

First International Conference organized within the framework of
PolyUrbanWaters Research and Project Network (BMBF 2019-2025)

POLYURBAN WATERS

**Polycentric management of urban
waters in fast-growing cities and
peri-urban areas in Southeast Asia**

Renee Y. Chow / University of California Berkeley

Urban Water Resources in the World and in Southeast Asia

Living With Water: Urban Challenges and Frameworks

24-25th
March
2021

Online /
Berlin / Kratie /
Sleman /
Vientiane









Venice, Italy



Rudabai Vav, Adalaj, India



Lake Titicaca, Peru



Venice, Italy



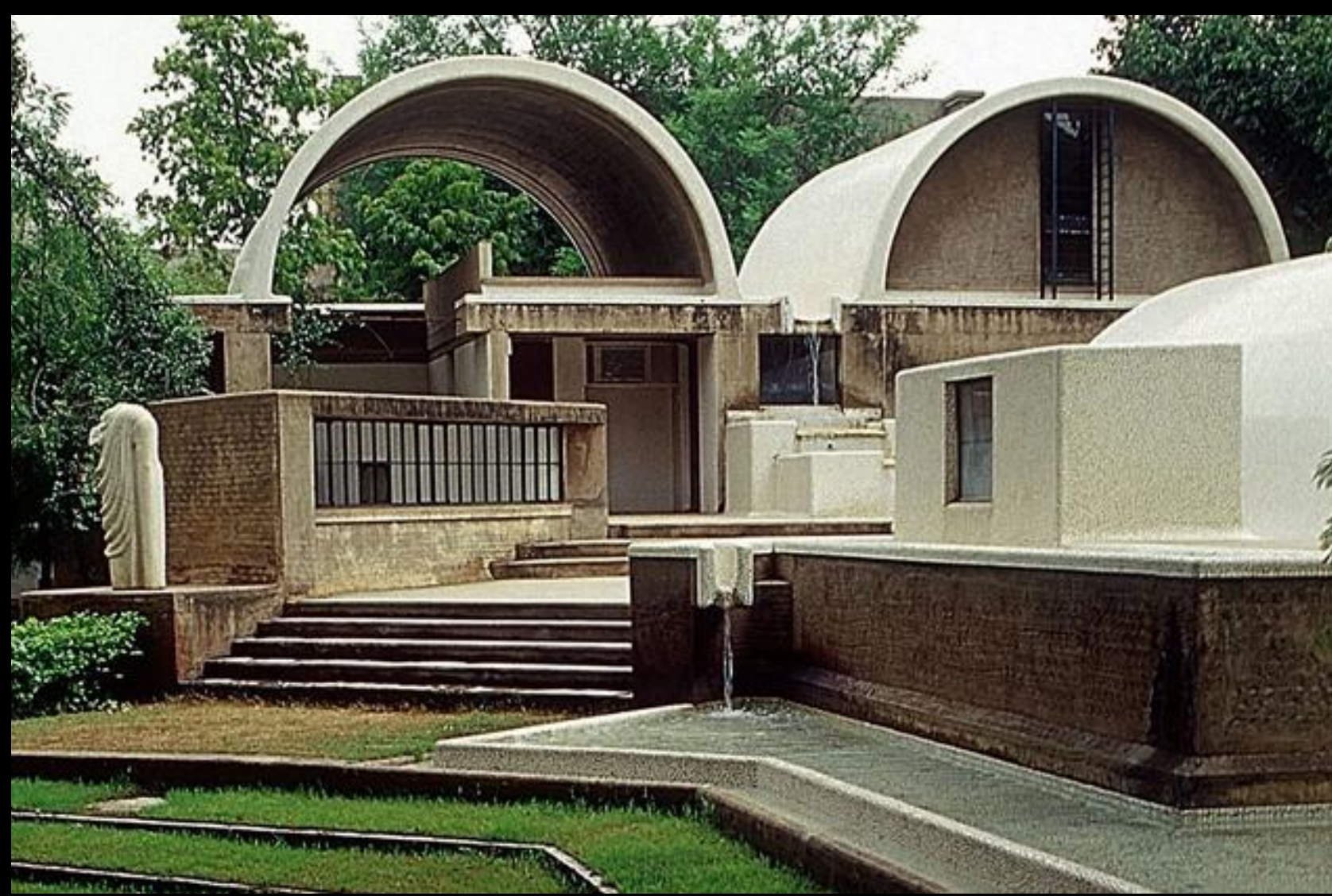
Rudabai Vav, Adalaj, India



Lake Titicaca, Peru



Venice, Italy- Querini Stampalia



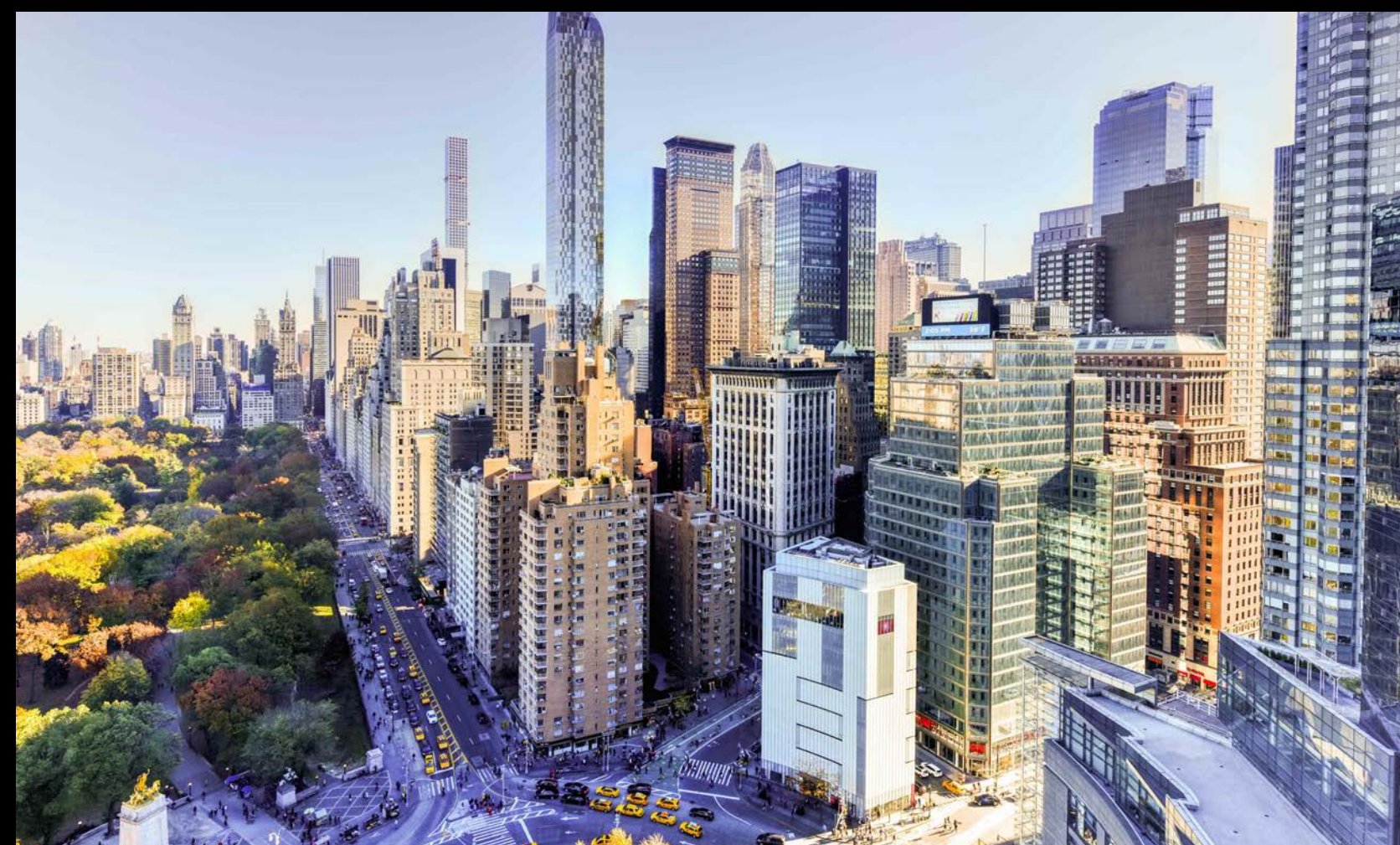
Ahmedabad, India- Sangath



Amsterdam, The Netherlands- Floating homes



Shanghai



New York



San Francisco



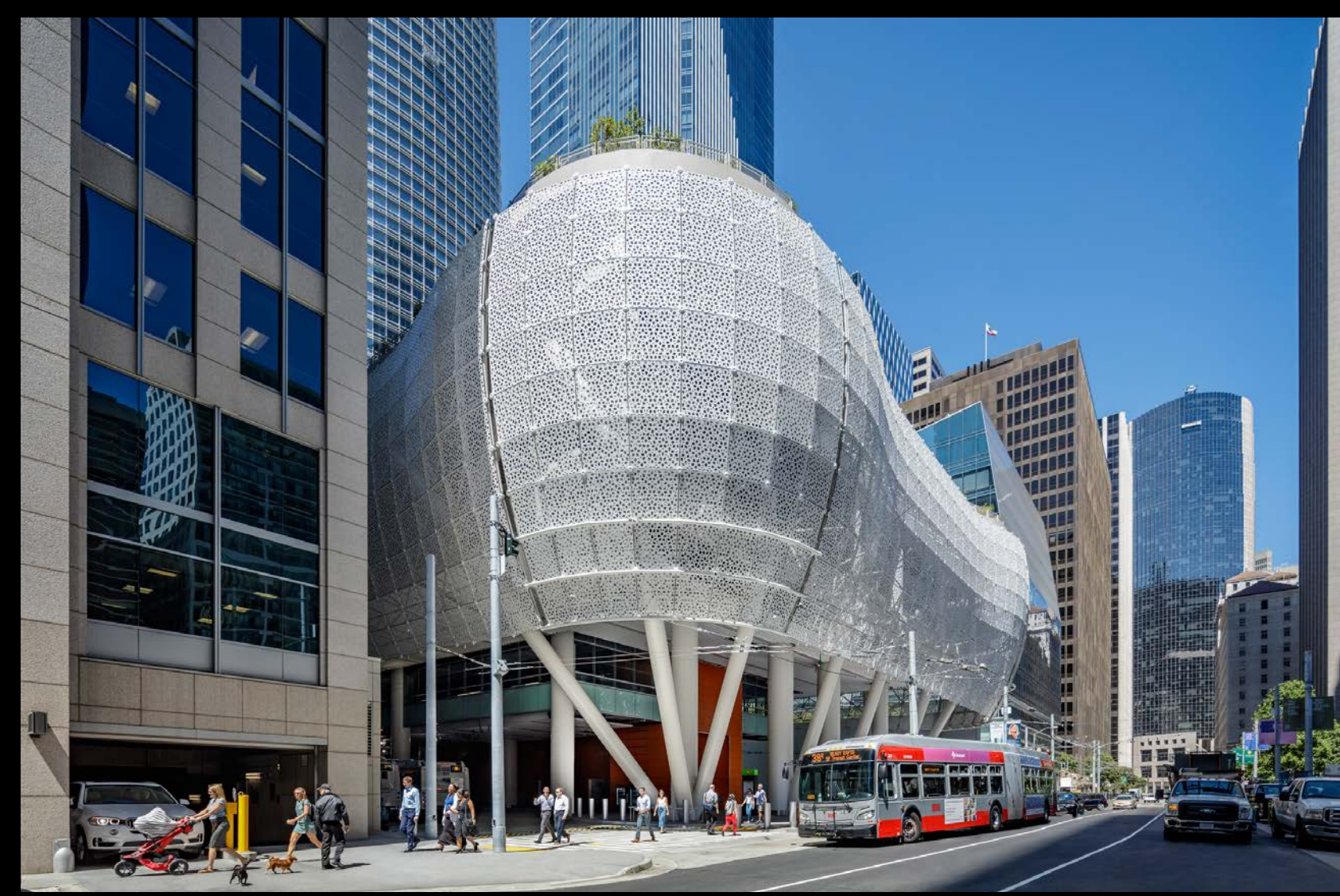
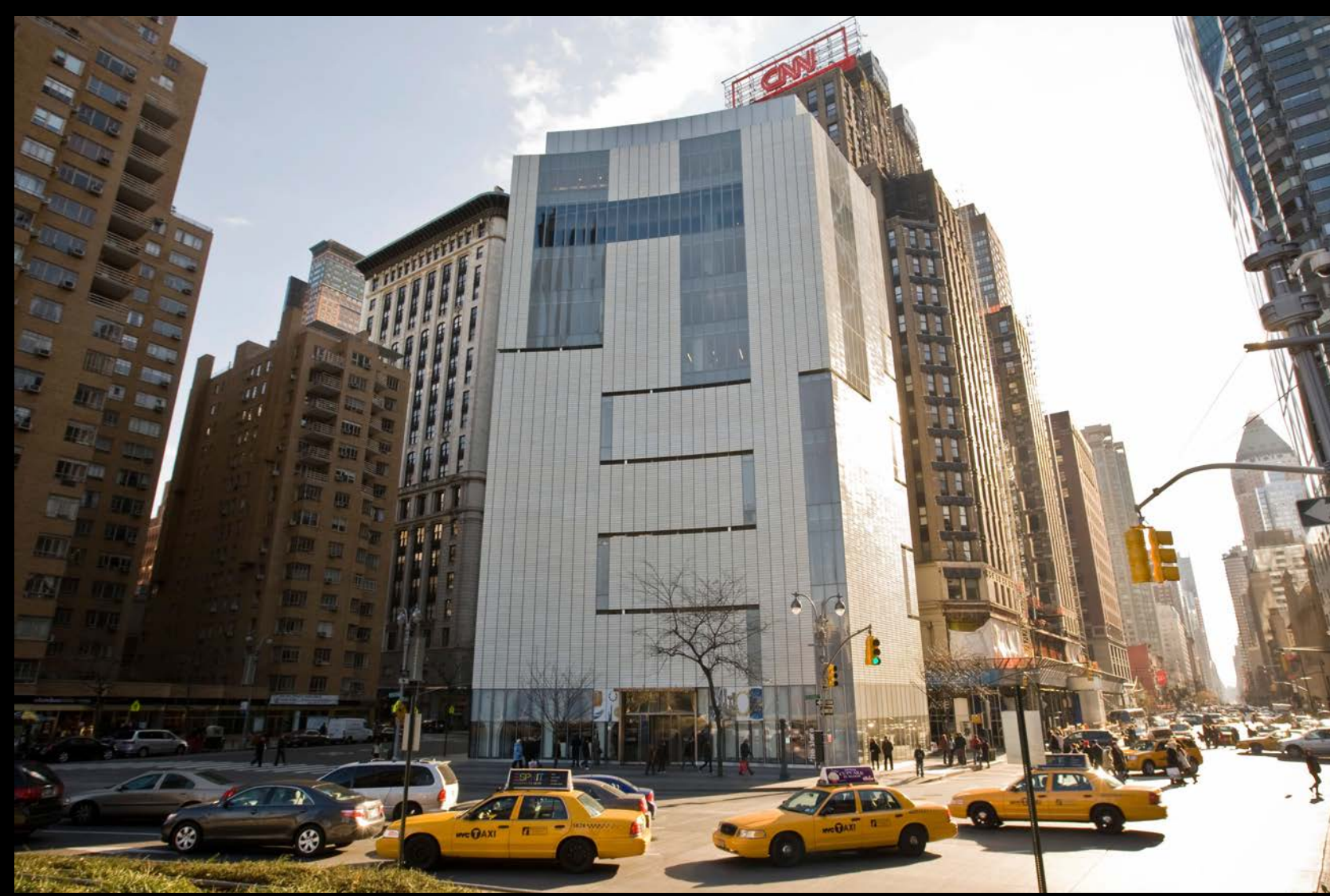
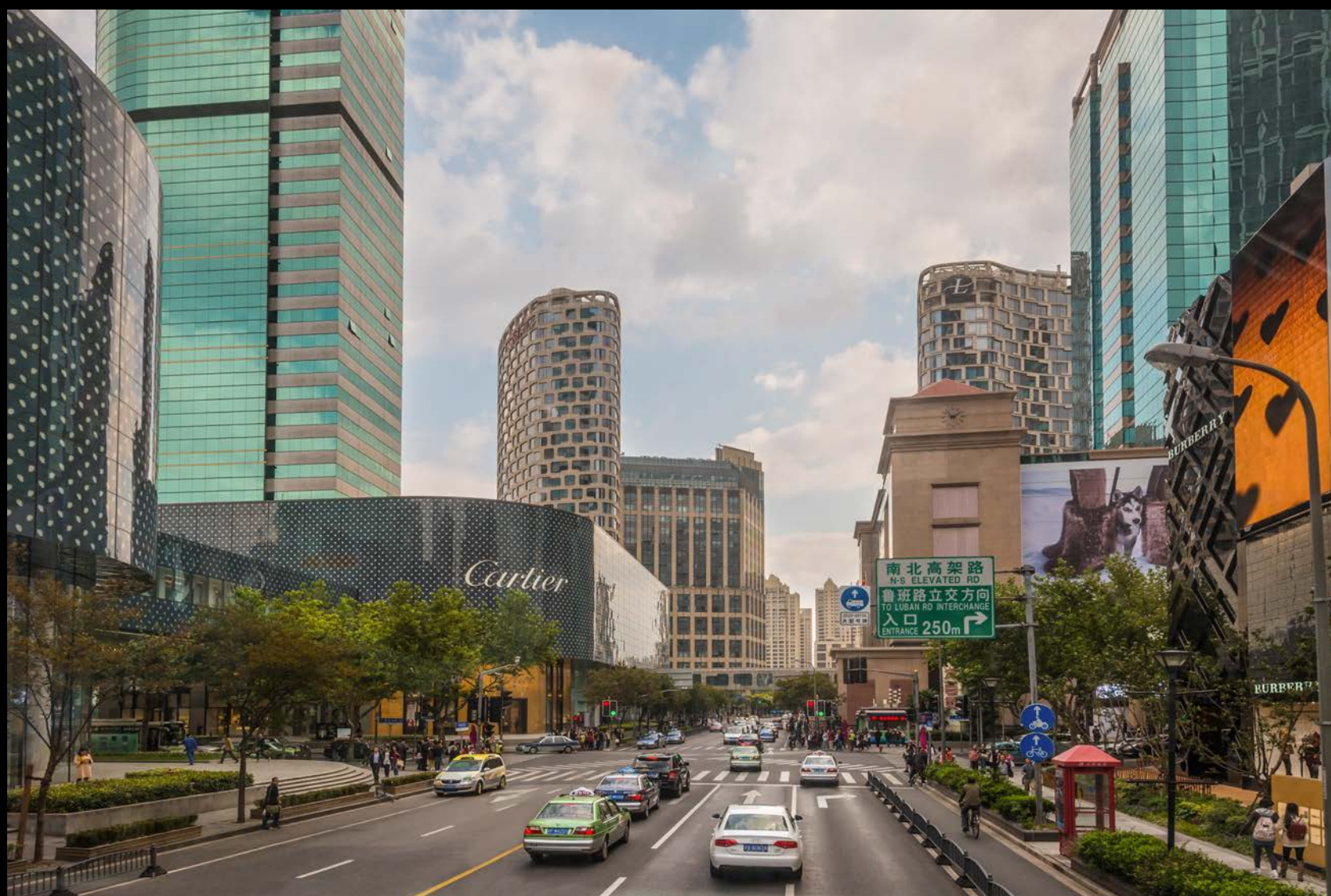
Shanghai



