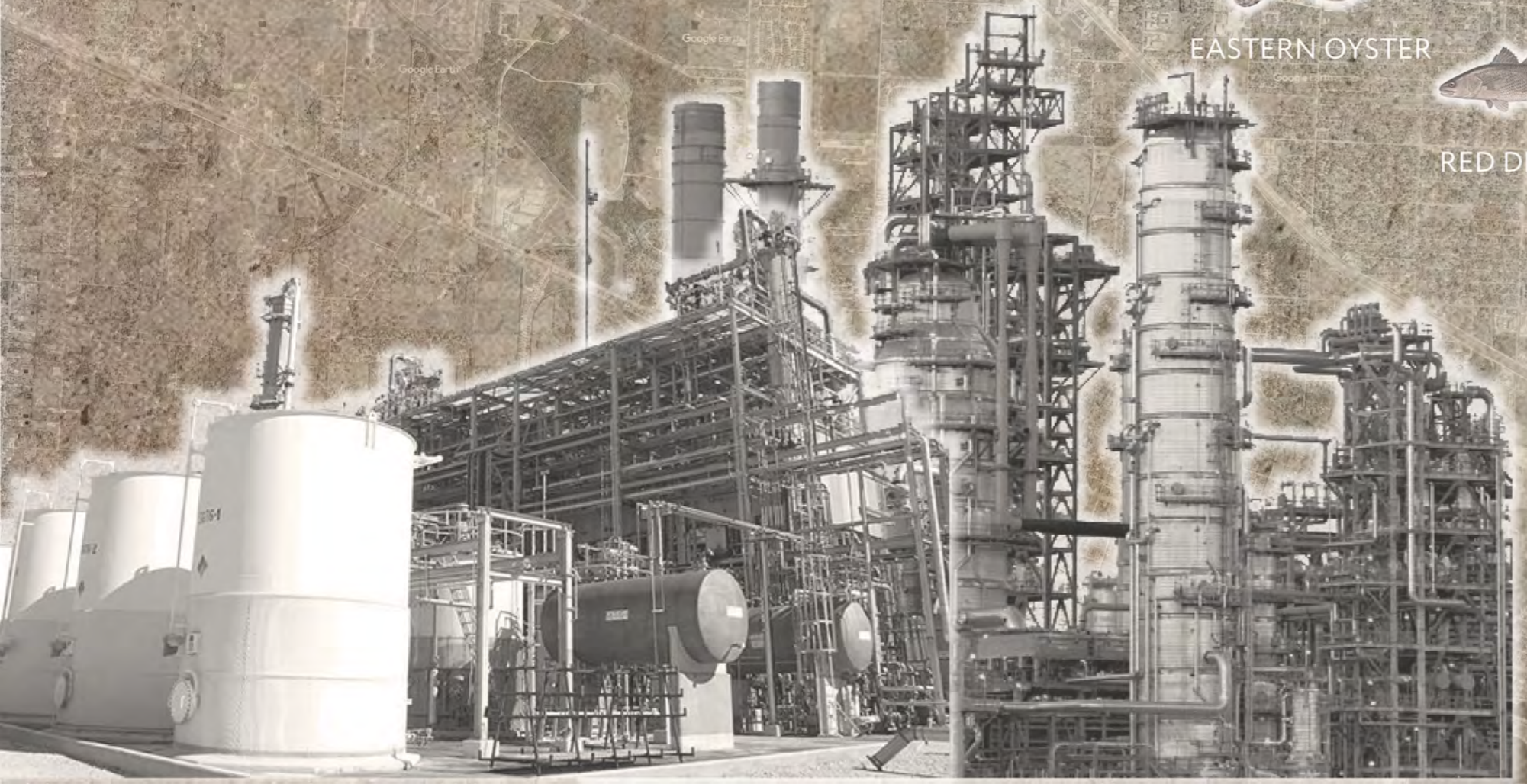


RED DRUM

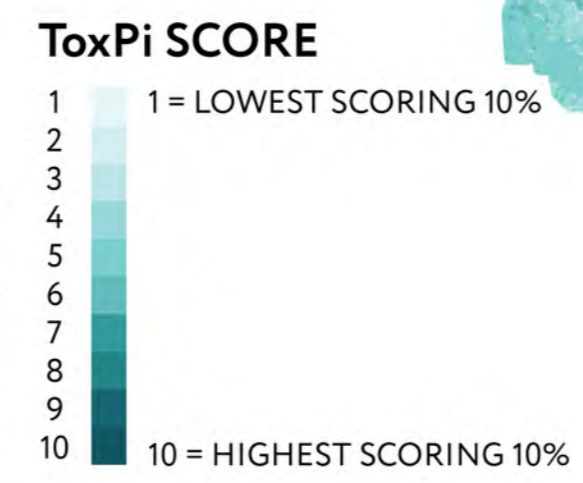
