



lower manhattan
COASTAL RESILIENCY

TWO BRIDGES
CB3 COMMUNITY WORKSHOP
JULY 18, 2018

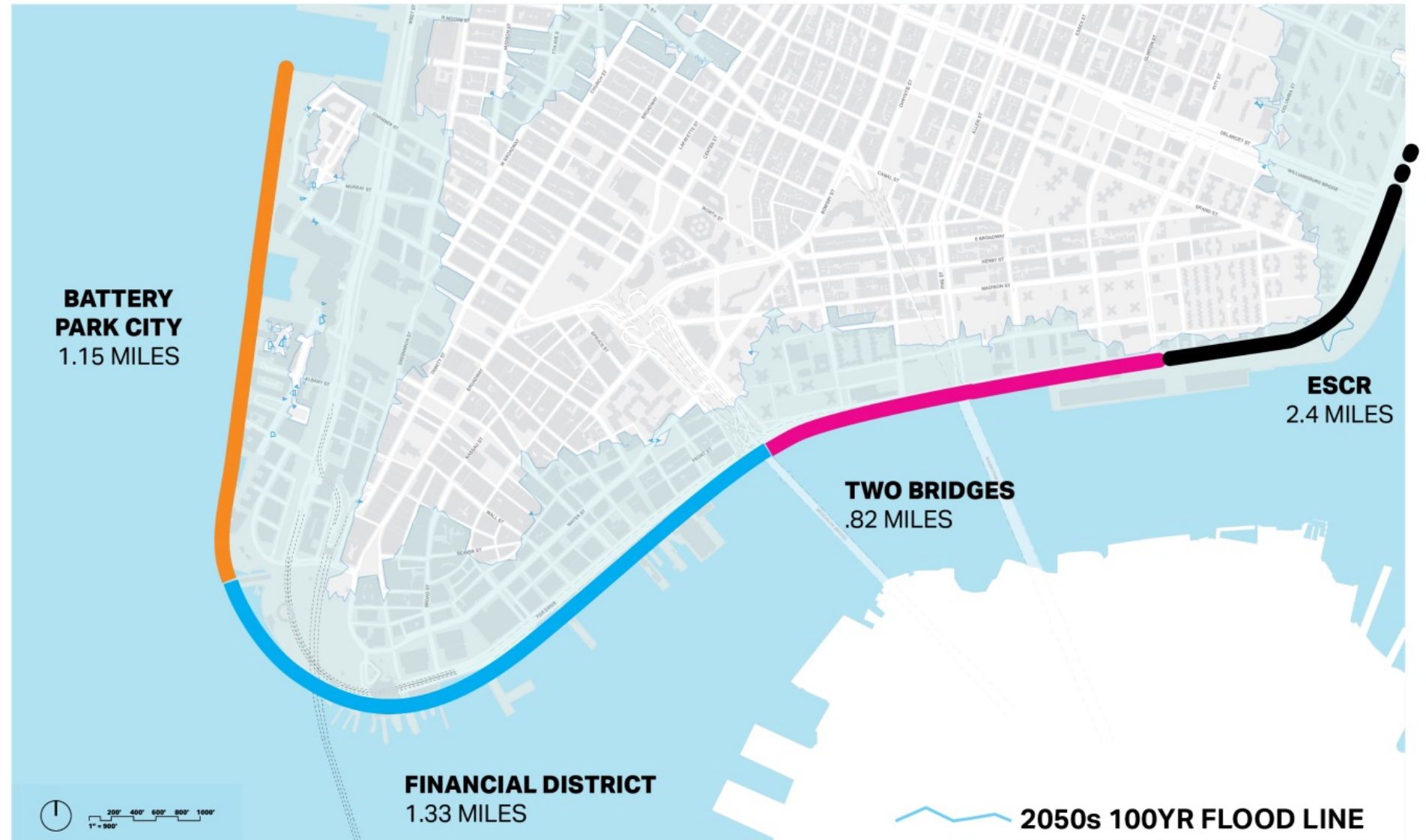
LMCR OVERVIEW

PURPOSE OF STUDY:

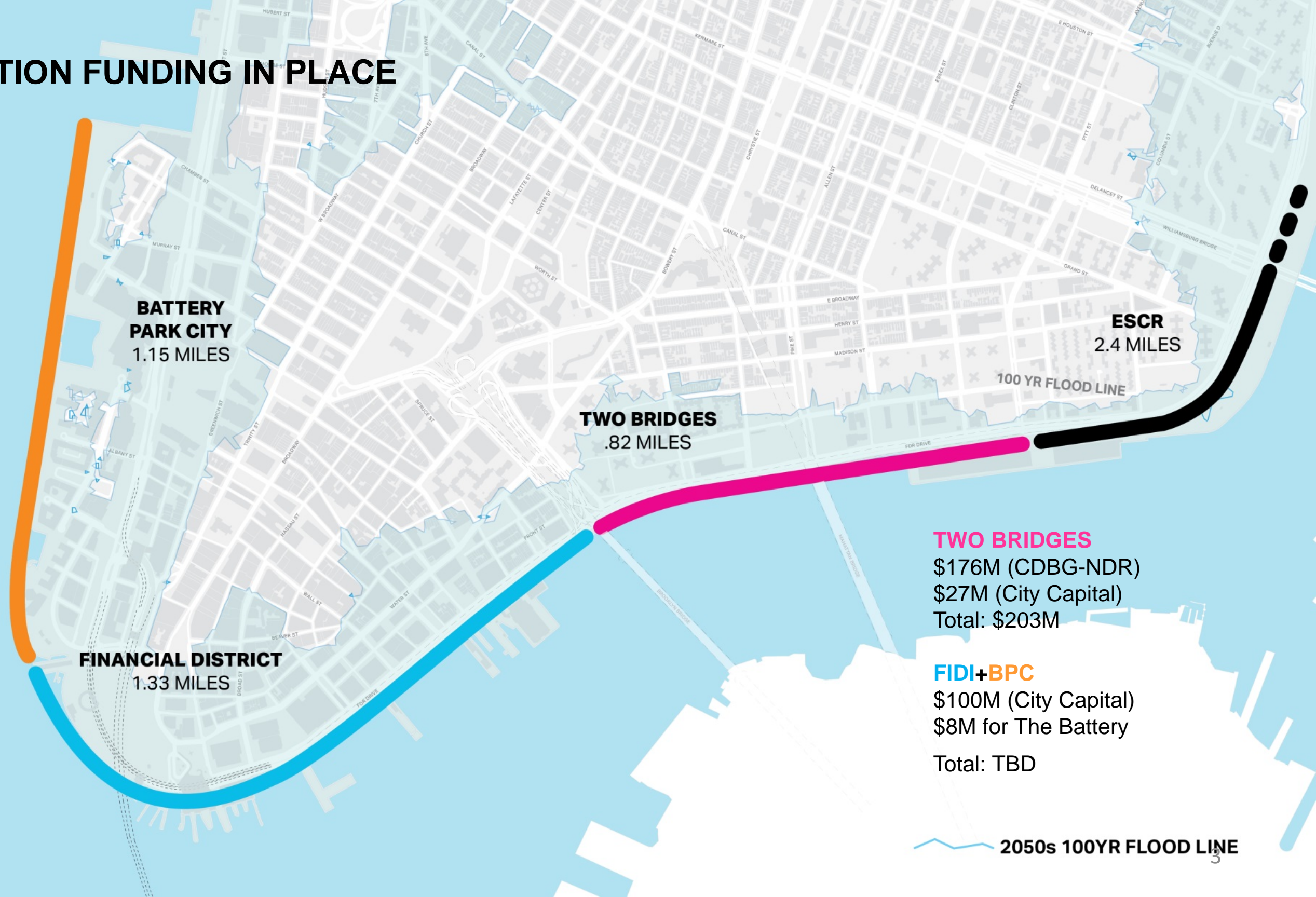
1. Develop long-term strategy and feasible concept design for all of Lower Manhattan
2. Prioritize project concepts toward implementation and conduct advanced planning when possible
3. Engage with community on core design principles and priorities

STUDY FUNDING

+ \$7.25M CDBG-DR
(*\$3.75M GOSR; \$3.5M NYC*)



IMPLEMENTATION FUNDING IN PLACE



**BATTERY
PARK CITY**
1.15 MILES

ESCR
2.4 MILES

TWO BRIDGES
.82 MILES

100 YR FLOOD LINE

FINANCIAL DISTRICT
1.33 MILES

TWO BRIDGES
\$176M (CDBG-NDR)
\$27M (City Capital)
Total: \$203M

FIDI+BPC
\$100M (City Capital)
\$8M for The Battery
Total: TBD

200' 600' 1000'



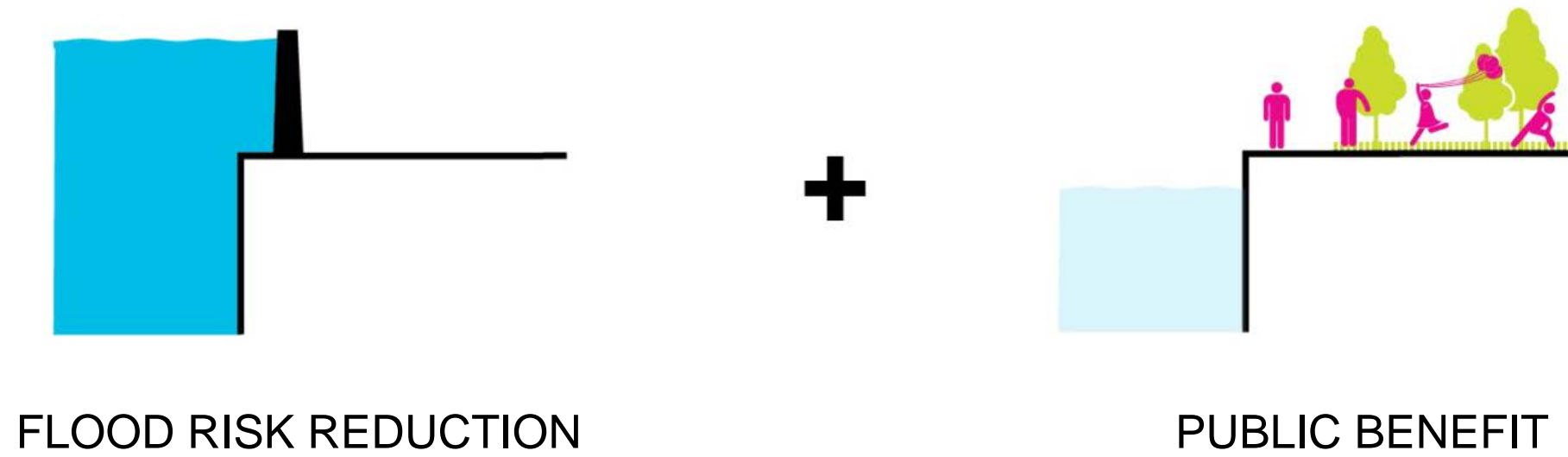
2050s 100YR FLOOD LINE

THE CHALLENGE

To develop a feasible strategy and concept design for a flood protection system in Two Bridges.



CORE MISSION



LMCR PROJECT APPROACH

**WHERE DOES FLOOD INFRASTRUCTURE BEST SERVE
THE COMMUNITY?**

EVALUATION CRITERIA



CONSTRUCTABILITY

- Cost
- Structural requirements
- Impacts on utilities
- Disruptions to existing structures and transportation
- Failure risk



SCHEDULE

- Regulatory actions
- Environmental impacts
- Jurisdictional coordination



RESILIENCE

- Buildings, residents, and infrastructure protected
- Adaptability



OPERATIONS & MAINTENANCE

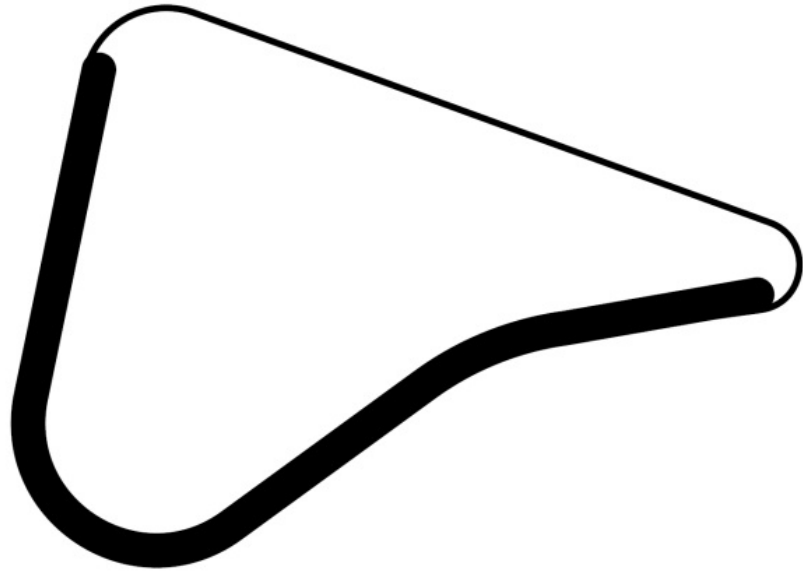
- Accessibility
- O&M requirements



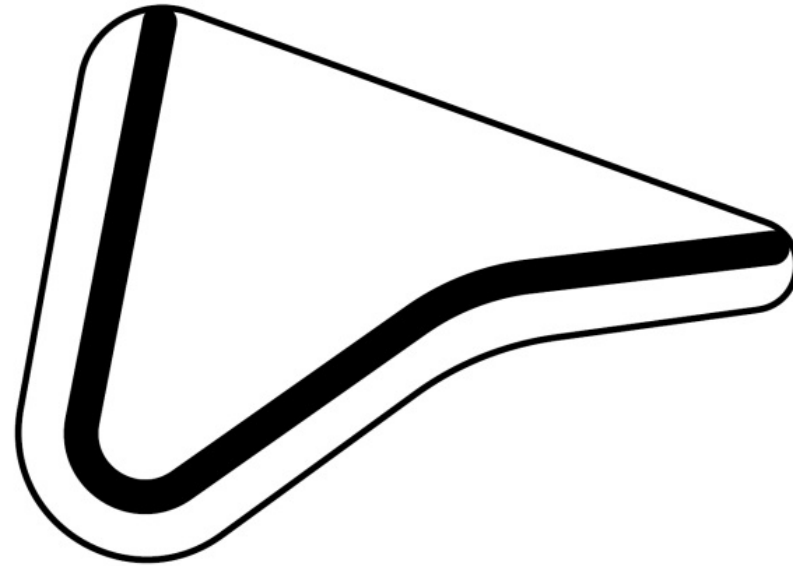
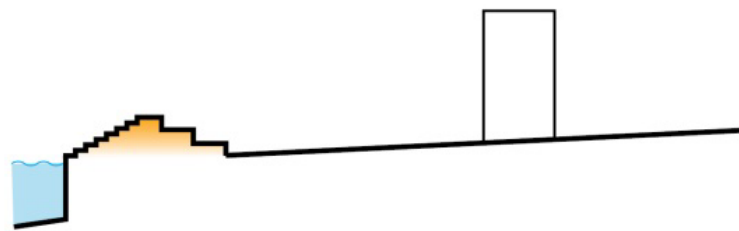
PUBLIC REALM BENEFITS

- Opportunity for community amenities, placemaking, and urban design

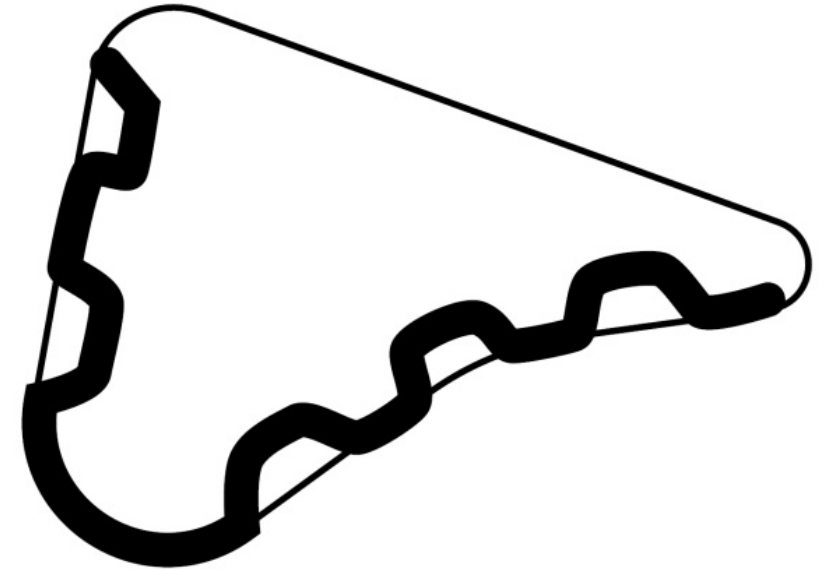
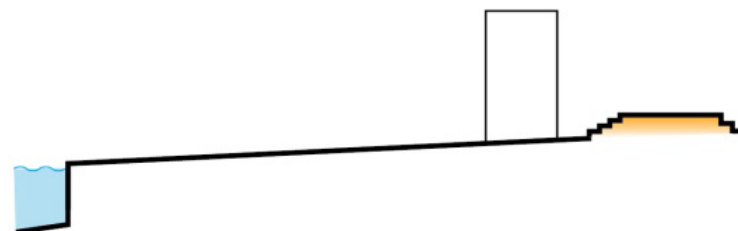
CONCEPTUAL ALIGNMENTS