New York



San Francisco

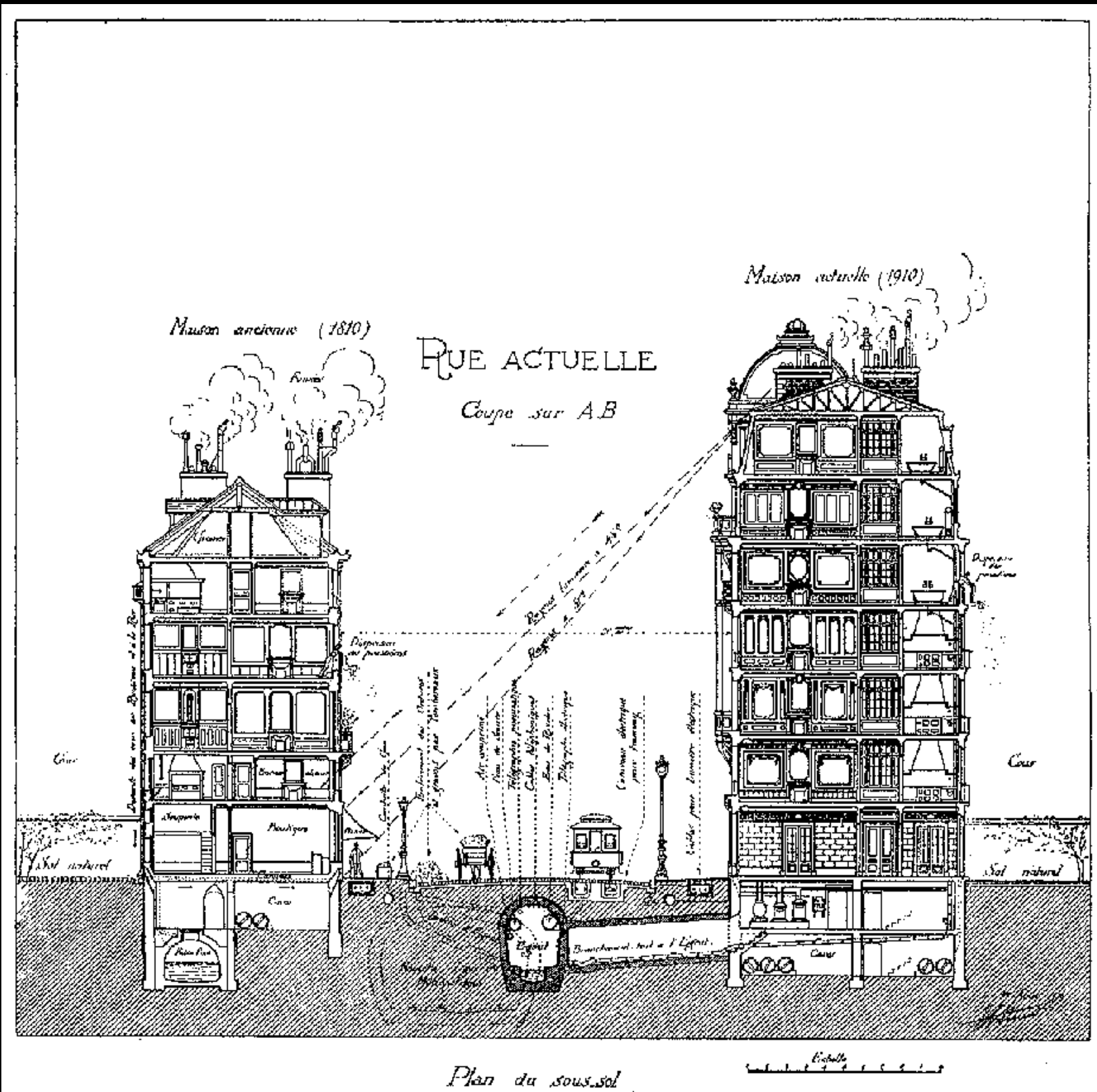




London Sewerage System



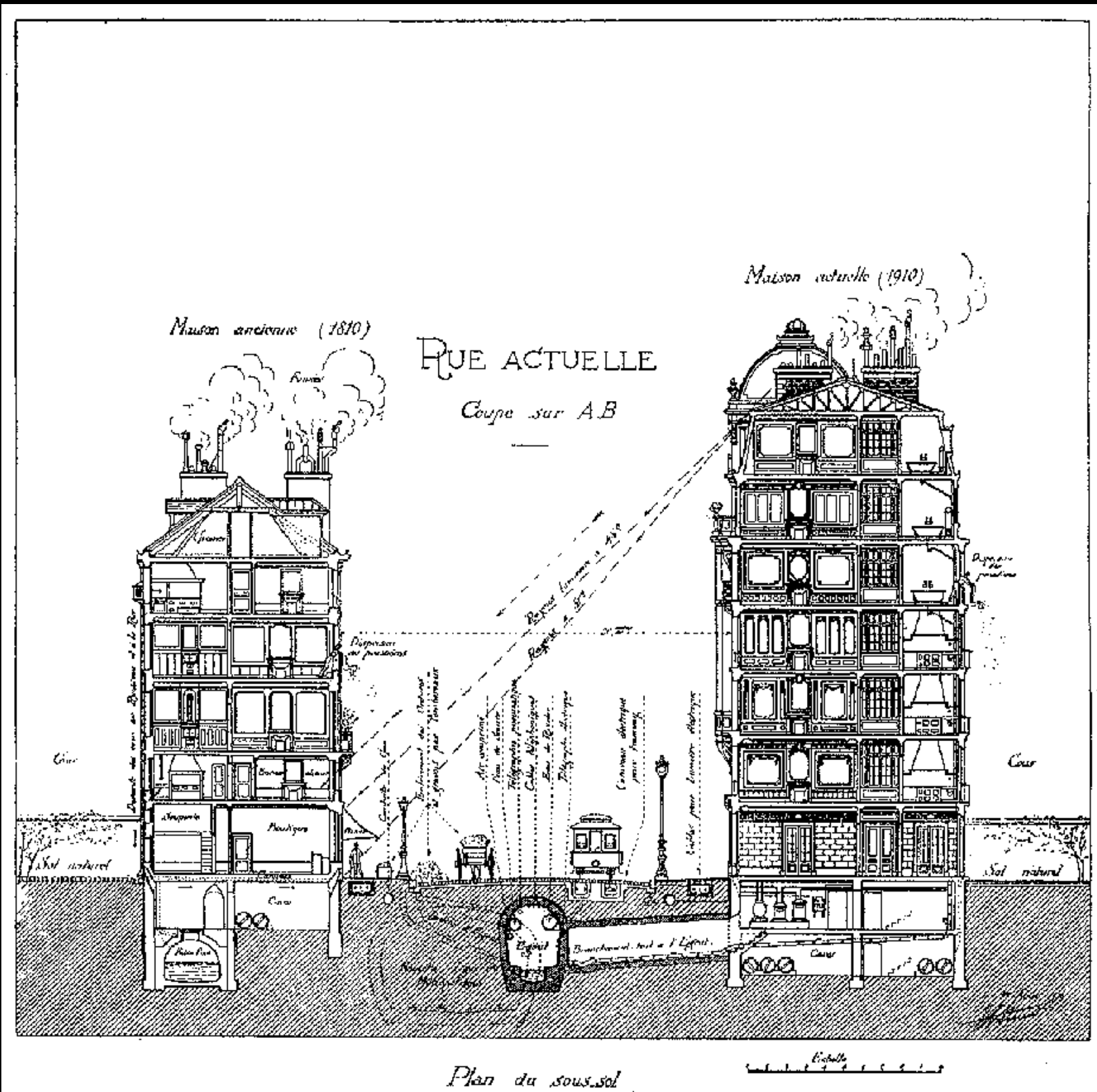
London Sewerage System



Paris, E. Hénard Street Section



London Sewerage System

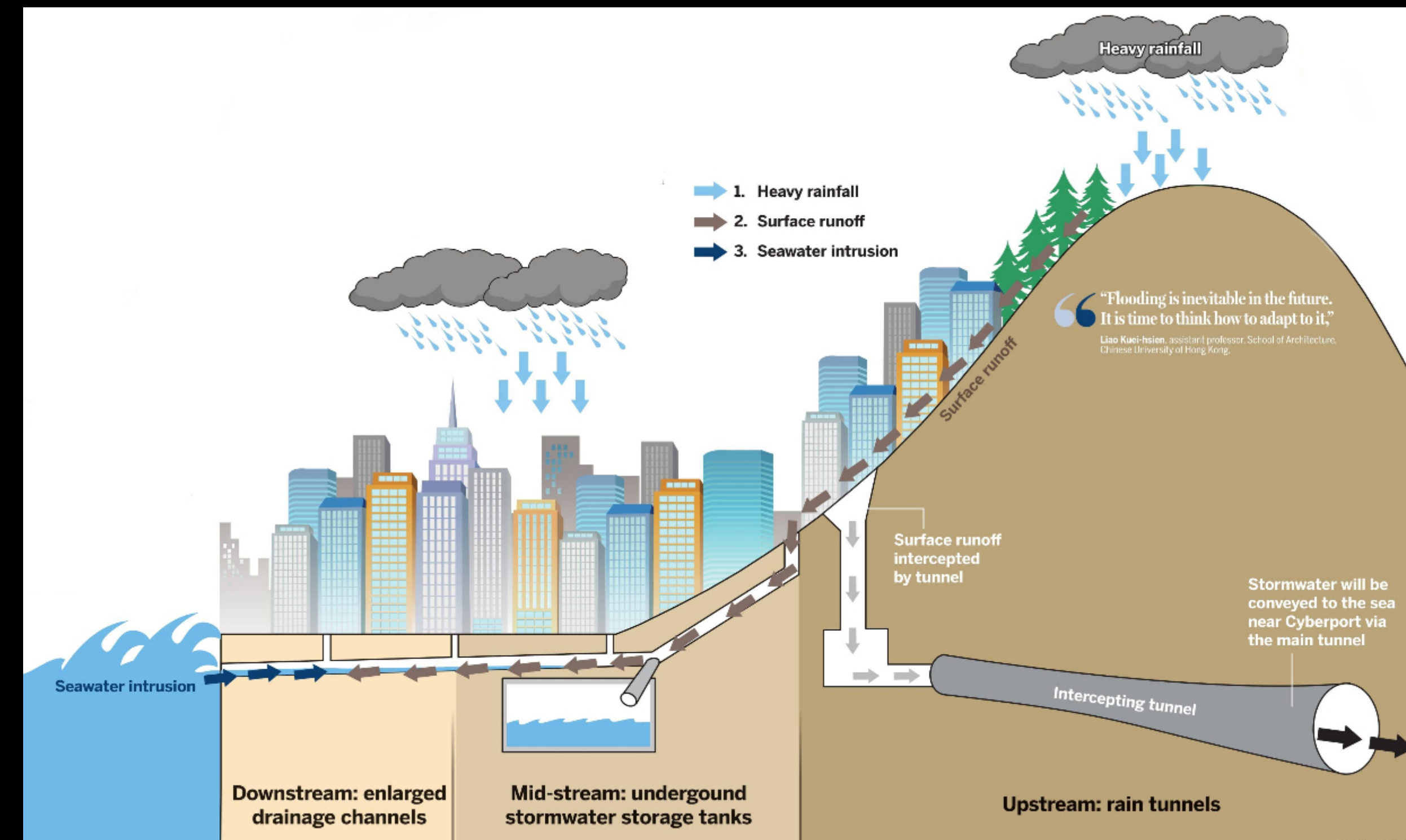


Paris, E. Hénard Street Section

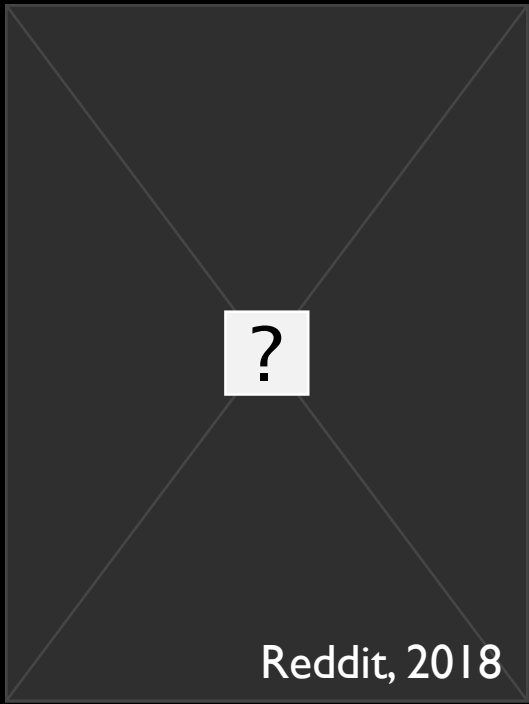


Global Designing Cities Initiative

?