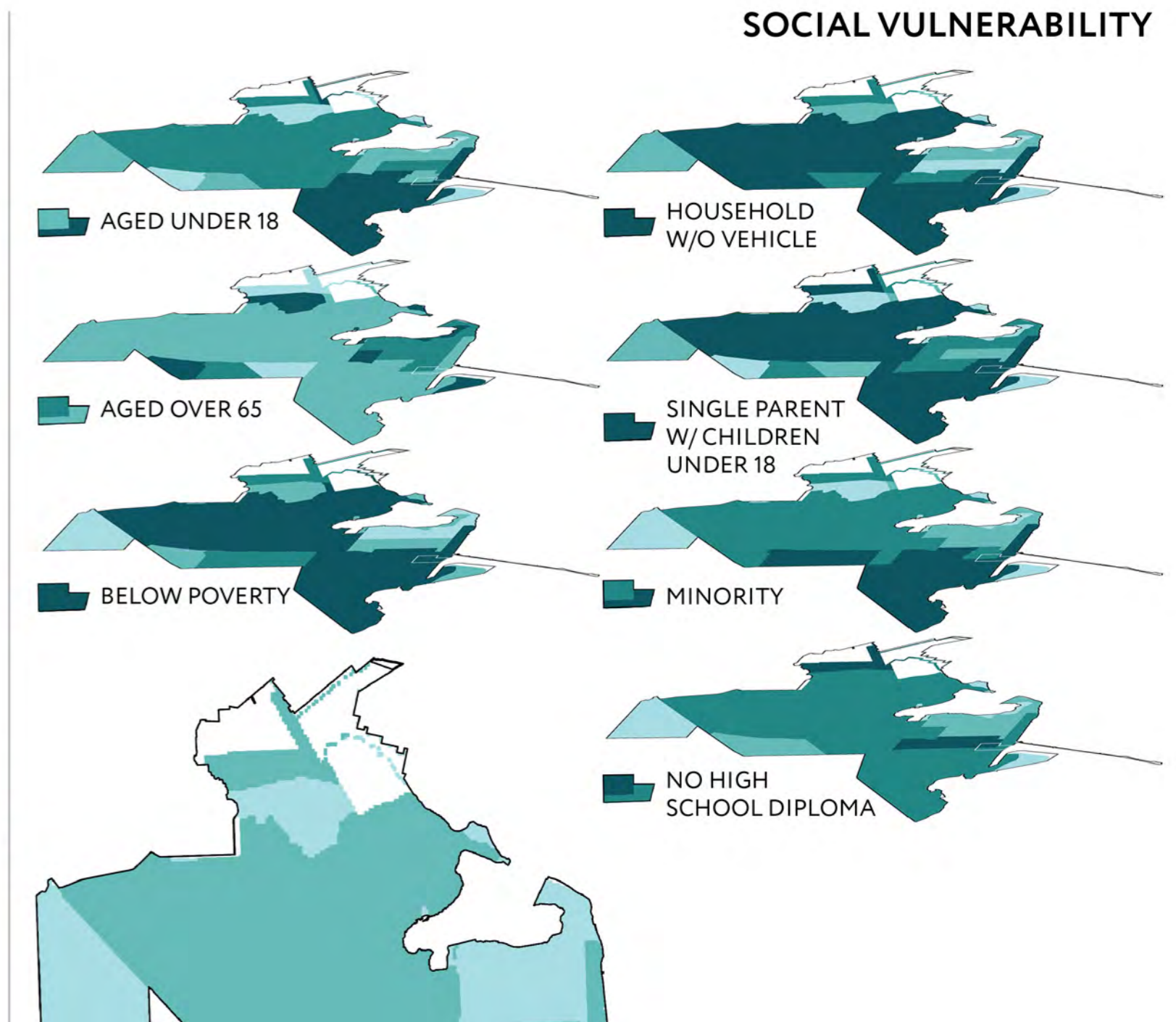
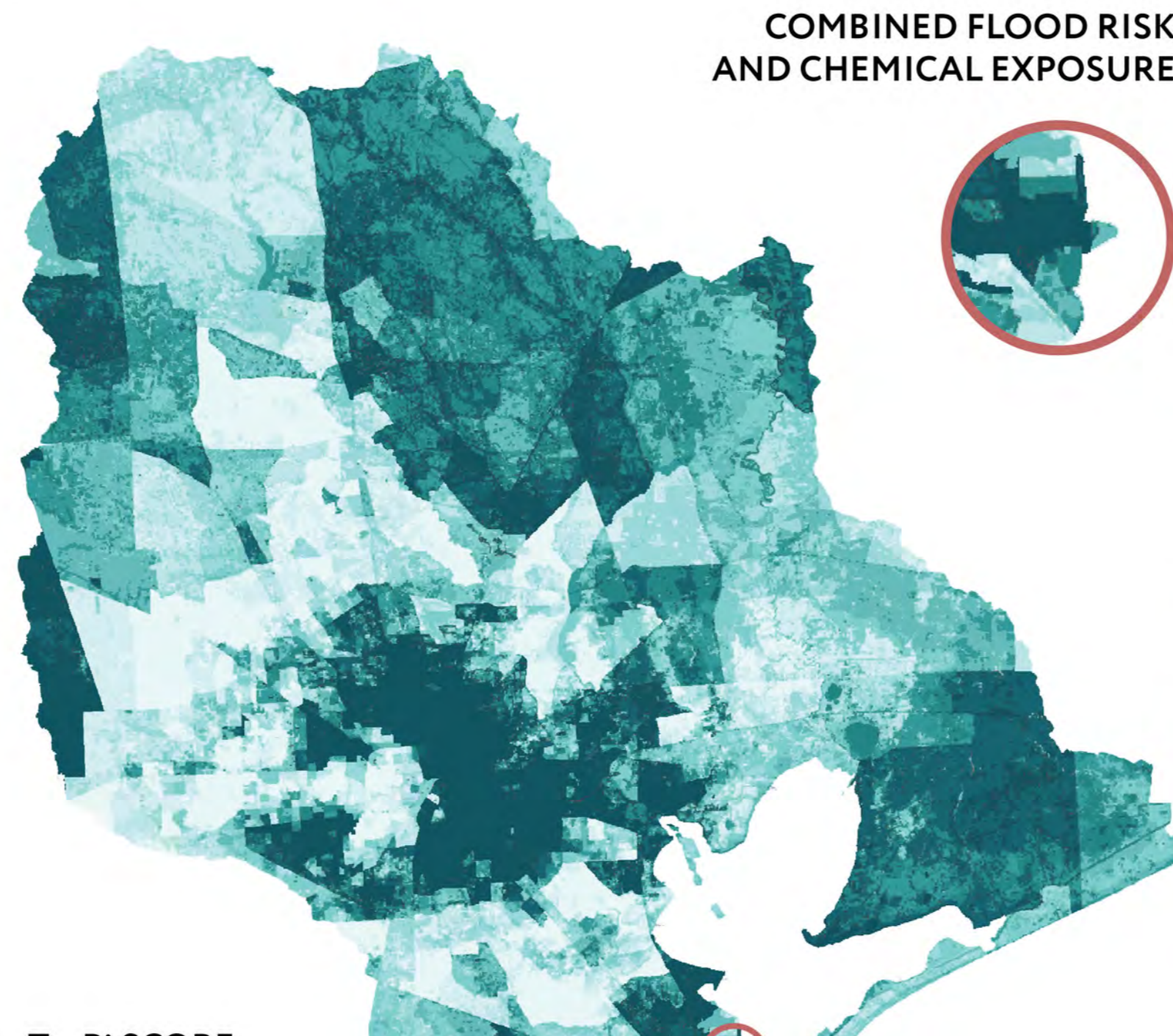
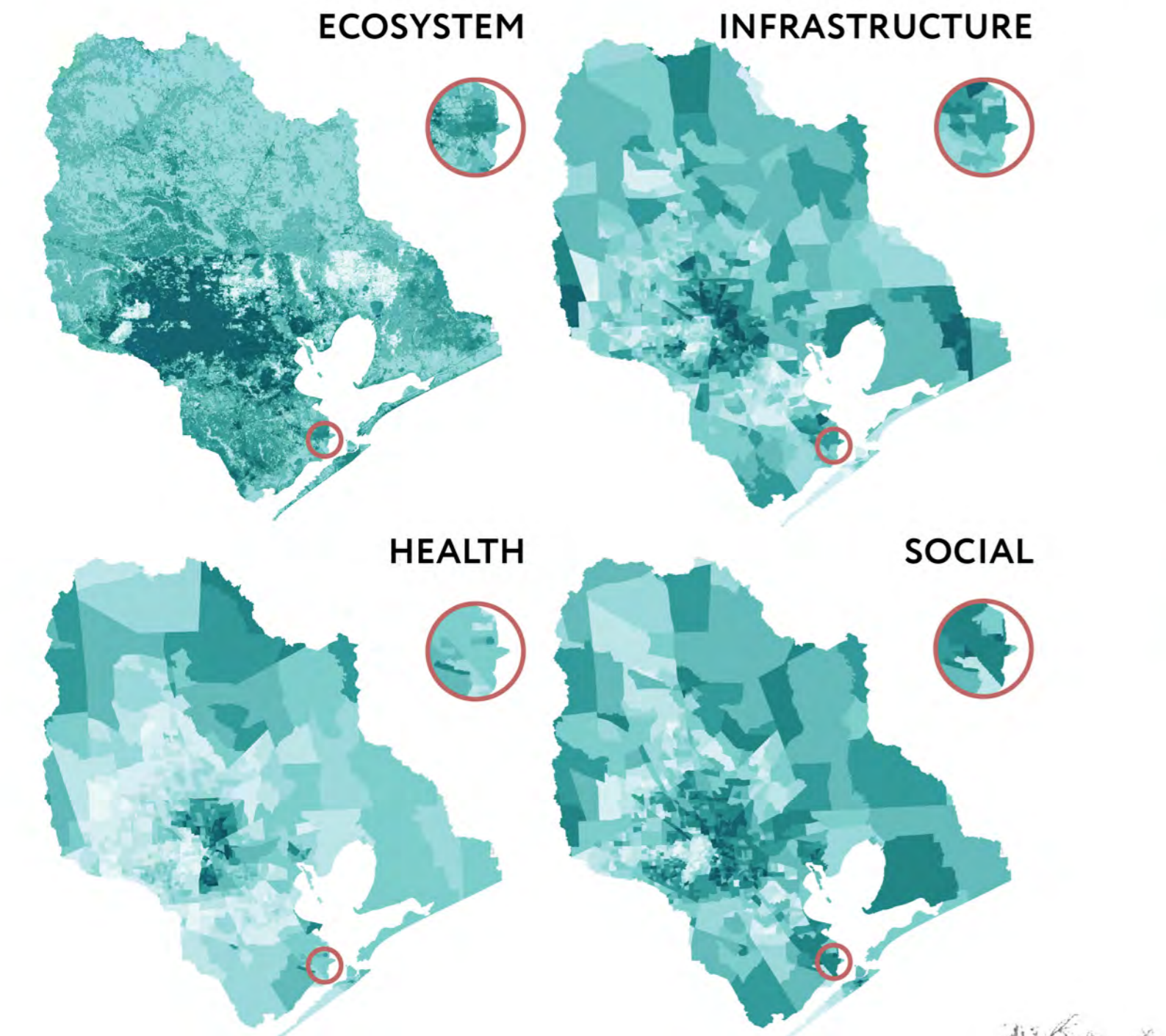