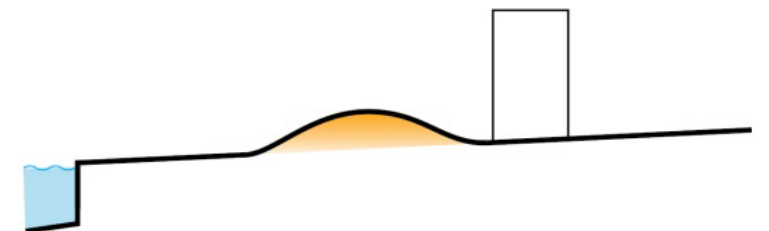
EDGE



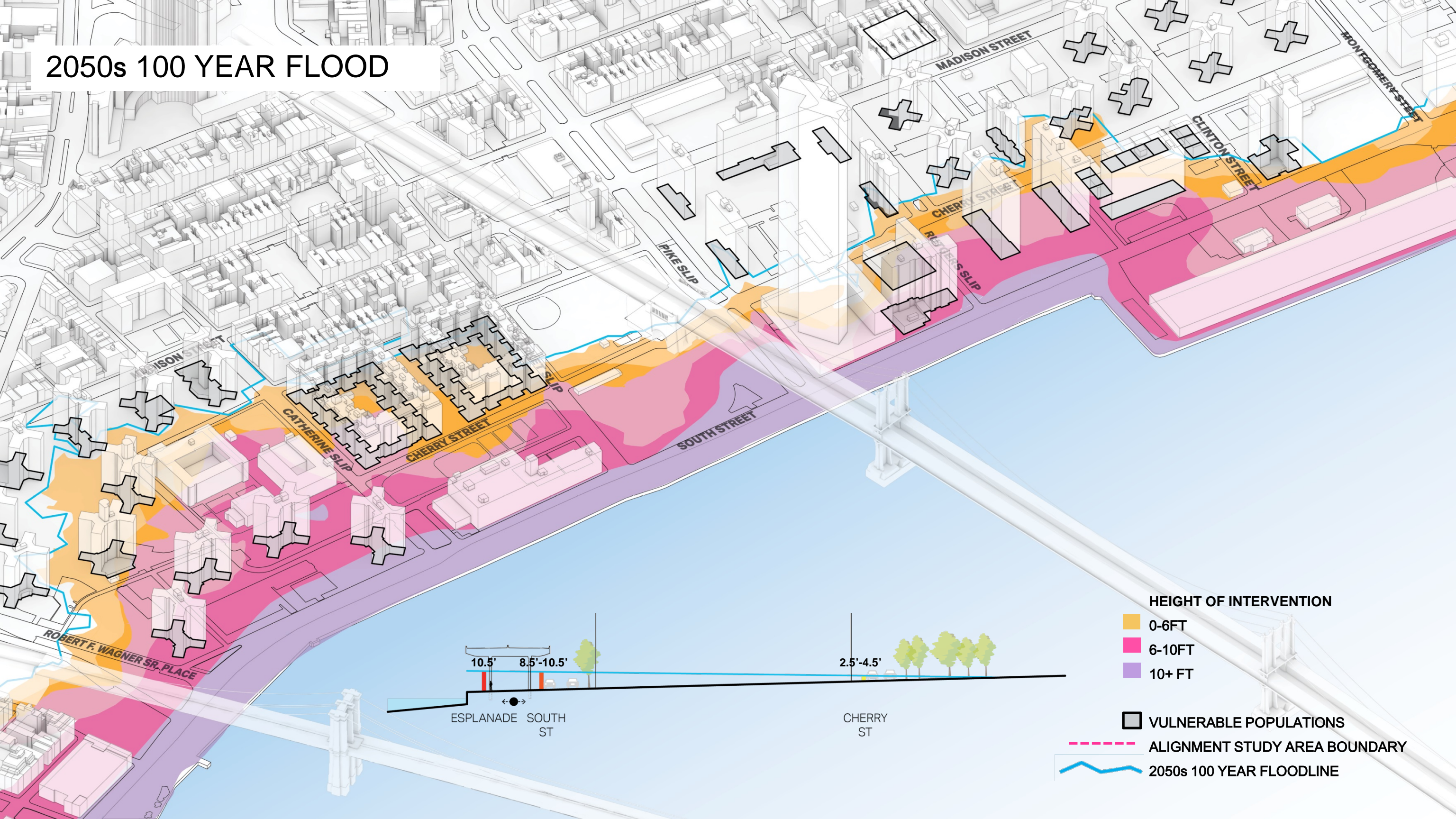
UPLAND



HYBRID



2050s 100 YEAR FLOOD



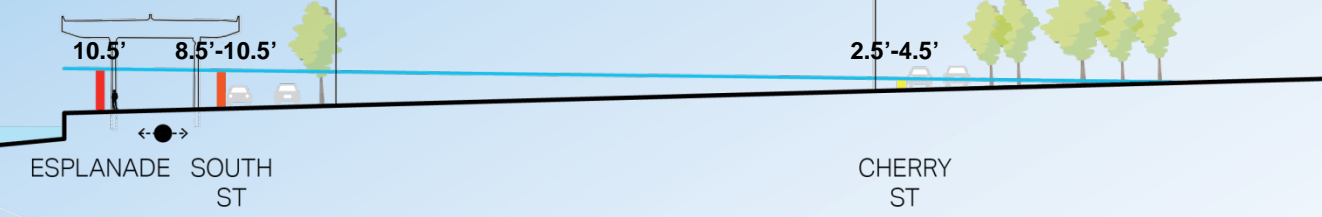
HEIGHT OF INTERVENTION

- 0-6FT
- 6-10FT
- 10+ FT

VULNERABLE POPULATIONS

ALIGNMENT STUDY AREA BOUNDARY

2050s 100 YEAR FLOODLINE



PREFERRED PROJECT FOOTPRINT

PRESERVES INLAND /
NEIGHBORHOOD OPERATIONS




STREAMLINES COORDINATION WITH
PROPERTY OWNERS +
STAKEHOLDERS

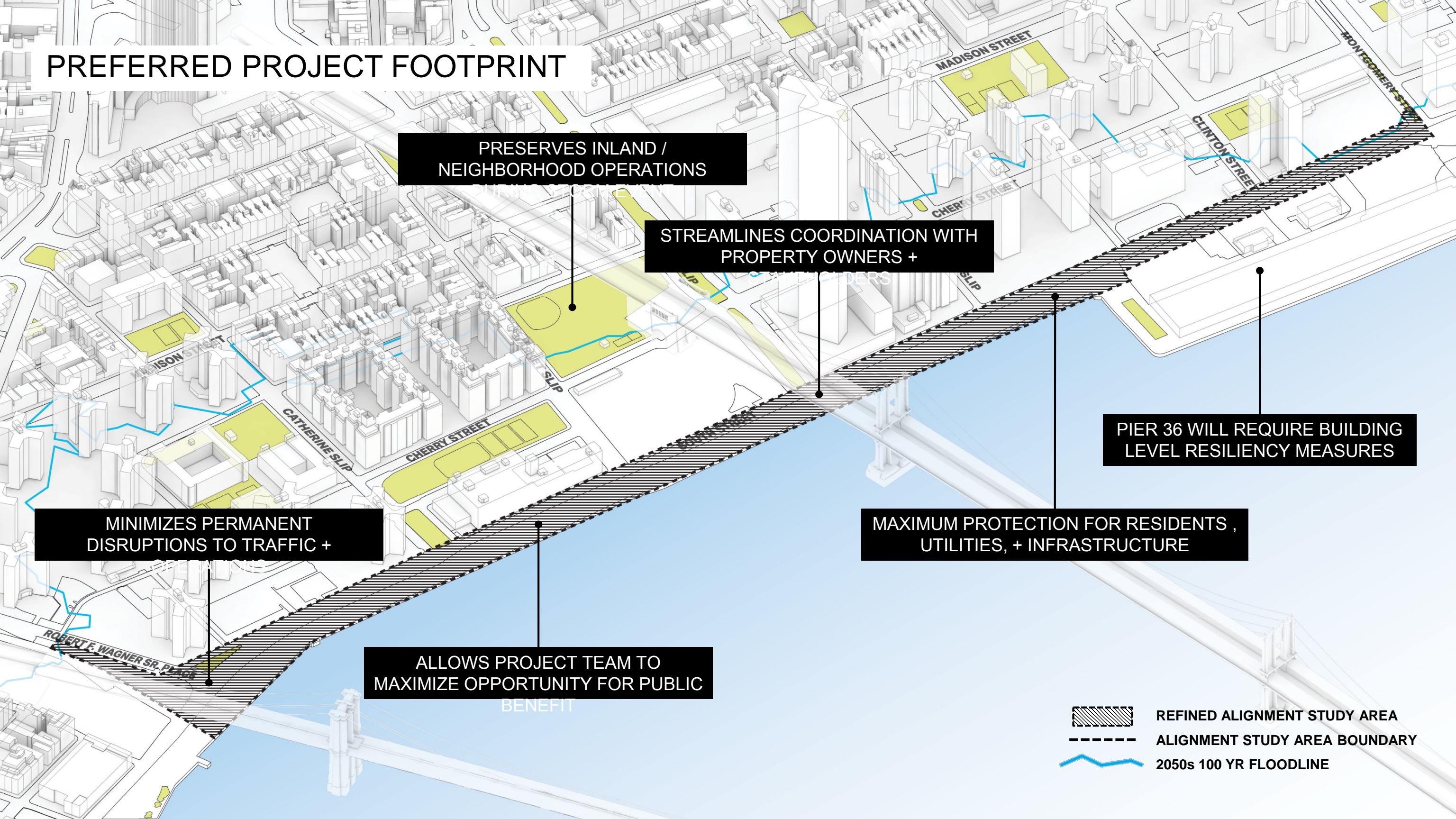
PIER 36 WILL REQUIRE BUILDING
LEVEL RESILIENCY MEASURES

MAXIMUM PROTECTION FOR RESIDENTS ,
UTILITIES, + INFRASTRUCTURE

MINIMIZES PERMANENT
DISRUPTIONS TO TRAFFIC +
BUSINESS OPERATIONS

ALLOWS PROJECT TEAM TO
MAXIMIZE OPPORTUNITY FOR PUBLIC
BENEFIT

-  REFINED ALIGNMENT STUDY AREA
-  ALIGNMENT STUDY AREA BOUNDARY
-  2050s 100 YR FLOODLINE



An aerial architectural rendering of a city waterfront. The image shows a dense urban grid with various streets and buildings. A prominent feature is a bridge structure extending from the city towards the water. The bridge is depicted with a hatched pattern, suggesting a construction or planning phase. The water is shown in a light blue color. The overall style is a clean, white architectural model with some yellow and blue highlights. The text is overlaid in the center of the image.

HOW CAN LMCR SHAPE A BETTER WATERFRONT FOR TWO BRIDGES?

DESIGN OBJECTIVES

DESIGN OBJECTIVES



- 1 PRESERVE VIEWS + ACCESS**
- 2 DISTRIBUTE PROGRAM EQUITABLY**
- 3 INTEGRATE INFRASTRUCTURE INTO THE PUBLIC REALM**

1

PRESERVE VIEWS + ACCESS



VIEW CORRIDORS



CATHERINE SLIP



MARKET SLIP



PIKE SLIP

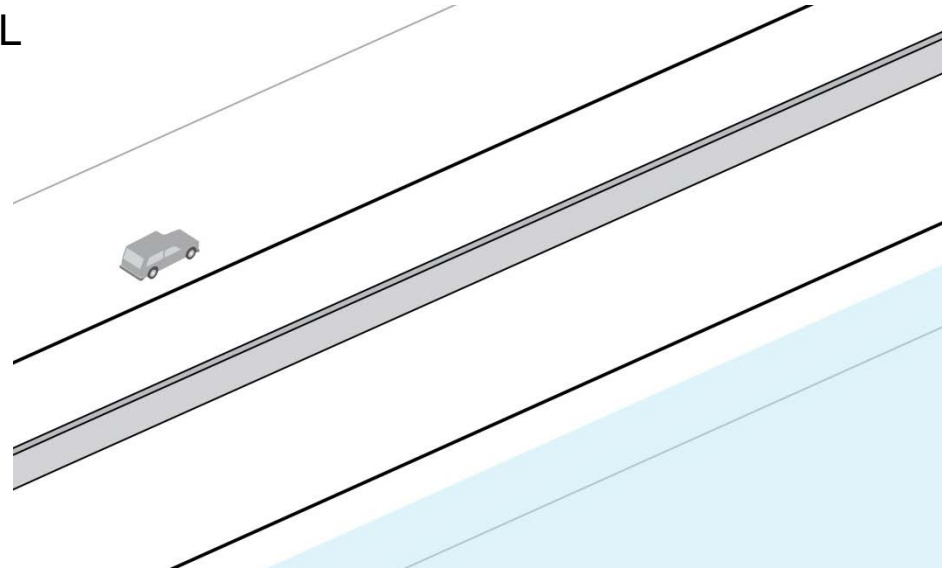


RUTGERS SLIP

INFRASTRUCTURE TOOLKIT | USE DEPLOYABLE GATES TO PRESERVE VIEWS + ACCESS

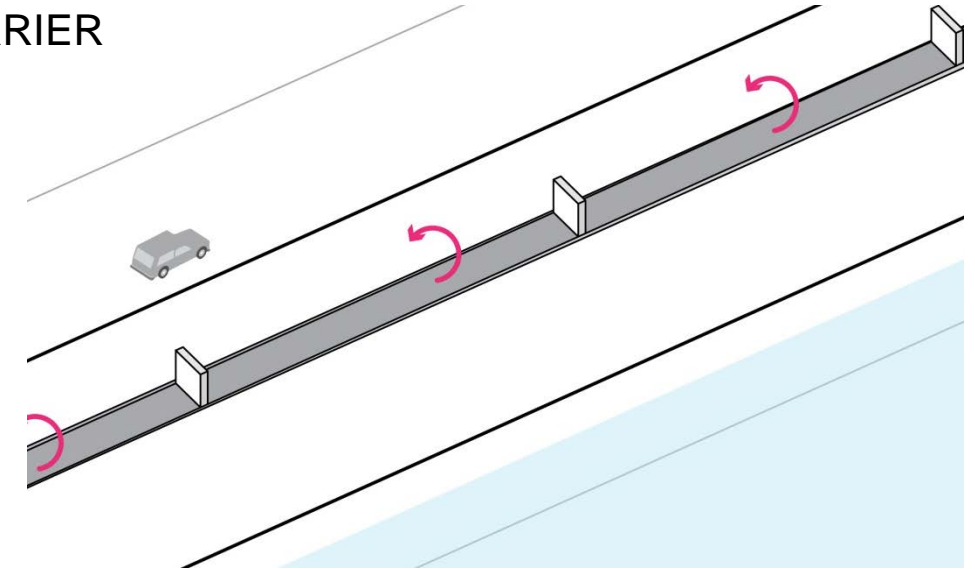
PASSIVE INFRASTRUCTURE

FLOOD WALL



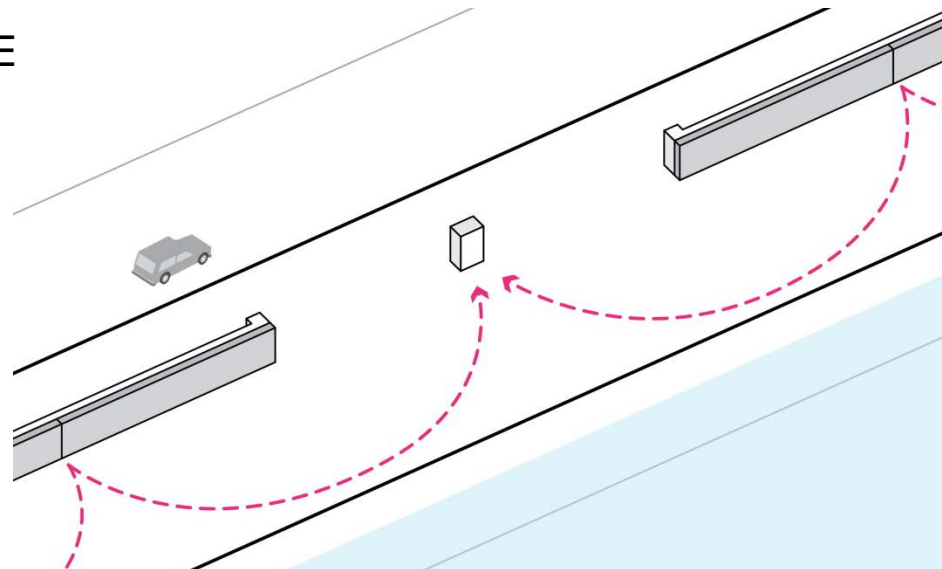
GATES HIDDEN WHEN STORED

FLIP-UP BARRIER

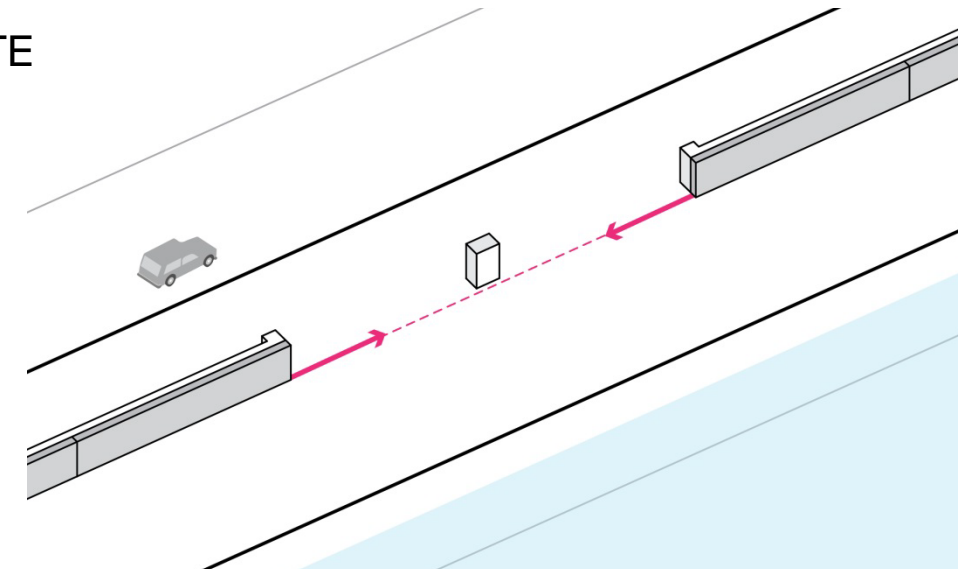


GATES VISIBLE WHEN STORED

SWING GATE



ROLLER GATE



FLIP-UP GATE FEATURES

A.

- Cover plates will hide seams and protect gate hinges.
- Gates and cover plates can be designed flush with existing grade.



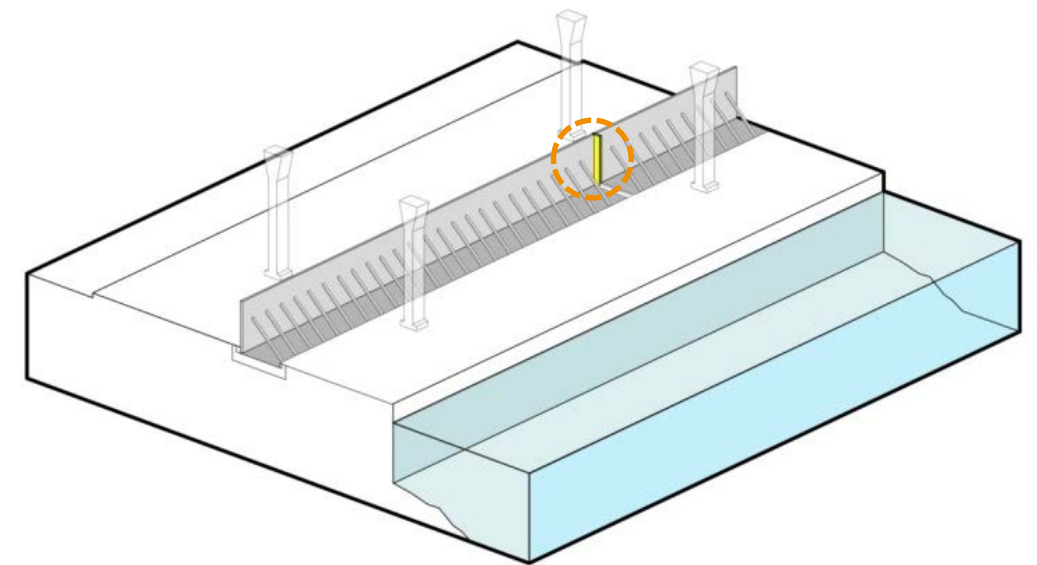
B.

- Flip-up gates can be clad with pavers that match the surroundings.

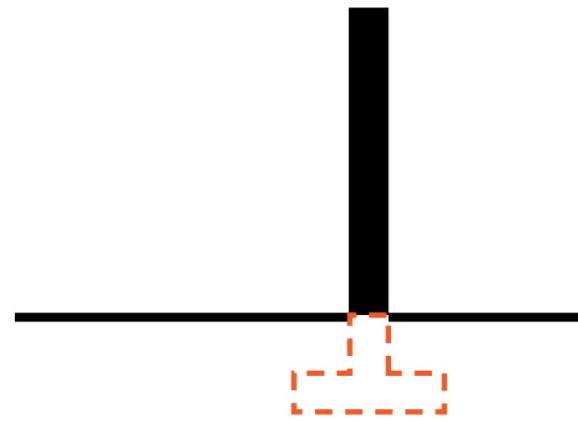


C.

- Adjacent gates will be sealed against an intermediate structural post.
- Furnishings cannot be permanently installed on top of the flip-up gates.