Hong Kong West Drainage Tunnel, 2007 - 2012



Reddit, 2018



China Daily, 2017



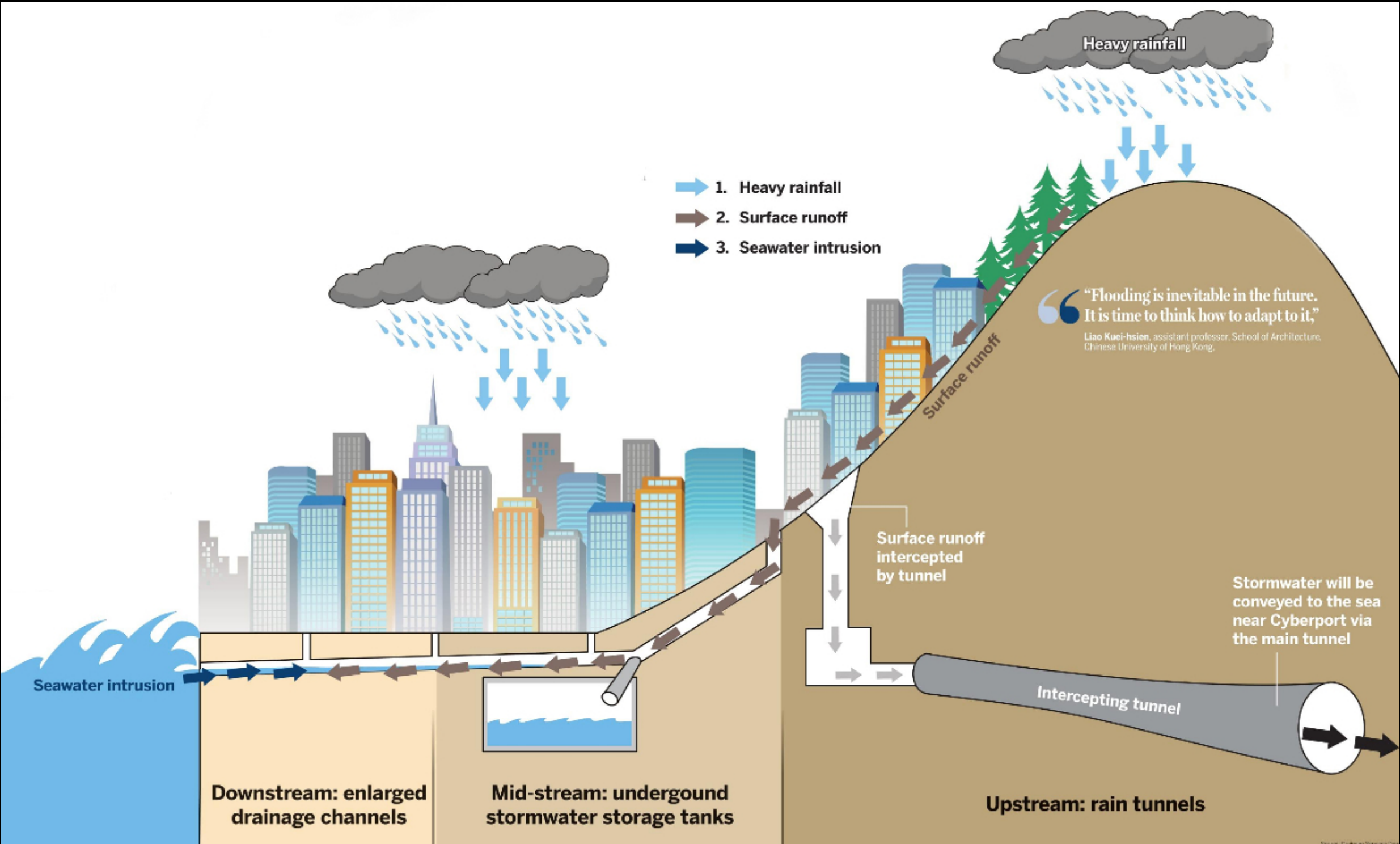
China Dialogue, undated



China Daily, 2017



Hong Kong West Drainage Tunnel, 2007 - 2012



The Challenges

High risk of

Flooding

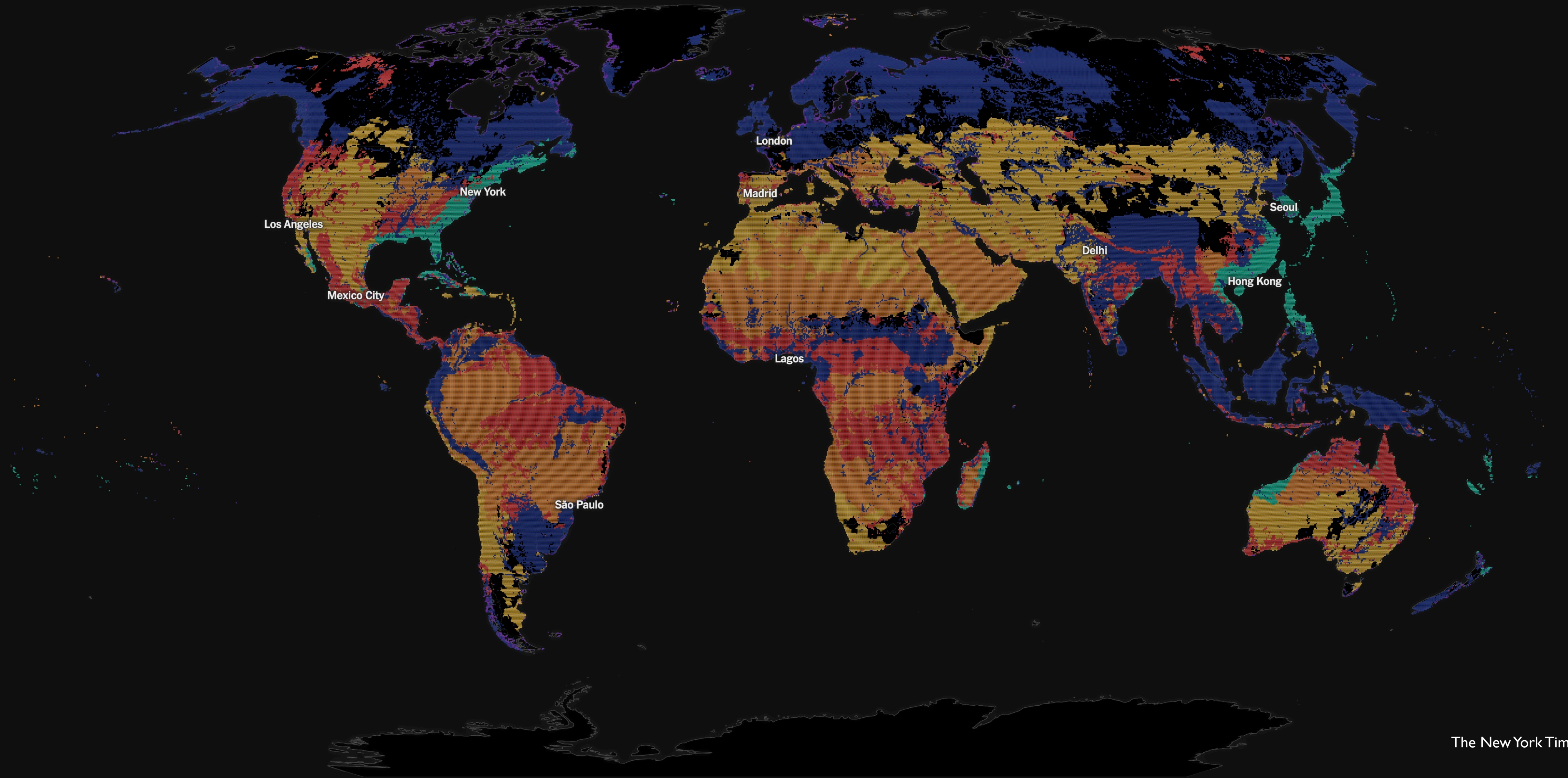
Heat Stress

Water Stress

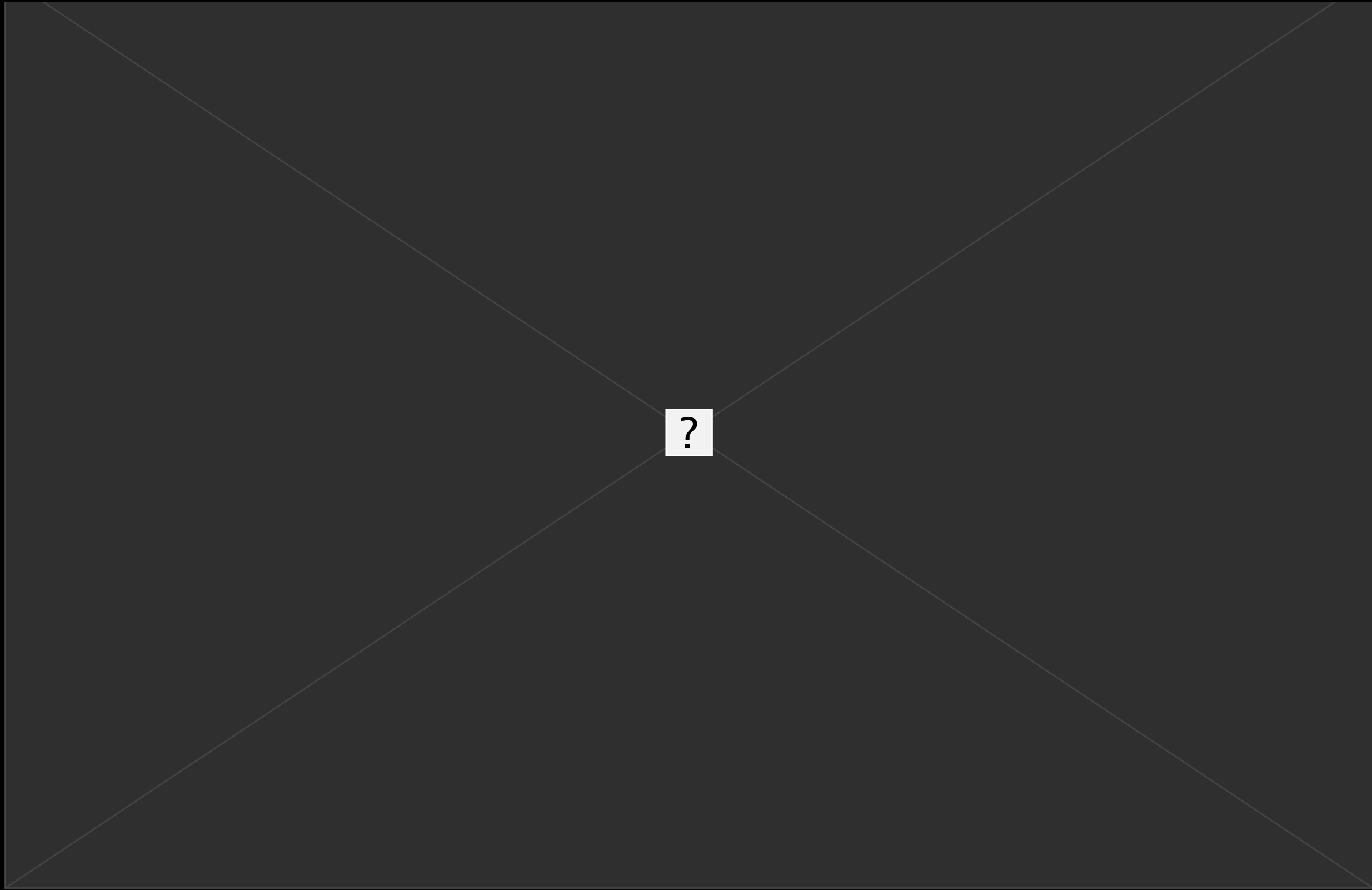
Wildfires

Hurricanes

Sea Level Rise



The New York Times



Chennai



Berkeley

The Challenges



Berkeley, CA



Zhujiajiao, Qingpu



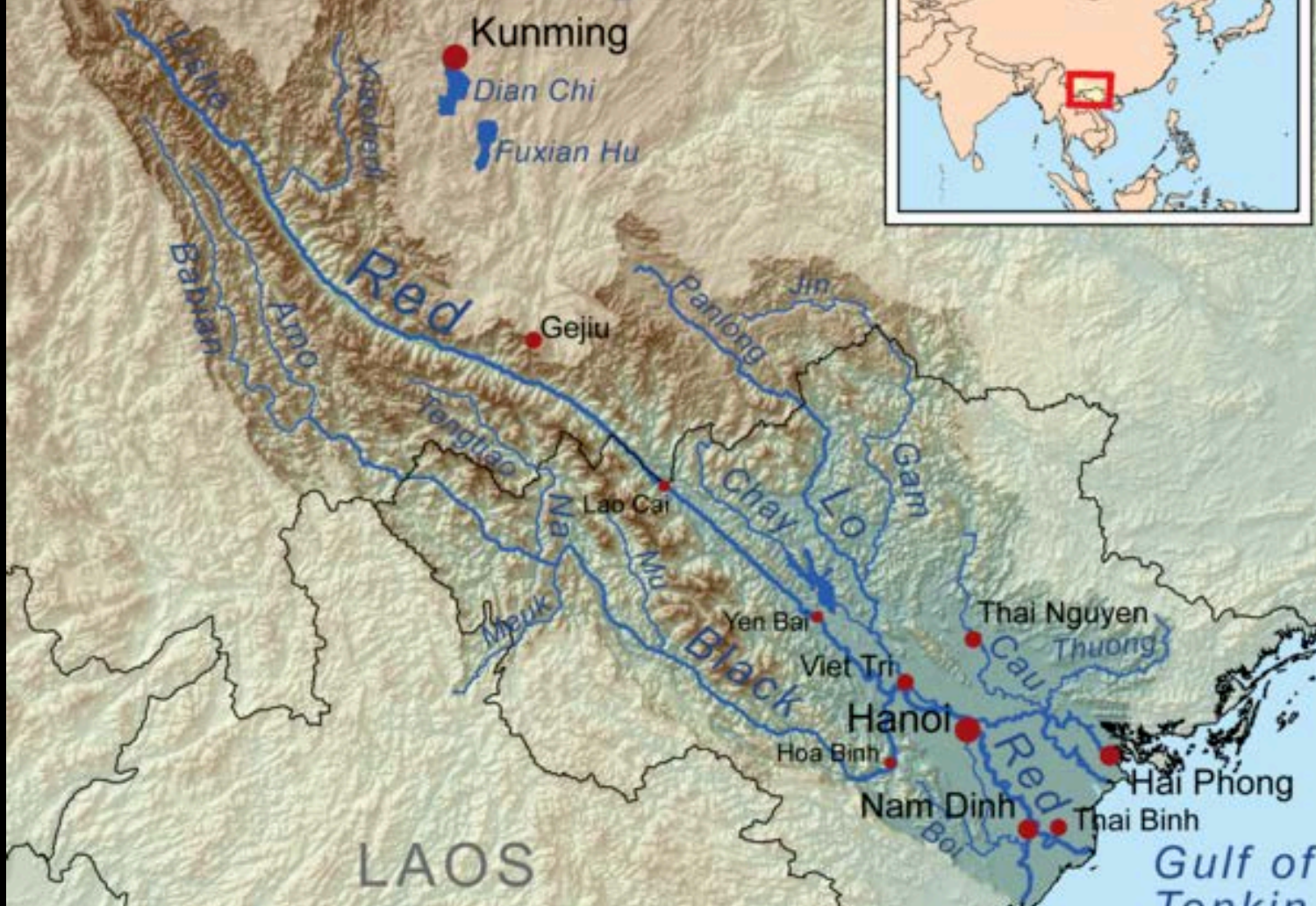
Hanoi, Vietnam



San Francisco, Bay Area



Yangtze River Delta



Red River Delta

The Challenges



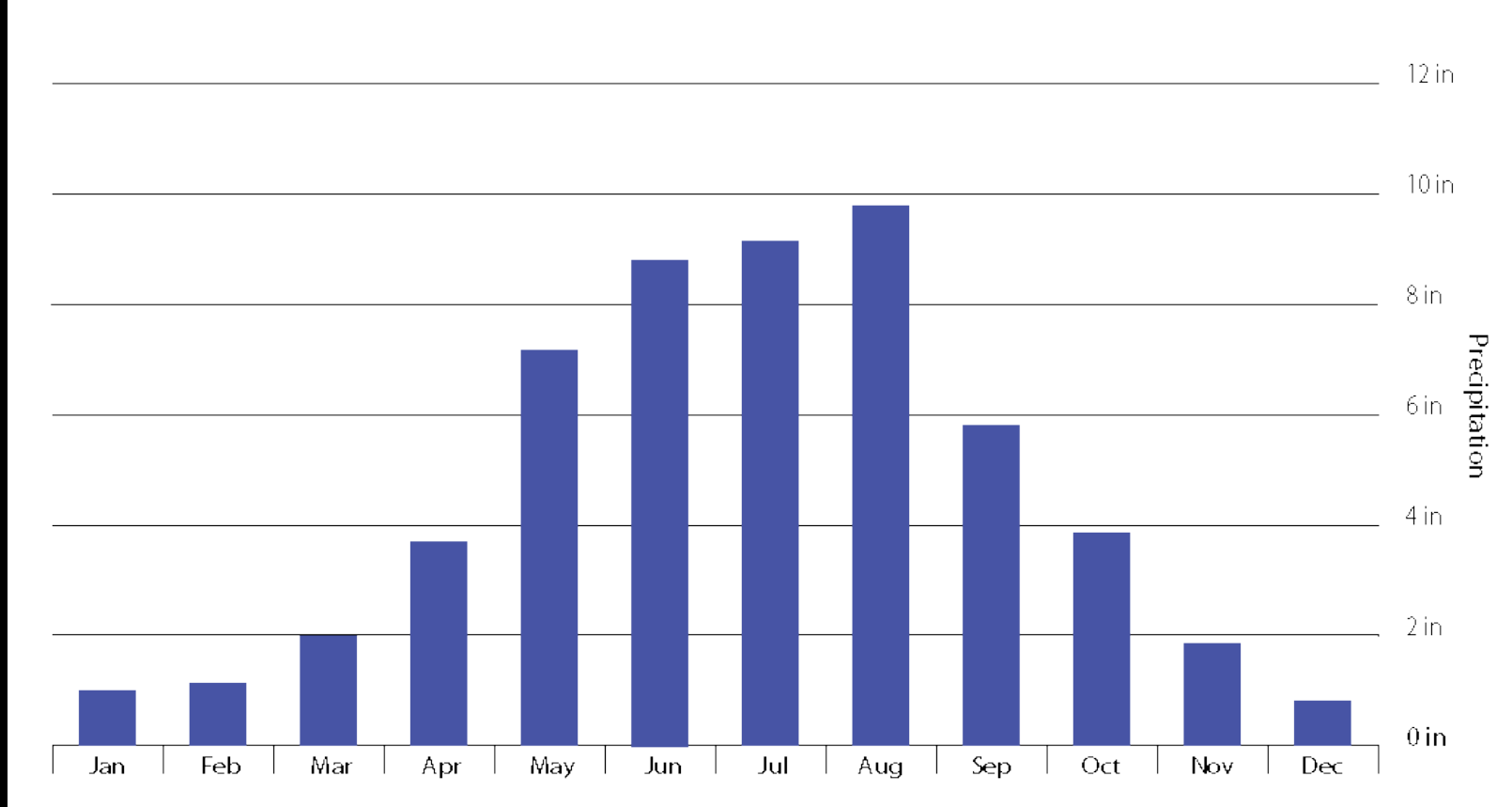
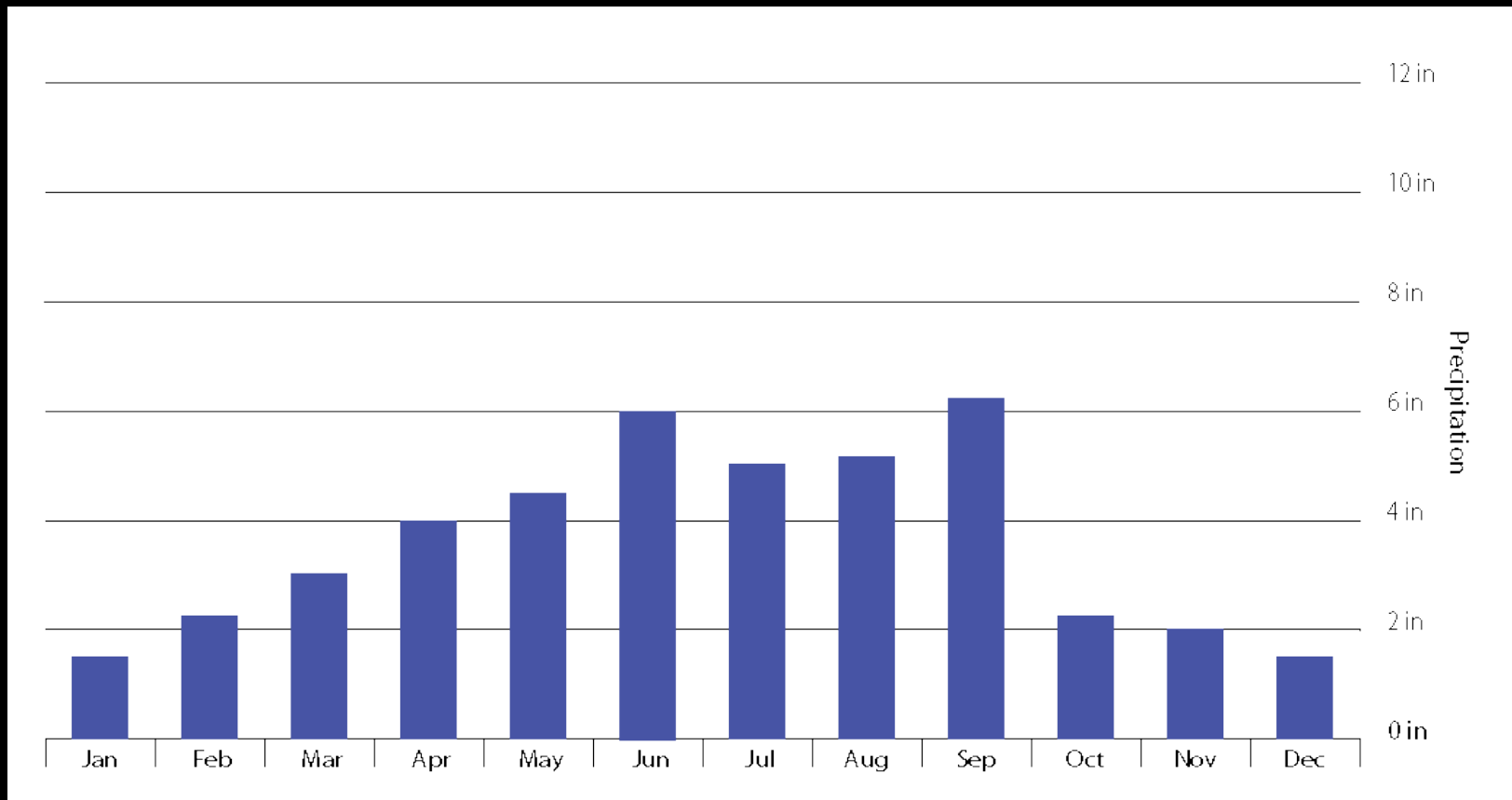
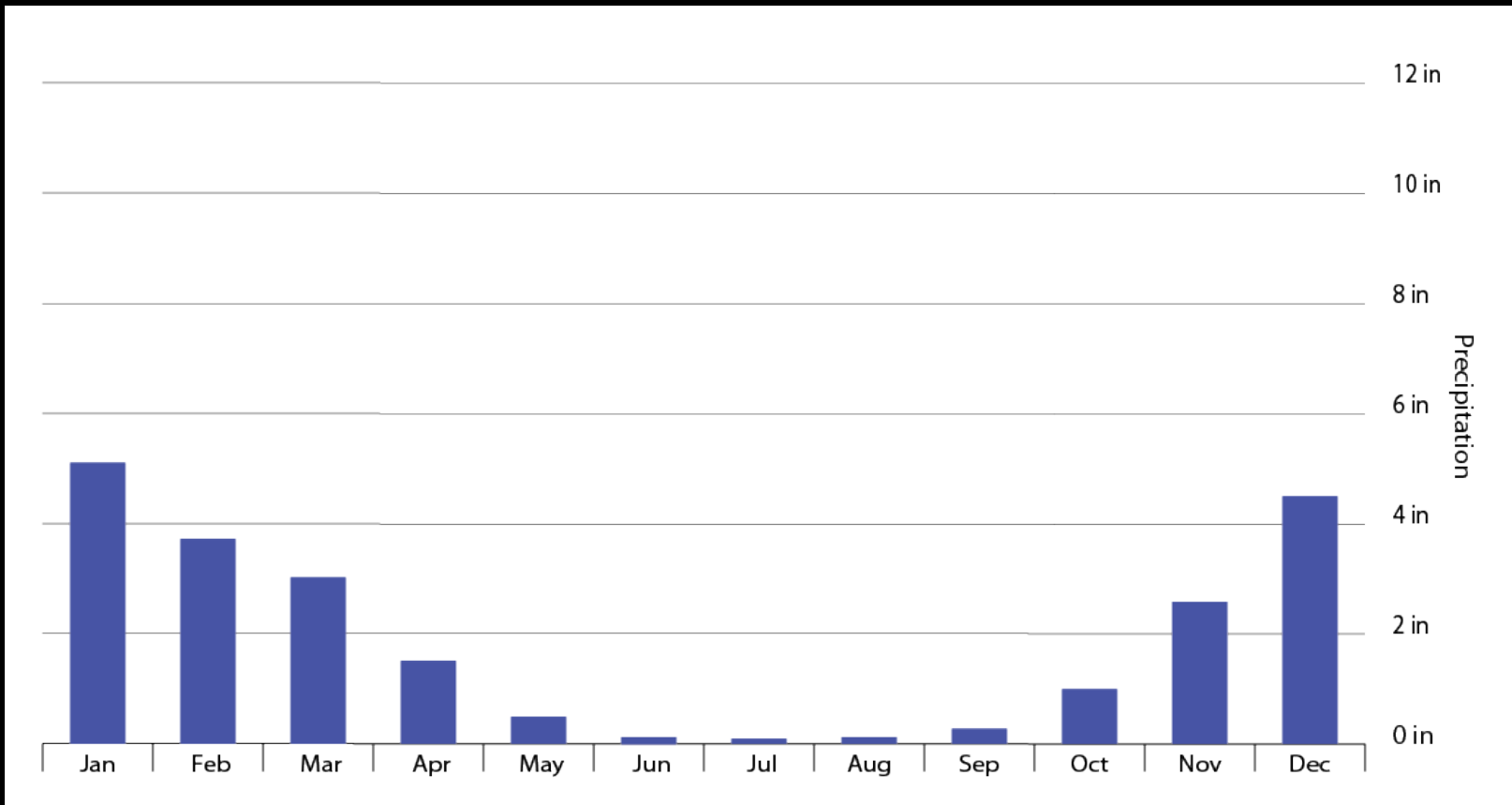
Berkeley, CA