SNOWY EGRET

PROJECT SITE



CONTAMINANT TRANSFERAL DURING FLOOD EVENTS



70% MINORITY (ALL PERSONS EXCEPT WHITE, NON-HISPANIC) ESTIMATE

29.85% PERSONS BELOW POVERTY ESTIMATE

16773.5 USD PER CAPITA INCOME ESTIMATE

10.85% UNEMPLOYMENT RATE

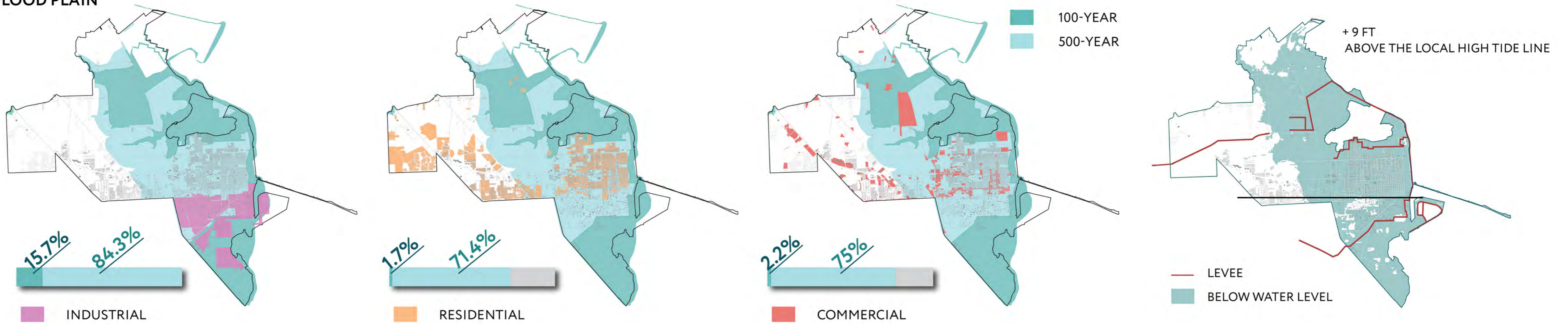
TEXAS CITY

MOST VULNERABLE

LESS VULNERABLE

REGIONAL ANALYSIS

FLOOD PLAIN

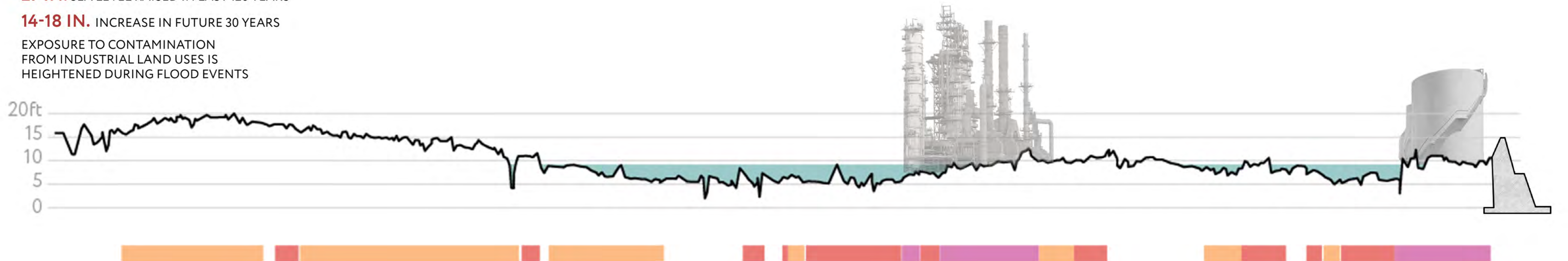


SEA SURGING RISK

27 IN. SEA LEVEL RAISED IN LAST 120 YEARS

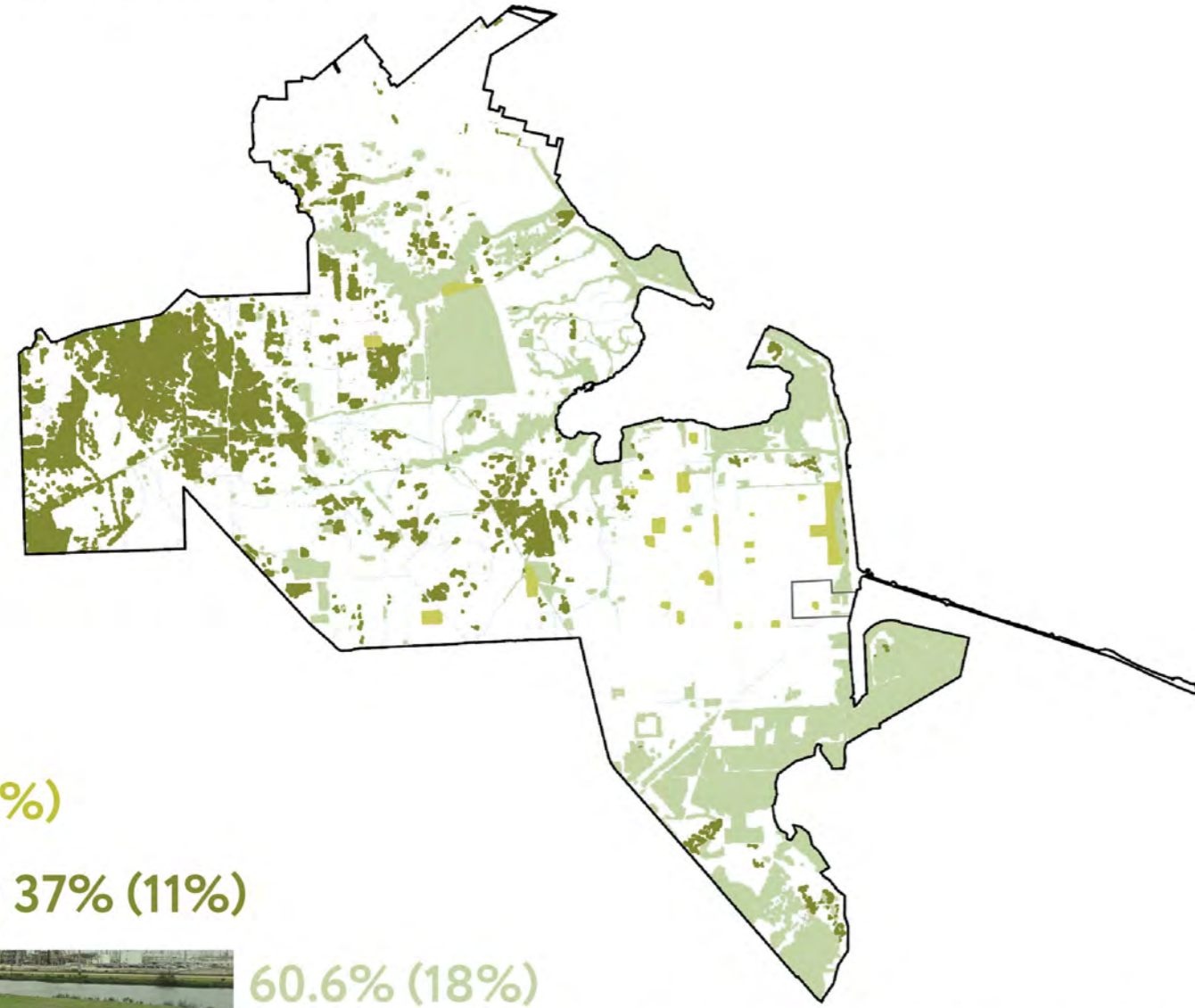
14-18 IN. INCREASE IN FUTURE 30 YEARS

EXPOSURE TO CONTAMINATION FROM INDUSTRIAL LAND USES IS HEIGHTENED DURING FLOOD EVENTS

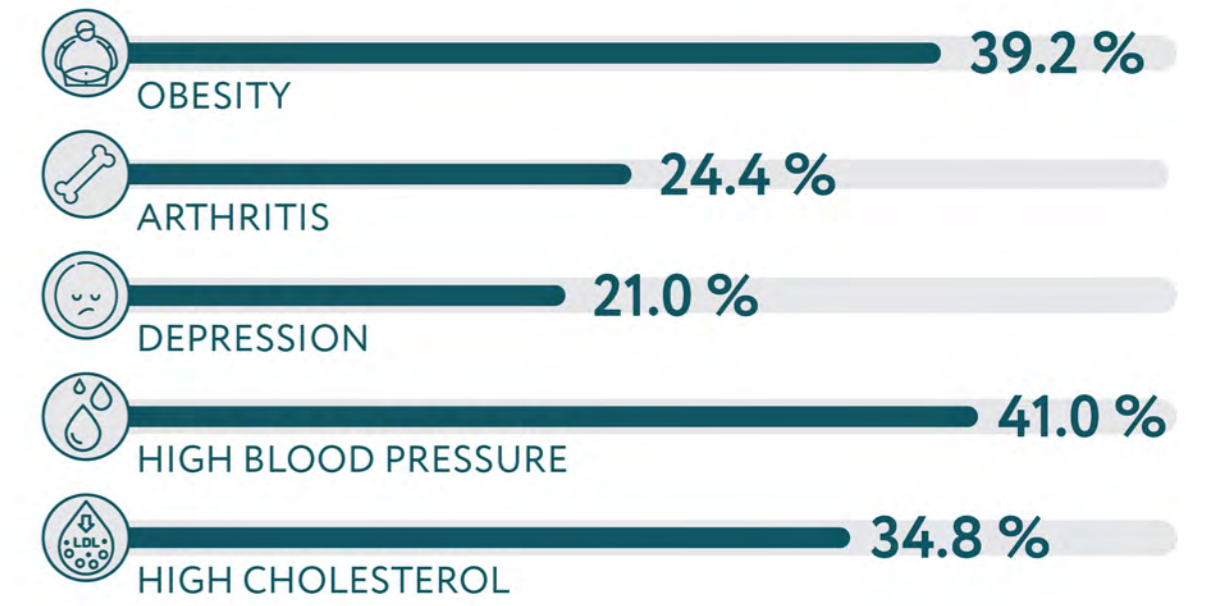
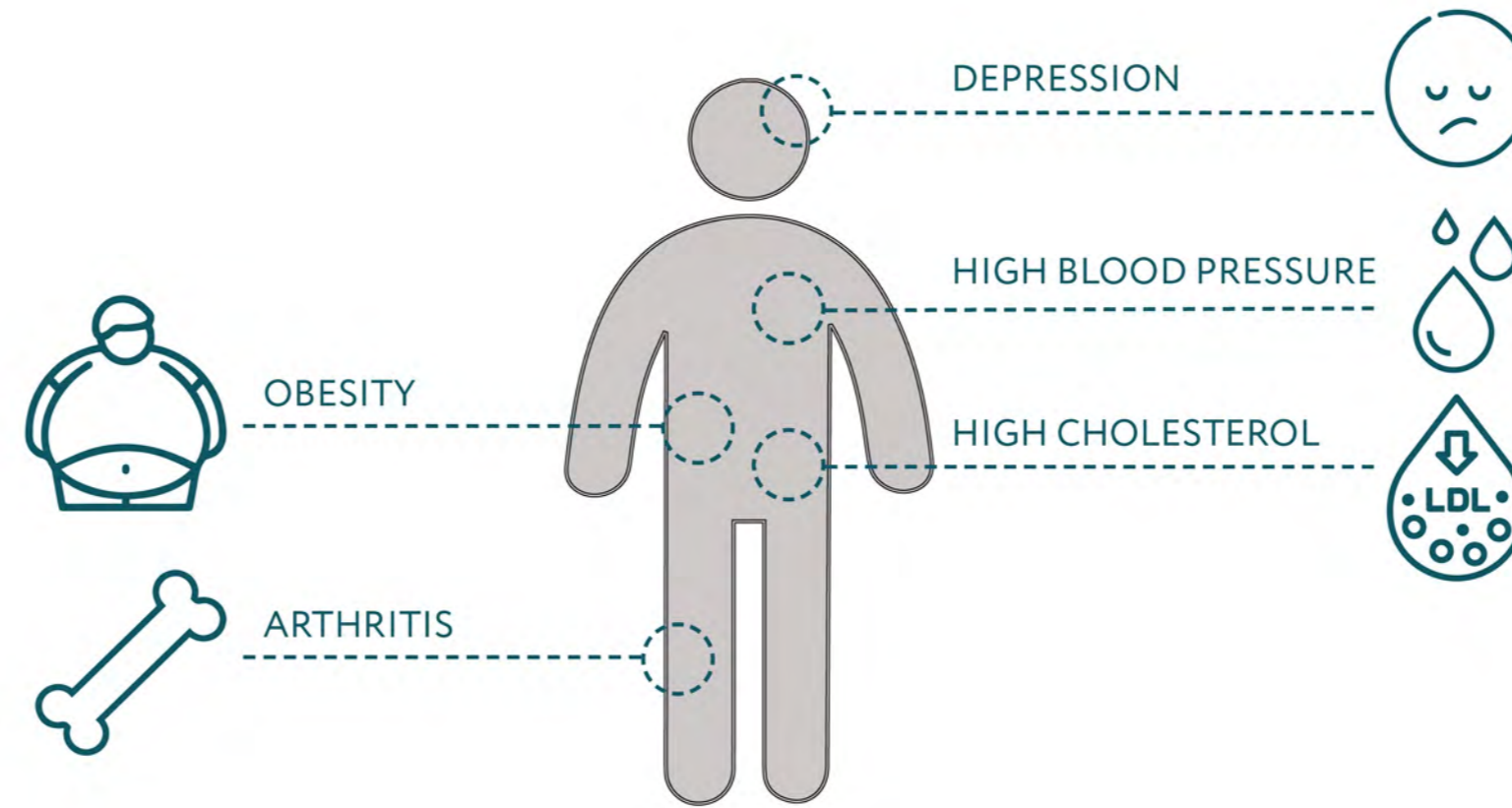