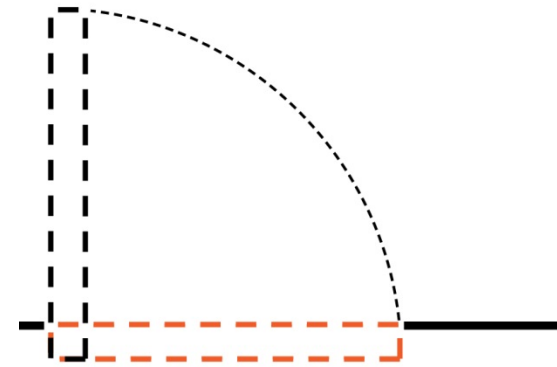


ADAPTING INFRASTRUCTURE | MAINTAIN WATERFRONT CONNECTIONS



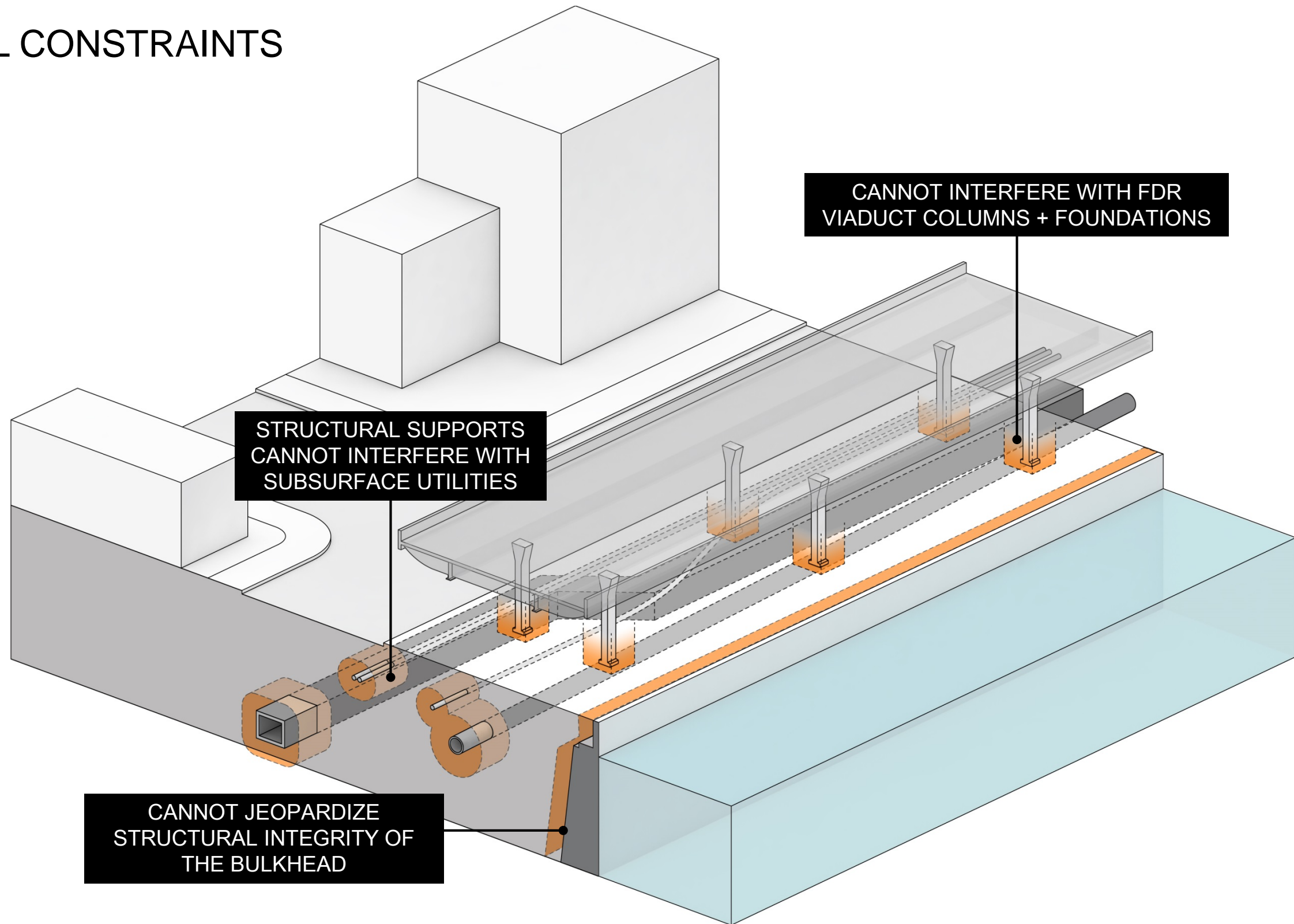
FLOOD WALL

+

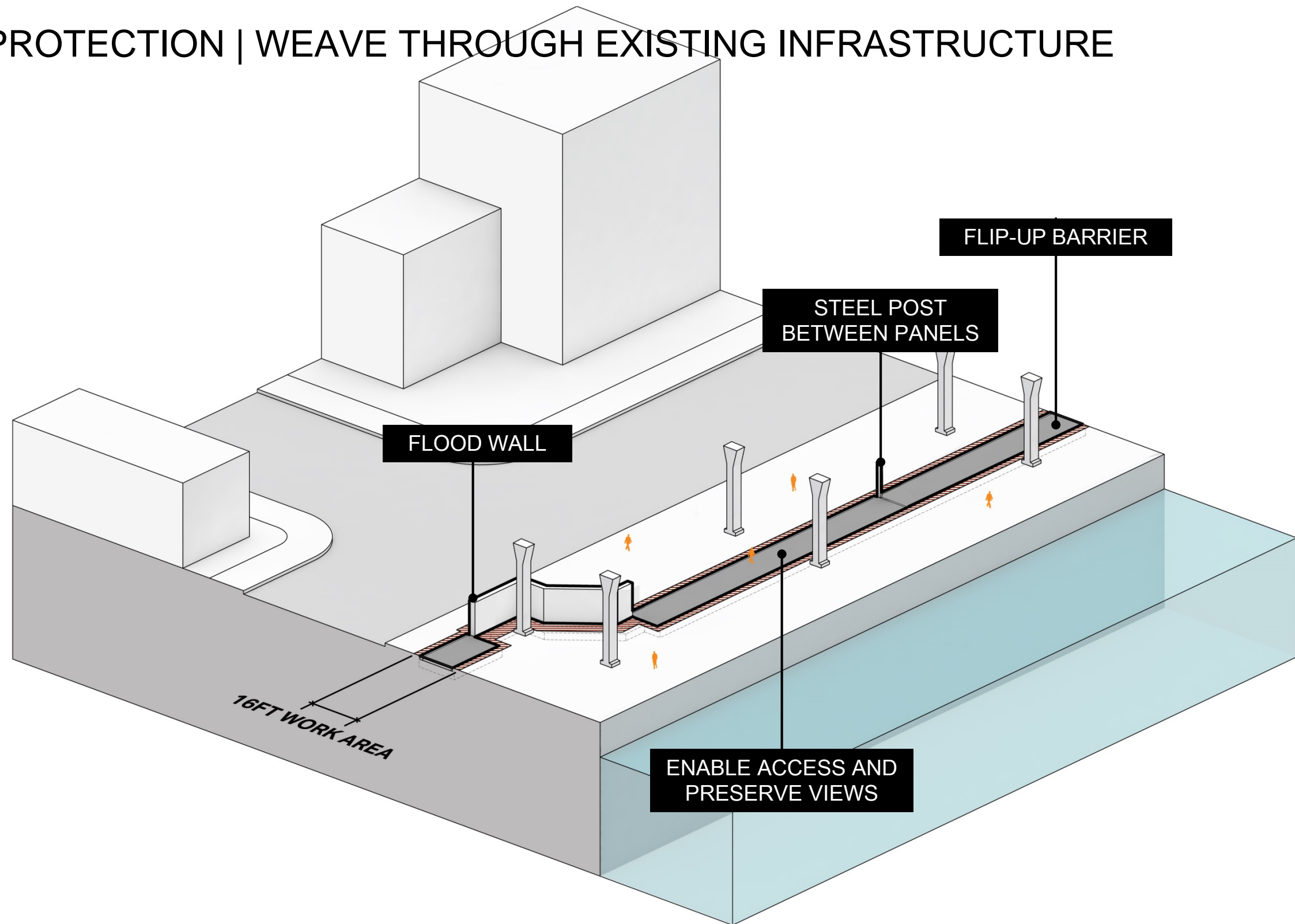


DEPLOYABLE

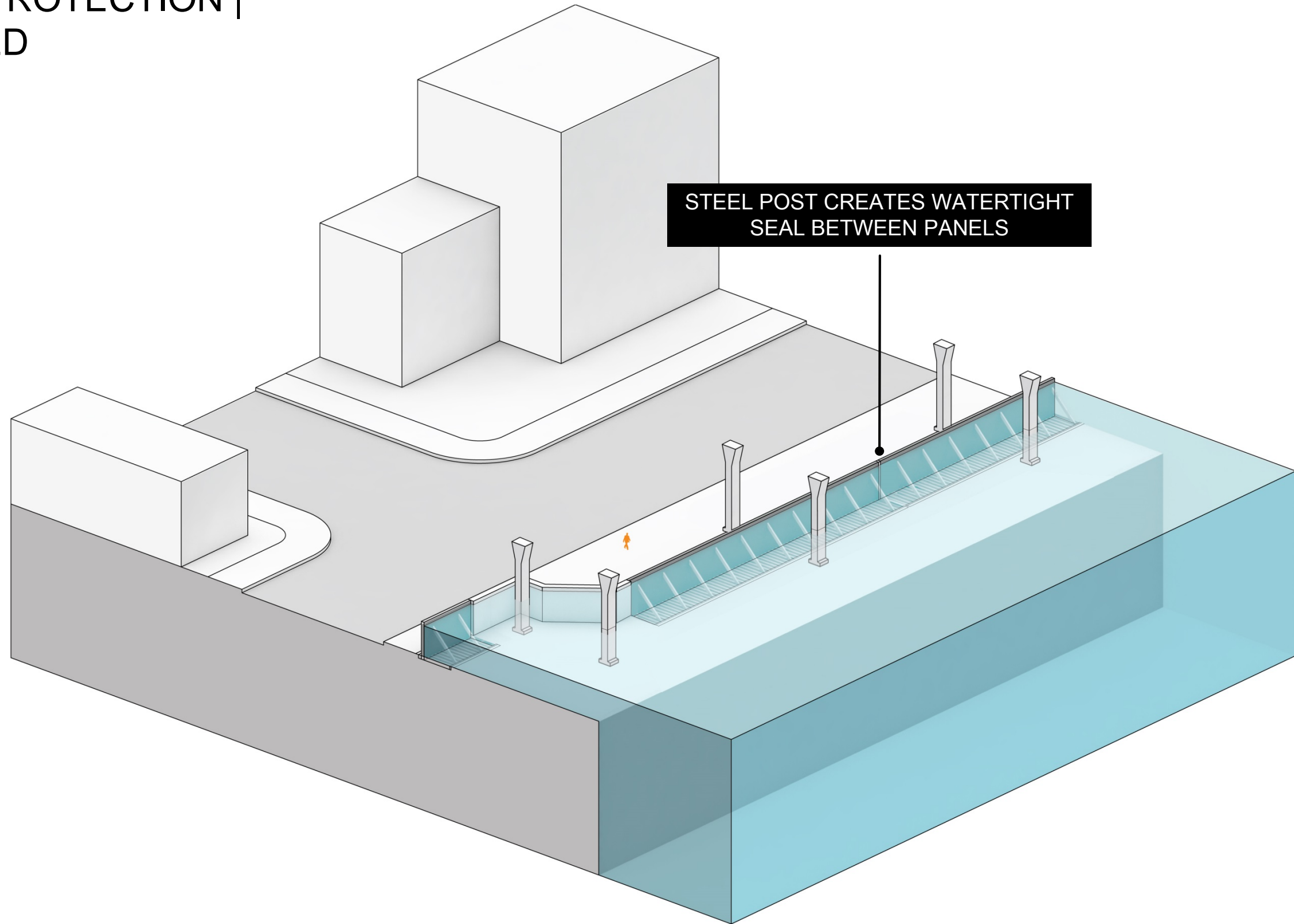
PHYSICAL CONSTRAINTS



LINE OF PROTECTION | WEAVE THROUGH EXISTING INFRASTRUCTURE



LINE OF PROTECTION |
DEPLOYED



PROJECT ZONES

ZONE 1

PRIMARILY FLOODWALL

- MOSTLY UNDER BROOKLYN BRIDGE WITH COMPLEX OVERHEAD OFF-RAMPS AND COLUMNS;
- EXISTING DOT LOT FOR STAGING AND PARKING.

ZONE 2

USE FLIP-UP GATES TO PRESERVE VIEWS AND ACCESS

- EXPANSIVE VIEWS OF BROOKLYN BRIDGE AND MANHATTAN BRIDGE;
- EXISTING AND PLANNED AMENITIES ARE PART OF EAST RIVER ESPLANADE;

ZONE 3

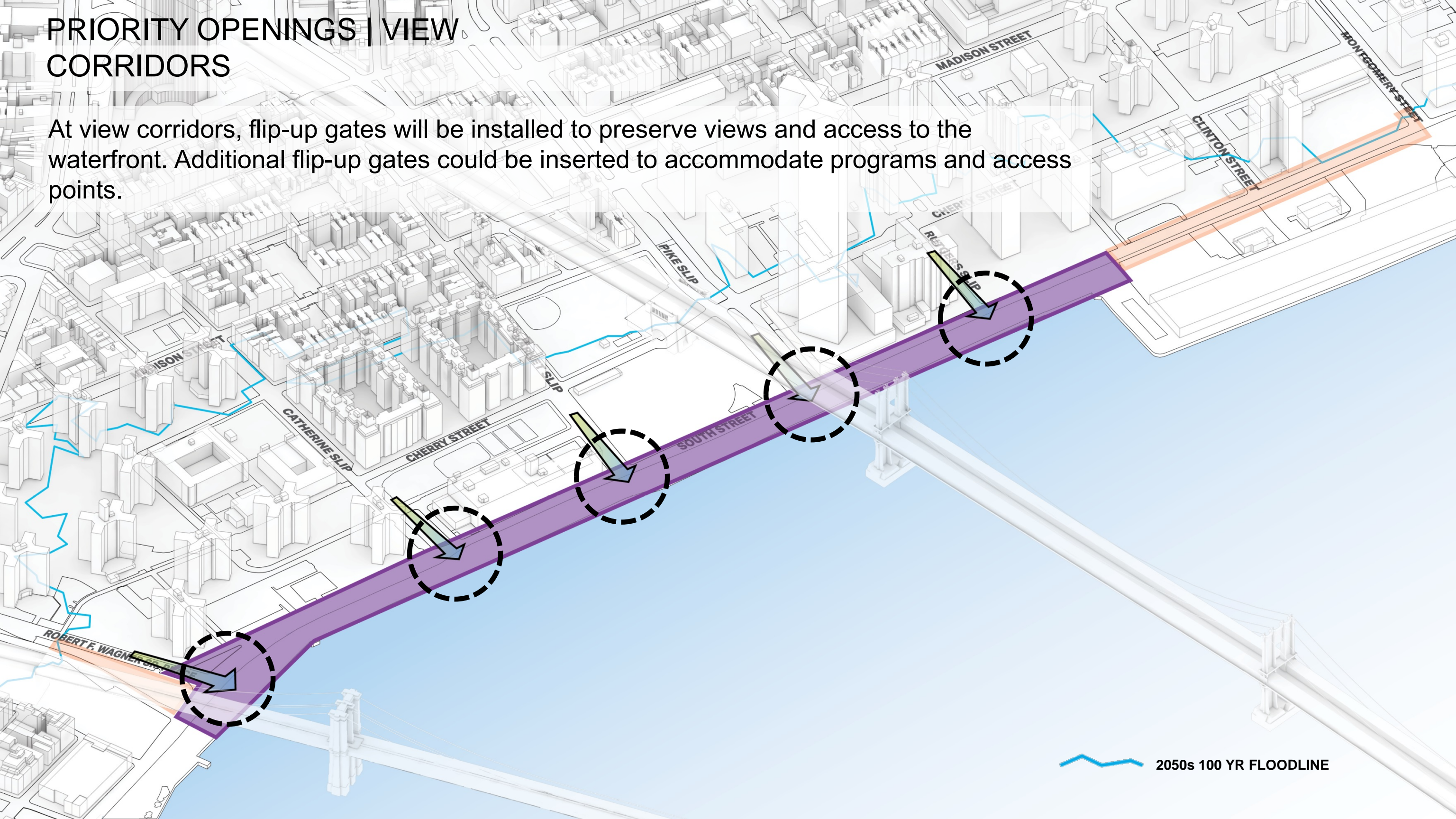
PRIMARILY FLOODWALL


- VIEWS ALREADY BLOCKED BY EXISTING BUILDINGS;
- EXISTING CONDITION INCLUDES A STRETCH OF WALL AND FENCE;
- LOWER HEIGHT OF INTERVENTION.

 2050s 100 YR FLOODLINE

PRIORITY OPENINGS | VIEW CORRIDORS

At view corridors, flip-up gates will be installed to preserve views and access to the waterfront. Additional flip-up gates could be inserted to accommodate programs and access points.