Zhujiajiao, Qingpu

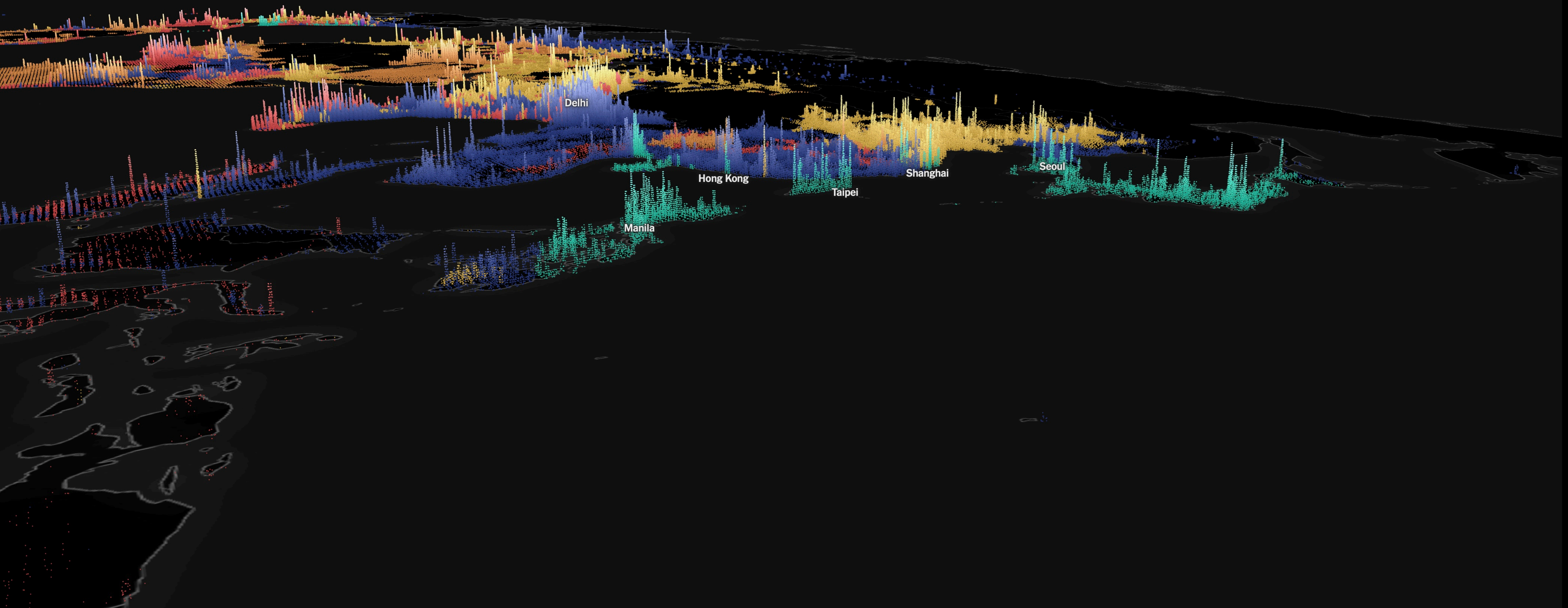


Hanoi, Vietnam



The Challenges

Each dot = 10K people
in high risk in 2040



Three Frameworks

High risk of

Flooding

Heat Stress

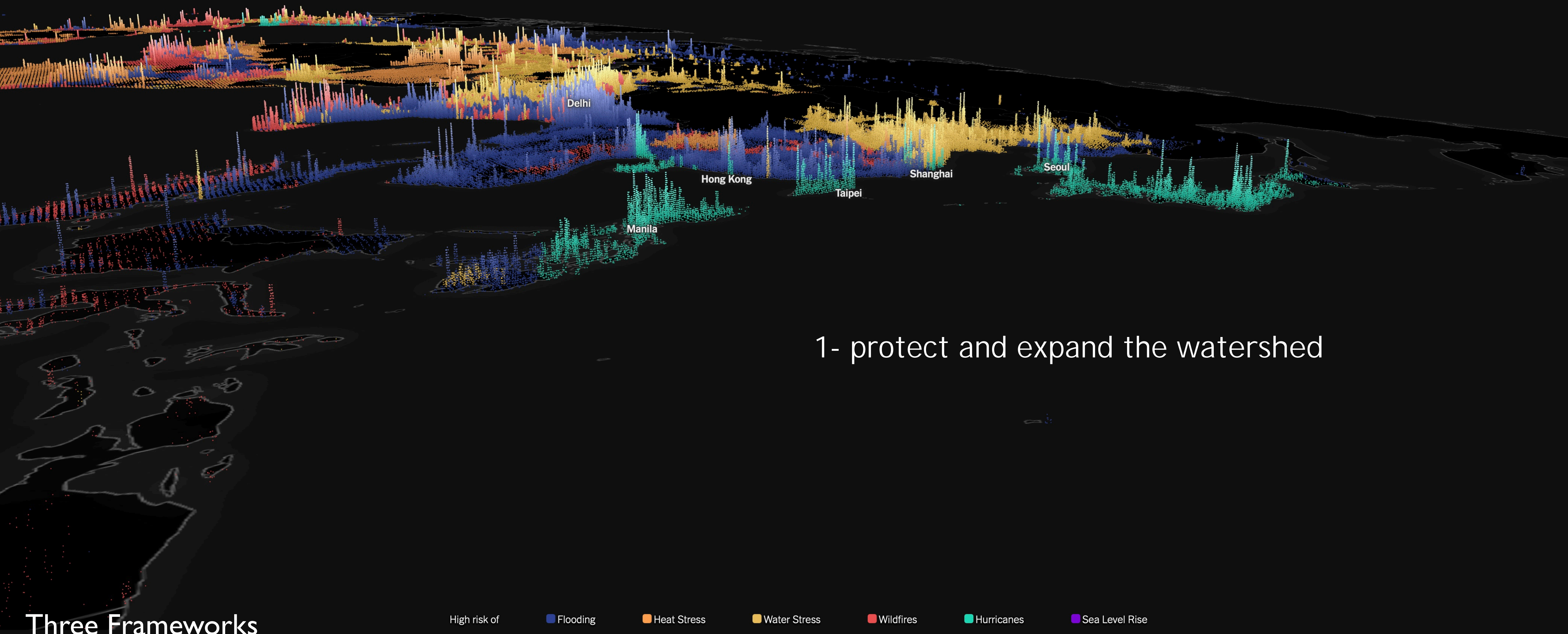
Water Stress

Wildfires

Hurricanes

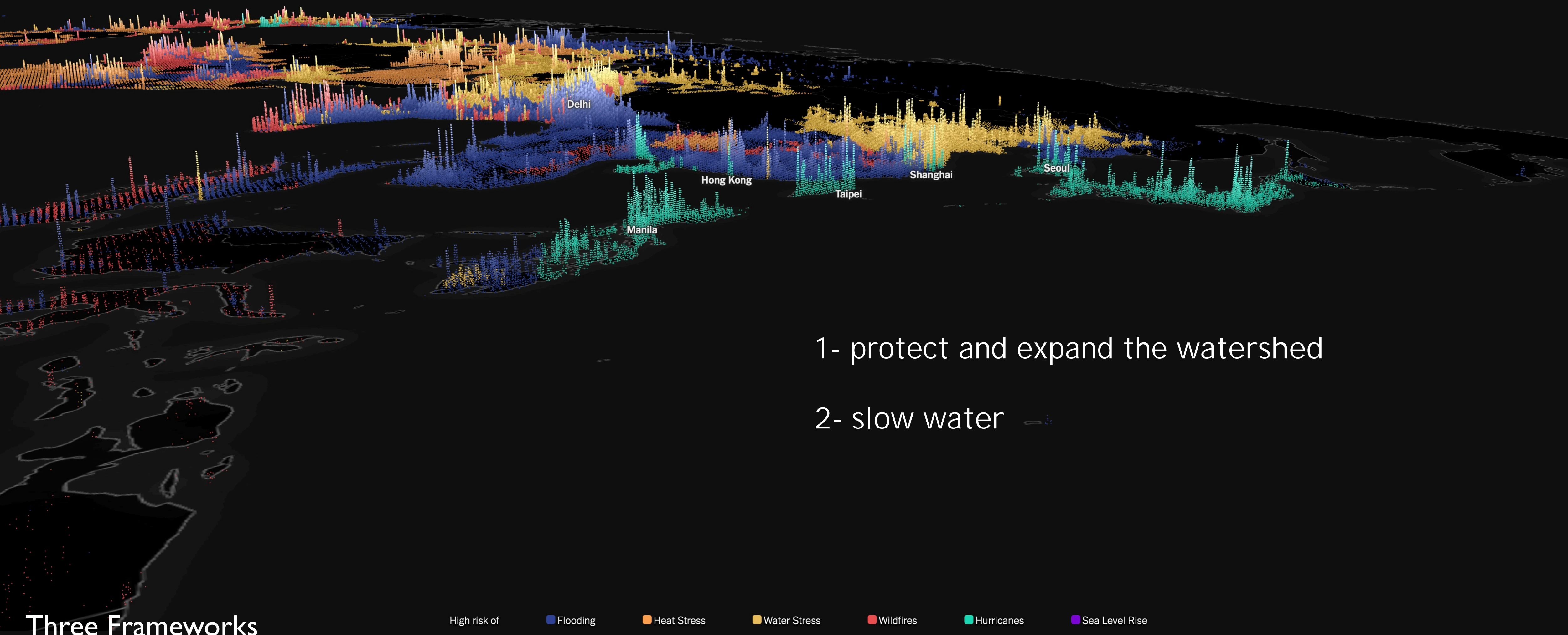
Sea Level Rise

Each dot = 10K people
in high risk in 2040



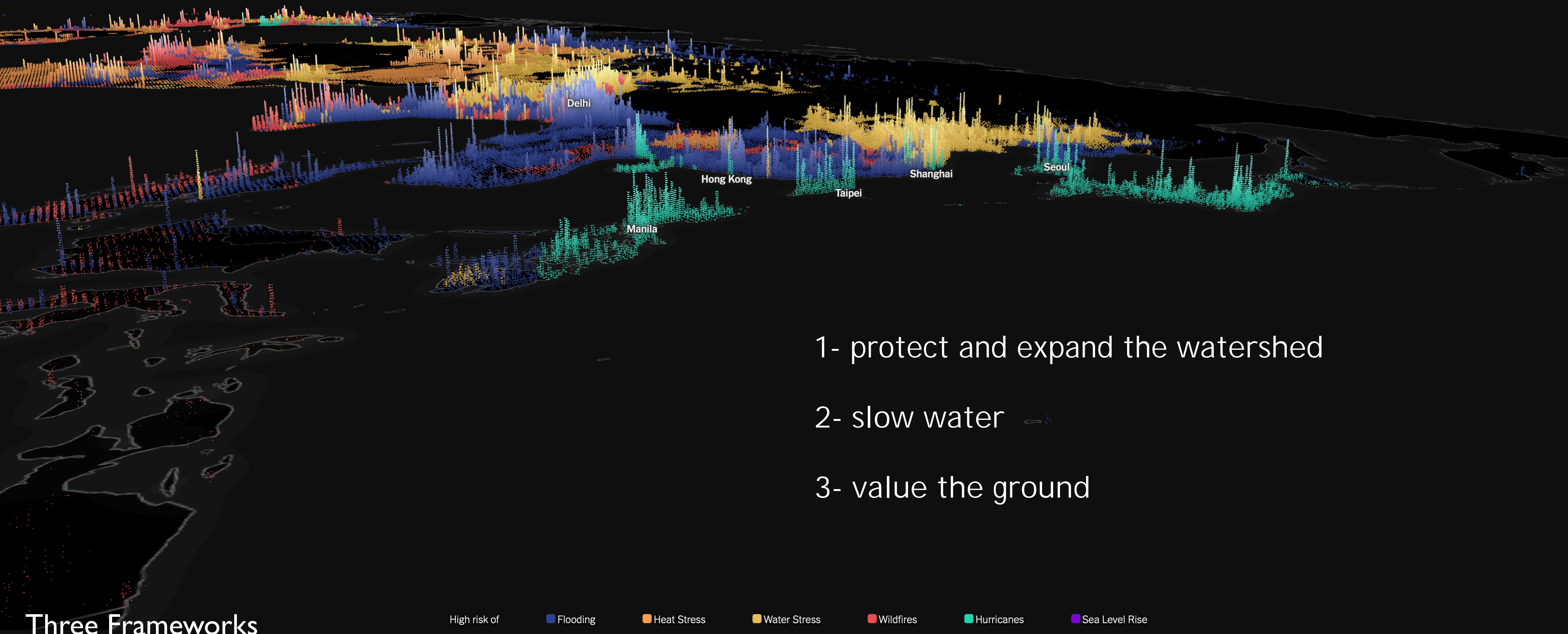
Three Frameworks

Each dot = 10K people
in high risk in 2040



Three Frameworks

Each dot = 10K people
in high risk in 2040



Three Frameworks



1- protect and expand the watershed



1- protect and expand the watershed

Rethink Peri-Urban Hanoi

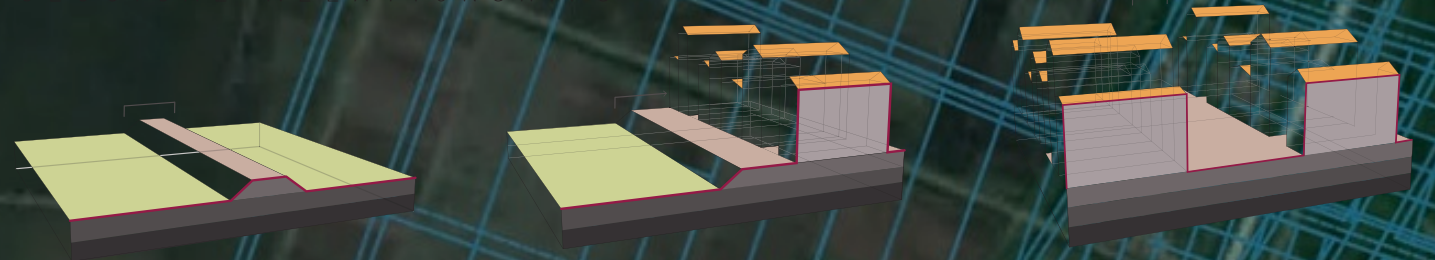


1- protect and expand the watershed

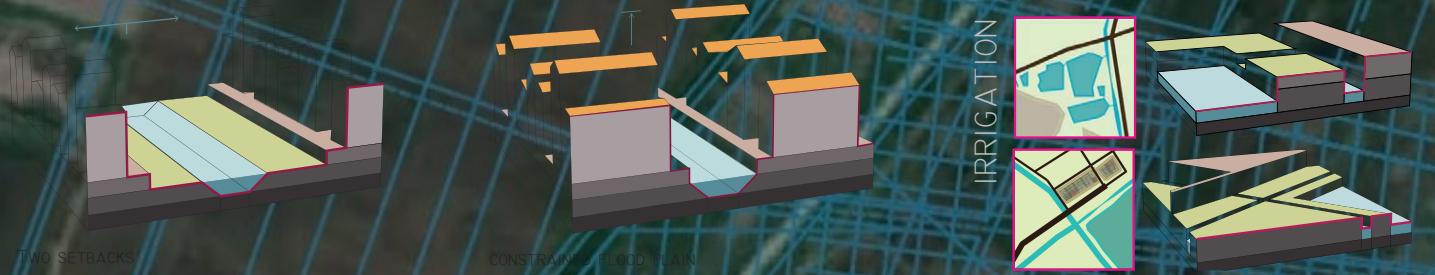
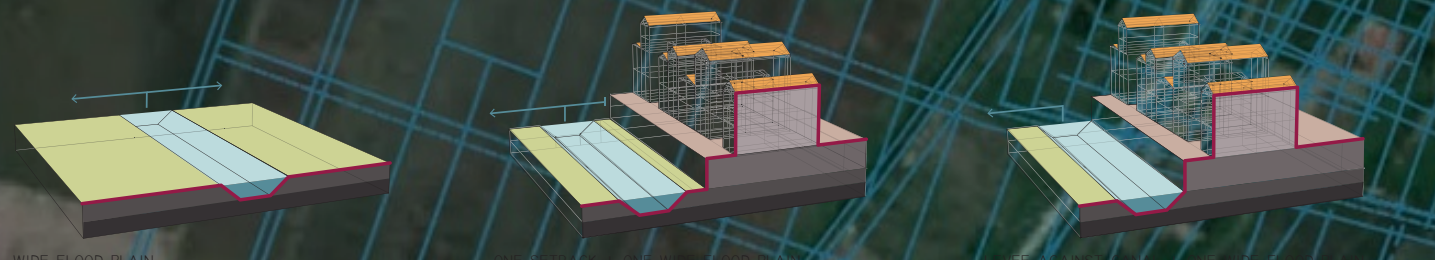
Rethink Peri-Urban Hanoi
M.Gonzalez | B.Golze | A.Konotchick |
N.Reifenstein | J.Siqueira | S.Stewart | M.
Way | L.Zhao



LEVEES



FLOOD PLAIN



IRRIGATION

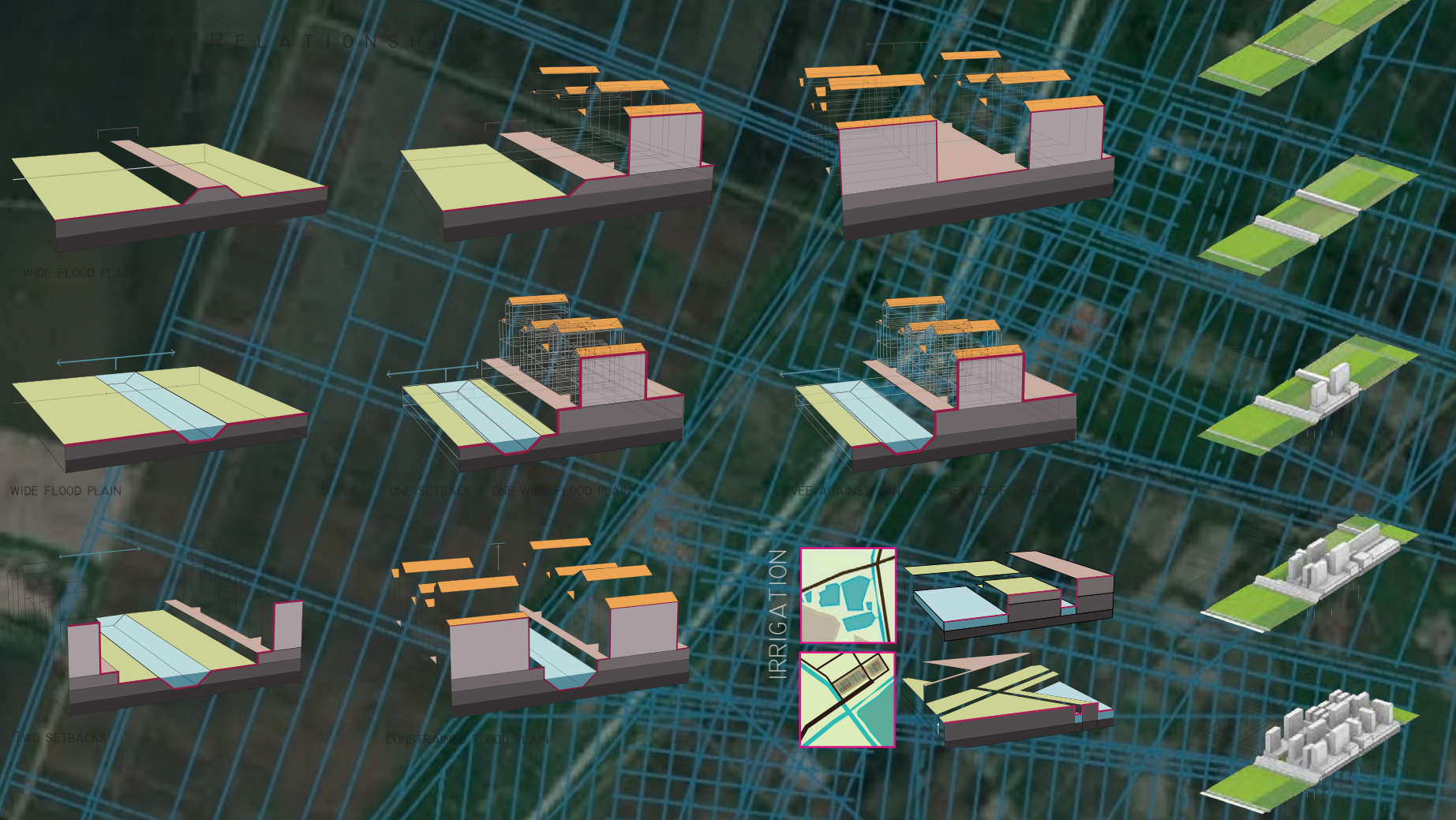
1- protect and expand the watershed

Rethink Peri-Urban Hanoi
M.Gonzalez | B.Golze | A.Konotchick |
N.Reifenstein | J.Siqueira | S.Stewart | M.
Way | L.Zhao

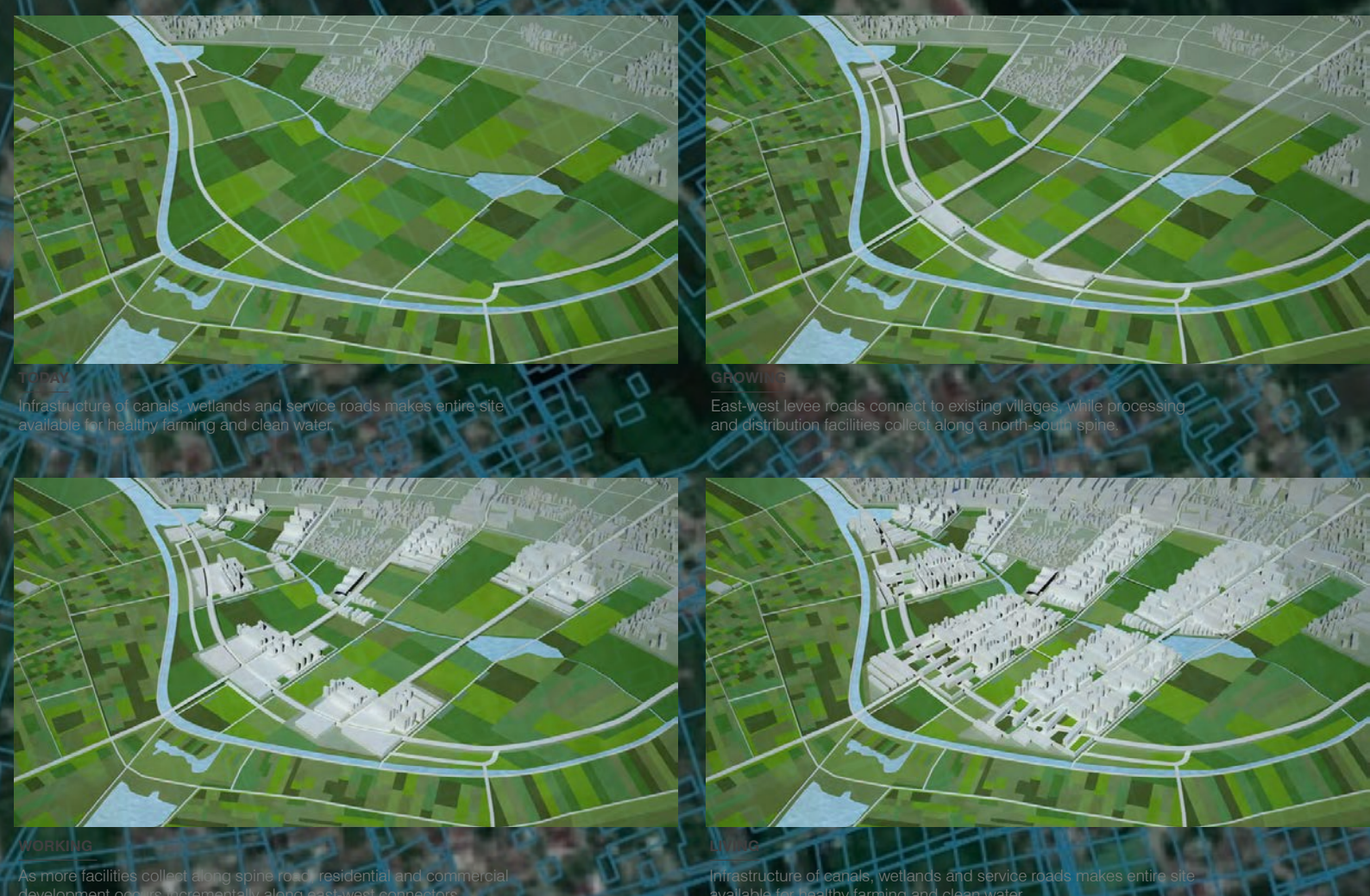


LEVEES

FLOOD PLAIN



IRRIGATION



WORKING
Infrastructure of canals, wetlands and service roads makes entire site available for healthy farming and clean water.

GROW
East-west levee roads connect to existing villages, waste processing and distribution facilities collect along a north-south spine.

WORKING
As more facilities collect along spine, residential and commercial development occurs incrementally along east-west connectors.

WORKING
Infrastructure of canals, wetlands and service roads makes entire site available for healthy farming and clean water.

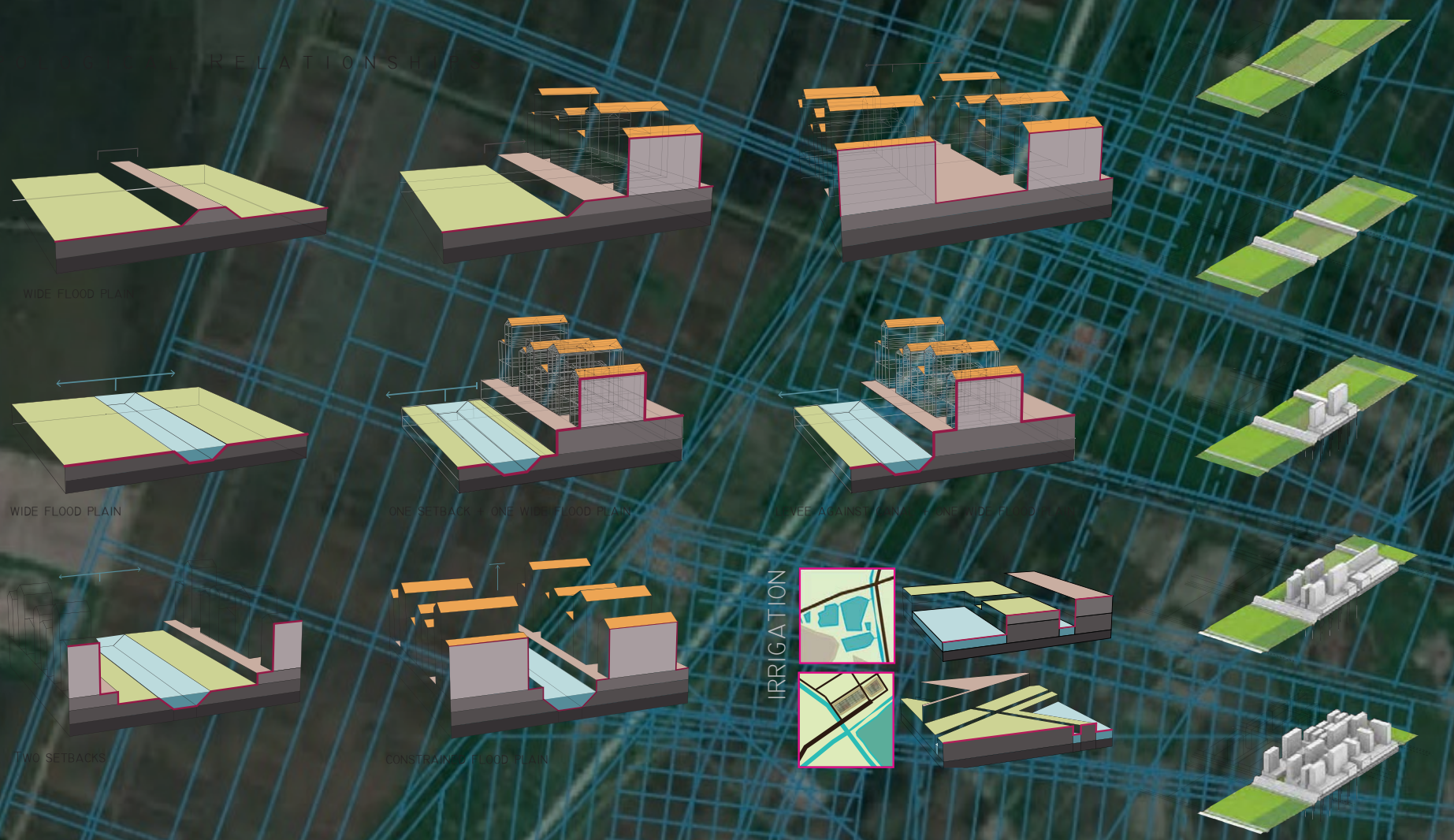
1- protect and expand the watershed

Rethink Peri-Urban Hanoi
M.Gonzalez | B.Golze | A.Konotchick |
N.Reifenstein | J.Siqueira | S.Stewart | M.
Way | L.Zhao



LEVEES

FLOOD PLAN



WORK
Infrastructure of canals, wetlands and service roads makes entire site available for healthy farming and clean water.



WORKING
As more facilities collect along spine, residential and commercial development comes incrementally along east-west connectors.



GROW
East-west levee roads connect to existing villages, waste processing and distribution facilities collect along a north-south spine.



WORKING
Infrastructure of canals, wetlands and service roads makes entire site available for healthy farming and clean water.



1- protect and expand the watershed

Rethink Peri-Urban Hanoi
M.Gonzalez | B.Golze | A.Konotchick |
N.Reifenstein | J.Siqueira | S.Stewart | M.
Way | L.Zhao