LIMITED ACCESS TO GREEN SPACE

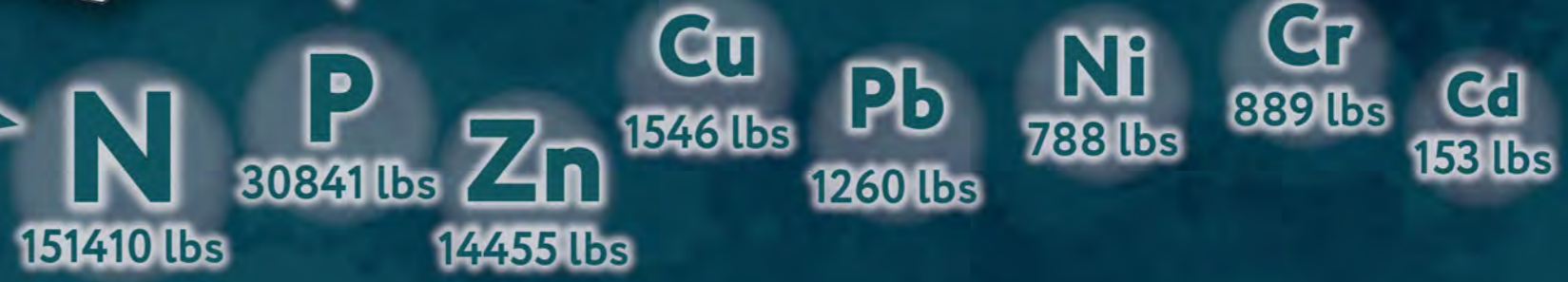
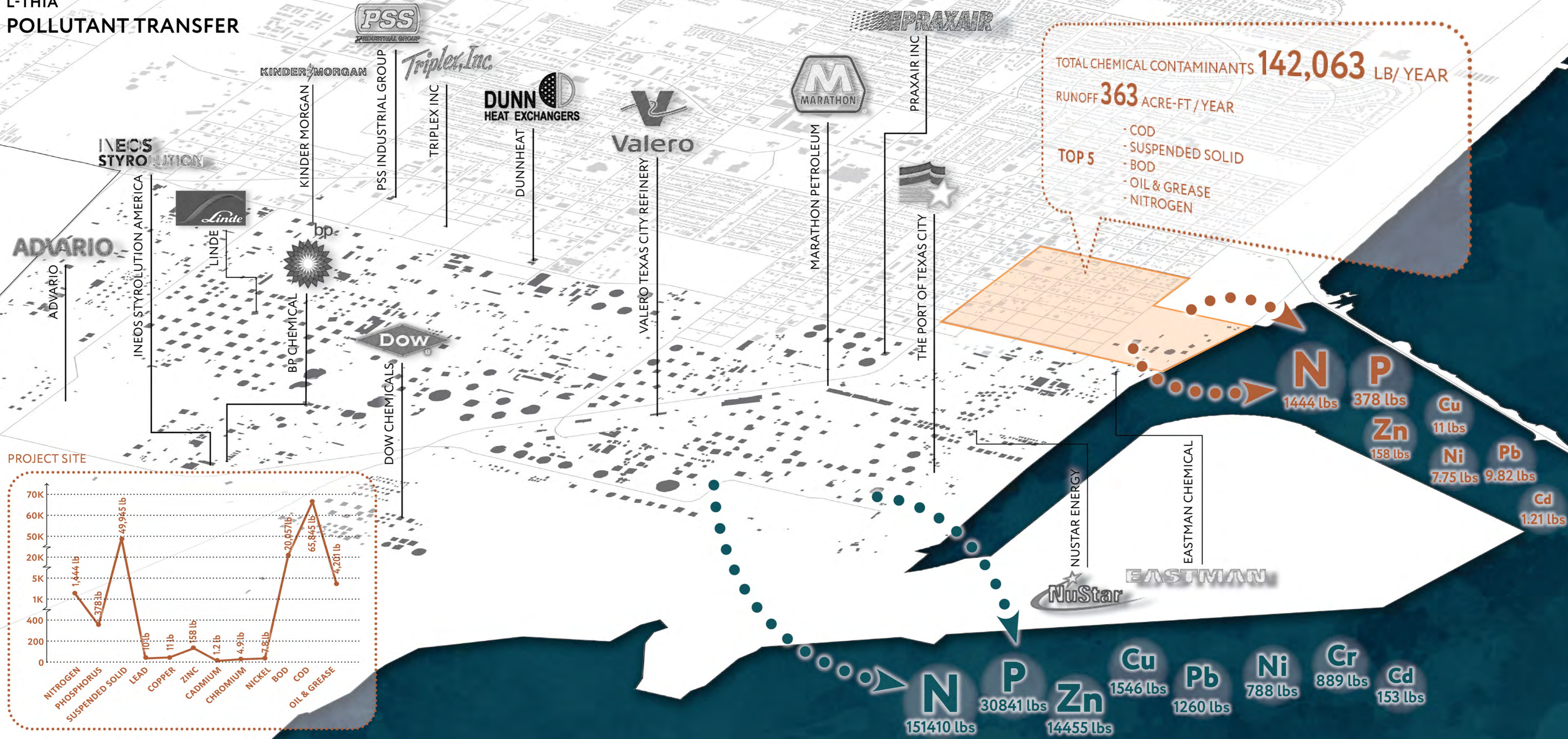
EXISTING GREEN INFRASTRUCTURE



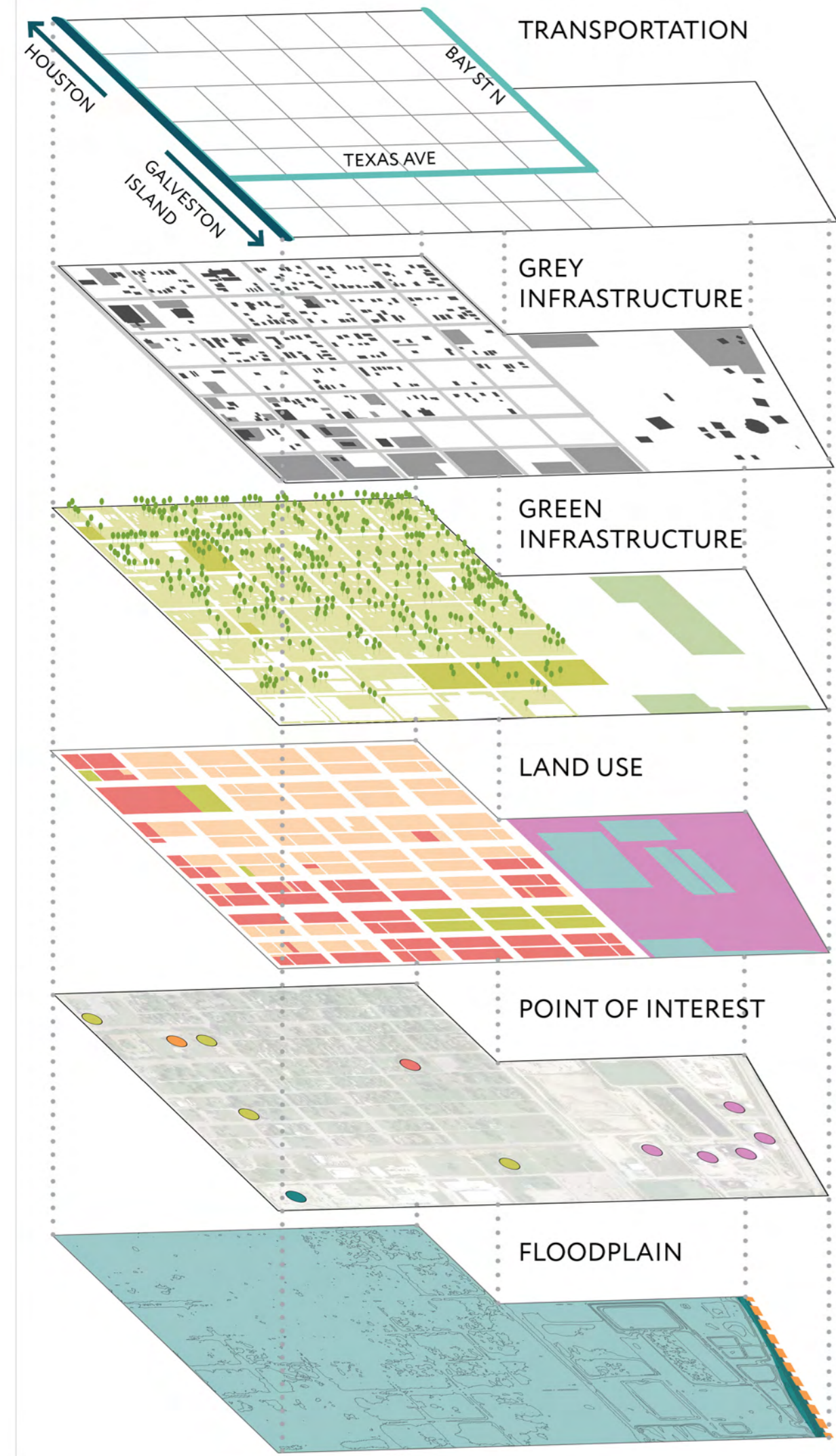
PUBLIC HEALTH



L-THIA
POLLUTANT TRANSFER

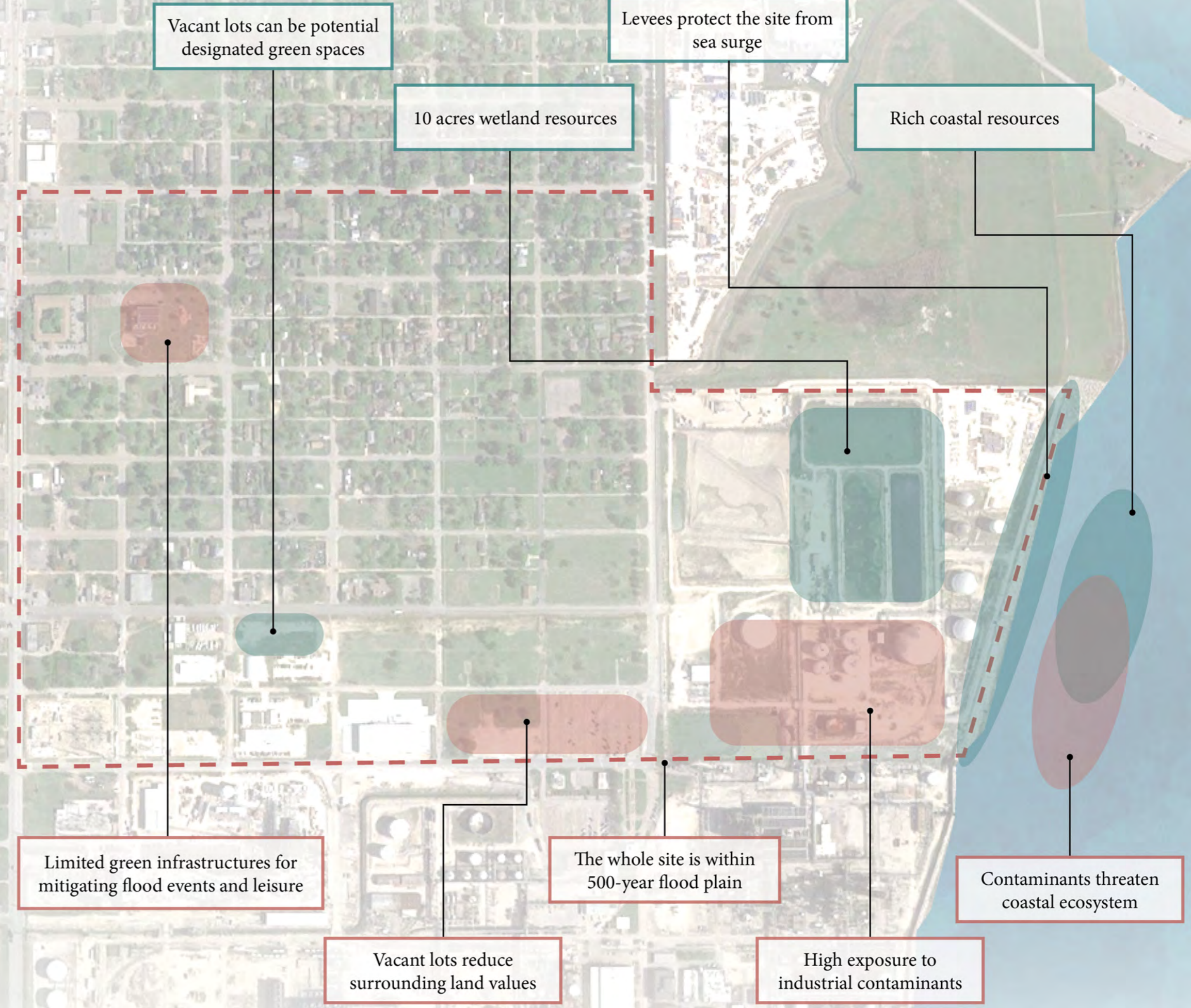


SITE INVENTORY



- STATE HIGHWAY
- MAJOR ROAD
- LOCAL ROAD
- BUILDING FOOTPRINT
- IMPERMEABLE PAVEMENT
- ROAD INFRASTRUCTURE
- PARK
- WETLAND
- LAWN
- TREE
- PARKS 6%
- WETLAND 10%
- COMMERCIAL 20%
- RESIDENTIAL 35%
- INDUSTRIAL 26%
- PARK
- COMMUNITY CENTER
- HISTORICAL MUSEUM
- GAS STORAGE TANK
- UTILITY FACILITY
- 100 YR FLOOD PLAIN
- 500 YR FLOOD PLAIN
- LEVEE