 2050s 100 YR FLOODLINE

2

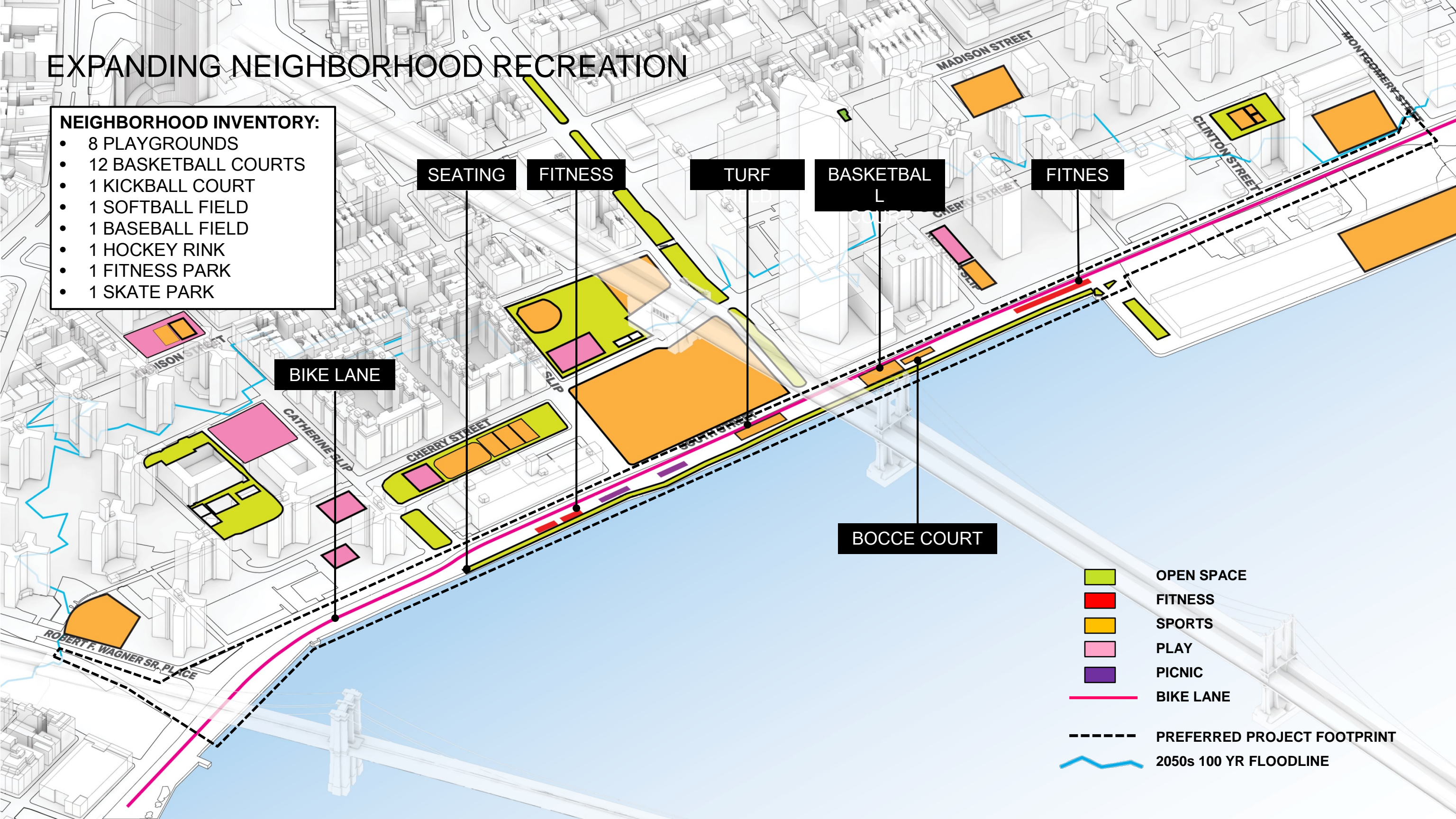
DISTRIBUTE PROGRAM EQUITABLY



EXPANDING NEIGHBORHOOD RECREATION

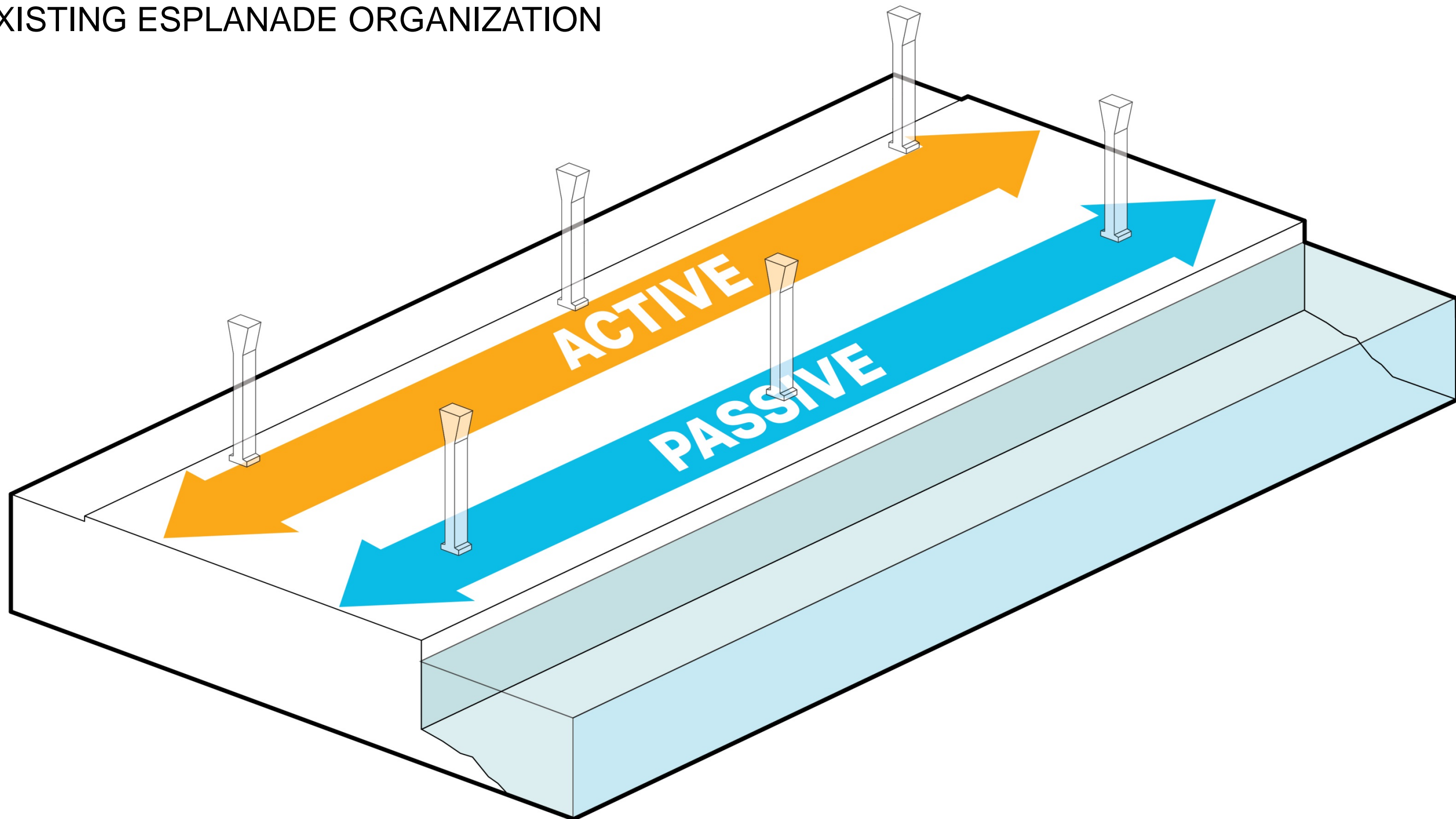
NEIGHBORHOOD INVENTORY:

- 8 PLAYGROUNDS
- 12 BASKETBALL COURTS
- 1 KICKBALL COURT
- 1 SOFTBALL FIELD
- 1 BASEBALL FIELD
- 1 HOCKEY RINK
- 1 FITNESS PARK
- 1 SKATE PARK