Los Angeles Aqueduct

2- slow water



2- slow water



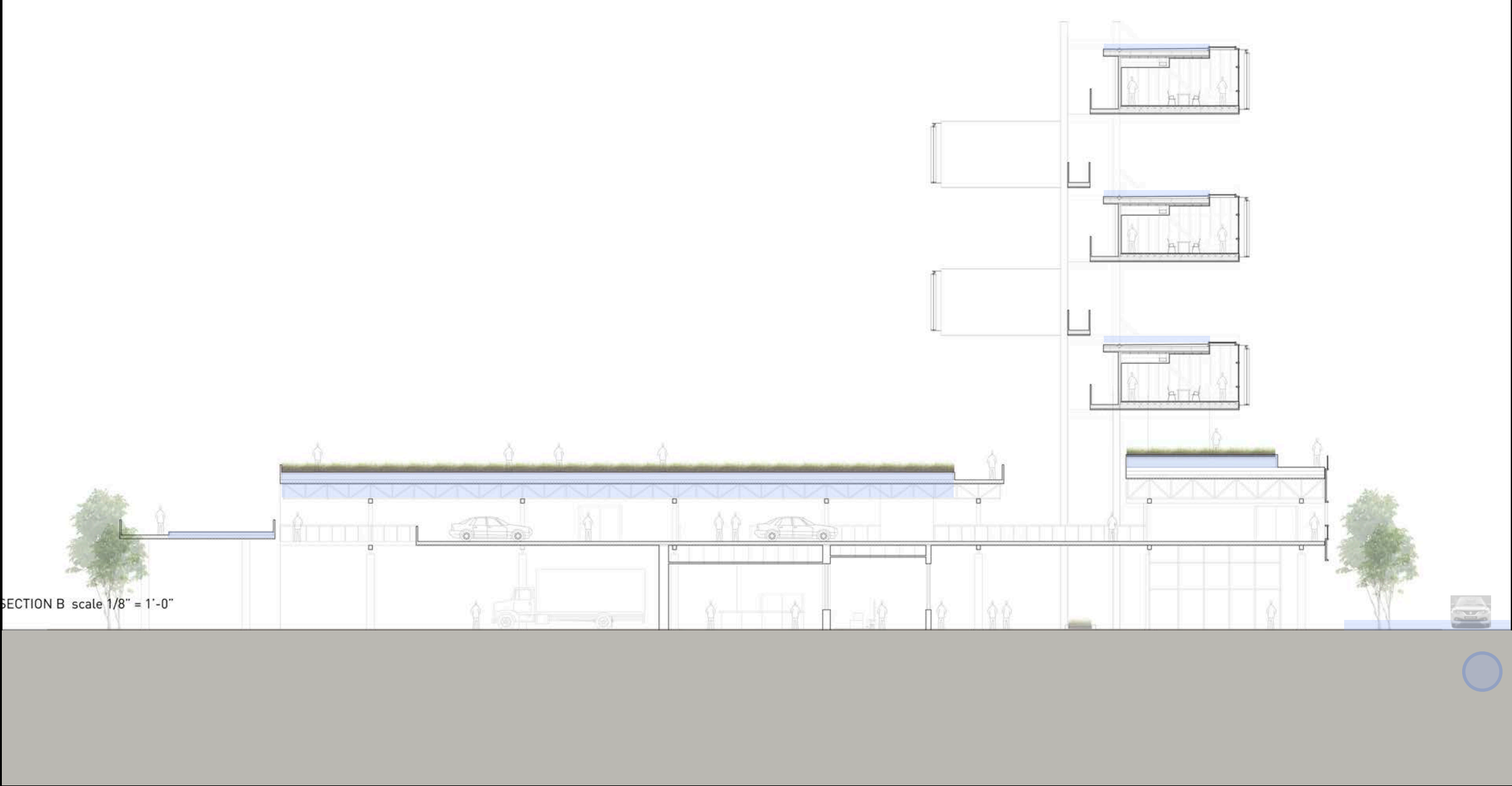
3- value the ground

Retrofit Pudong, Shanghai



3- value the ground

Retrofit Berkeley





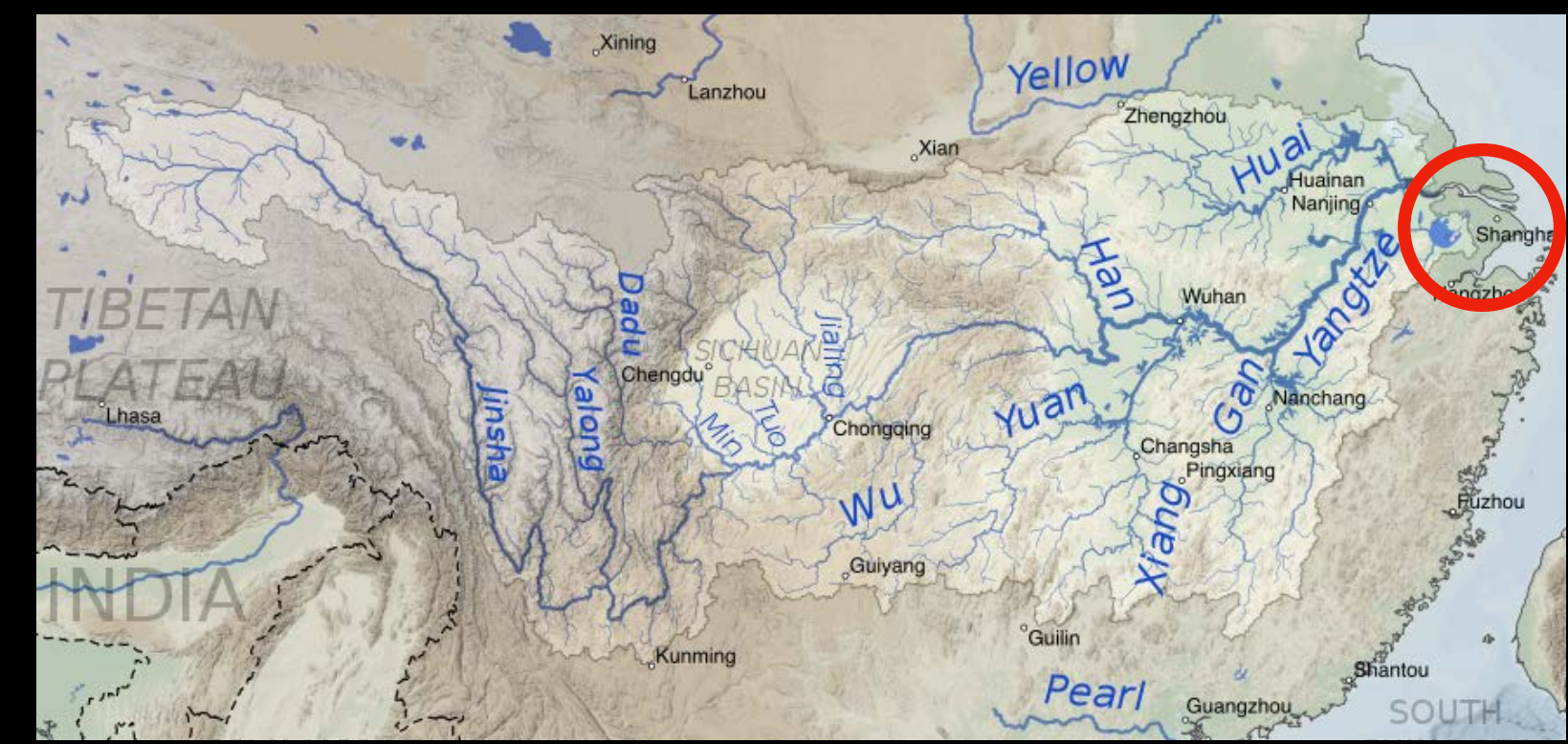
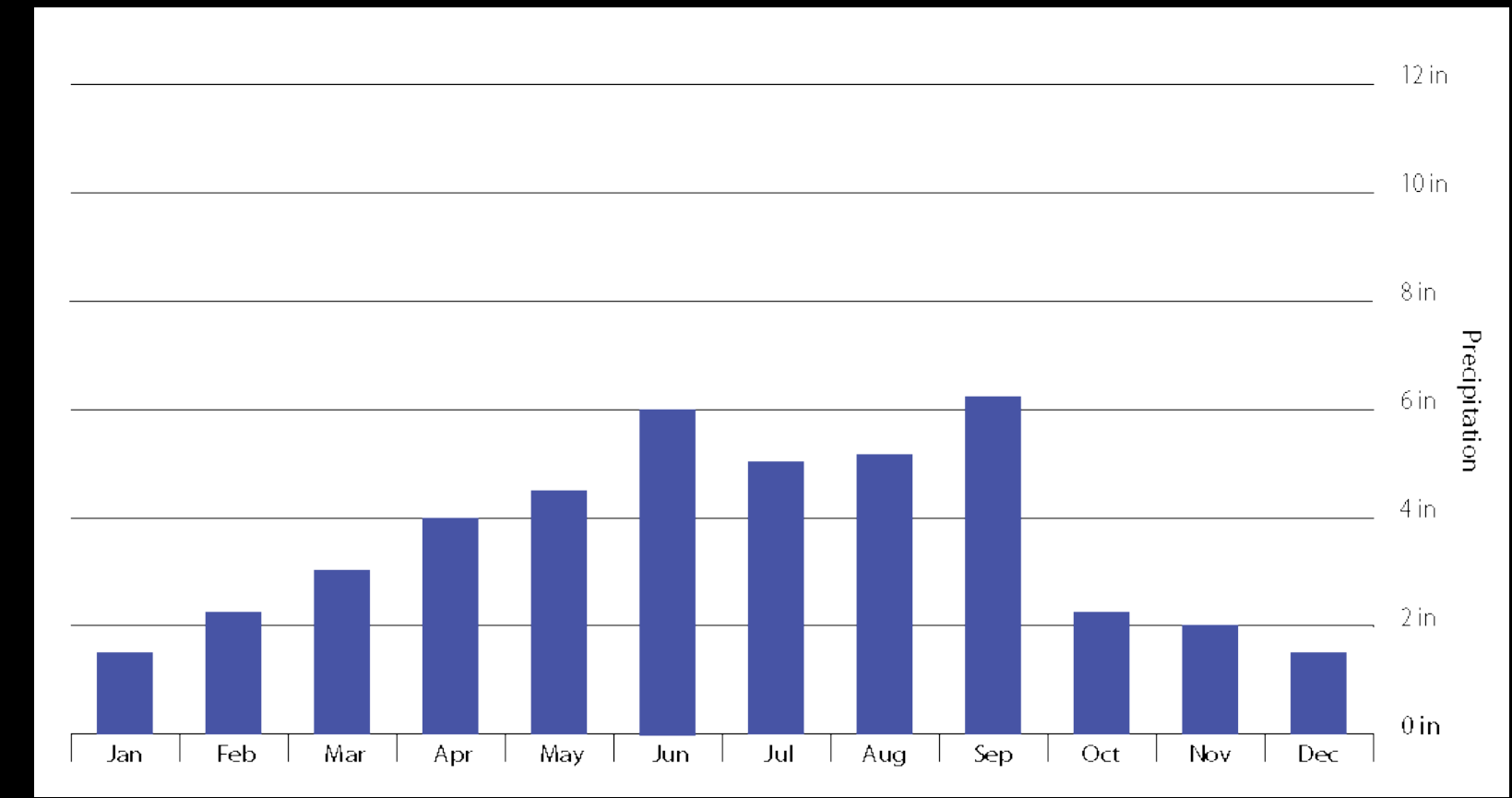
3- value the ground

LEWIS .TSURUMAKI.LEWIS
HUDSON SQUARE
Retrofit NYC

A scenic view of the Zhujiajiao Ancient Bridge in Shanghai. The bridge is a multi-arched stone structure spanning a river. In the background, traditional Chinese buildings with white walls and dark tiled roofs are visible, including a prominent pavilion with multiple tiers and upturned eaves. People are walking on the bridge, and a small boat is visible in the water in the foreground. The sky is overcast.

RECIPROCITY WITH WATER - ZHUJIAJIAO

The entries should bring back the awareness of the natural evolution of man-made habitats, inspire a new paradigm of city development, one that is neither urbanism nor suburbanism, and provoke a dialogue between **Chinese heritage and contemporary living.**

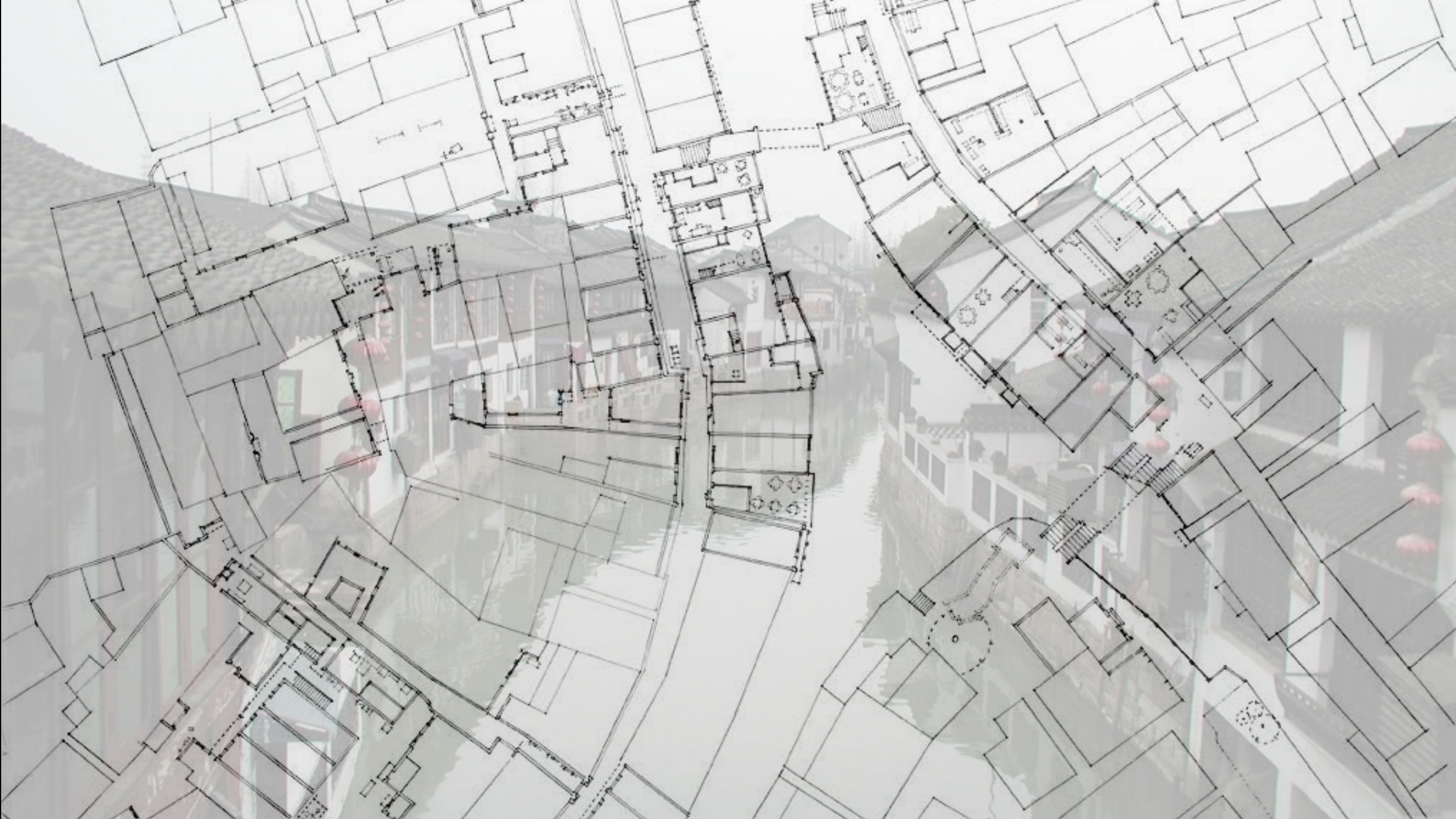


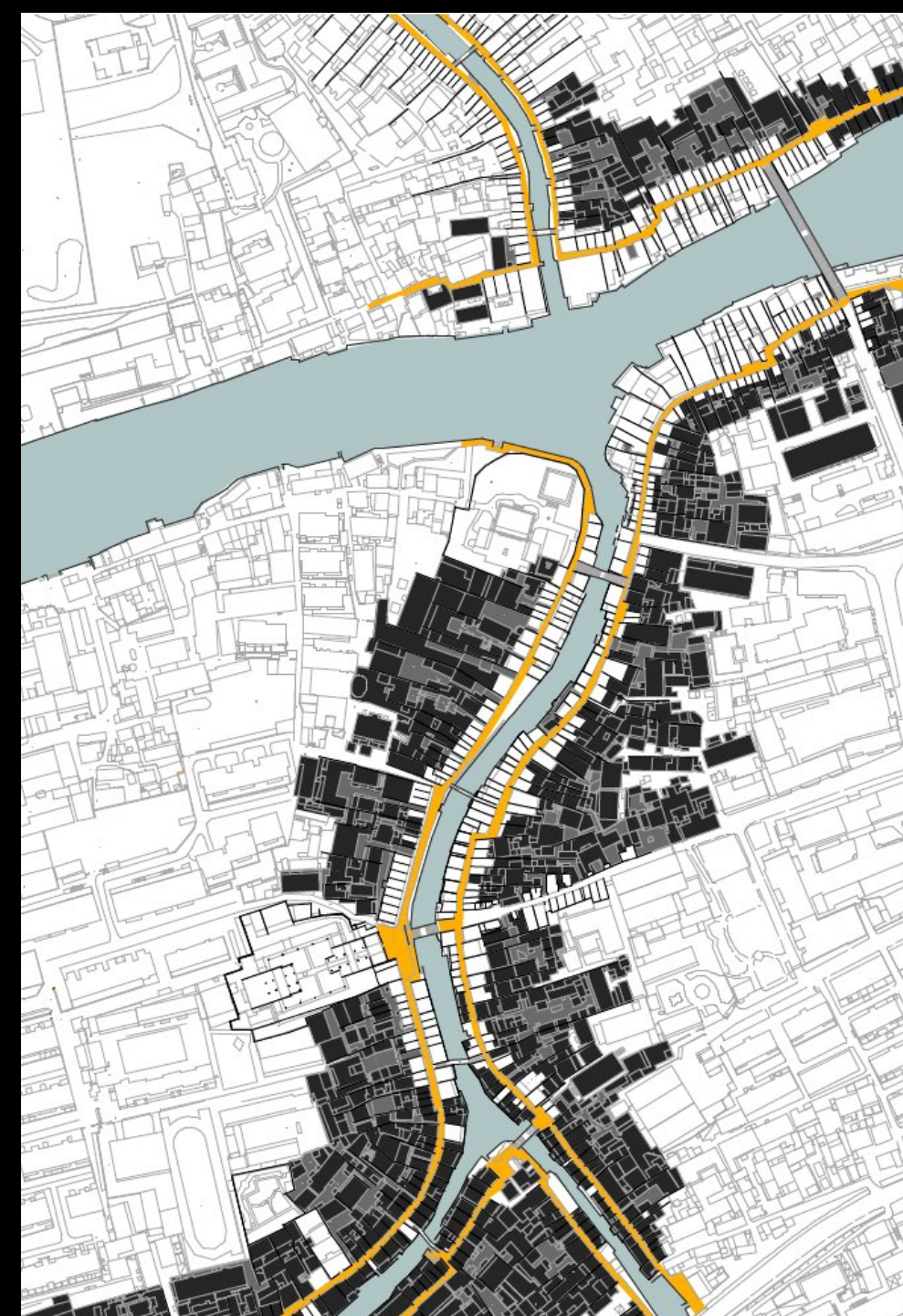
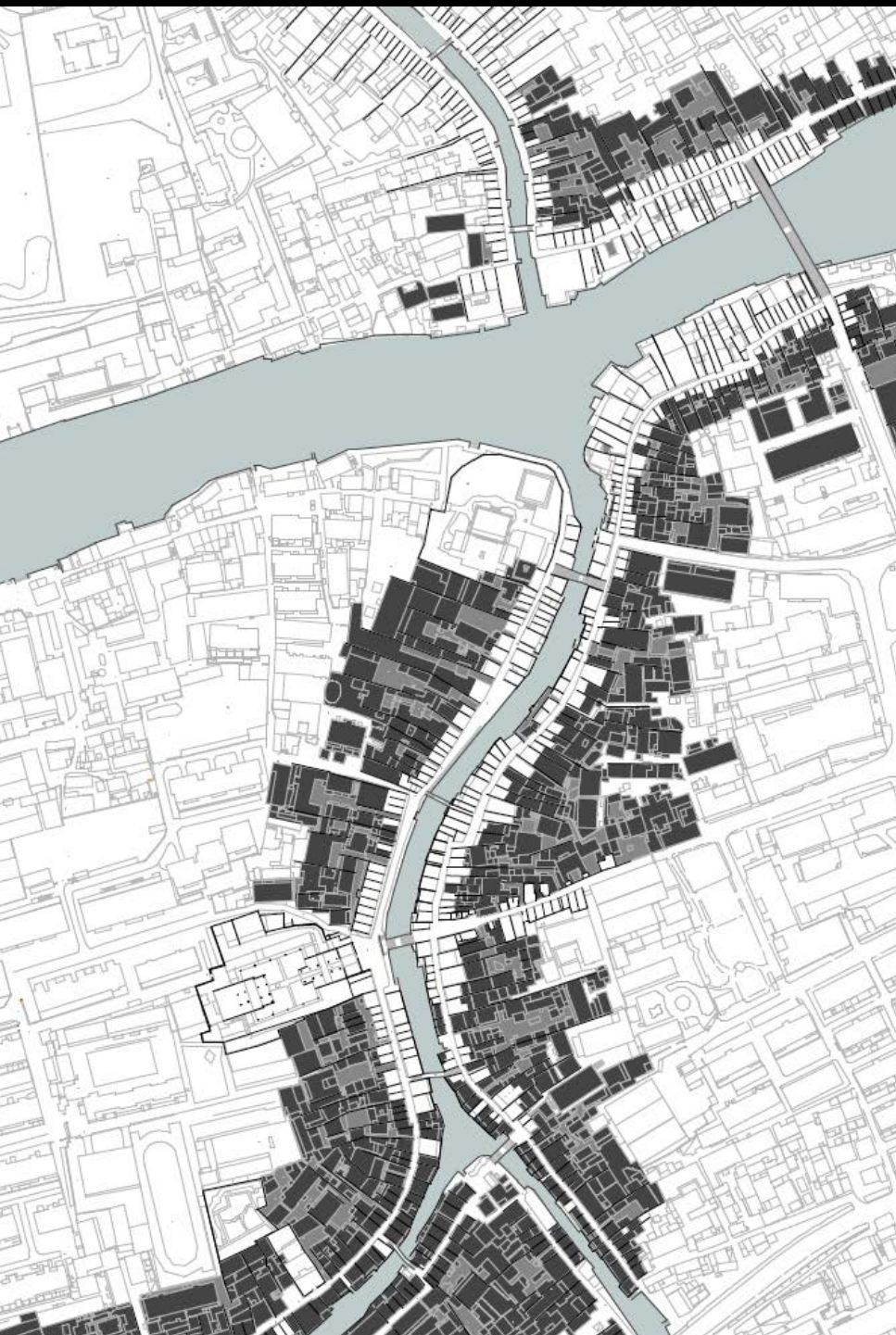
Rethink Peri-Urban Shanghai