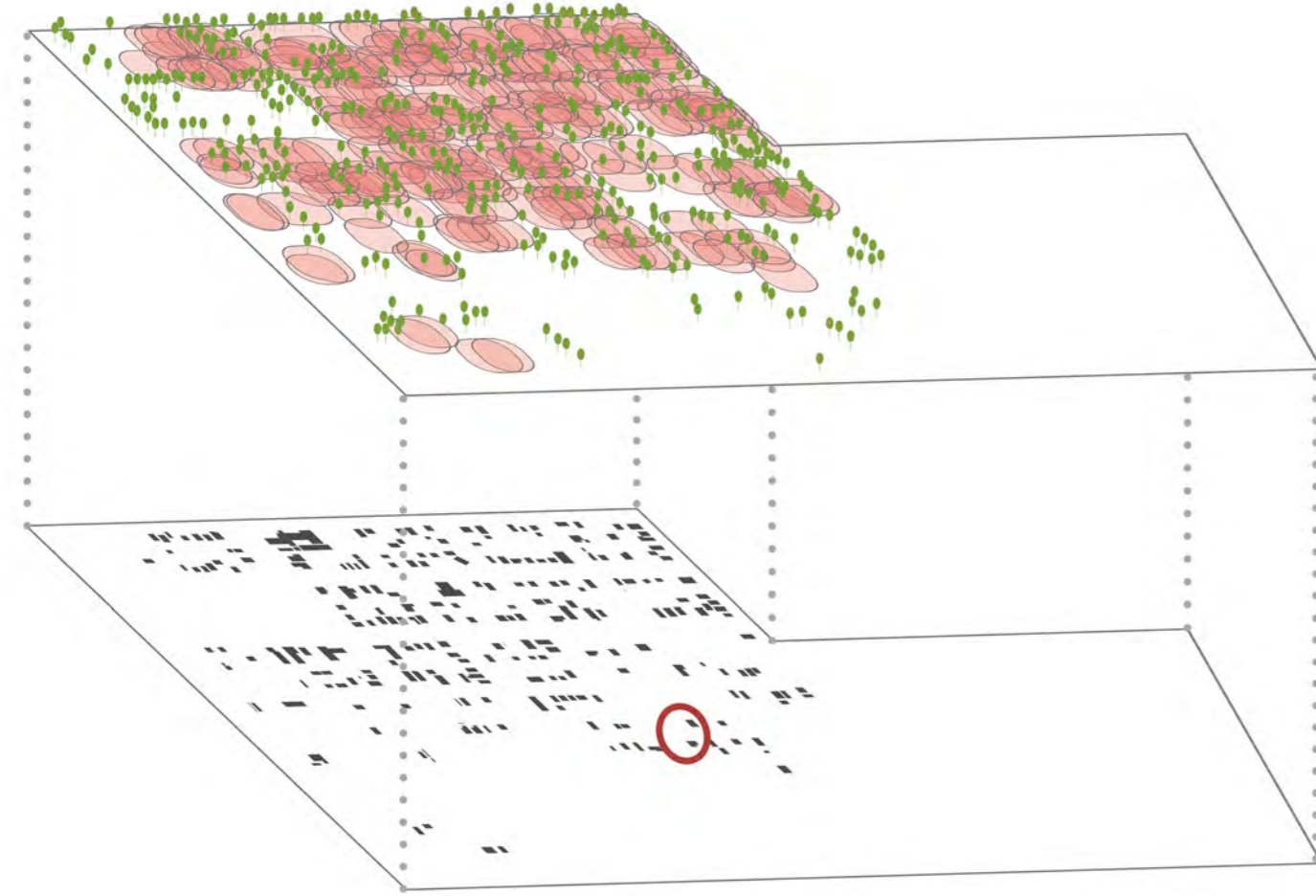
OPPORTUNITIES
CONSTRAINTS



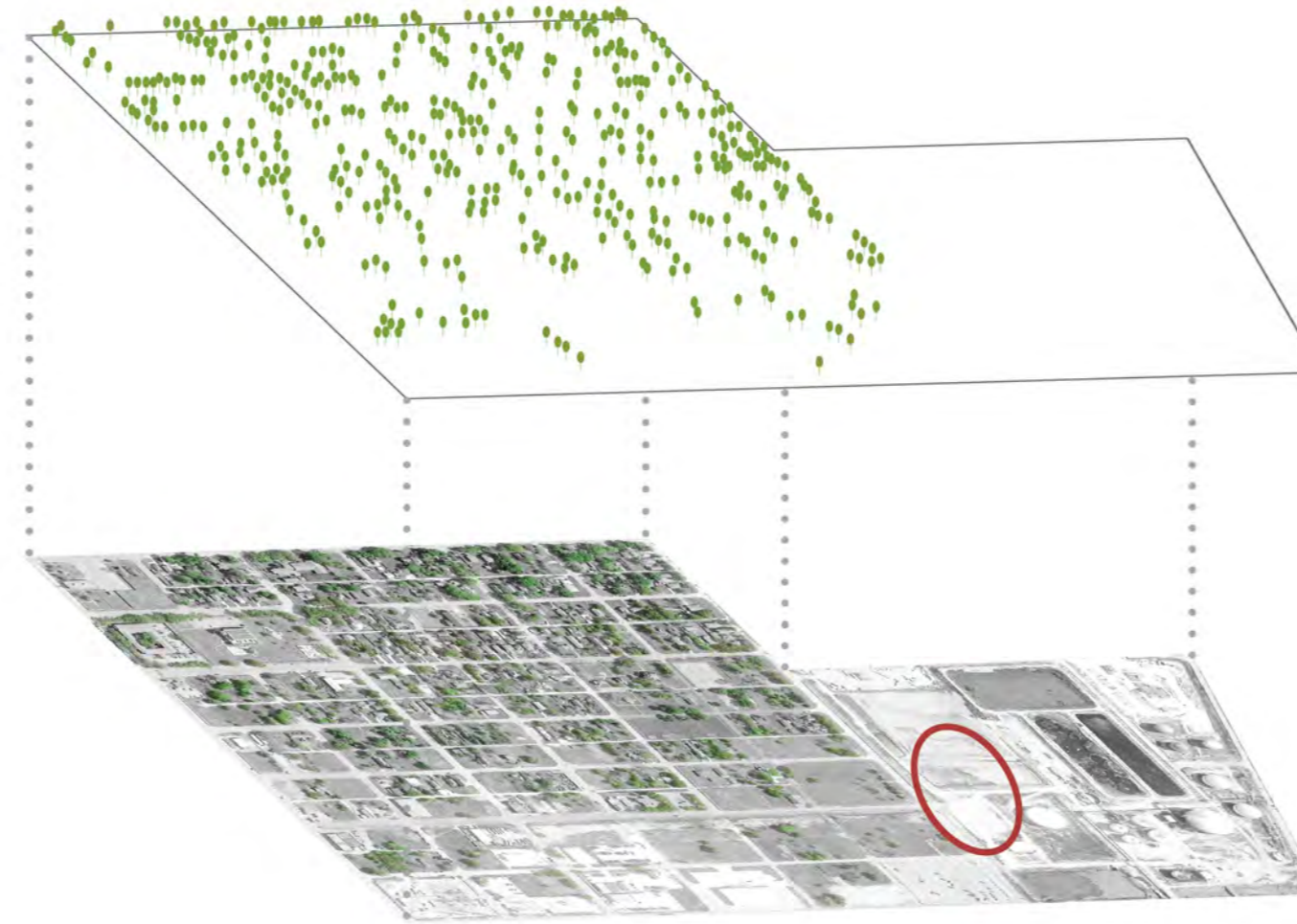
DOES NOT MEET "3-30-300" *

- See at least 3 trees from home
- 30% tree canopy cover in each neighborhood
- 300 meters to high-quality public green space