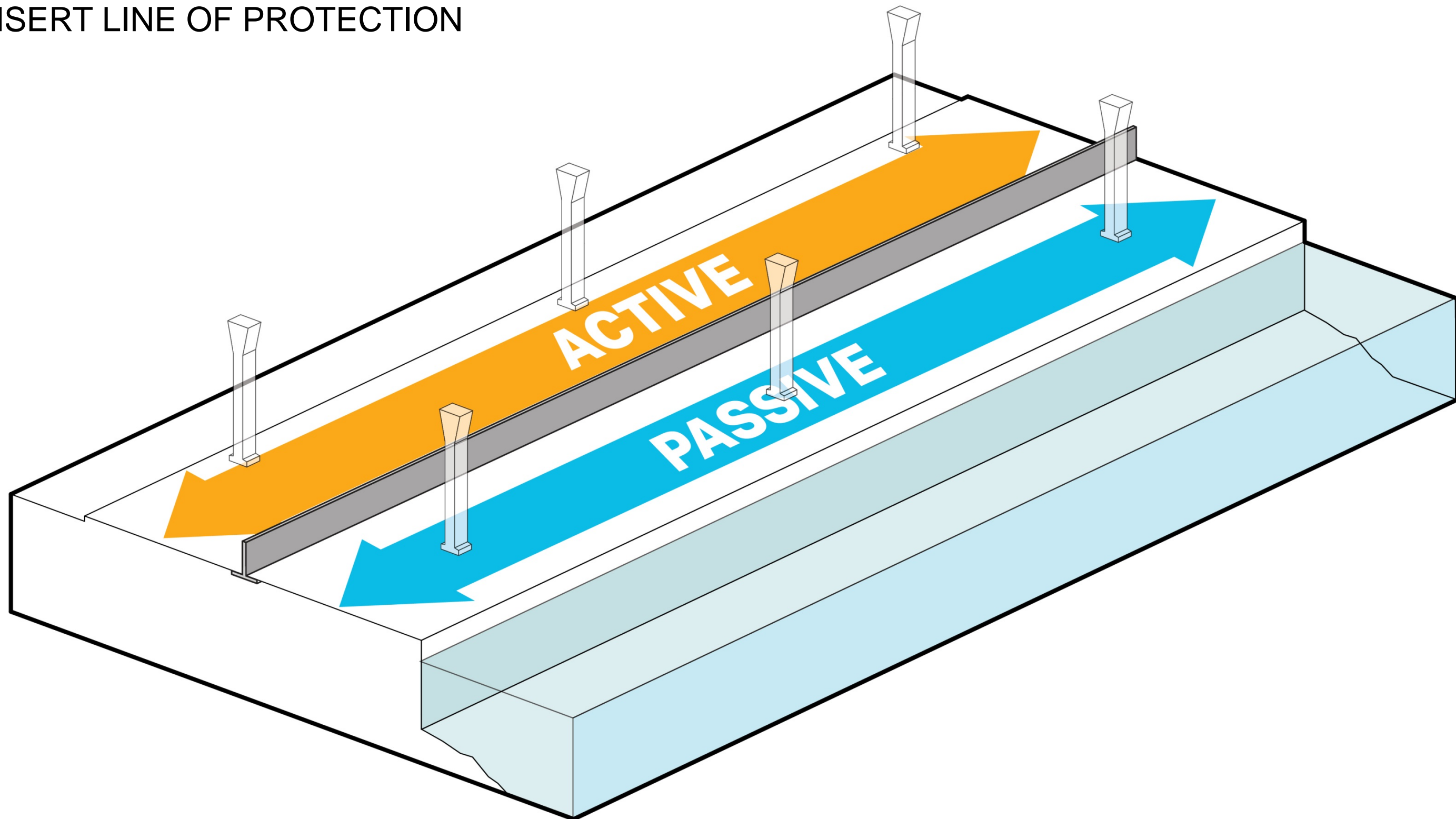


- OPEN SPACE
- FITNESS
- SPORTS
- PLAY
- PICNIC
- BIKE LANE
- - - PREFERRED PROJECT FOOTPRINT
- ~ 2050s 100 YR FLOODLINE

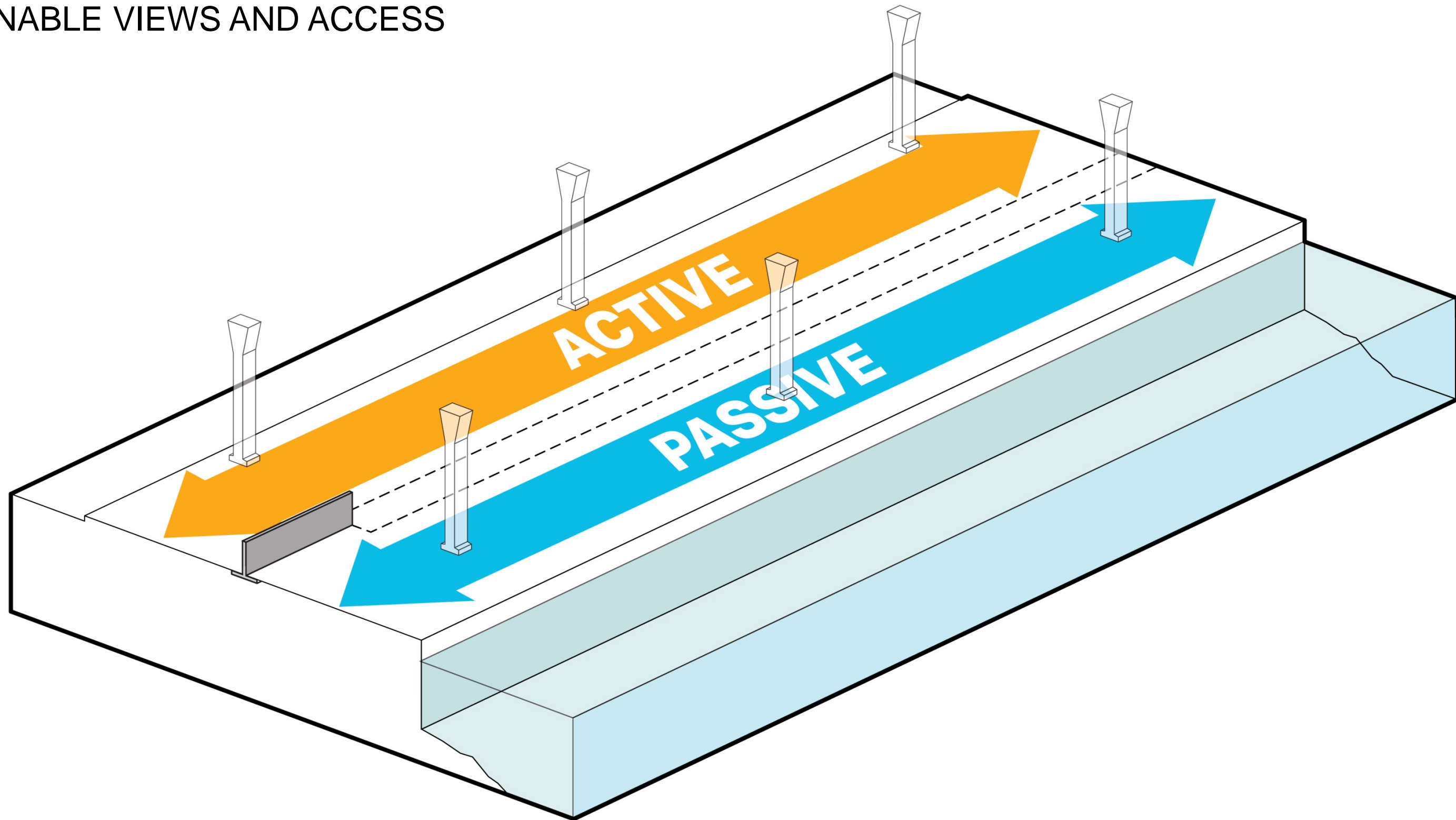
EXISTING ESPLANADE ORGANIZATION



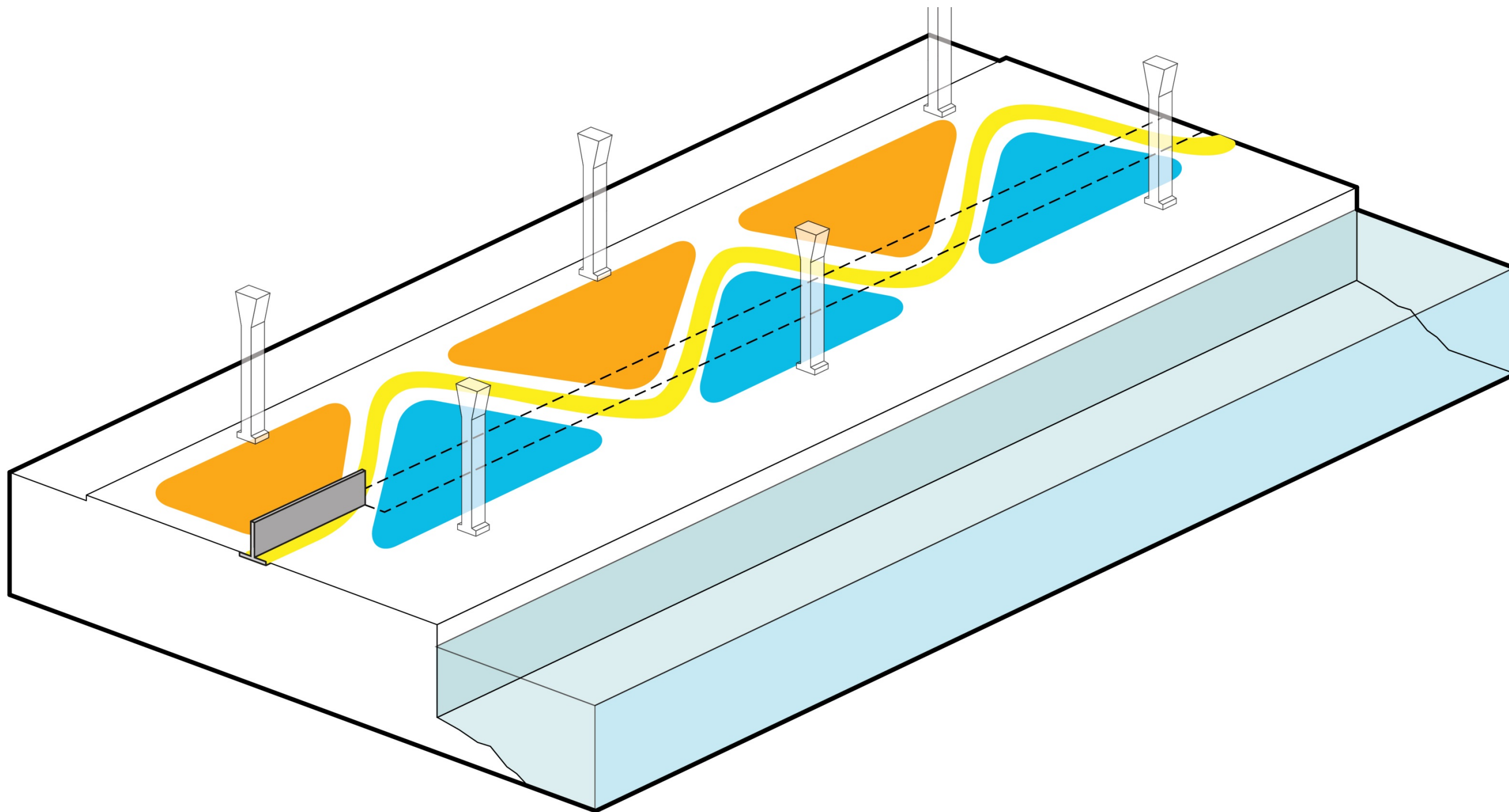
INSERT LINE OF PROTECTION



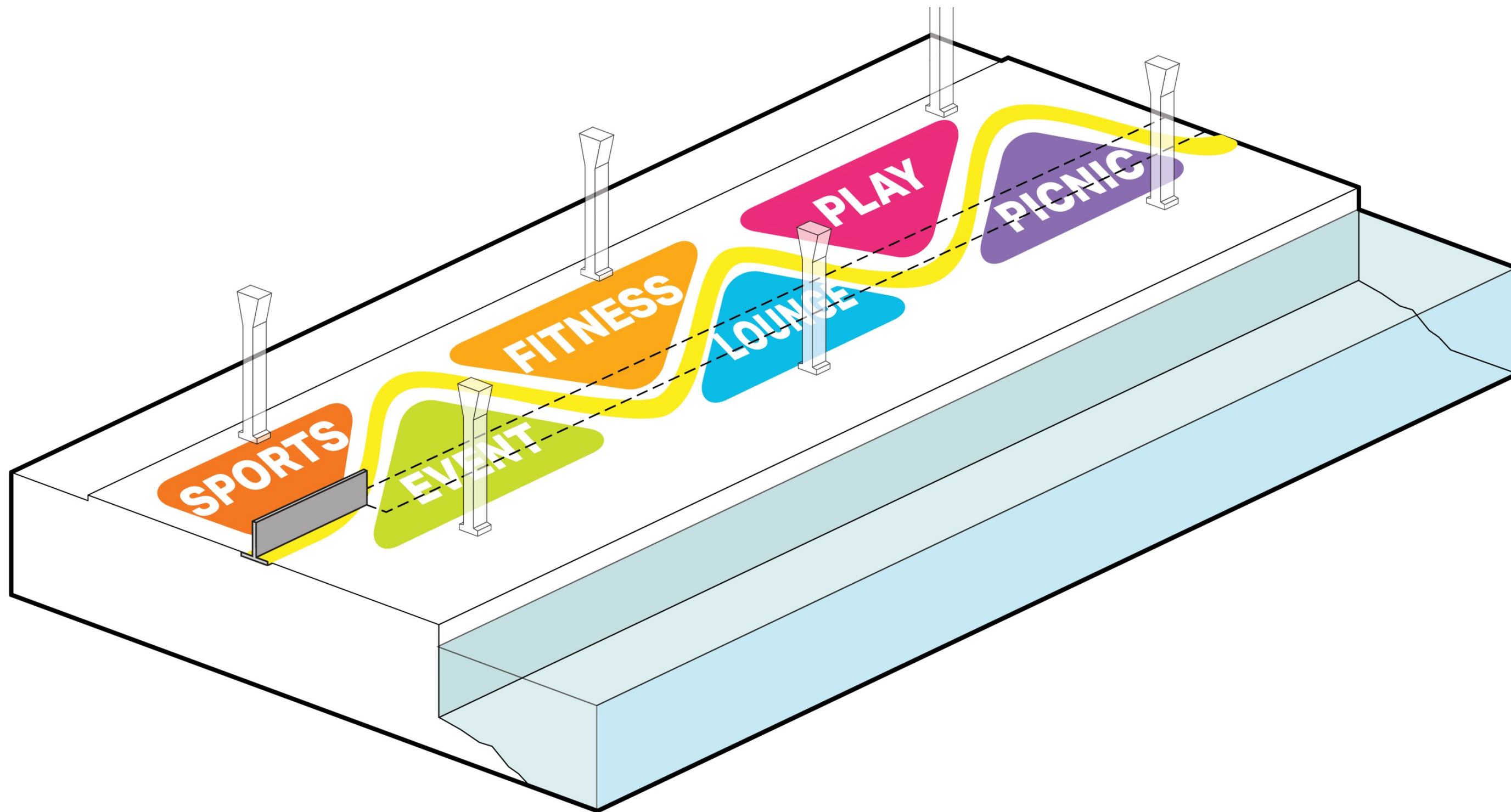
ENABLE VIEWS AND ACCESS



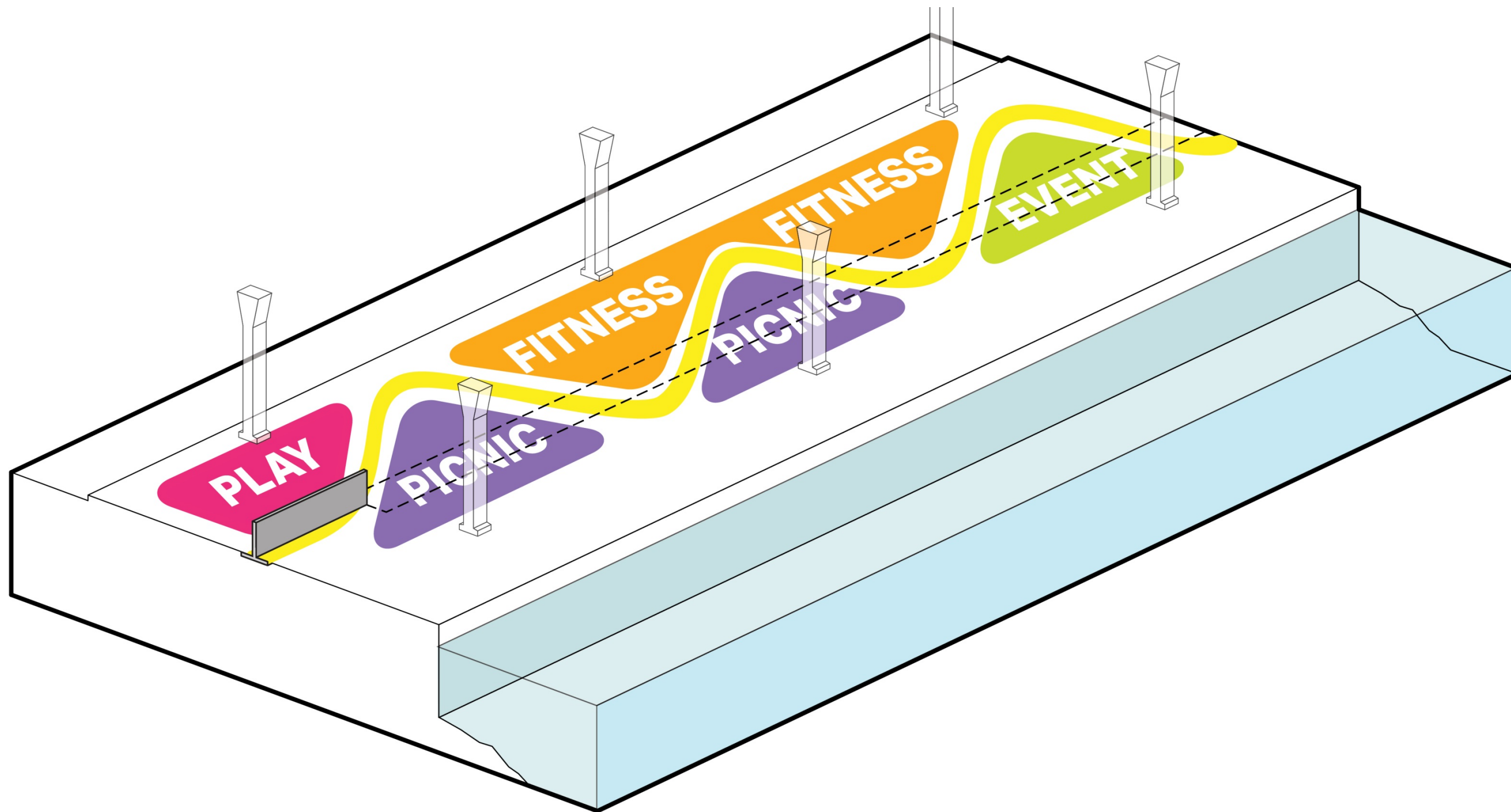
CREATE POCKETS FOR PROGRAM | CONCEPT IDEA



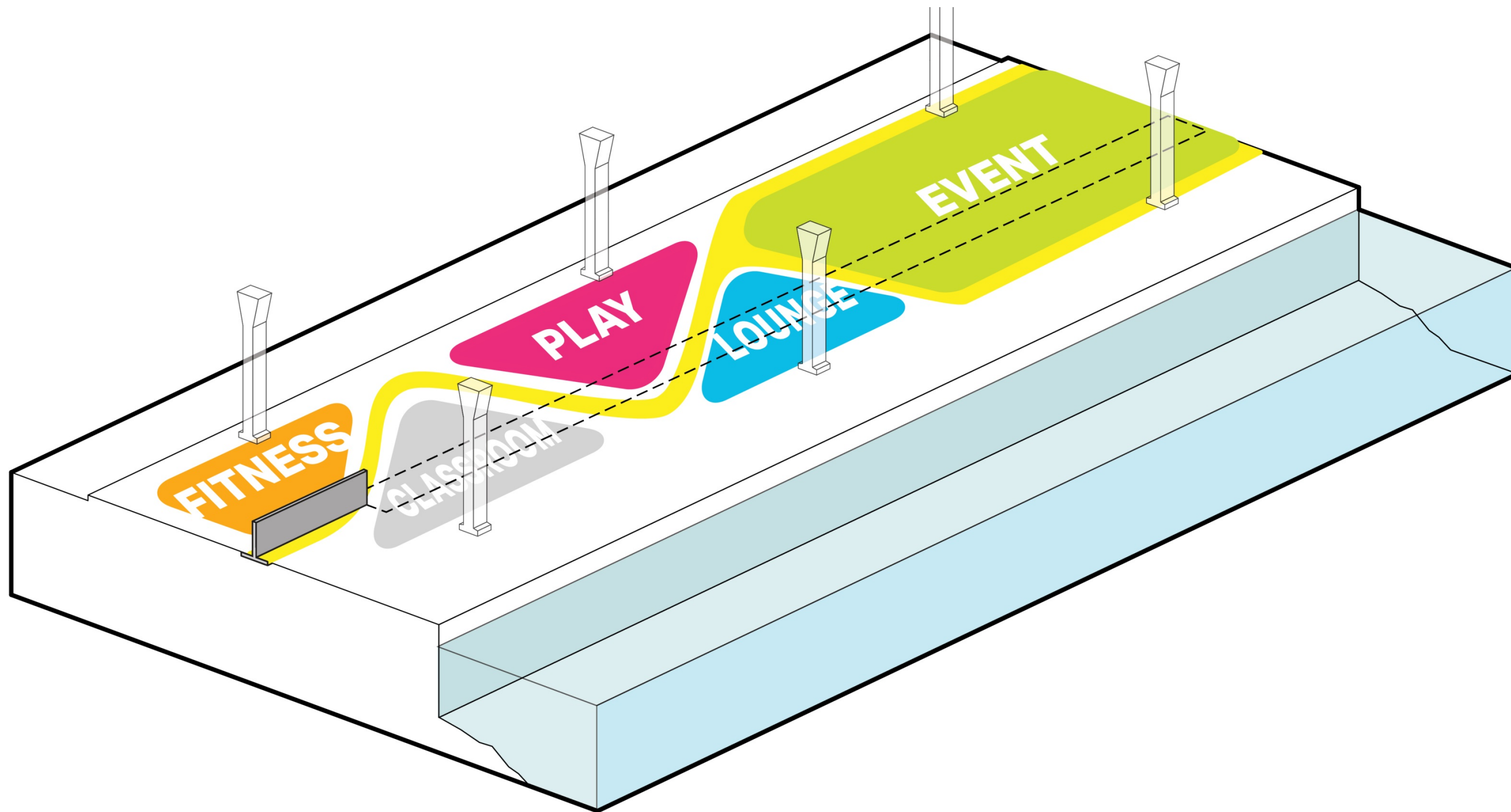
POCKETS FOR PROGRAM | CONCEPTUAL MIX OF SMALL ACTIVITIES



POCKETS FOR PROGRAM | CONCEPTUAL MIX OF SMALL + MEDIUM ACTIVITIES



POCKETS FOR PROGRAM | CONCEPTUAL MIX OF SMALL + LARGE ACTIVITIES