Water flow is the primary form giver

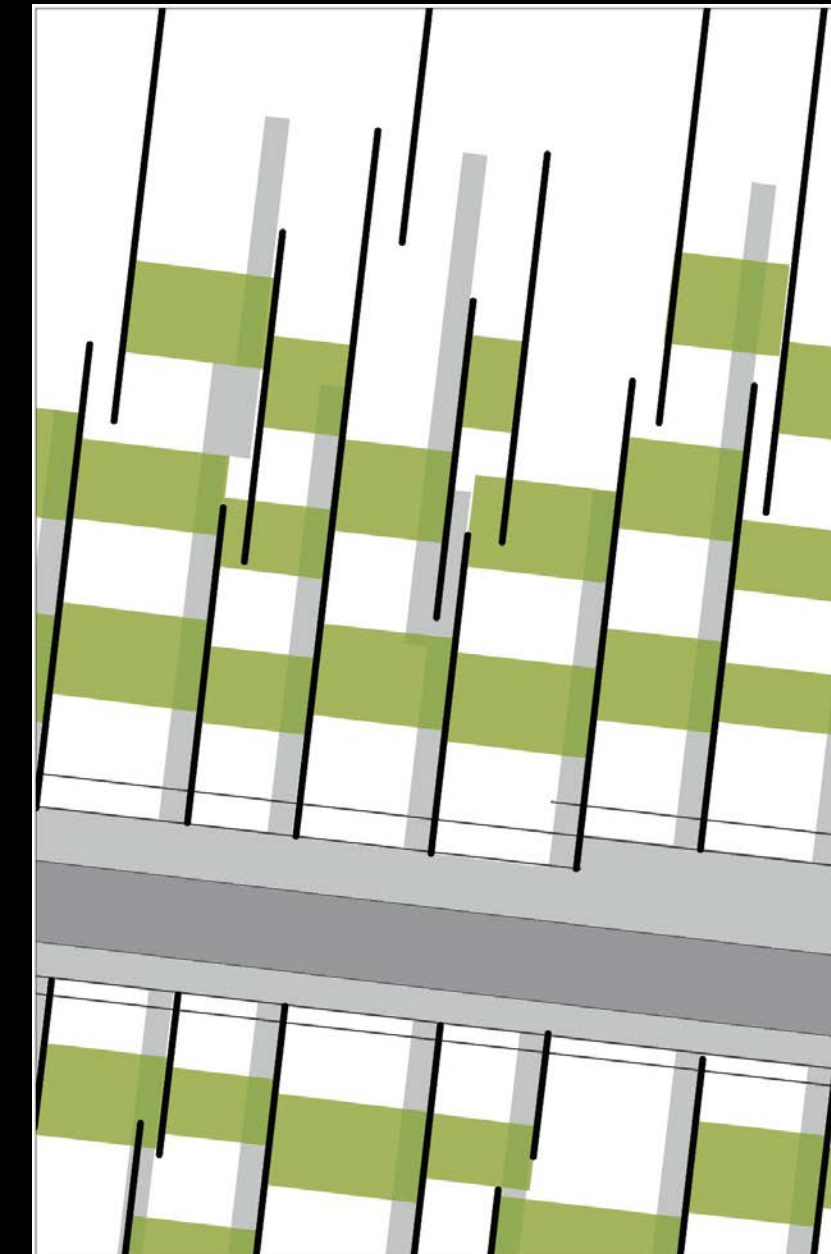
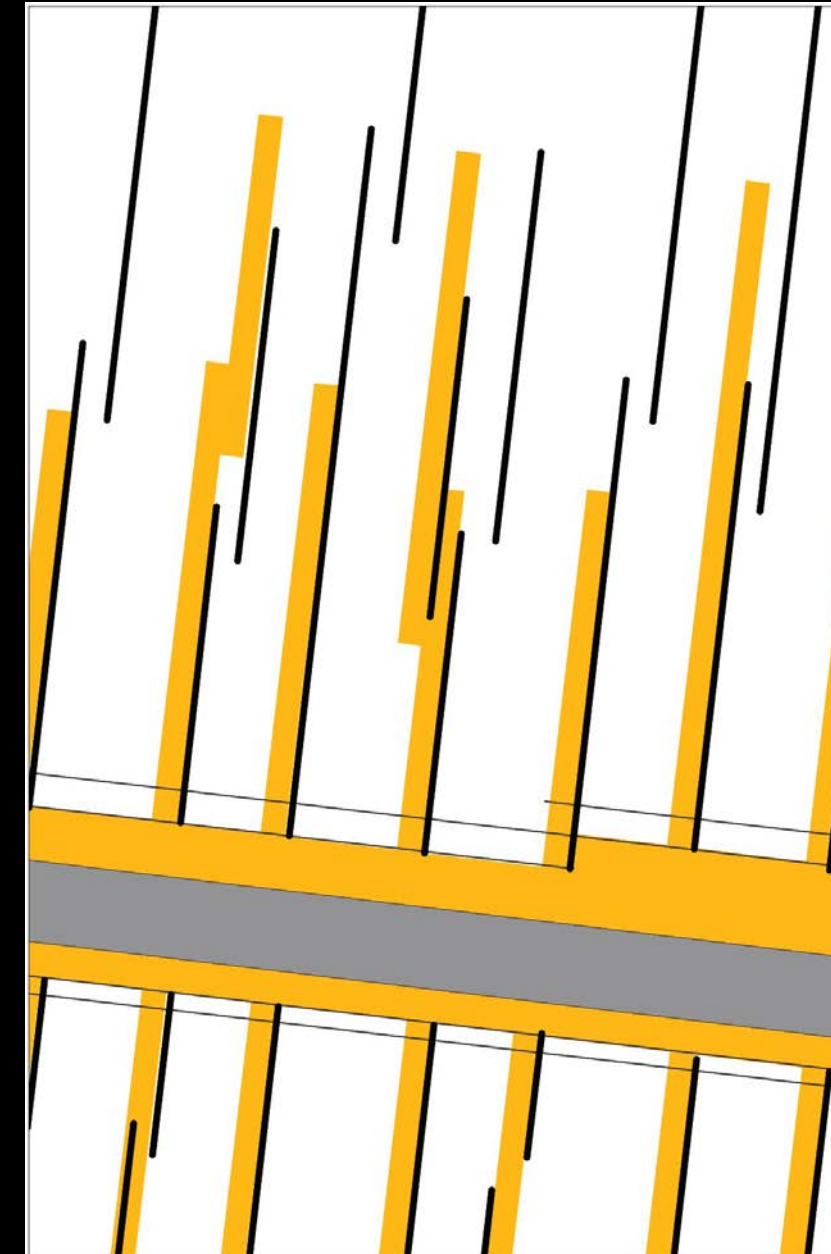
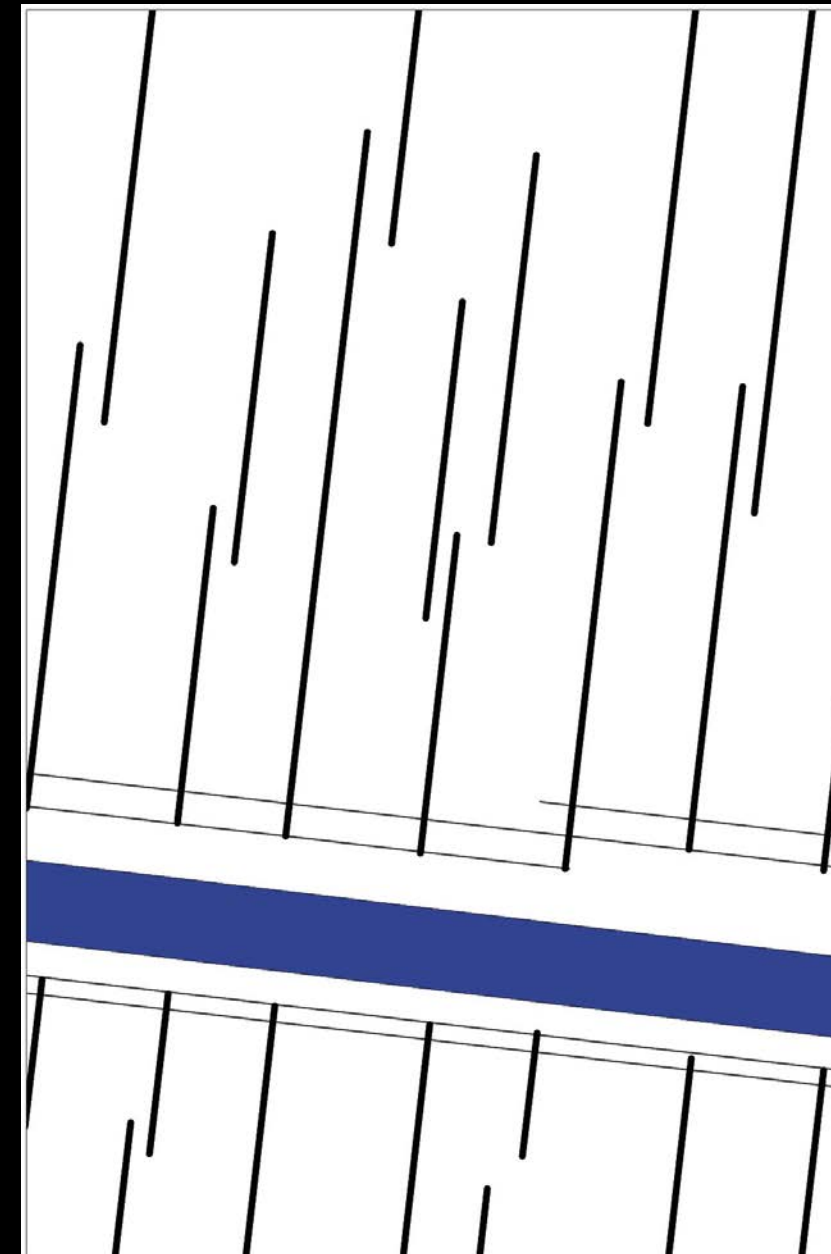
Structural party walls extend the levees

Public access is along the water

Residential access it to and from the water, through courtyards of sunlight

Key buildings deep in the fabric

EXISTING CONDITIONS



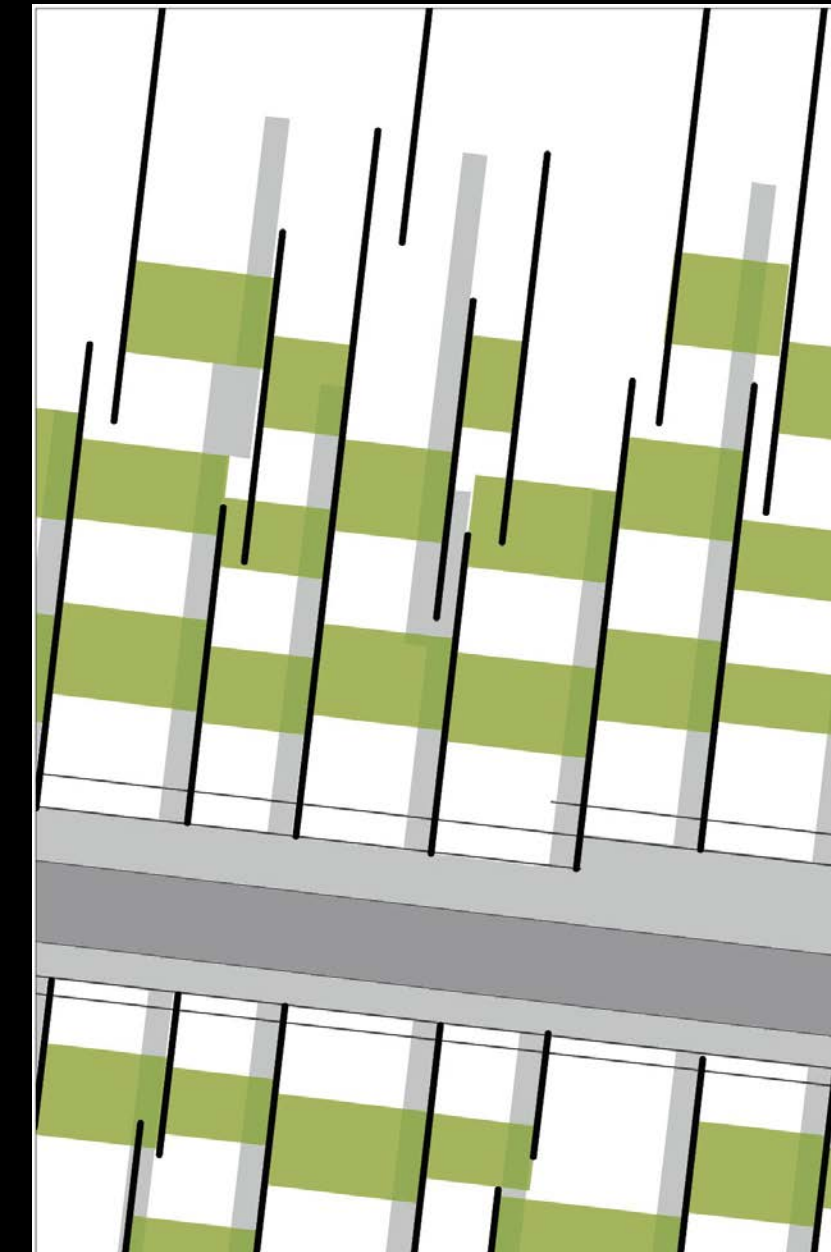
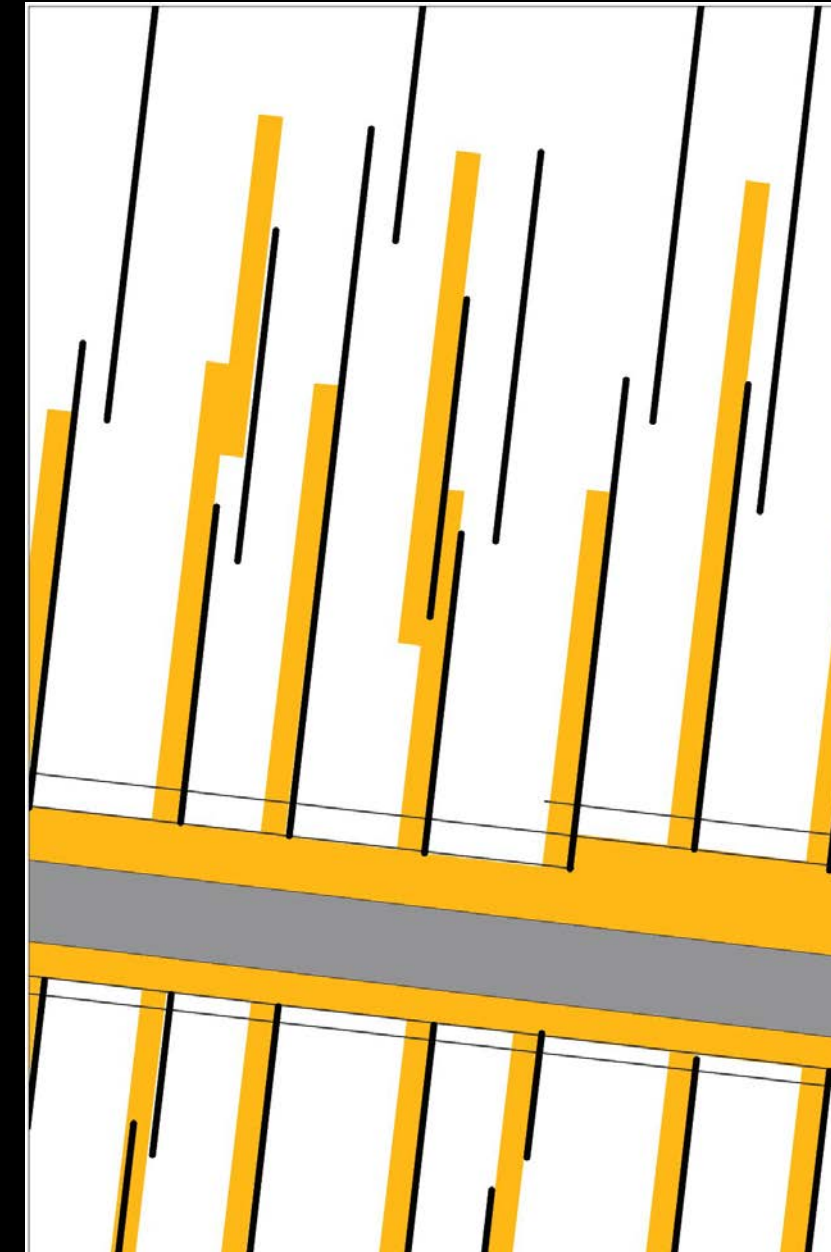
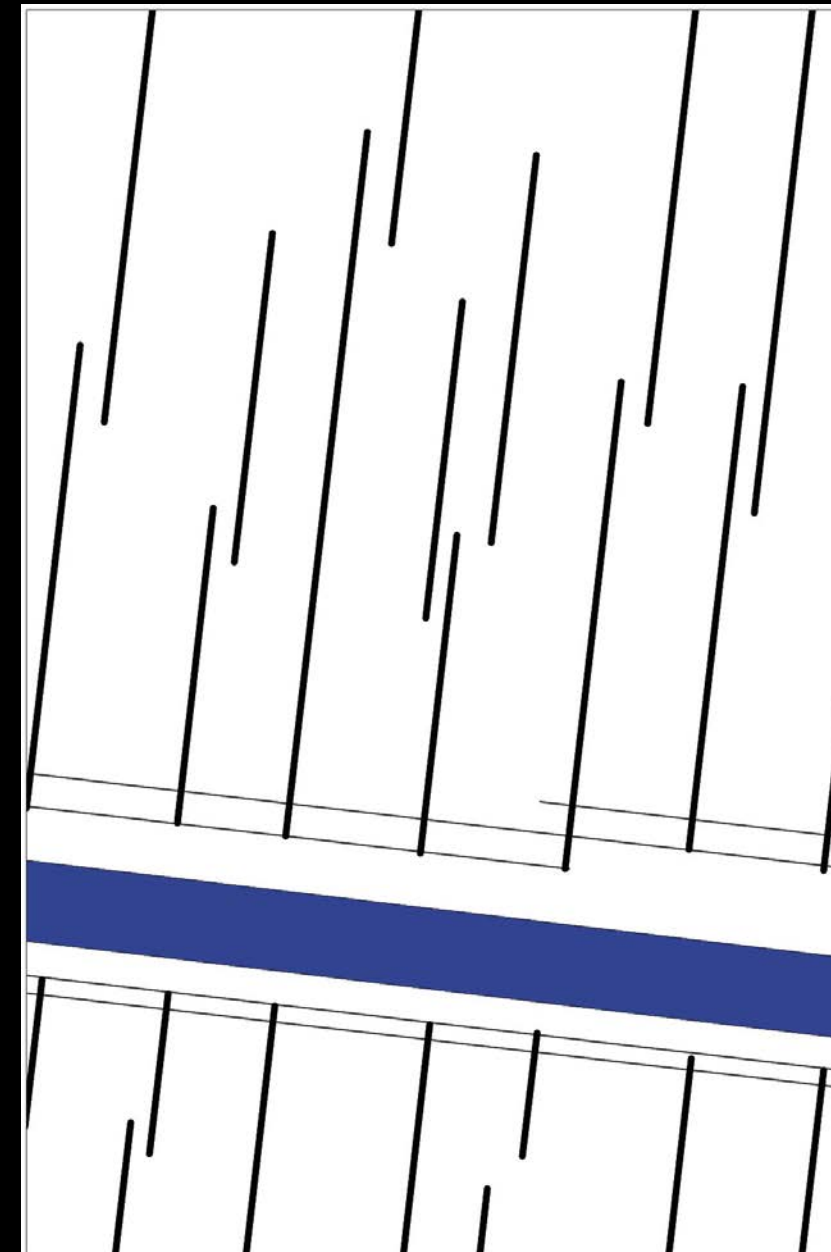
Primacy of Water