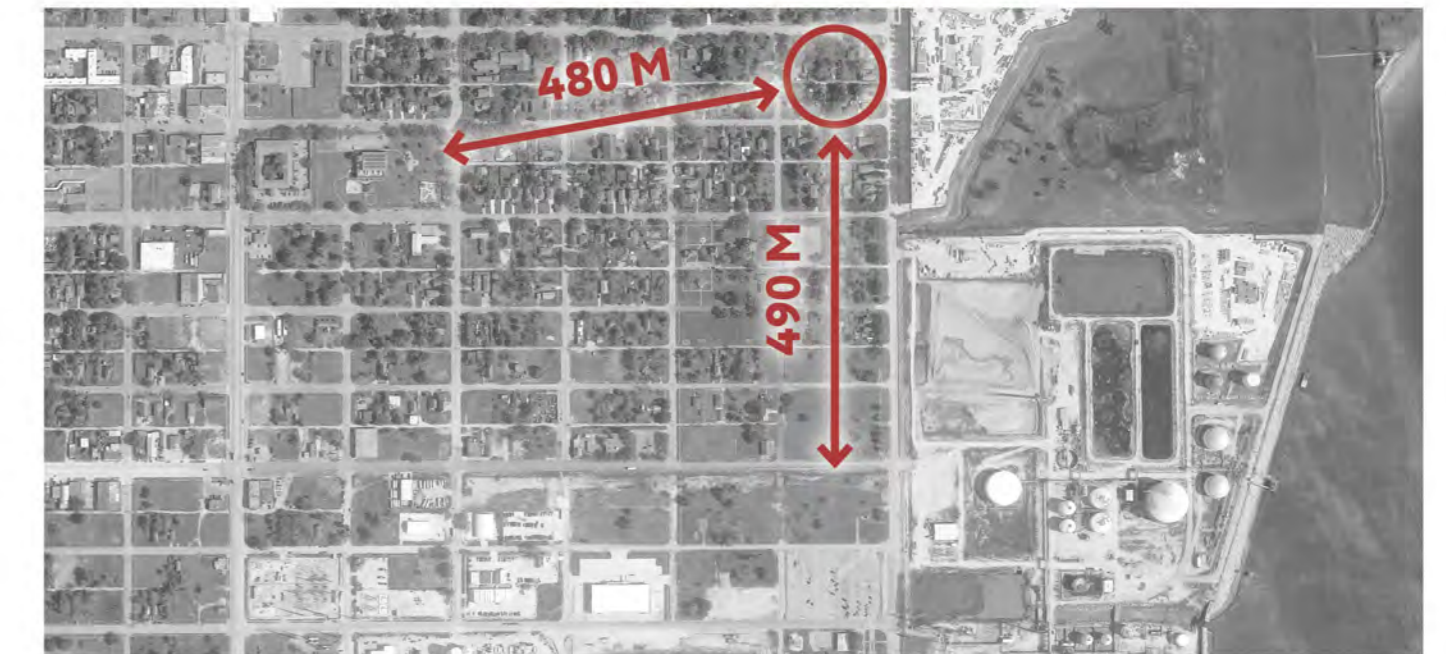
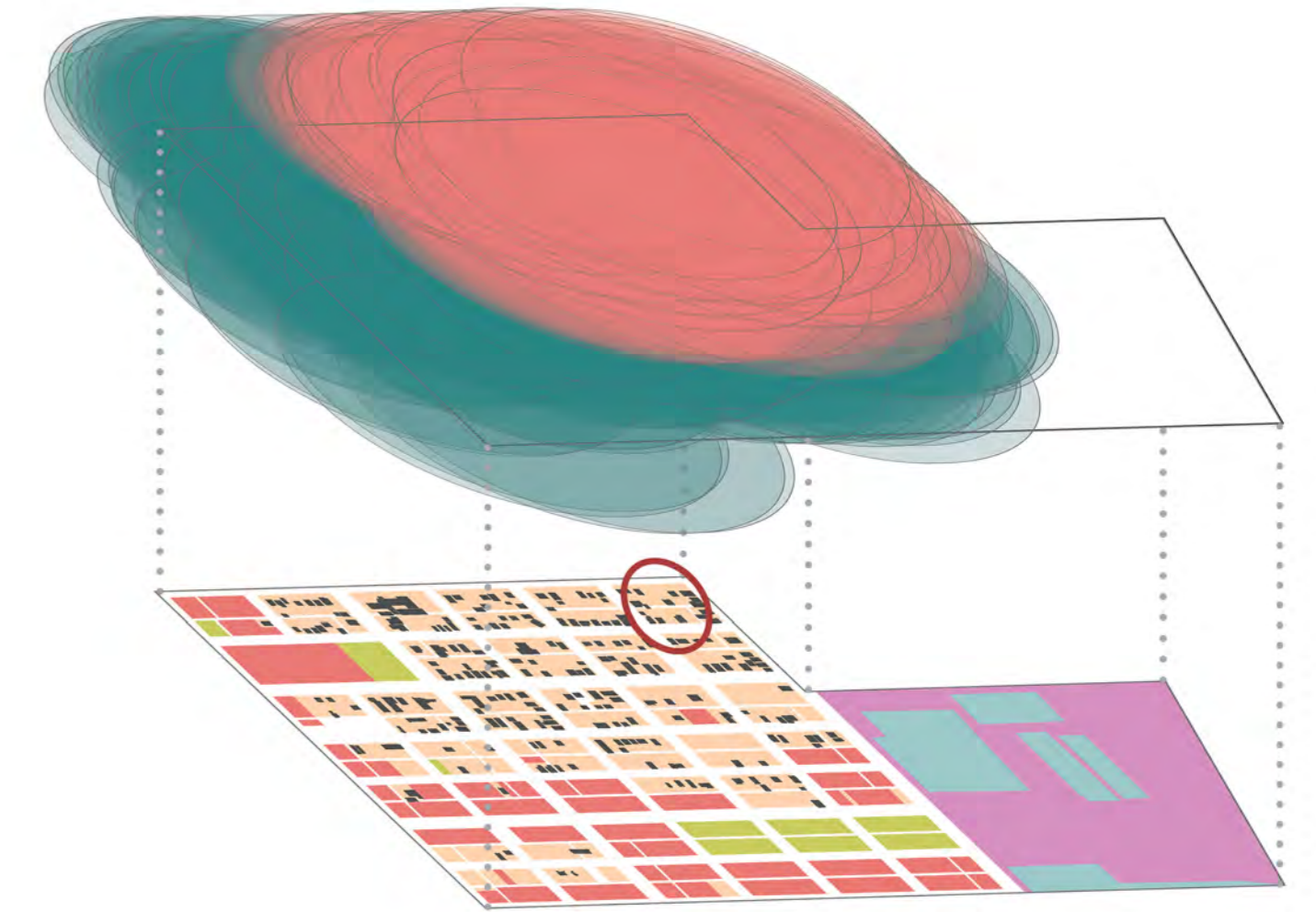
FOR **75%** OF HOUSES, THERE ARE MORE THAN 3 TREES IN 30 METERS



LESS THAN **30%** TREE CANOPY COVER IN THE SITE



THE DISTANCE BETWEEN **61%** OF HOUSES AND GREEN SPACES ARE WITHIN 300 METERS



*Konijnendijk, C. C. (2022). Evidence-based guidelines for Greener, healthier, more resilient neighbourhoods: Introducing the 3–30–300 rule. Journal of Forestry Research. <https://doi.org/10.1007/s11676-022-01523-z>

STRATEGY

**"3-30-300":
INCREASE ACCESS TO GREEN INFRASTRUCTURE IN A
SOCIAALLY VULNERABLE COMMUNITY**

3 - SEE AT LEAST 3 TREES FROM HOME

30 - 30% TREE CANOPY COVER IN EACH NEIGHBORHOOD

300 - 300 METERS TO HIGH-QUALITY PUBLIC GREEN SPACE



ISSUES



FLOODING



INDUSTRIAL CONTAMINANTS



LIMITED GREEN SPACE



VACANT LOTS

FACILITIES

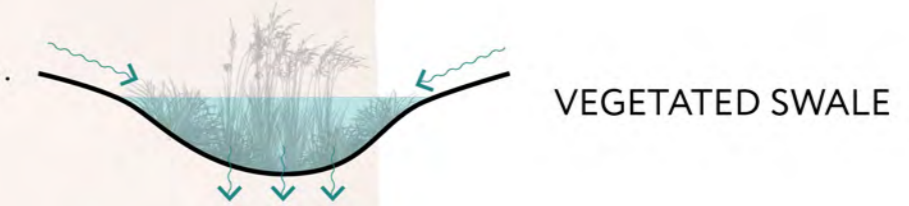
Use green infrastructure to mitigate flood risks, lessen exposure to industrial contaminants from flooding runoff, and design a healthier living environment



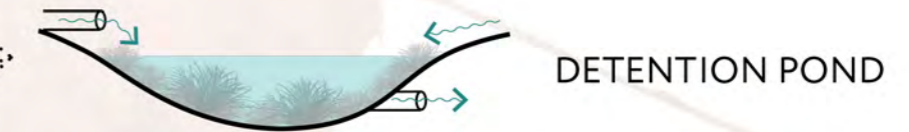
RAIN GARDEN



PERMEABLE PAVEMENTS



VEGETATED SWALE



DETENTION POND



RETENTION POND



INFILTRATION BASIN



RESTORE WETLANDS



URBAN FORESTS

MASTER PLAN



SPATIAL FUNCTION

- ① COMMUNITY CENTER
- ② COMMERCIAL DISTRICT
- ③ MIX-USED OFFICE & RESIDENTIAL
- ④ TRAINING SCHOOL
- ⑤ RESEARCH CENTER
- ⑥ HISTORICAL MUSEUM
- ⑦ COMMERCIAL PLAZA
- ⑧ INDUSTRY

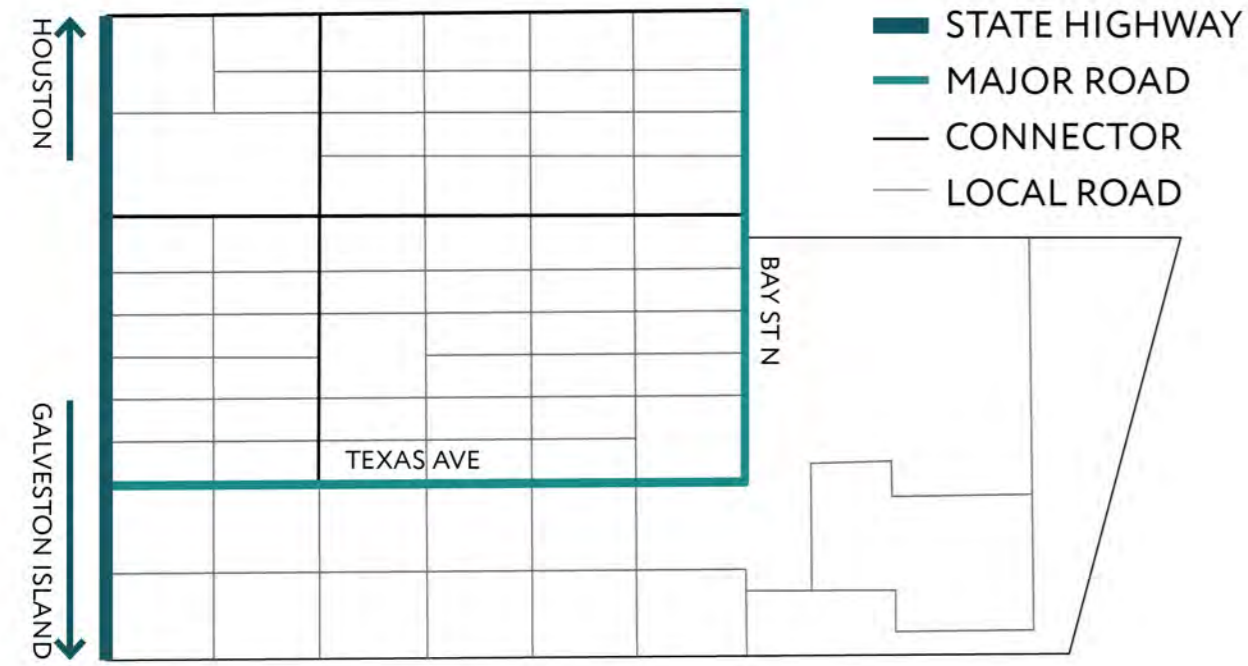
GREEN INFRASTRUCTURE

- ① EVENT PLAZA
- ② NEIGHBORHOOD PARK
- ③ DOG PARK
- ④ FITNESS PARK & TENNIS COURT
- ⑤ GREEN BUFFER
- ⑥ VEGETATED SWALE
- ⑦ URBAN FOREST
- ⑧ REMEDIATION PARK
- ⑨ RE-CONSTRUCTED WETLAND
- ⑩ FILTER STRIP
- ⑪ OVER-TOPPING BASIN