3

INTEGRATE INFRASTRUCTURE INTO THE PUBLIC REALM

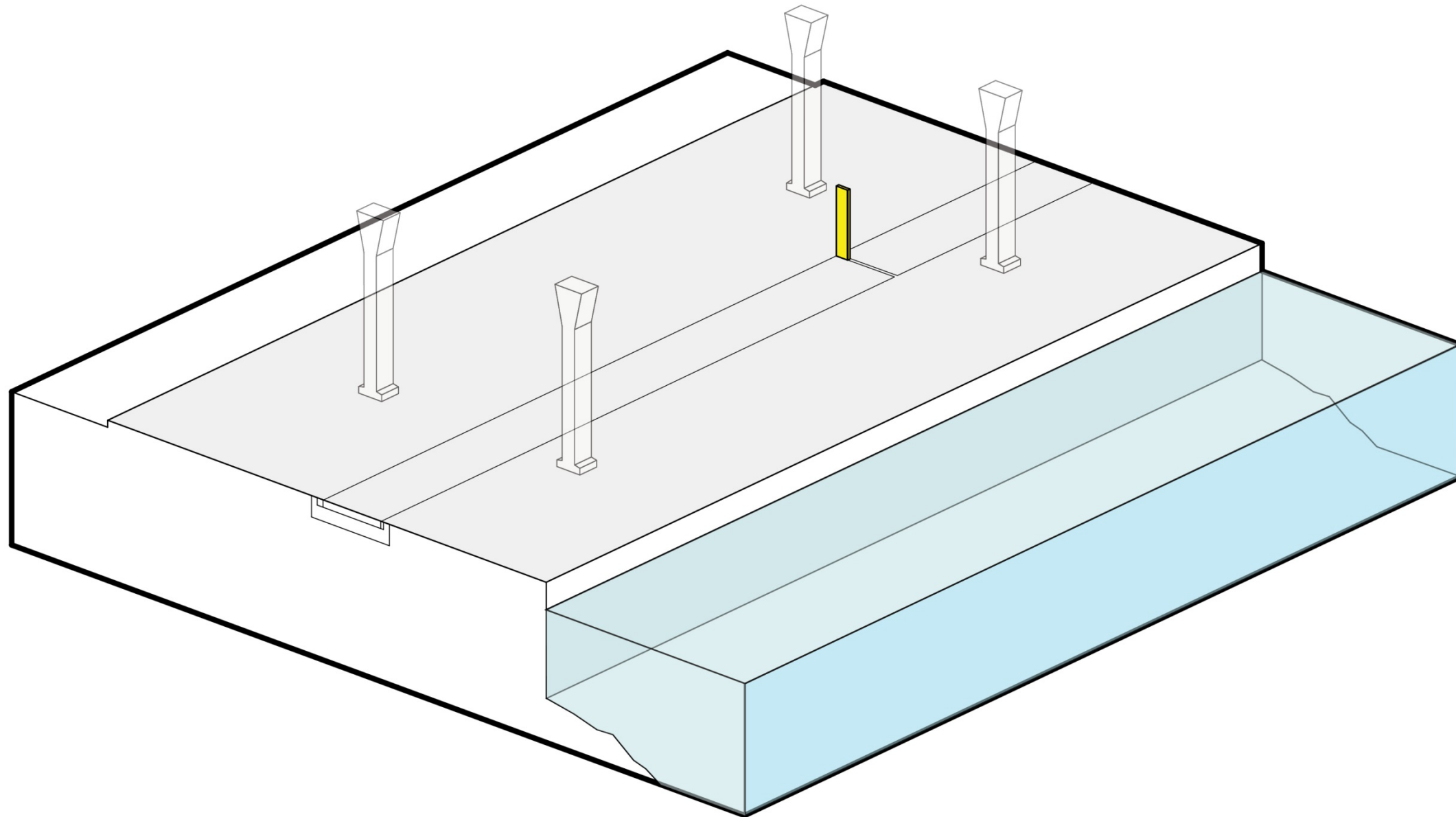
YOU
join
the
OLUTION

New York City Parks
No
skateboarding



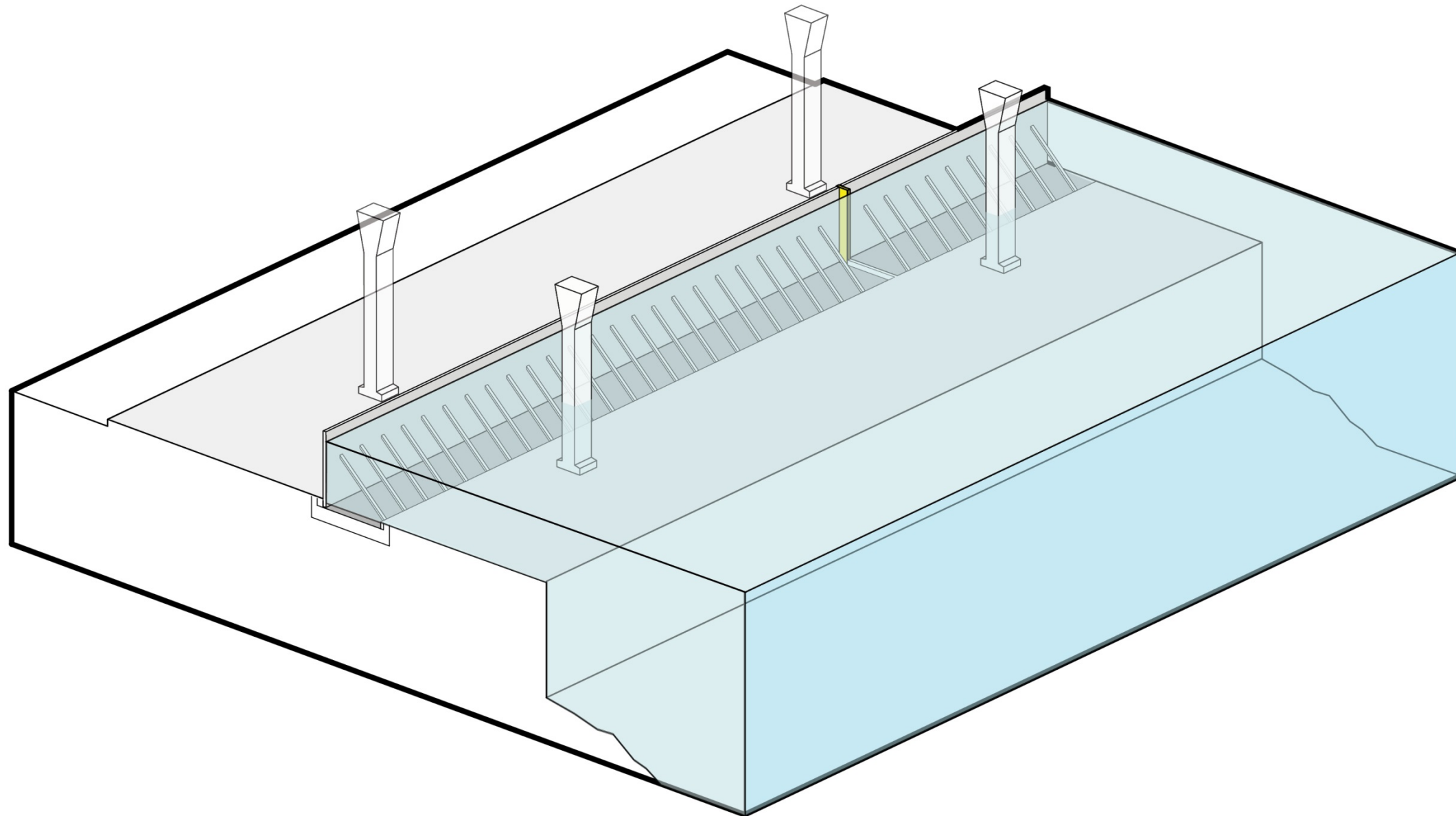
INFRASTRUCTURE | SET UP

CONCEPT – FOR DISCUSSION PURPOSES ONLY



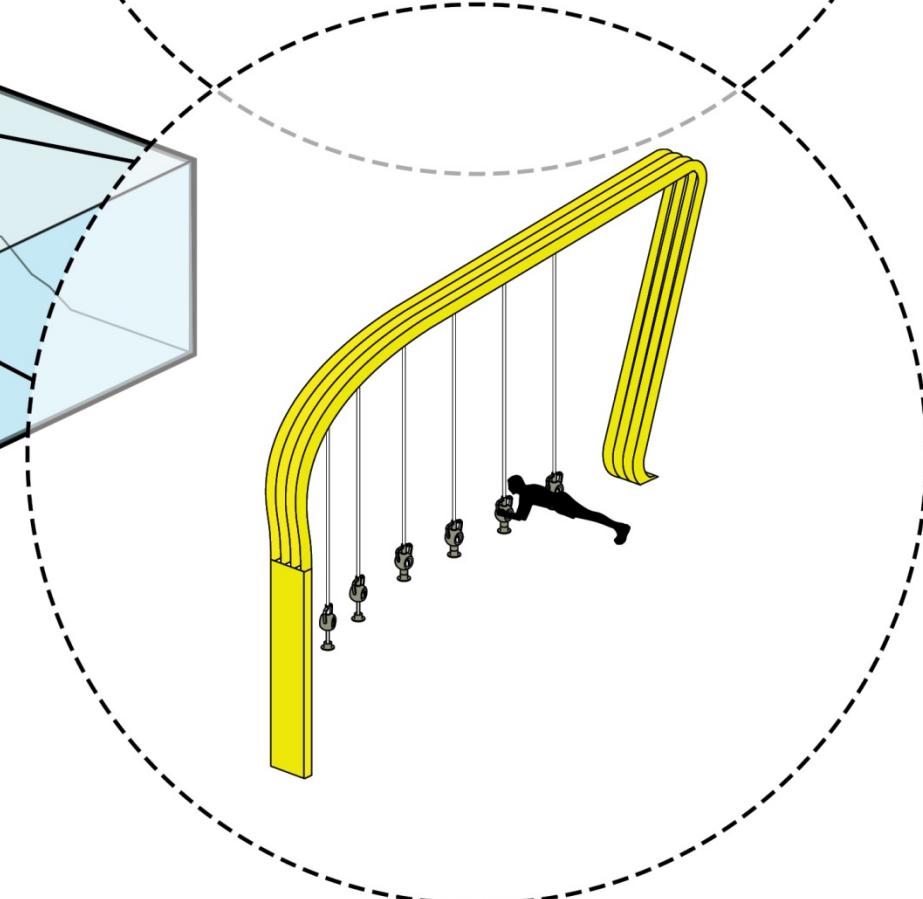
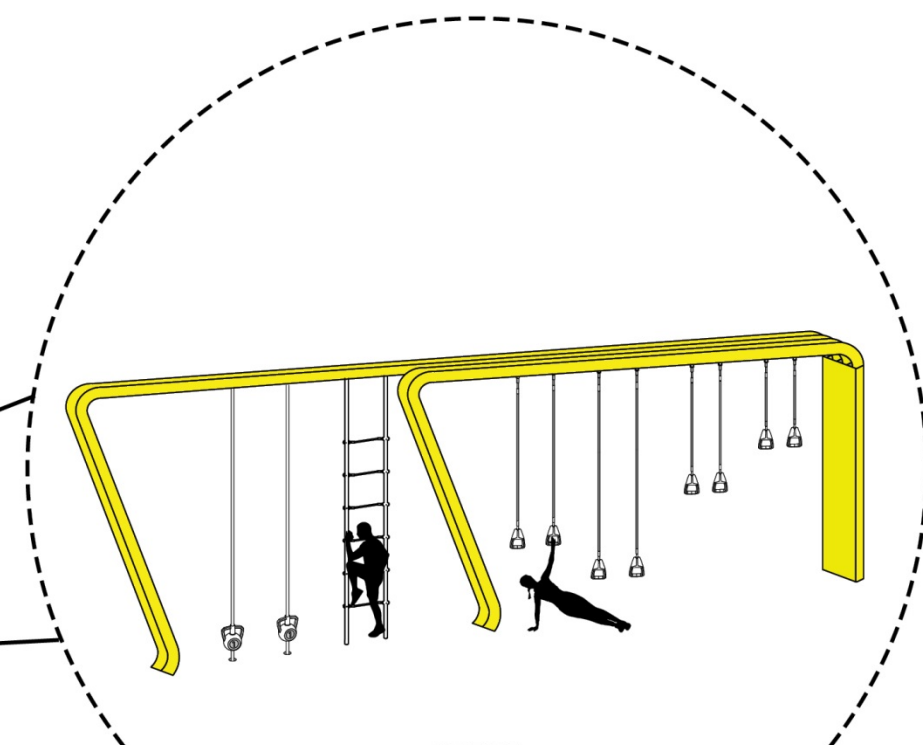
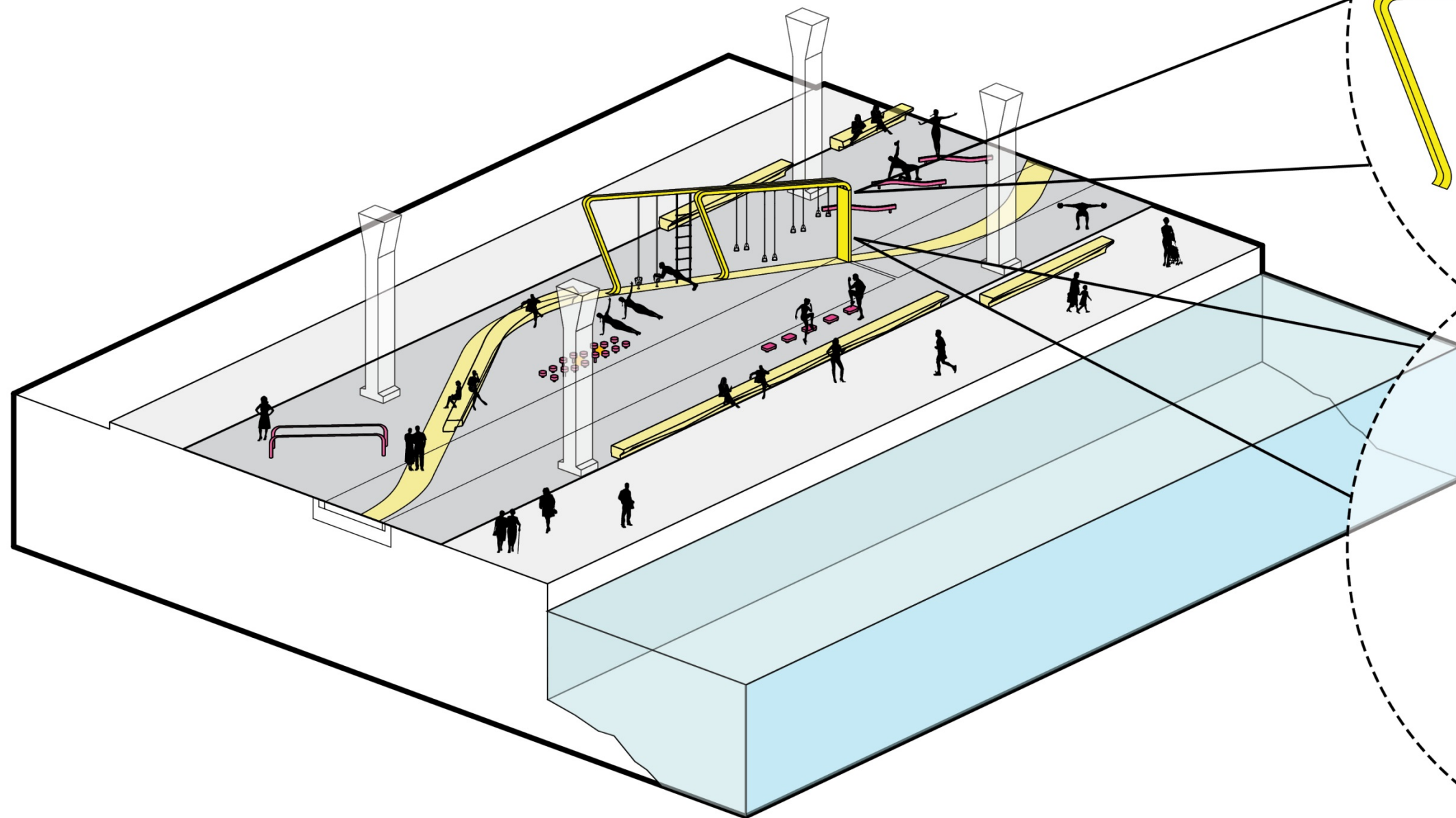
INFRASTRUCTURE | SET UP

CONCEPT – FOR DISCUSSION PURPOSES ONLY



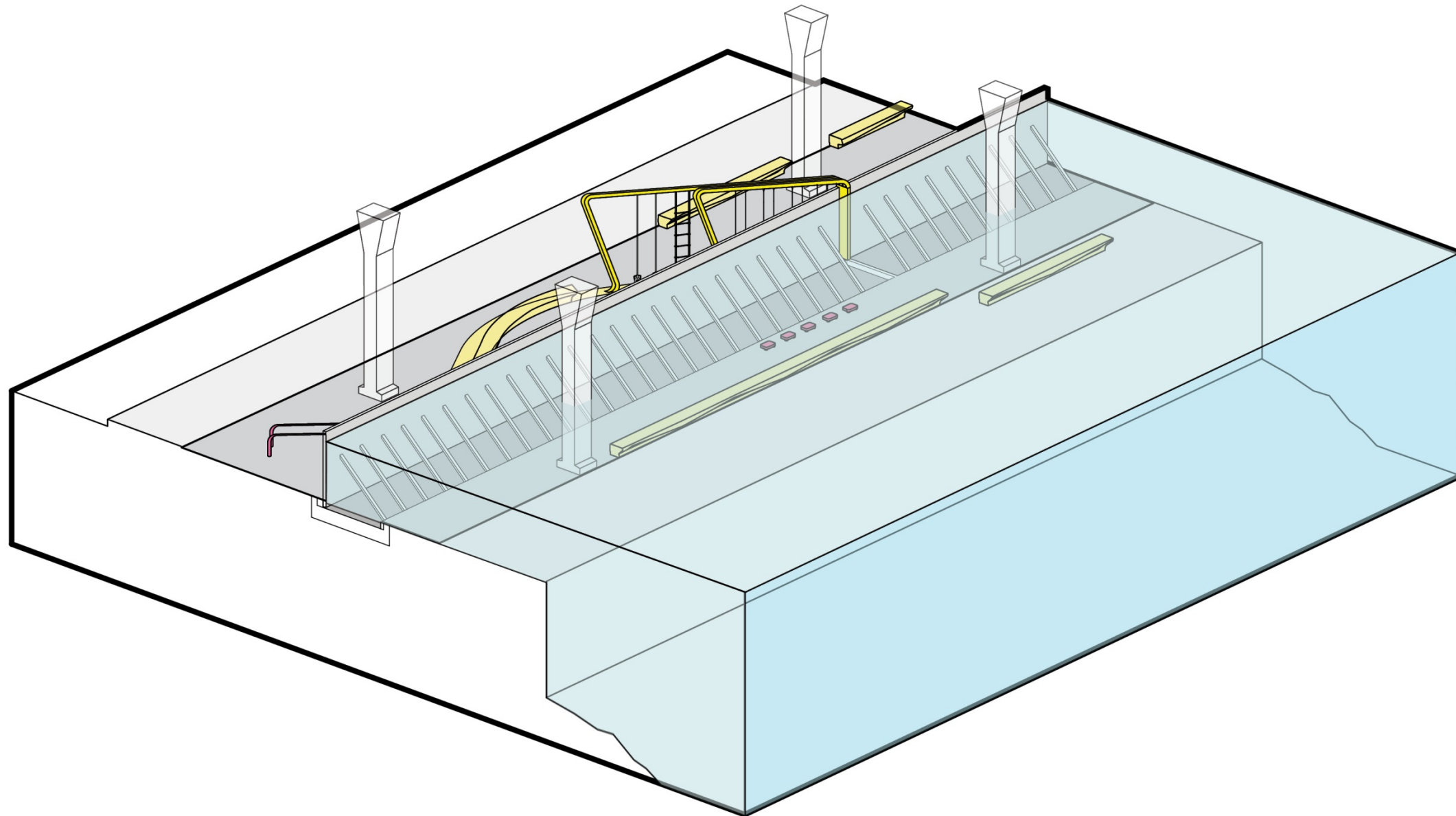
INFRASTRUCTURE | AS FITNESS PROGRAM

CONCEPT – FOR DISCUSSION PURPOSES ONLY



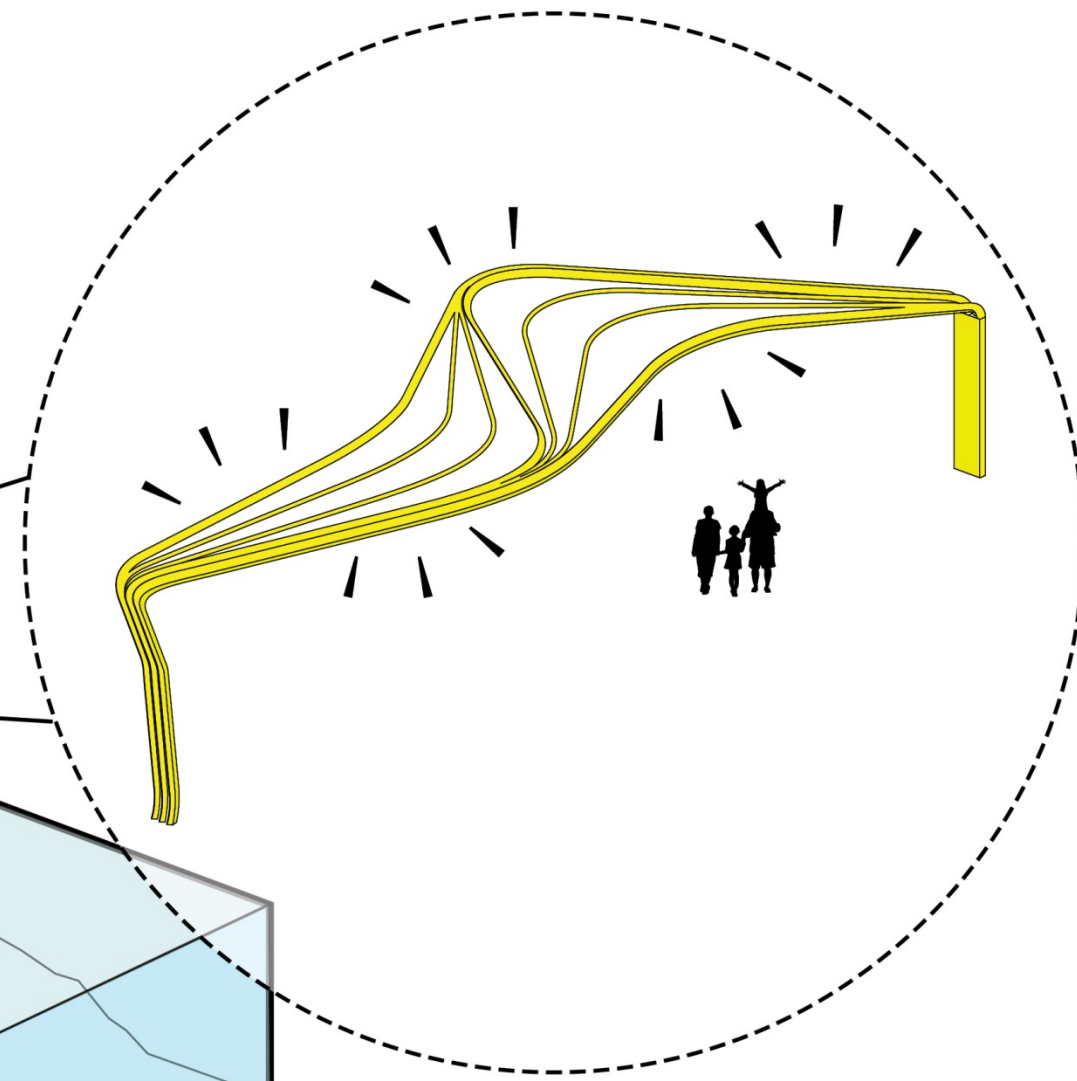
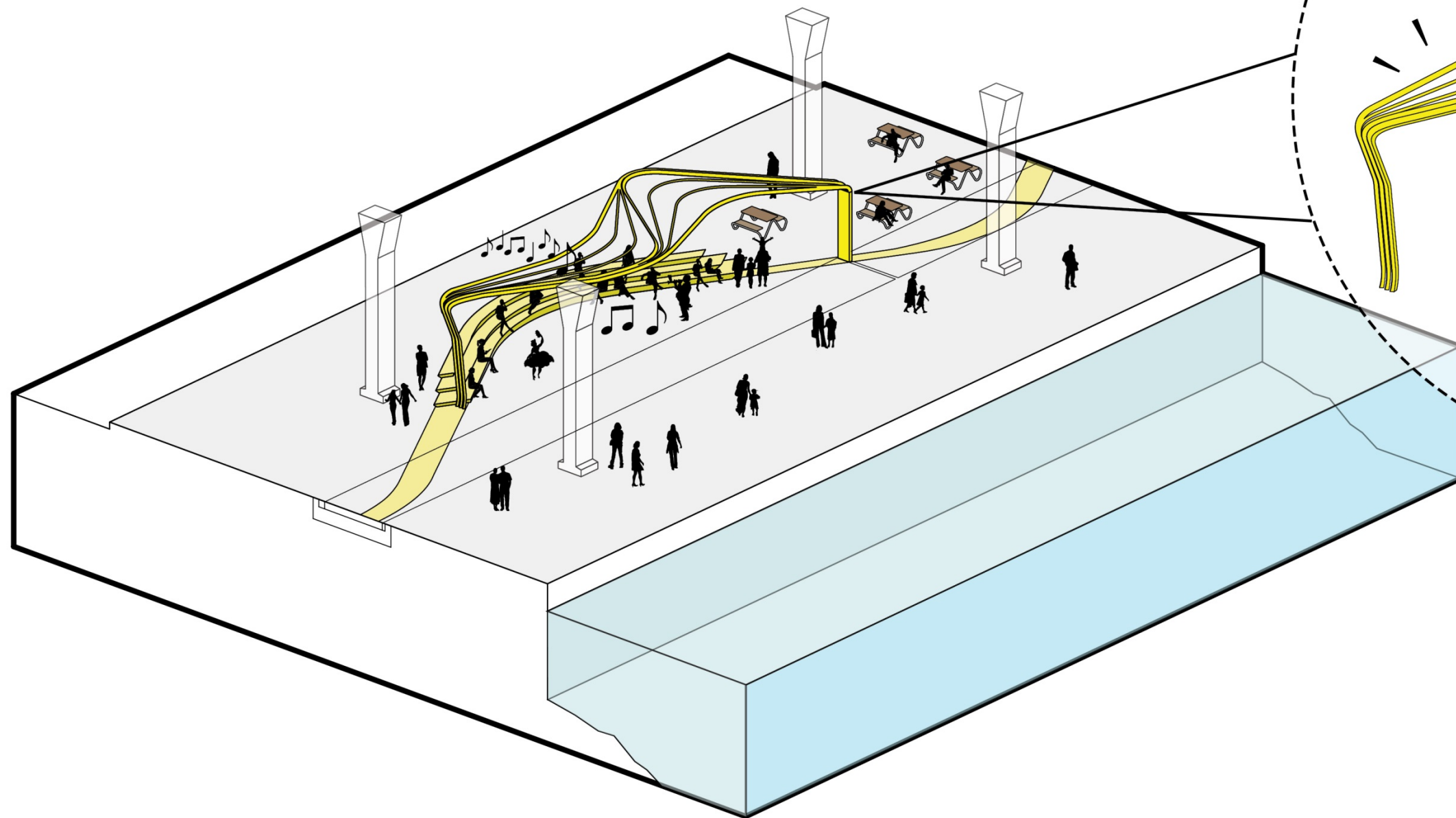
INFRASTRUCTURE | DEPLOYED