Building the levees

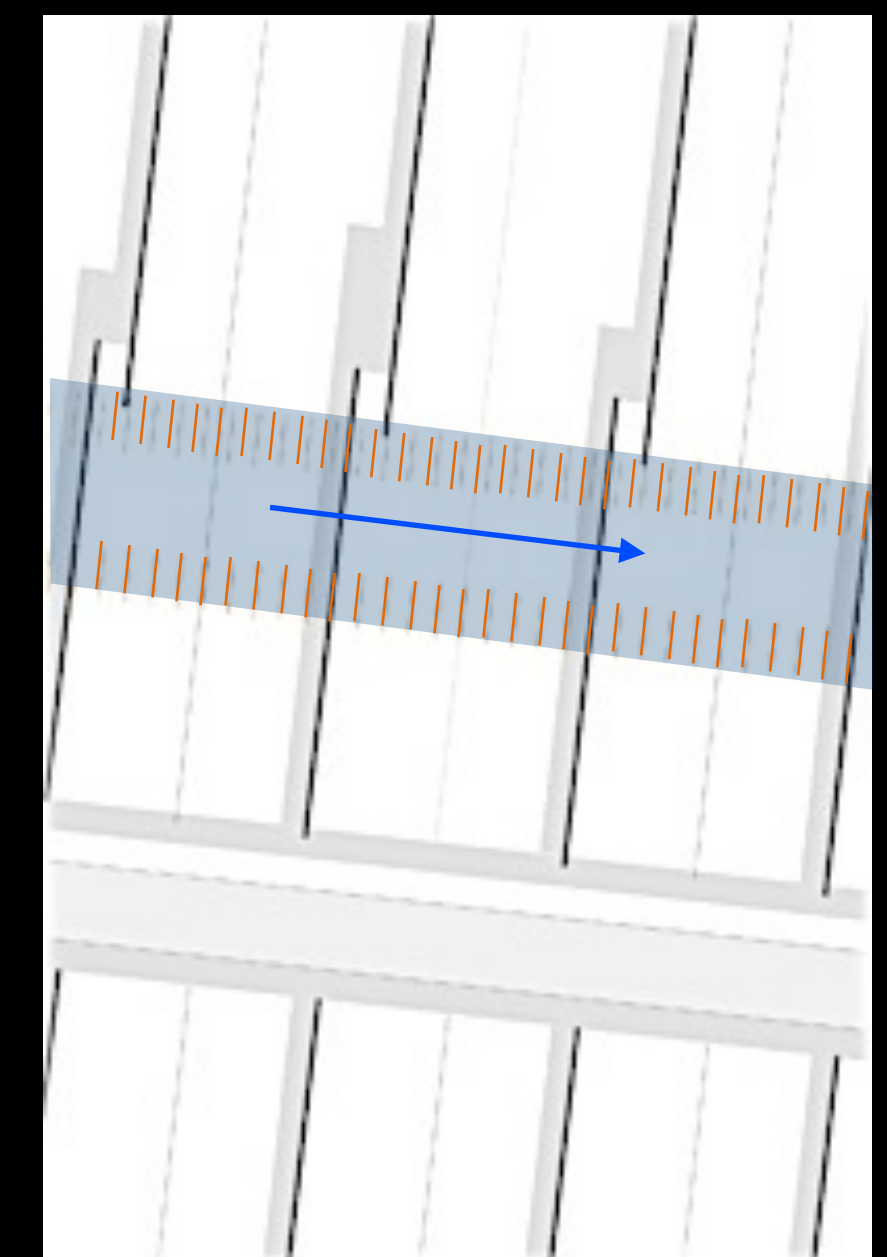
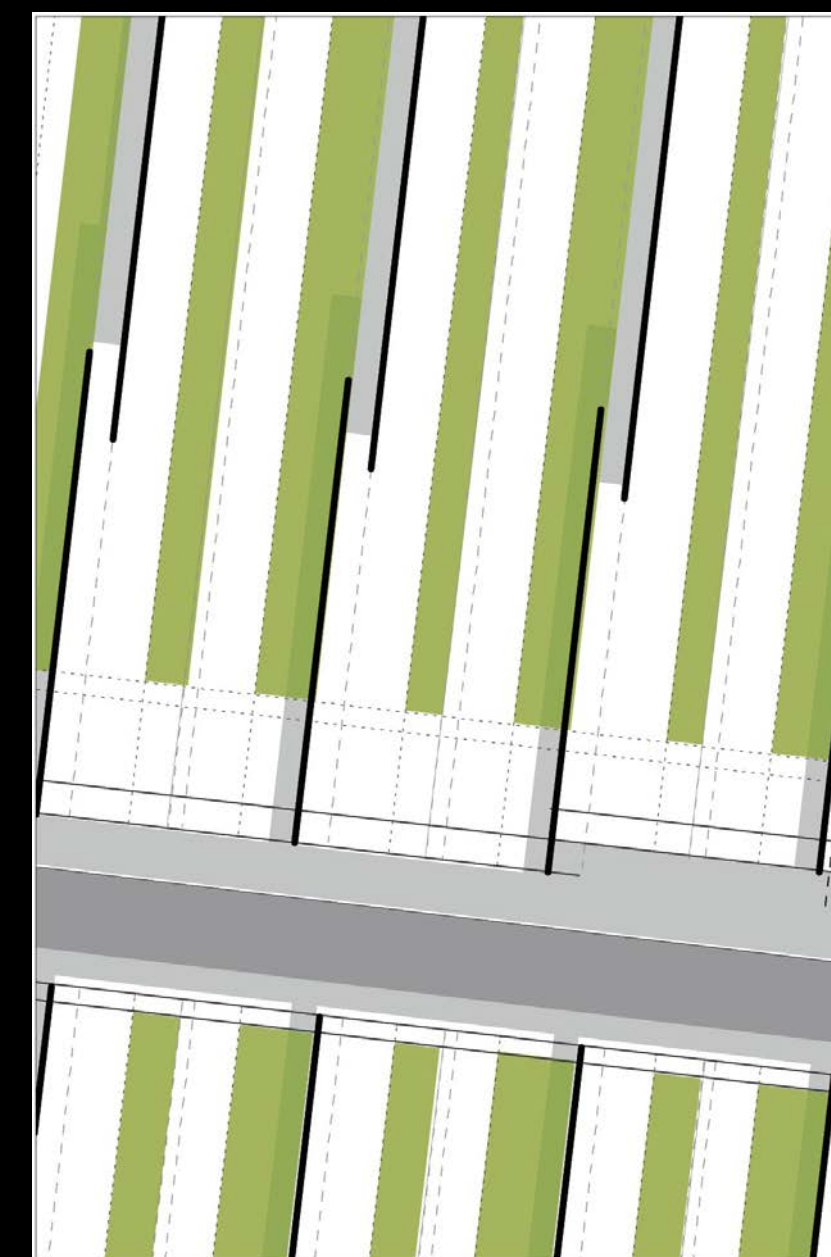
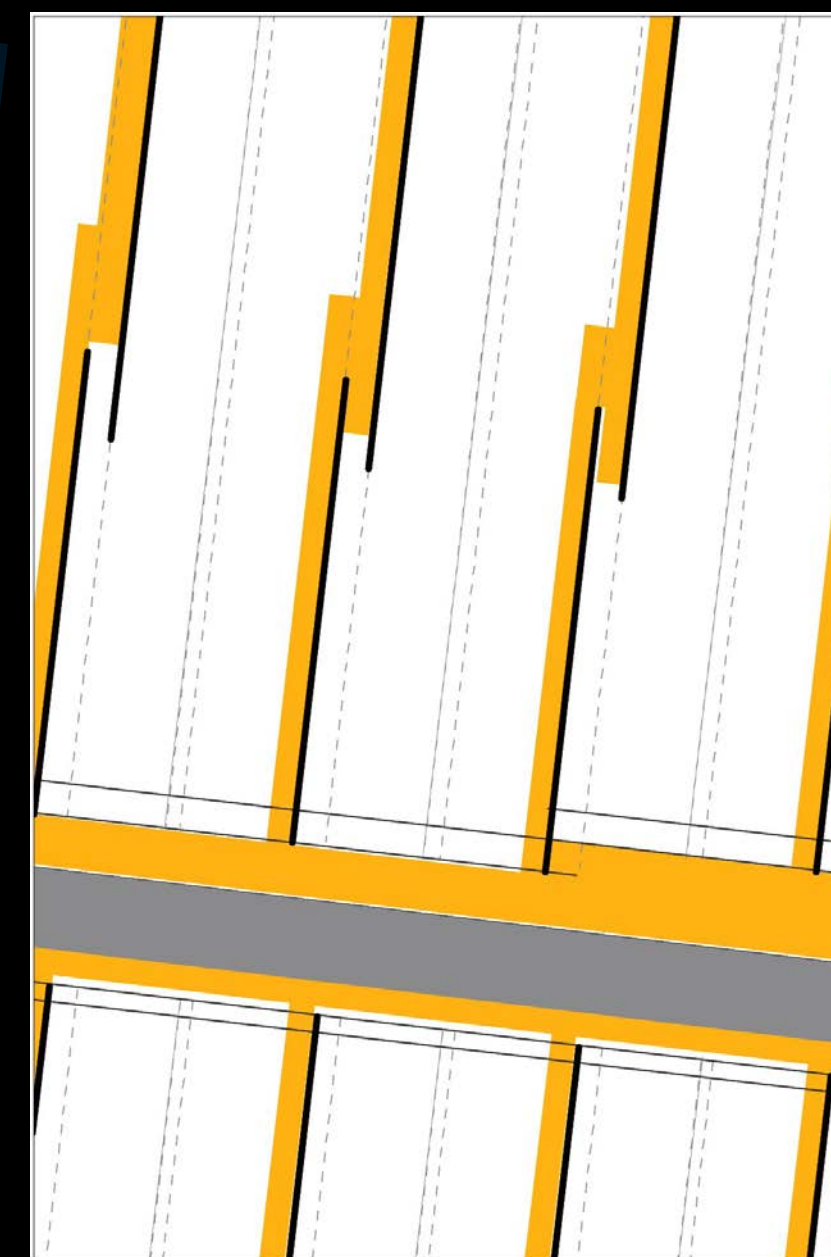
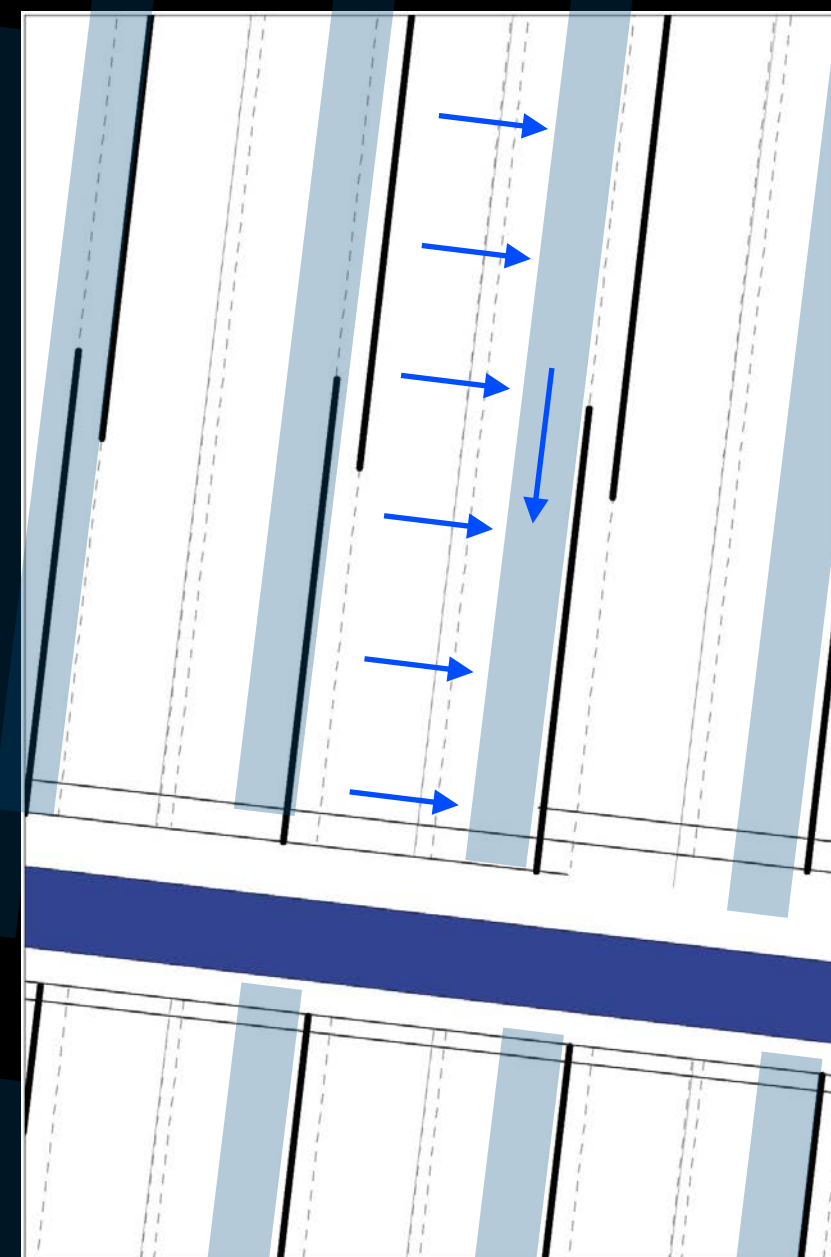
Moving in relations to the
water

Sunlight in the field

EXISTING CONDITIONS



PROPOSED CONDITIONS



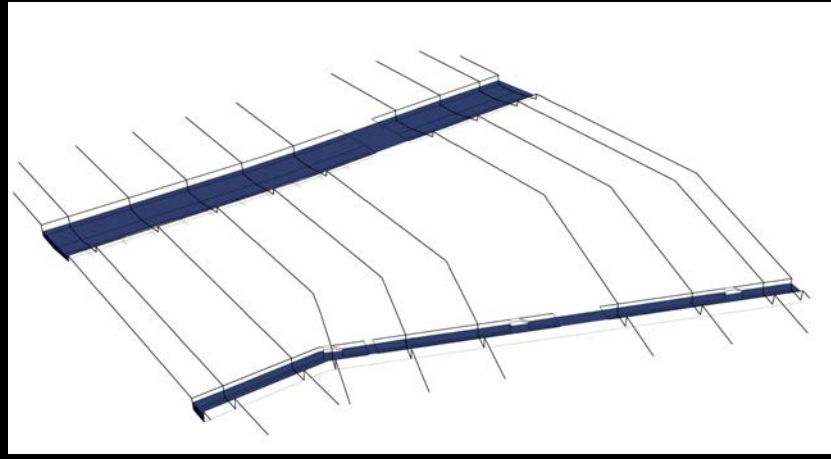
Primacy of Water

Building the levees

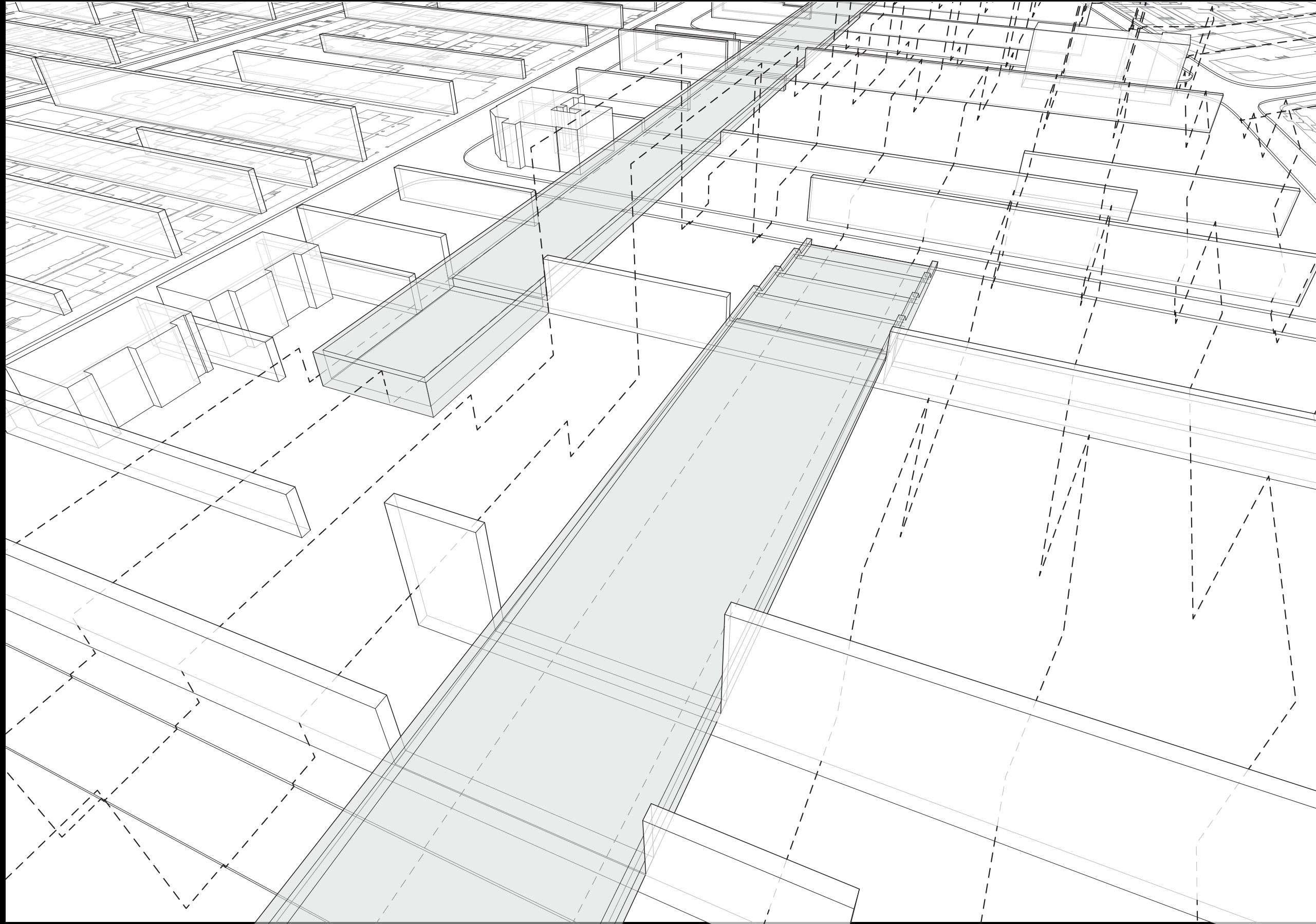
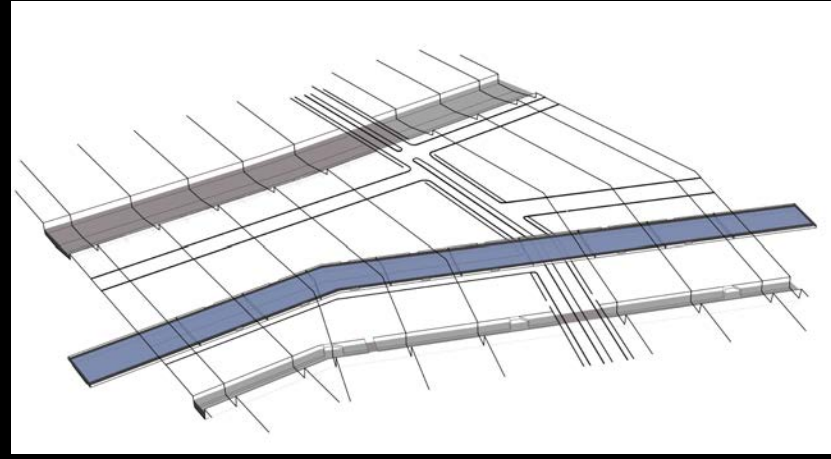
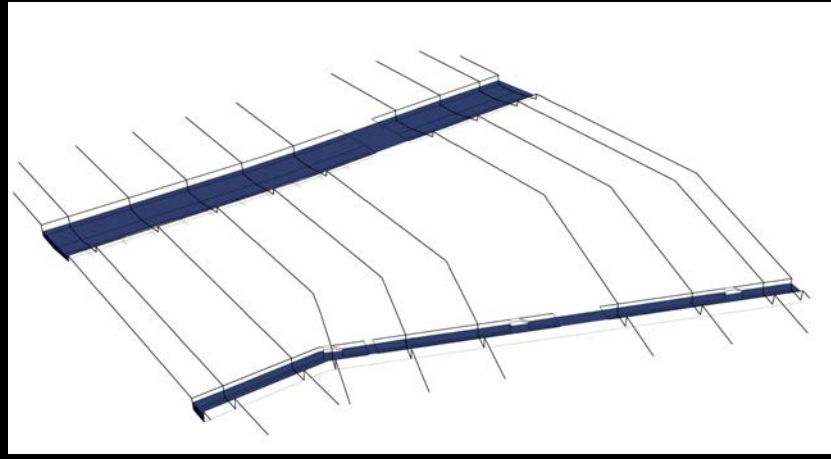
Moving in relations to the water

Sunlight in the field

Contemporary Water and Vehicular Infrastructure

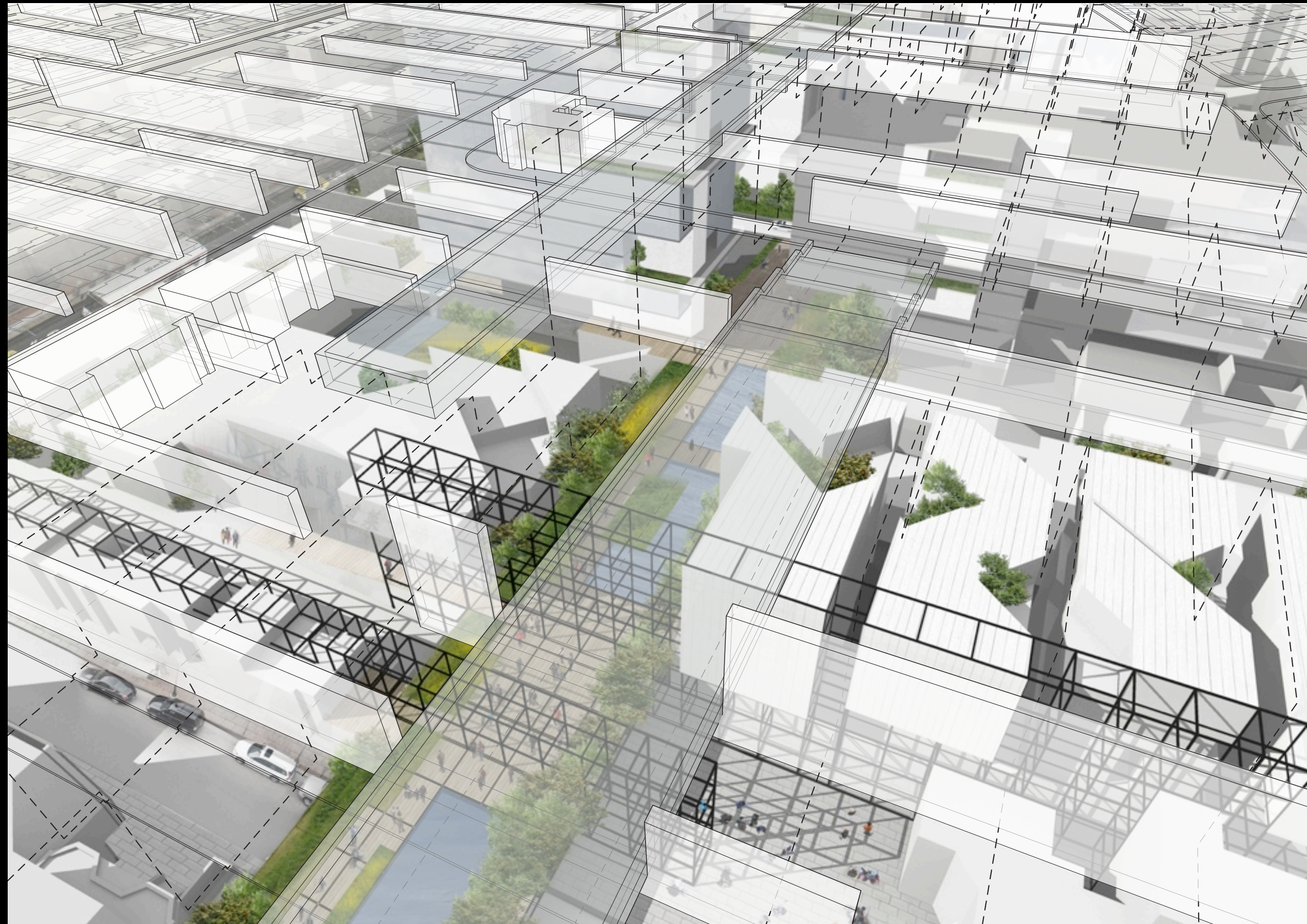
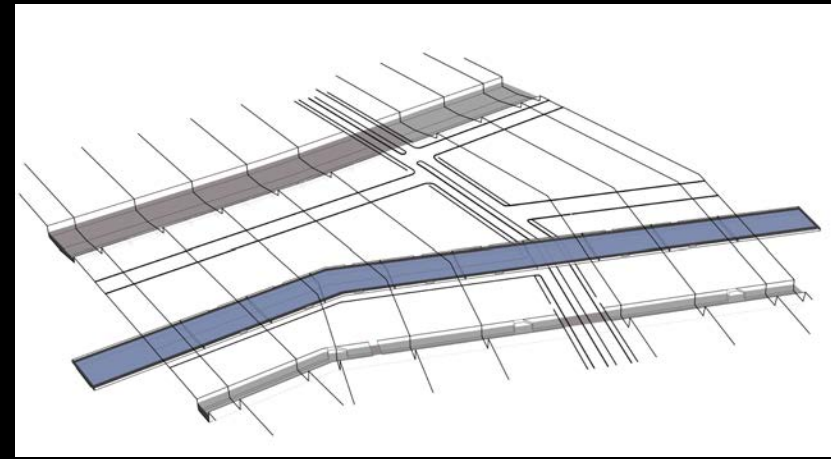
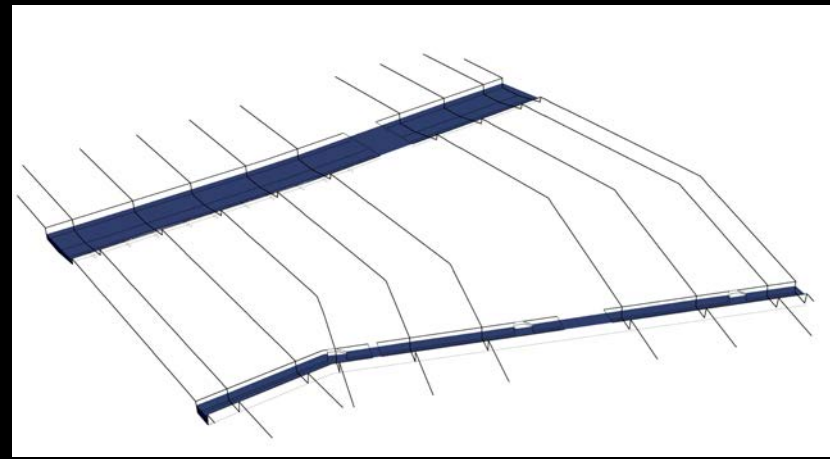


Primacy of Water



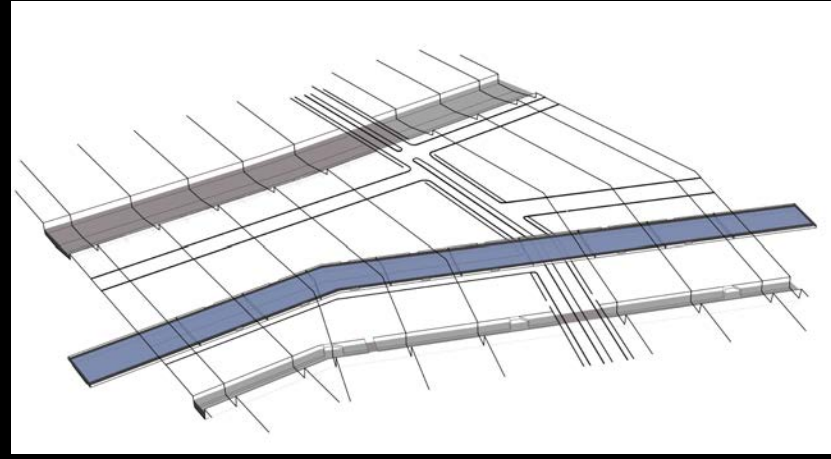
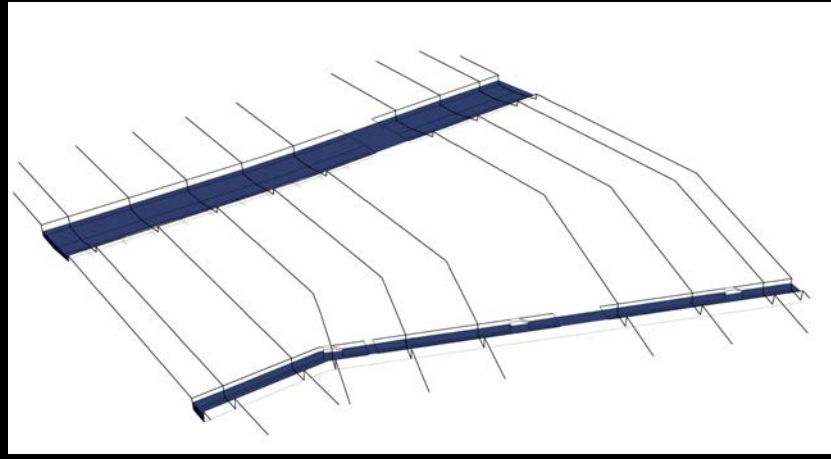
Primacy of Water