MEETS "3-30-300" STANDARD

TRANSPORTATION



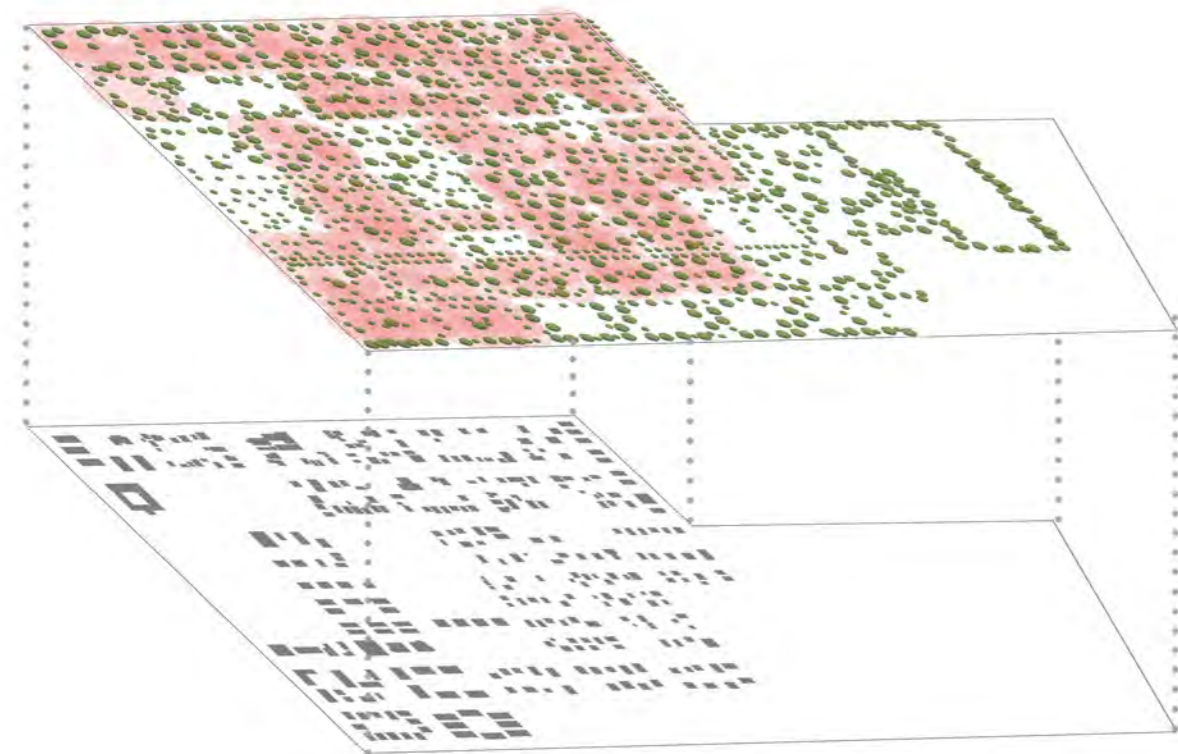
GREY INFRASTRUCTURE



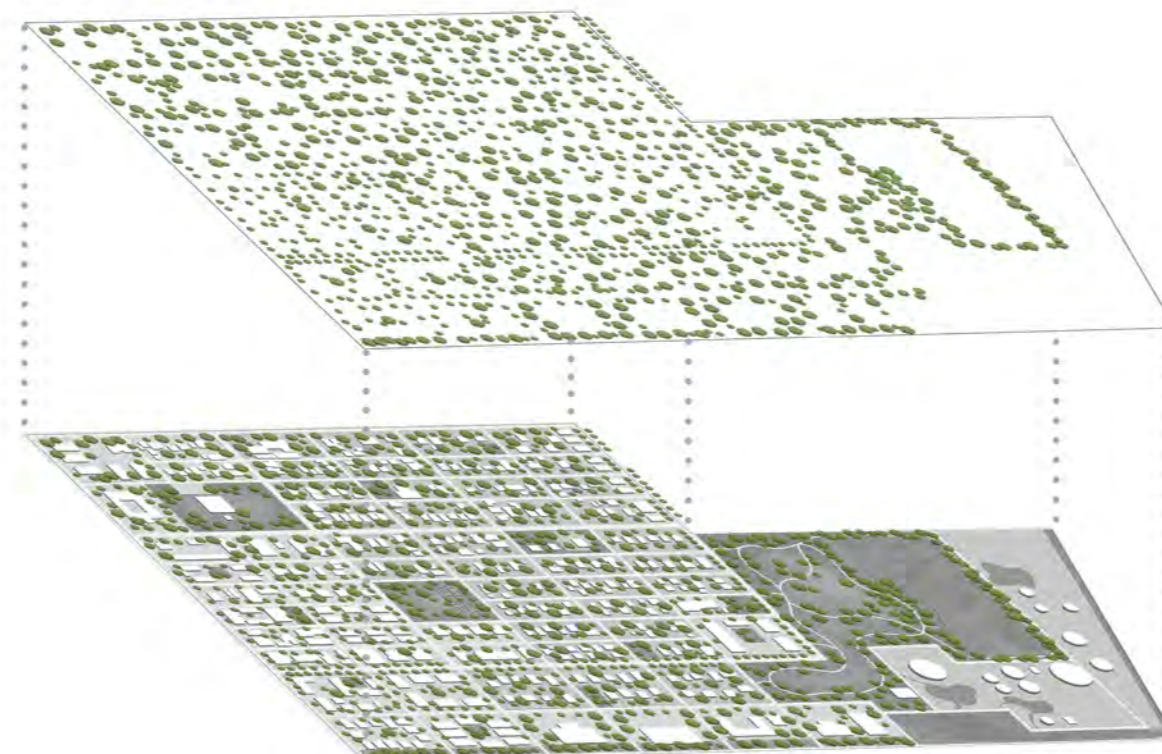
LAND USE



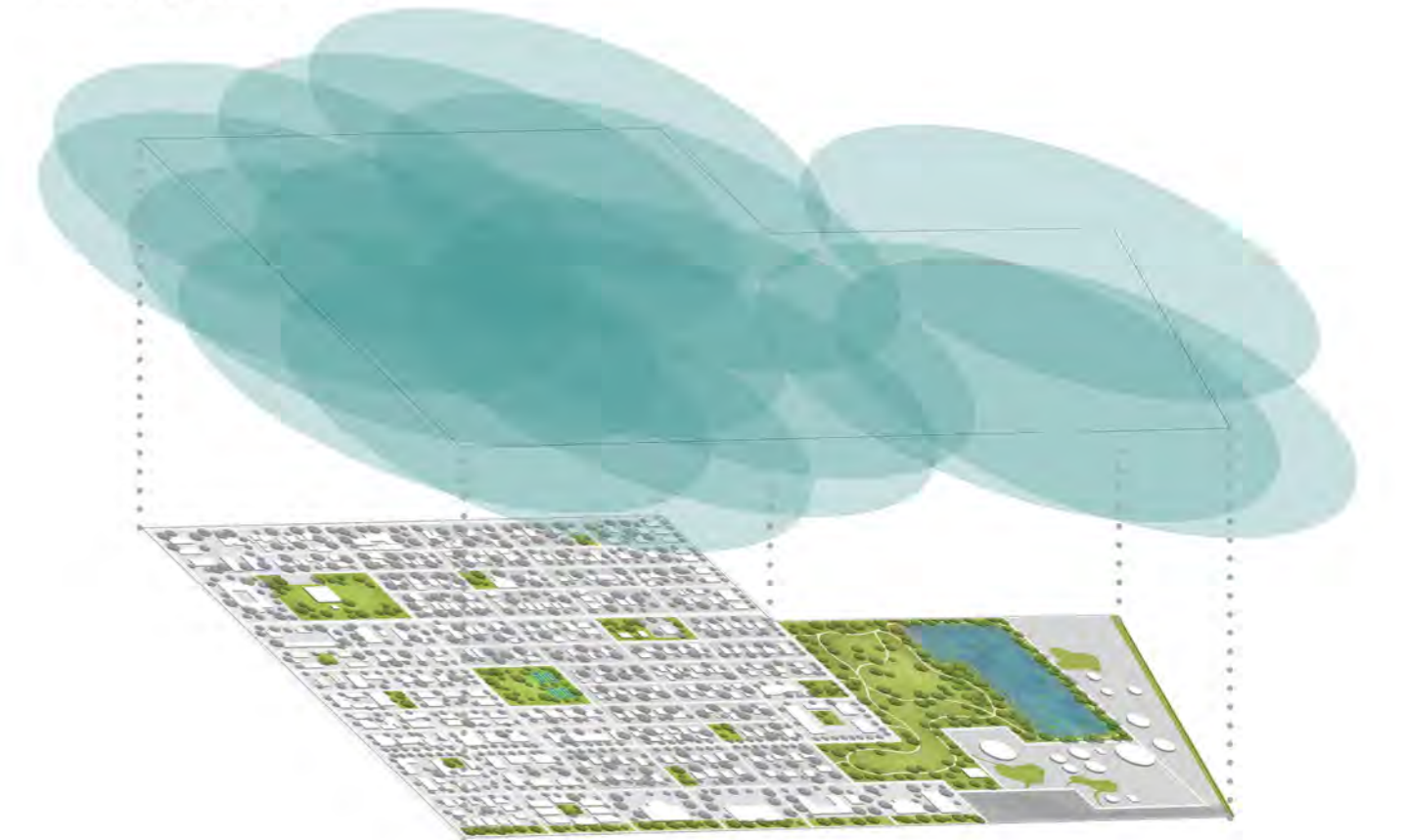
FOR **100%** OF HOUSES, THERE ARE MORE THAN 3 TREES IN 30 METERS



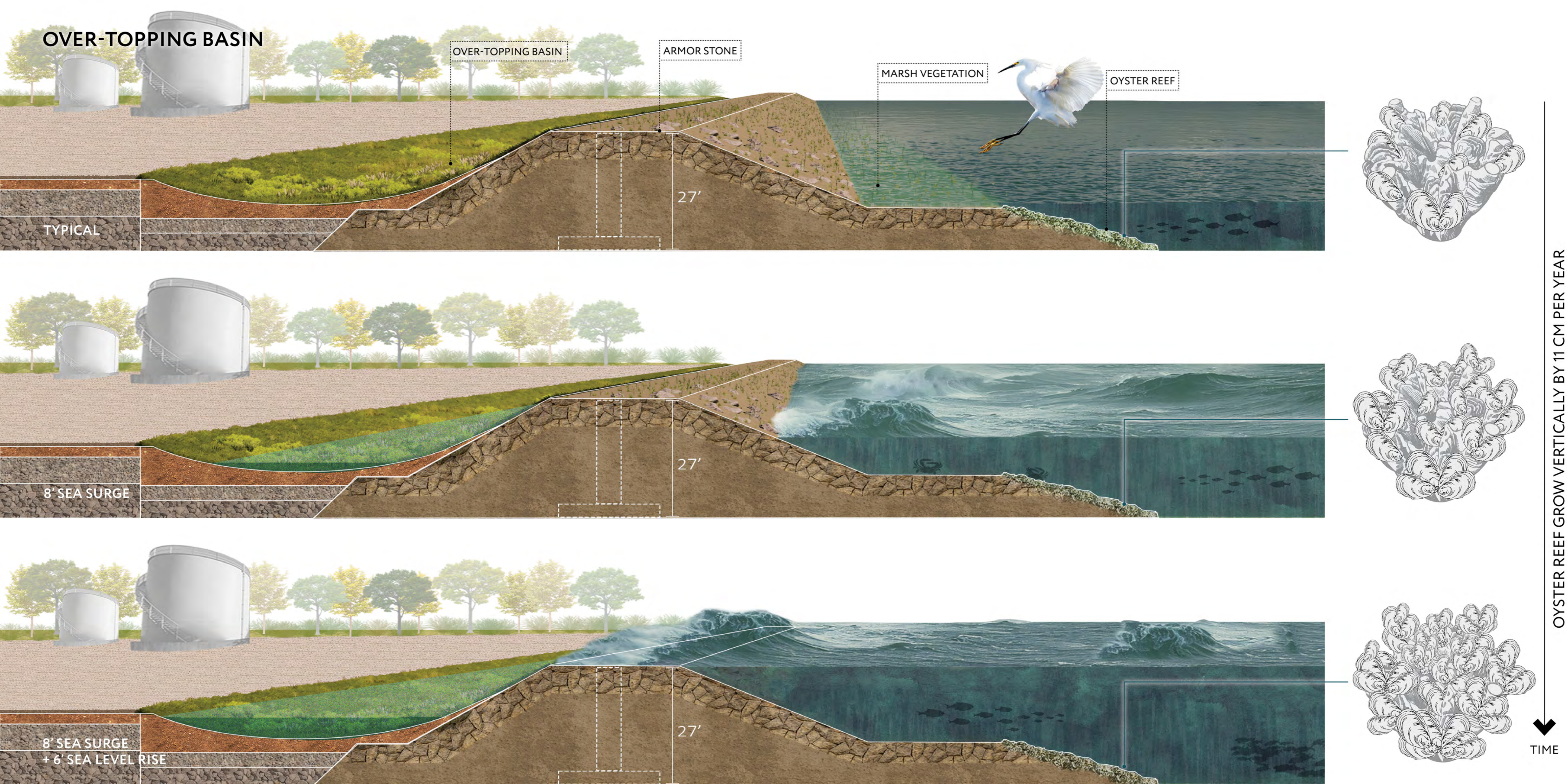
35% TREE CANOPY COVER IN THE SITE