CONCEPT – FOR DISCUSSION PURPOSES ONLY



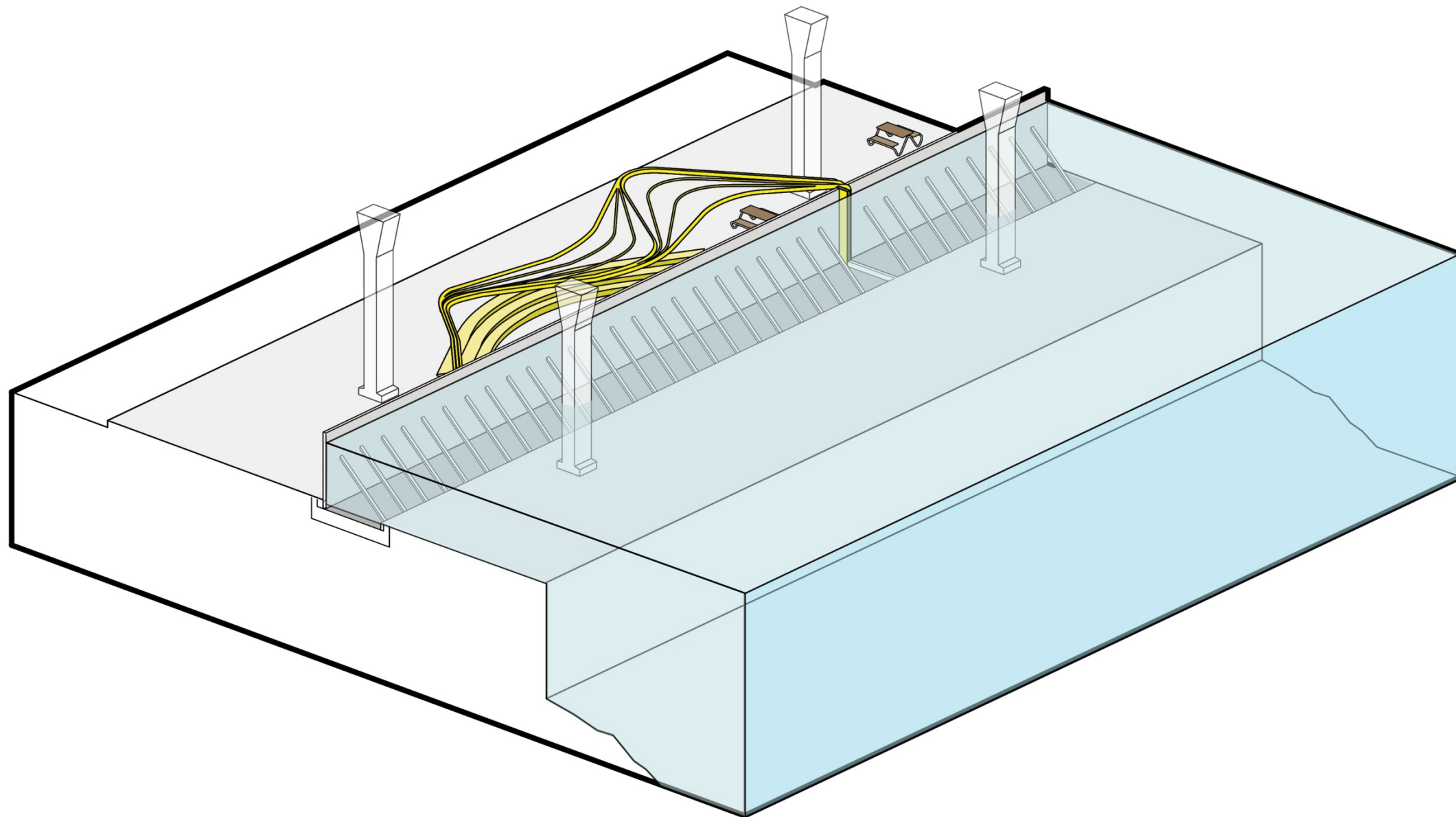
INFRASTRUCTURE | AS SOCIAL GATHERING

CONCEPT – FOR DISCUSSION PURPOSES ONLY



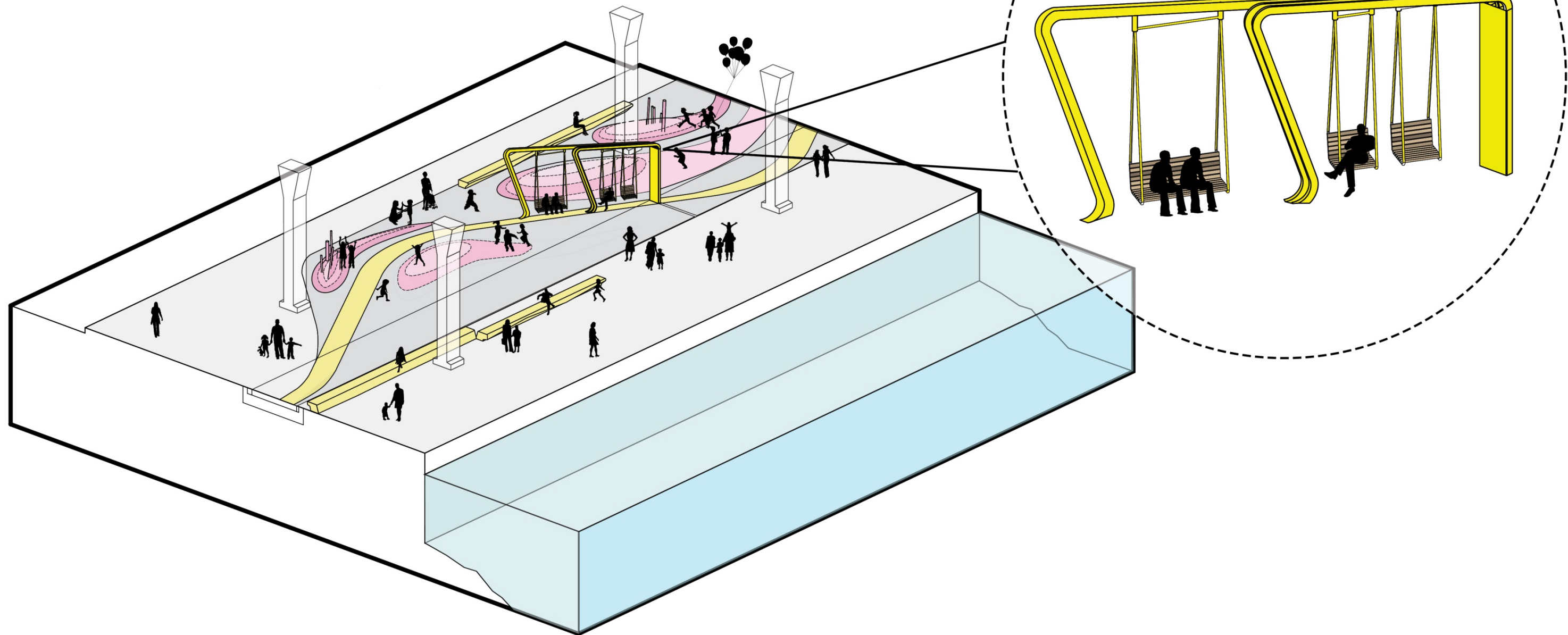
INFRASTRUCTURE | DEPLOYED

CONCEPT – FOR DISCUSSION PURPOSES ONLY



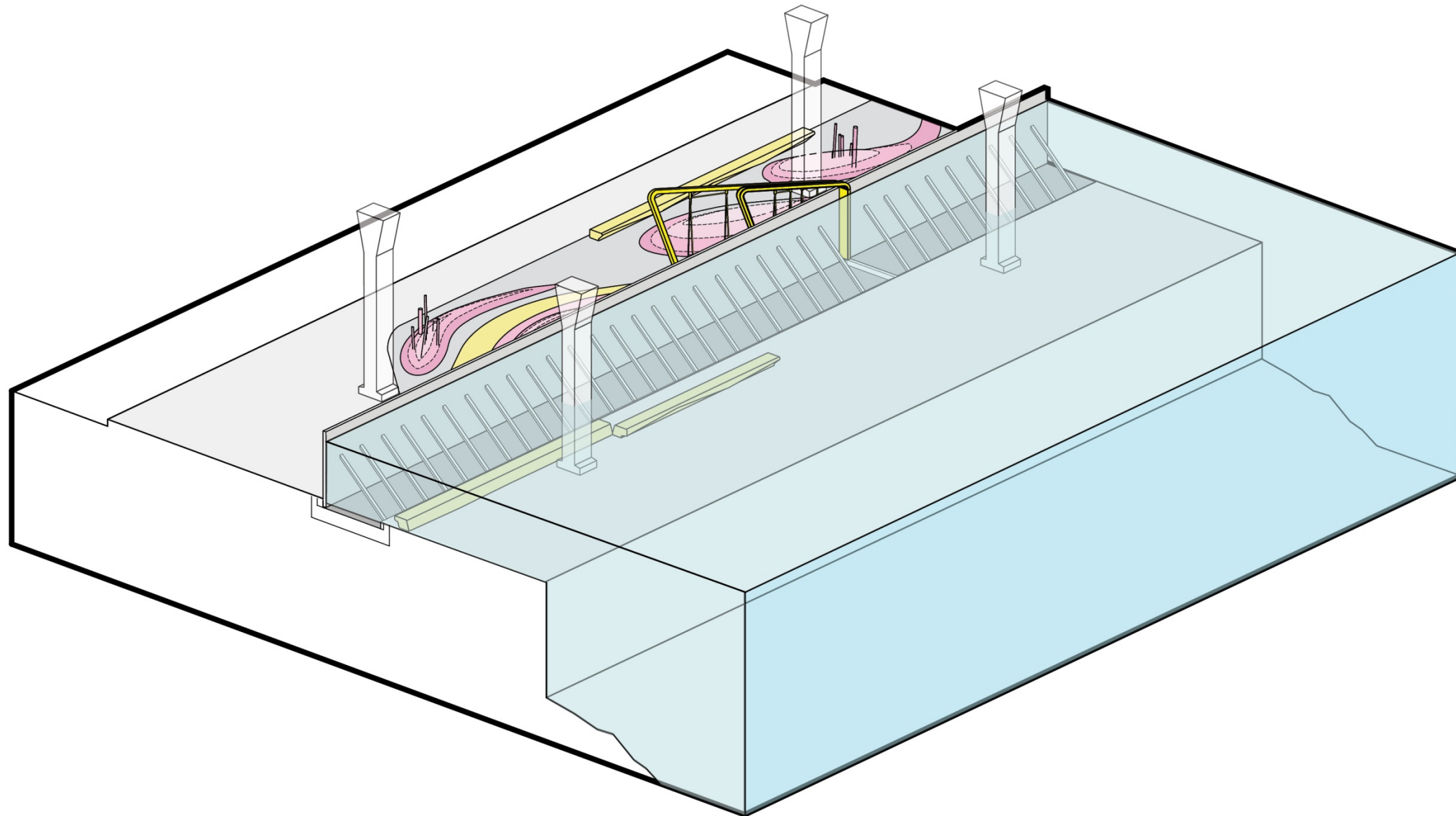
INFRASTRUCTURE | AS PLAYGROUND

CONCEPT – FOR DISCUSSION PURPOSES ONLY



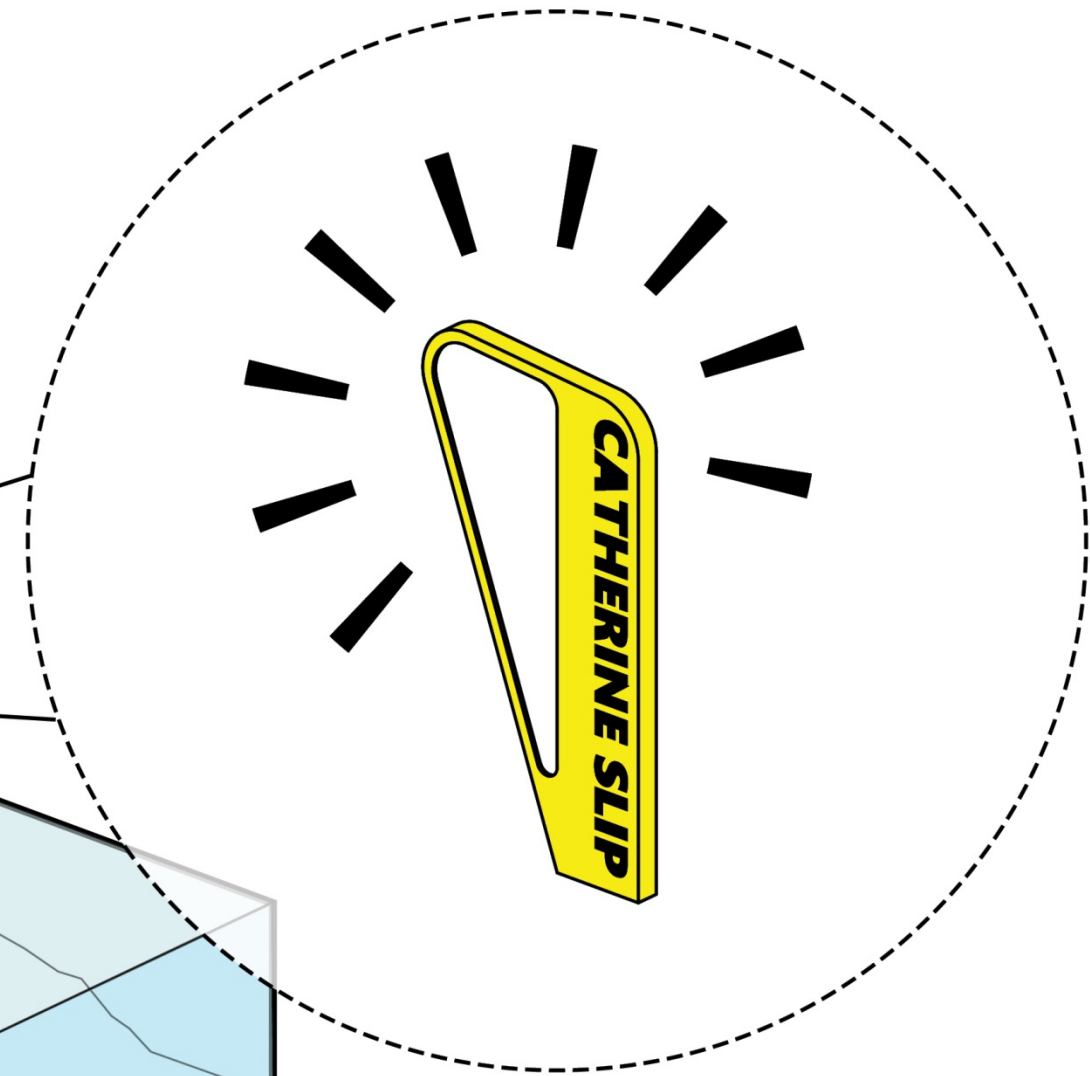
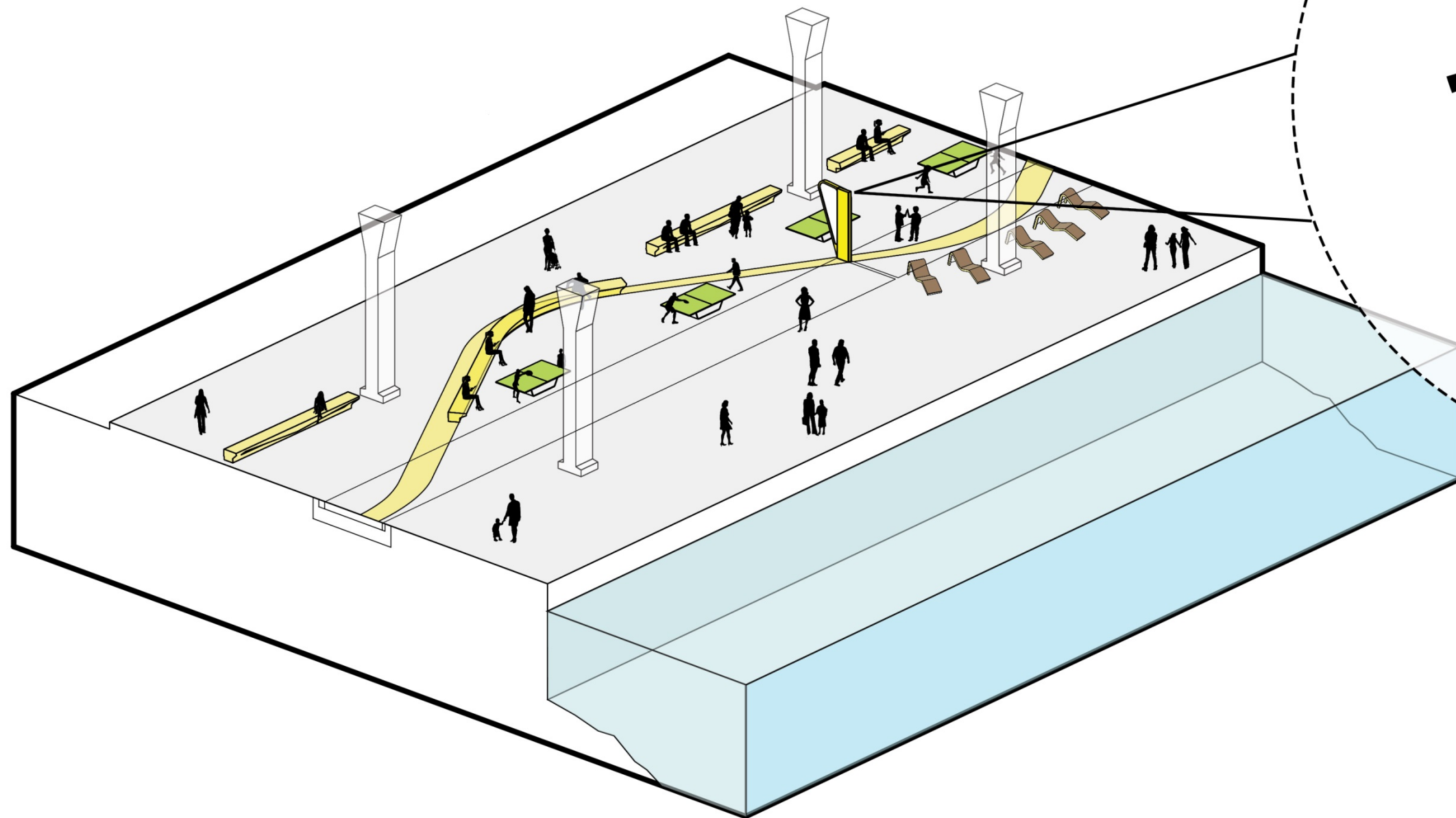
INFRASTRUCTURE | DEPLOYED