Contemporary Water and
Vehicular Infrastructure



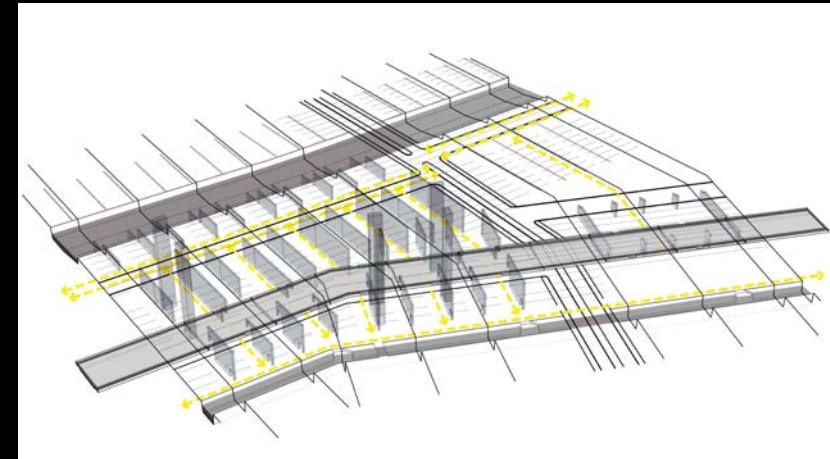
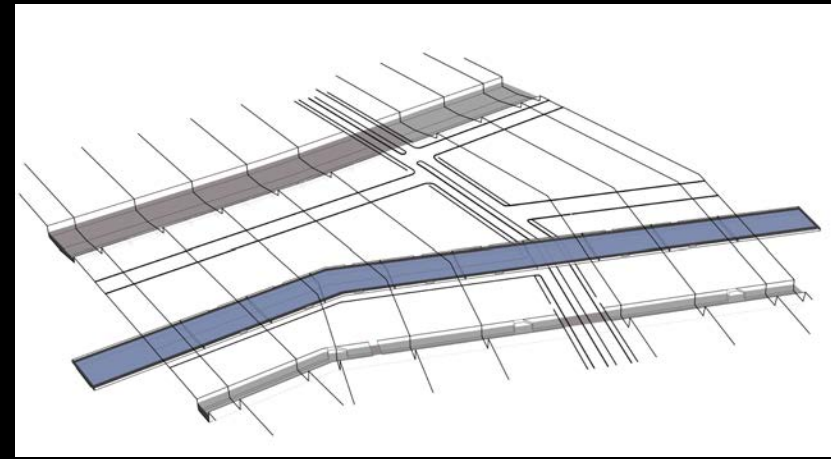
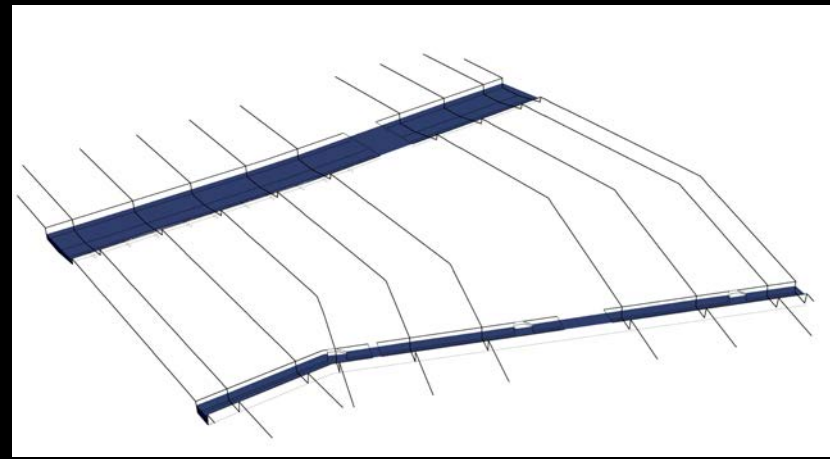
Primacy of Water

Contemporary Water and
Vehicular Infrastructure



Primacy of Water

Contemporary Water and
Vehicular Infrastructure



Primacy of Water

Contemporary Water and
Vehicular Infrastructure



Building the levees
Moving in relation to the water
Sunlight in the field



1850 1900 1950 2000 2050 2100

URBAN FABRICS



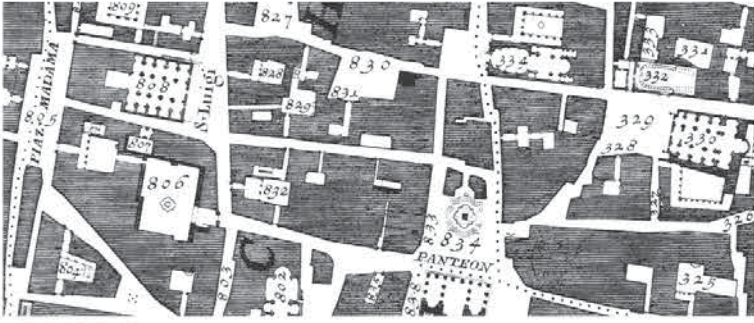
beijing



paris



pudong



rome



paris



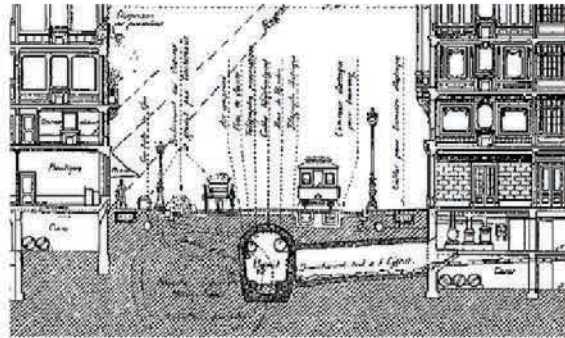
nyc



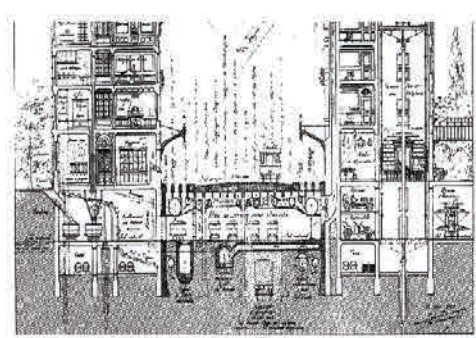
pudong



WATER



single



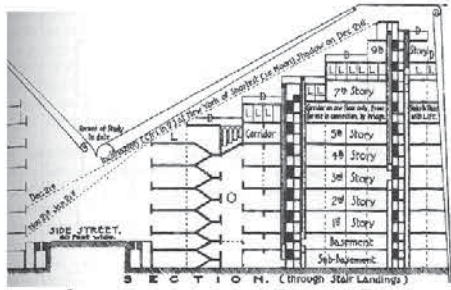
separated



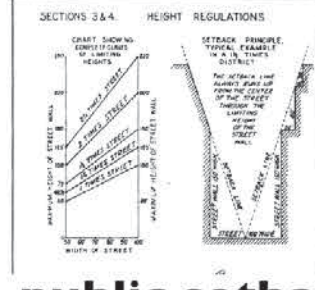
distributed



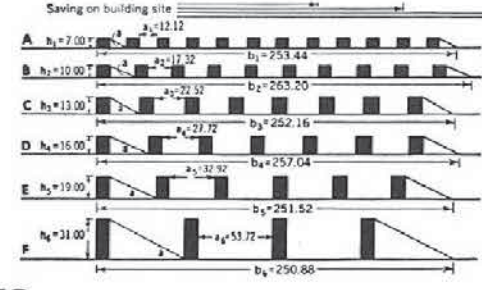
SUN



private setbacks



public setbacks



energy setbacks



CAR



donkey



horse carriage



motor



mass motor



autonomous vehicles



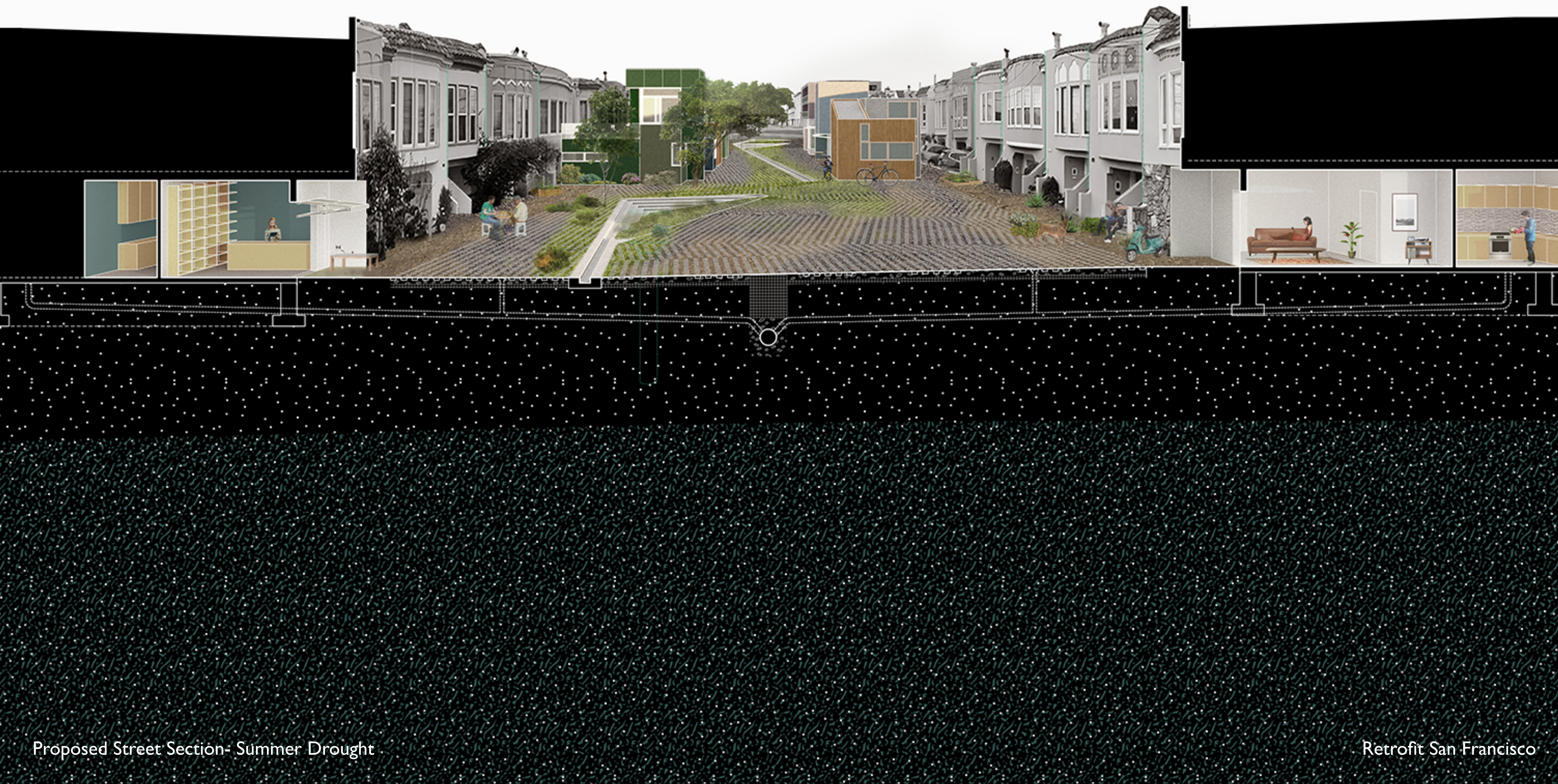
THE OPPORTUNITIES IN CHANGE



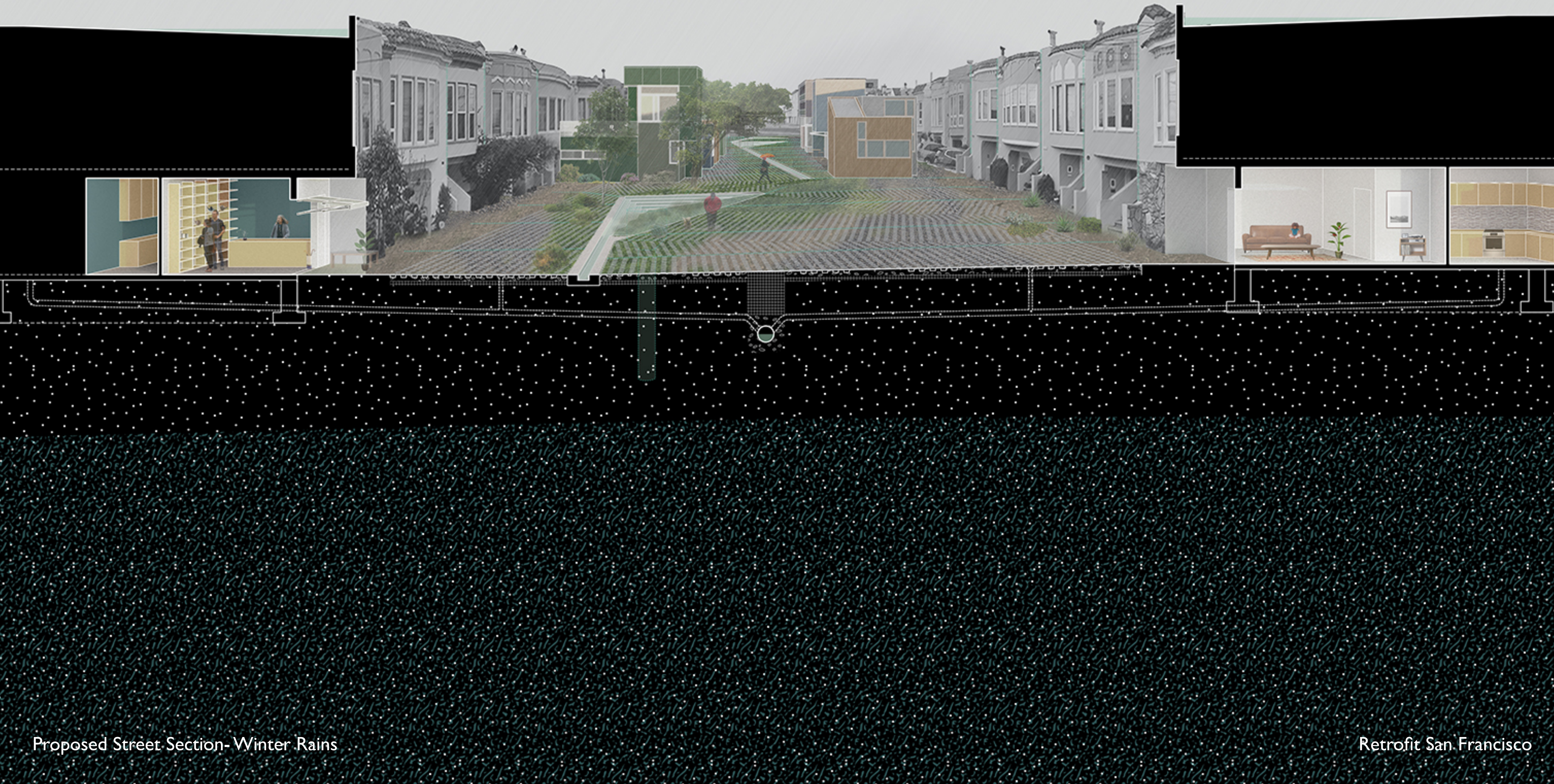


Existing Street Section

Retrofit San Francisco



Proposed Street Section- Summer Drought



1850 1900 1950 2000 2050 2100

URBAN FABRICS



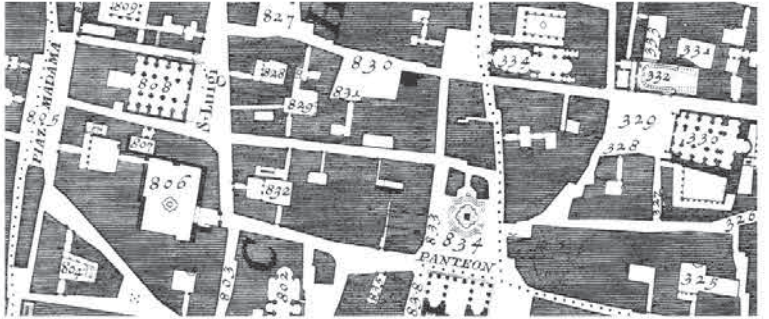
beijing



paris



pudong



rome



paris



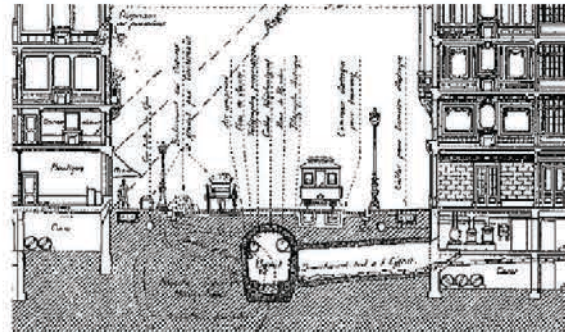
nyc



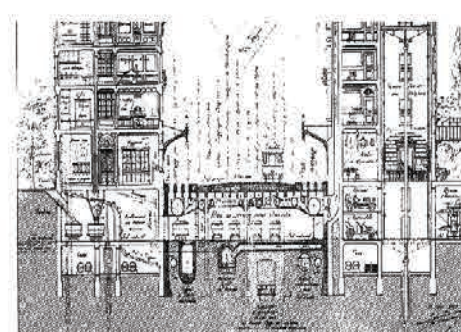
pudong



WATER



single



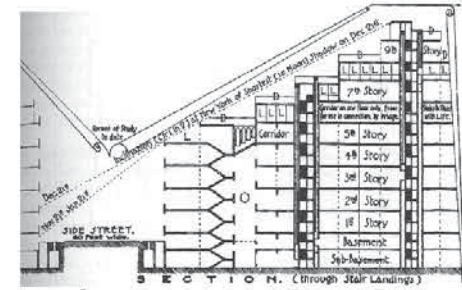
separated



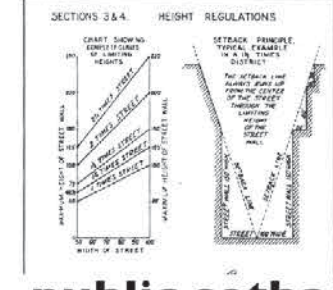
distributed



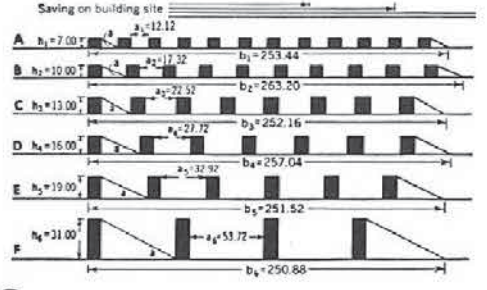
SUN



private setbacks



public setbacks



energy setbacks



CAR



donkey



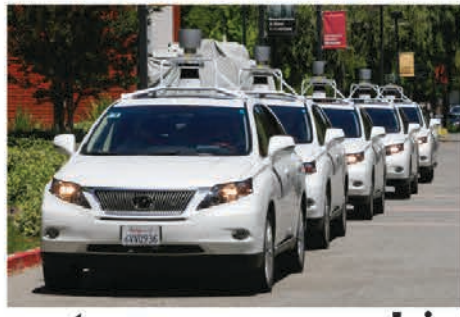
horse carriage



motor



mass motor



autonomous vehicles



THE OPPORTUNITIES IN CHANGE



1850 1900 1950 2000 2050 2100

URBAN FABRICS



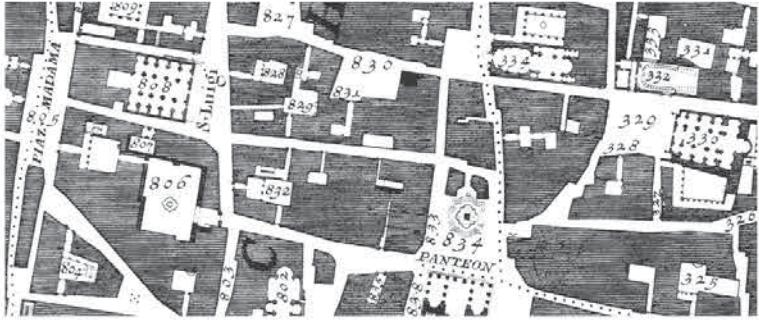
beijing



paris



pudong



rome



paris



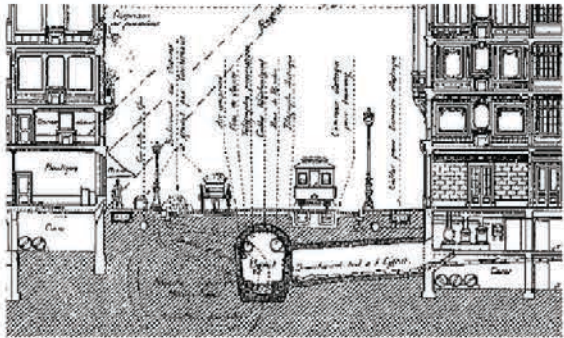
nyc



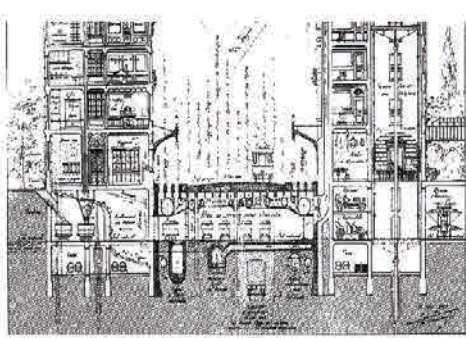
pudong



WATER



single



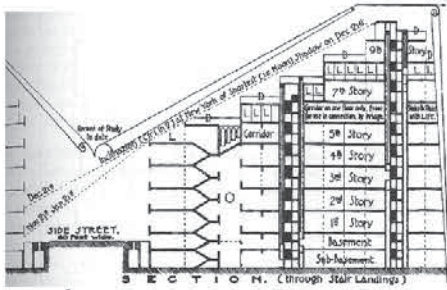
separated



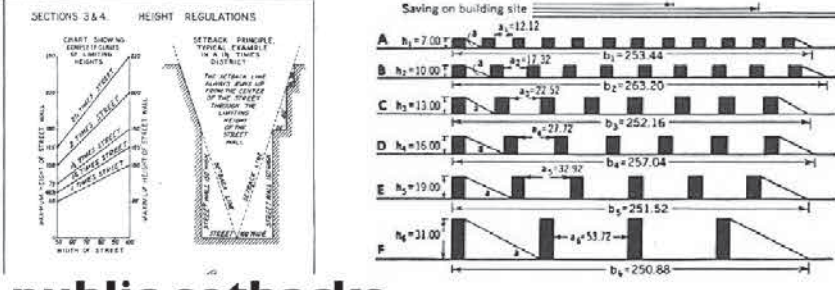
distributed



SUN



private setbacks



public setbacks



energy setbacks



CAR



donkey



horse carriage



motor



mass motor



autonomous vehicles



THE OPPORTUNITIES IN CHANGE