THE DISTANCE BETWEEN **100%** OF HOUSES AND GREEN SPACES ARE WITHIN 300 METERS



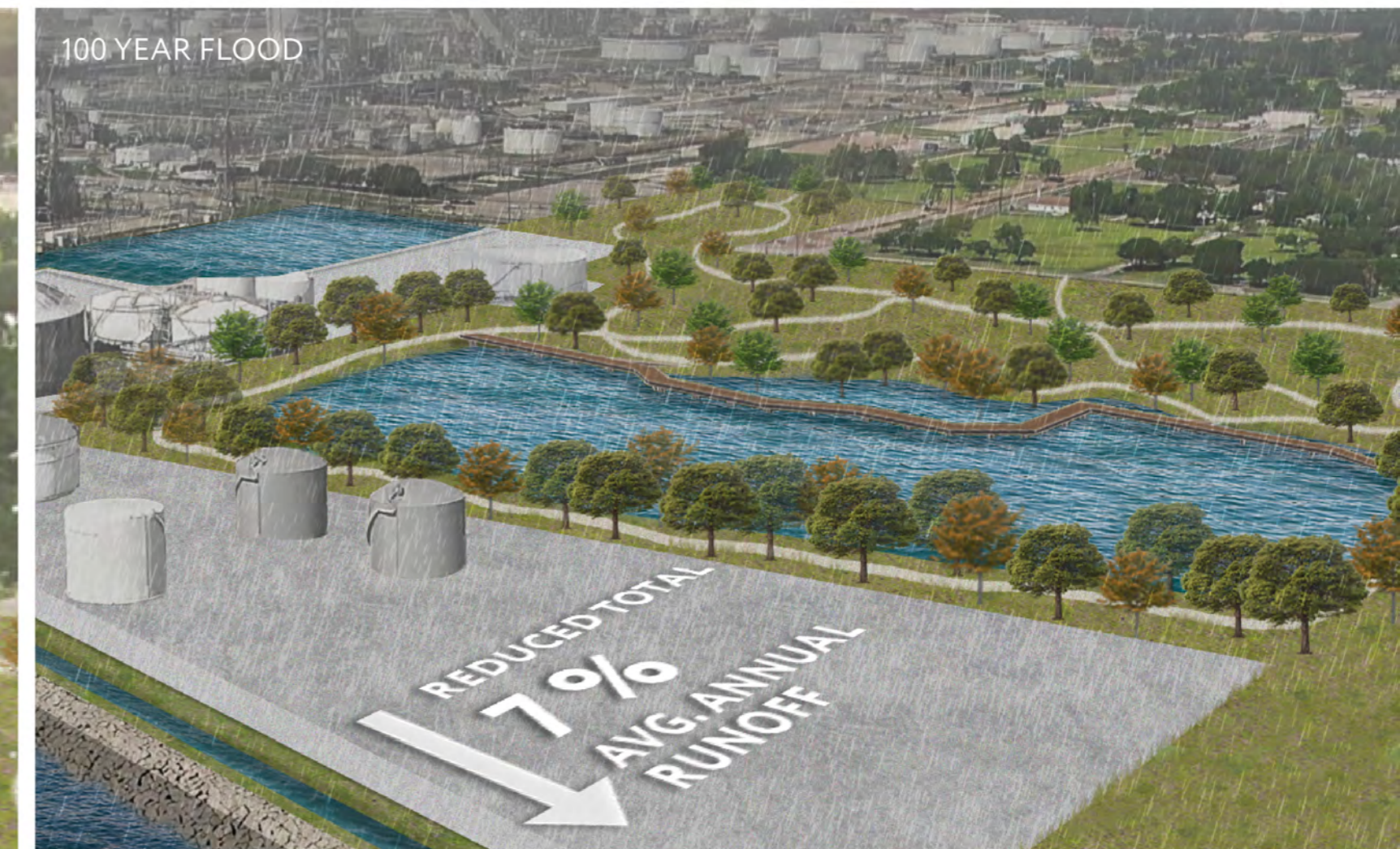
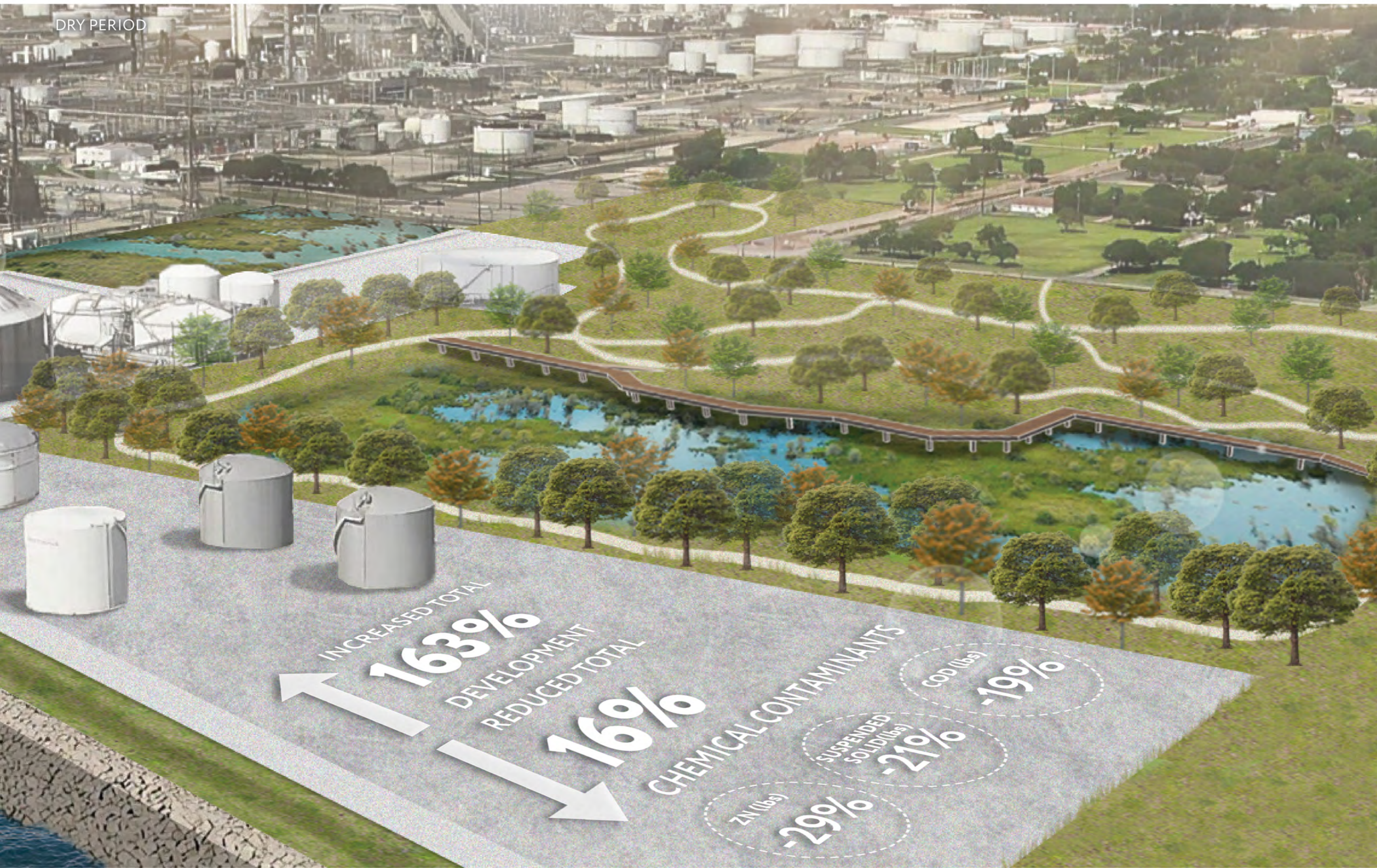
OVER-TOPPING BASIN



OYSTER REEF GROW VERTICALLY BY 11 CM PER YEAR

TIME

REMEDIATION PARK AND RECONSTRUCTED WETLAND





STORMWATER RUNOFF

INFILTRATION



INCREASED TOTAL
3.8 TIMES
GREENSPACE