CONCEPT – FOR DISCUSSION PURPOSES ONLY



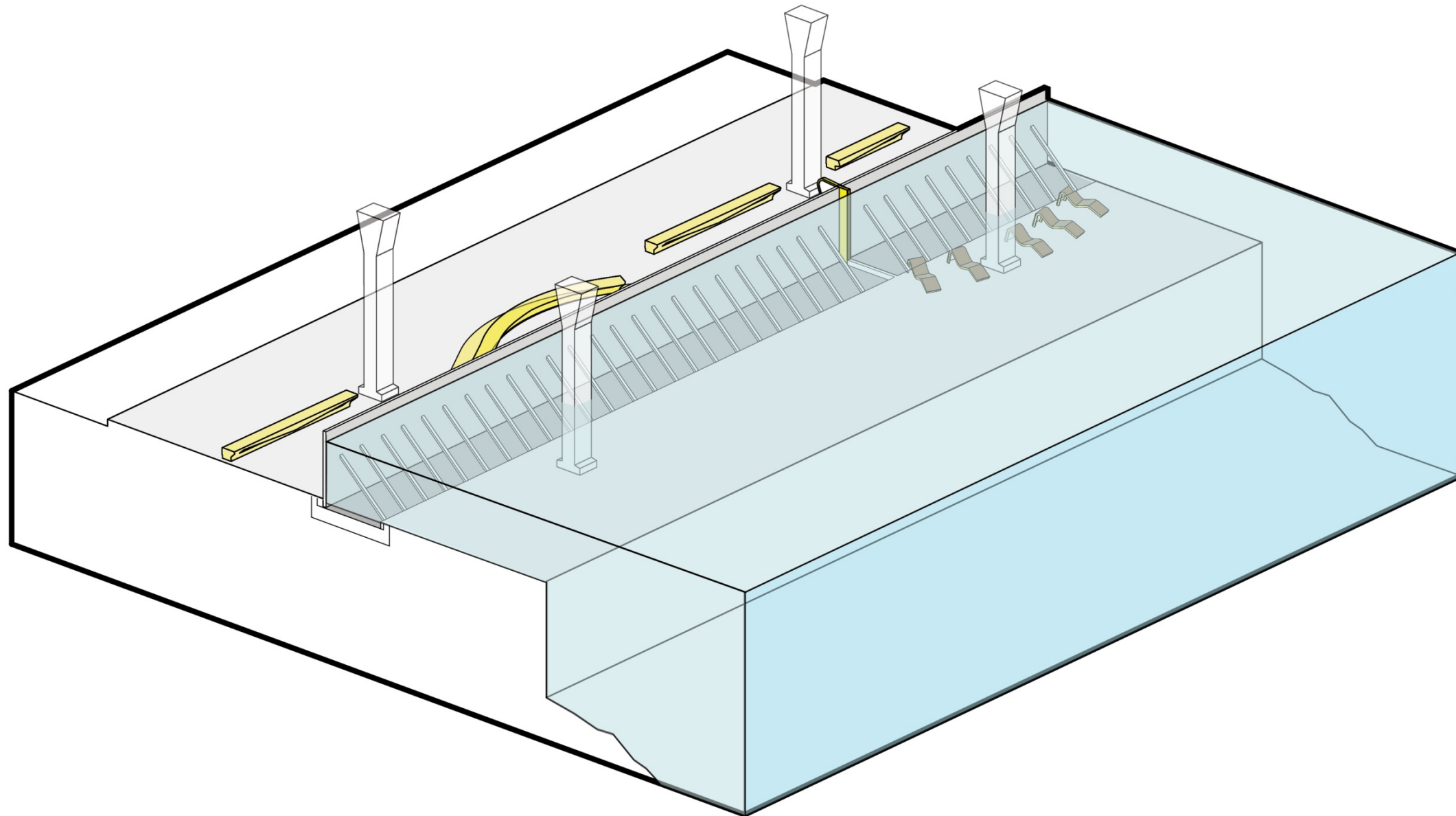
INFRASTRUCTURE | AS PLACES TO MEET

CONCEPT – FOR DISCUSSION PURPOSES ONLY



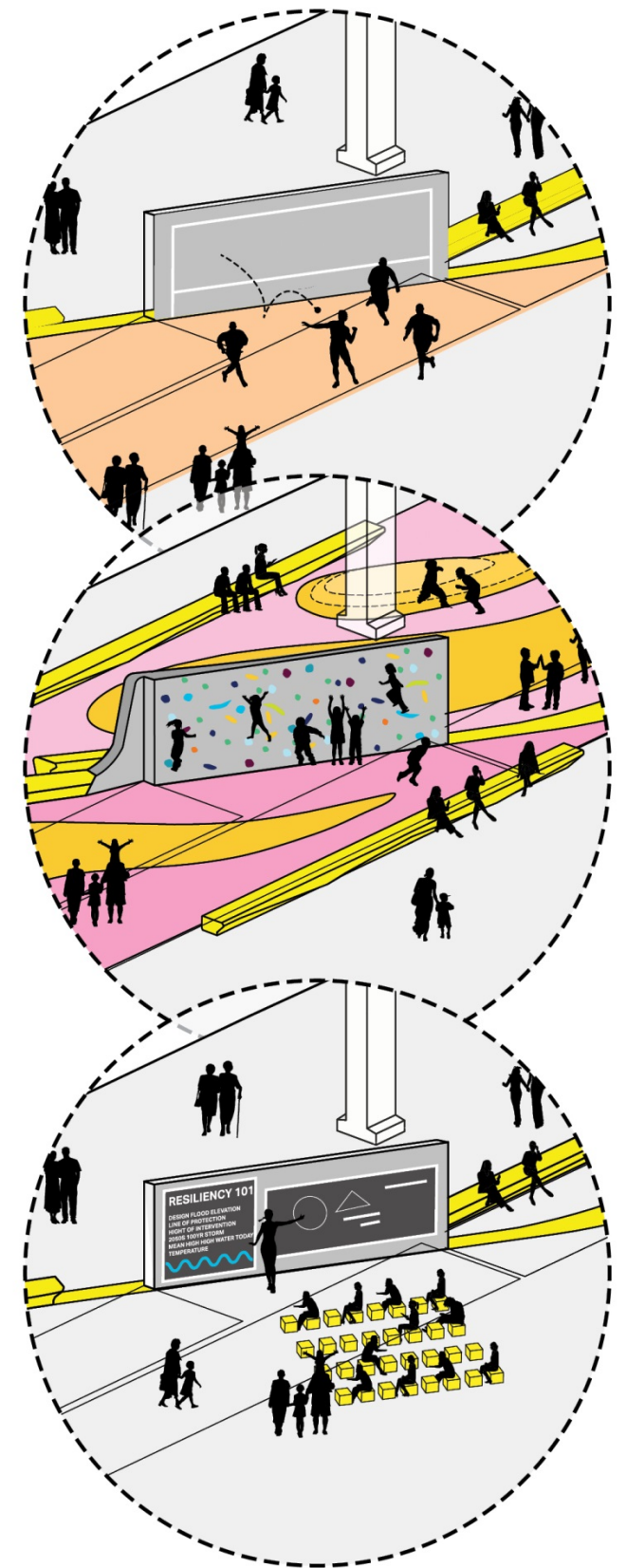
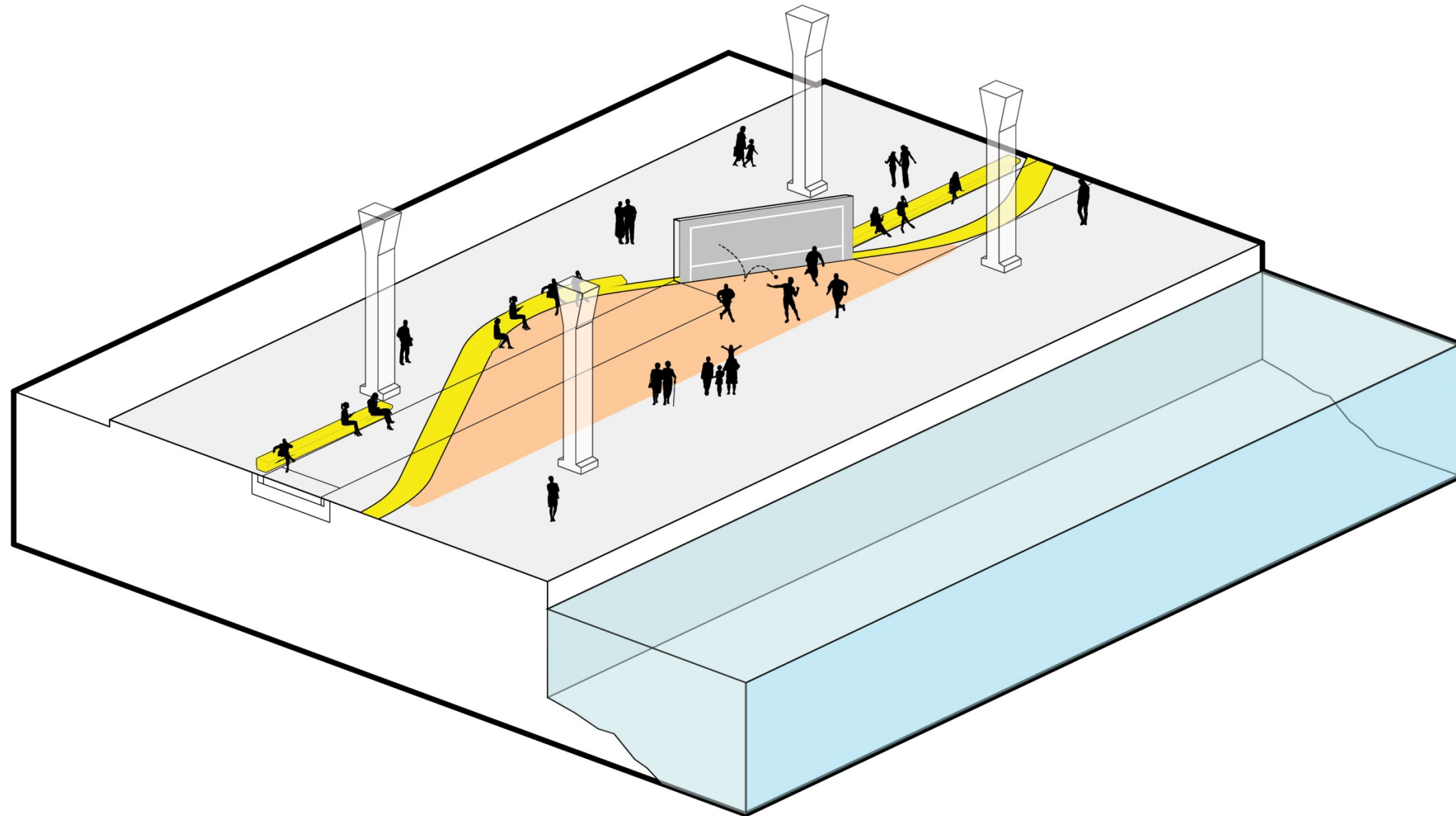
INFRASTRUCTURE | DEPLOYED

CONCEPT – FOR DISCUSSION PURPOSES ONLY



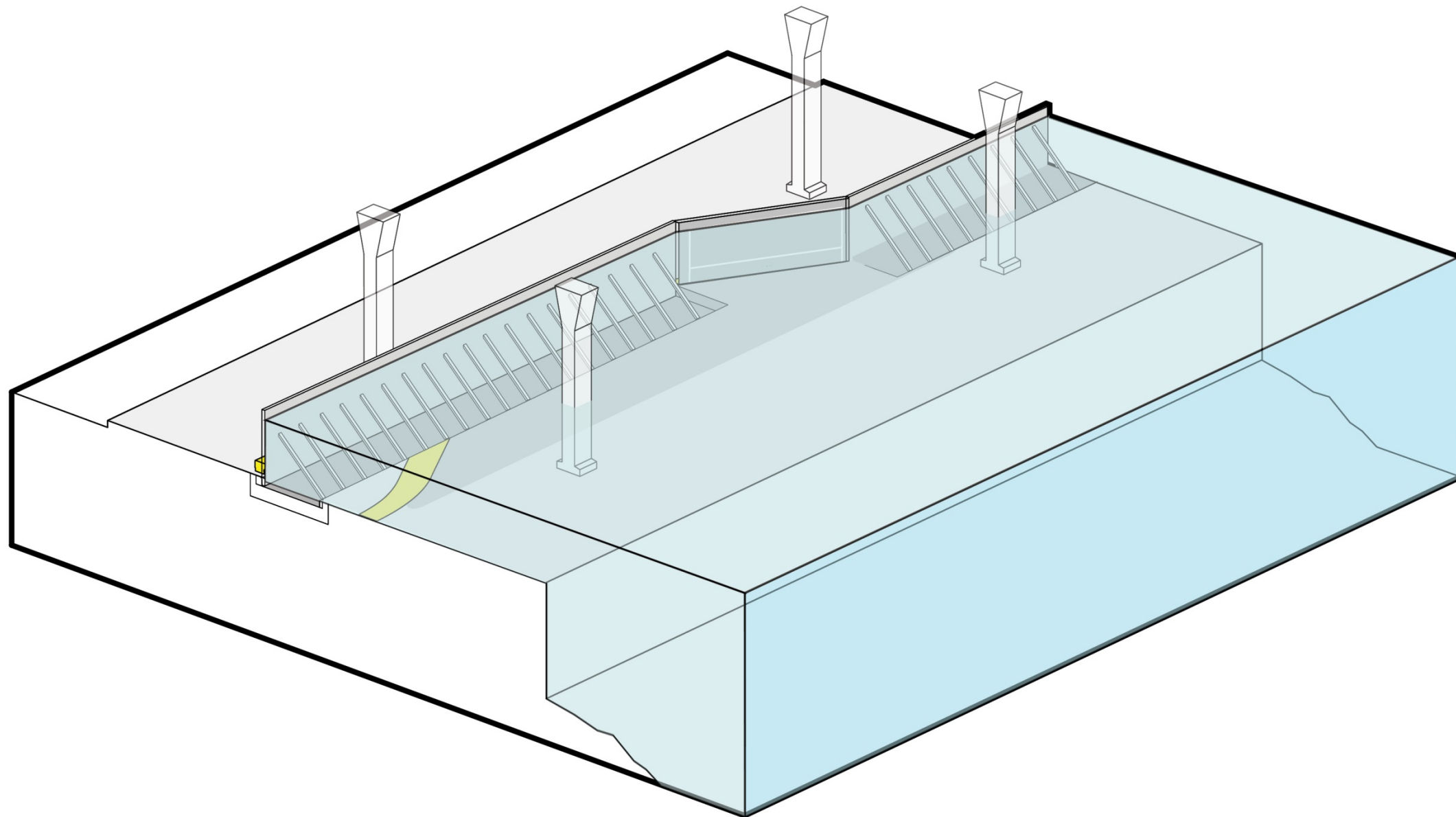
INFRASTRUCTURE | AS WALL ACTIVITIES

CONCEPT – FOR DISCUSSION PURPOSES ONLY



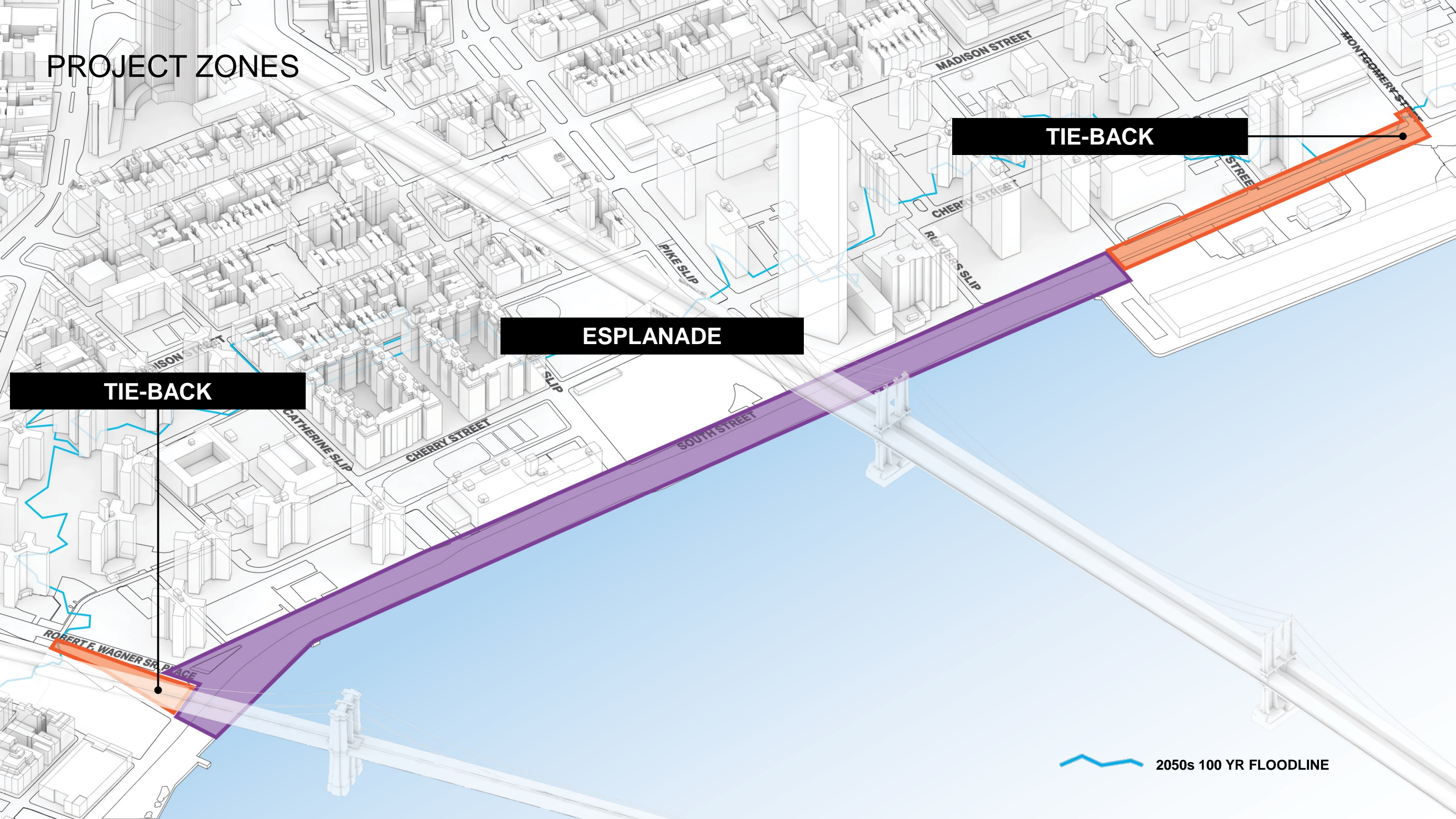
INFRASTRUCTURE | DEPLOYED

CONCEPT – FOR DISCUSSION PURPOSES ONLY



CONCEPT VIEWS


PROJECT ZONES



TIE-BACK

ESPLANADE

TIE-BACK

 2050s 100 YR FLOODLINE

MADISON STREET

MADISON STREET

FRONZBERG STREET

CHERRY STREET

STREET

PIKE SLIP

REIDERS SLIP

MADISON STREET

SLIP

CATHERINE SLIP

CHERRY STREET

SOUTH STREET

ROBERT F. WAGNER SR. PLACE

TIEBACK | EXISTING

CONCEPT – FOR DISCUSSION PURPOSES ONLY



TIEBACK | FLOOD INFRASTRUCTURE

CONCEPT – FOR DISCUSSION PURPOSES ONLY



TIEBACK | STORM

CONCEPT – FOR DISCUSSION PURPOSES ONLY



TIEBACK | EXISTING

CONCEPT – FOR DISCUSSION PURPOSES ONLY



TIEBACK | FLOOD INFRASTRUCTURE

CONCEPT – FOR DISCUSSION PURPOSES ONLY



TIEBACK | STORM

CONCEPT – FOR DISCUSSION PURPOSES ONLY



FITNESS

CONCEPT – FOR DISCUSSION PURPOSES ONLY



FITNESS | STORM

CONCEPT – FOR DISCUSSION PURPOSES ONLY



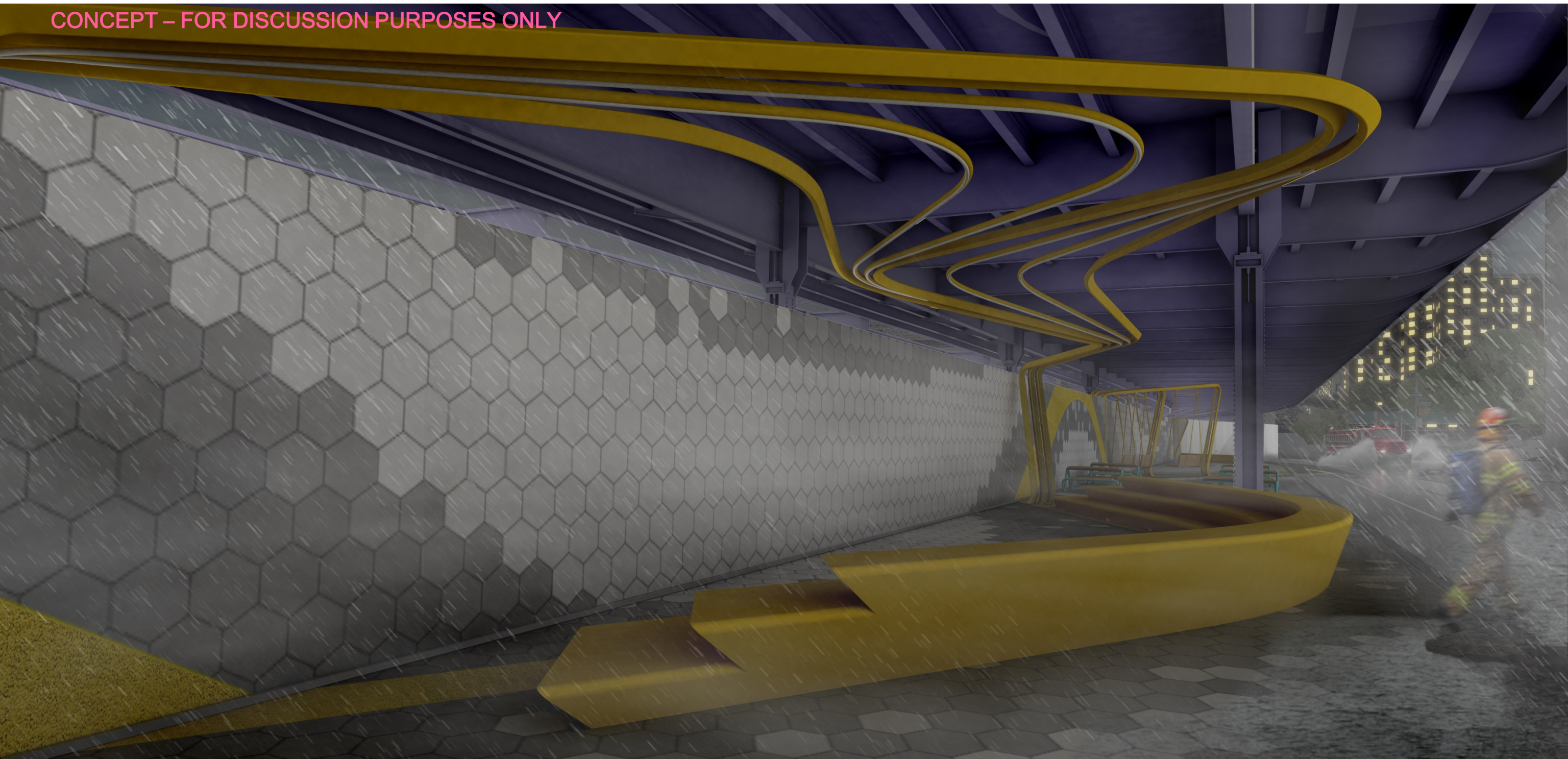
EVENT SPACE

CONCEPT – FOR DISCUSSION PURPOSES ONLY



EVENT SPACE | STORM

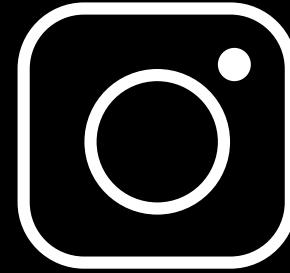
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STAY IN TOUCH



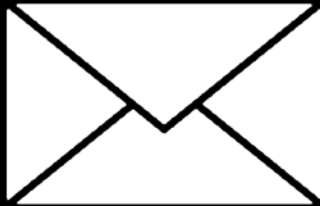
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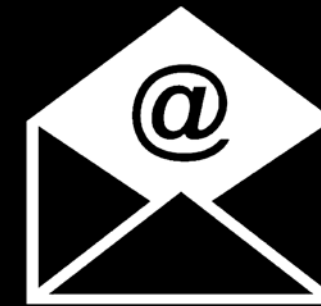
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In person



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