City of Poughkeepsie
Waterfront Advisory Committee
Meeting Agenda

Common Council Chambers
Tuesday, April 26, 2022
6:00 PM

I. APPROVAL OF MEETING MINUTES

1. APPROVAL OF JANUARY 25, 2022 MINUTES
Motion: _____
Second: _____
Carried: _____

2. APPROVAL OF MARCH 26, 2022 MINUTES
Motion: _____
Second: _____
Carried: _____

II. COMMITTEE BUSINESS

1. LWRP Update

2. Southern Waterfront Task Force Update

3. Hudson River Estuary Program CAD Design Update

POUGHKEEPSIE WATERFRONT ADVISORY COMMITTEE

City of Poughkeepsie Planning Division
62 Civic Center Plaza, 2nd Floor
Poughkeepsie, NY 12602
(845) 451-4055

MINUTES OF THE JANUARY 25, 2022 MEETING

Members Present: Europa McGovern (Chair), Harvey Flad, Michael Young, Lia Harris, Jim Nelson (Late)

Members Absent: Terriciena Brown

Also Present: Natalie Quinn, Planning Director

Meeting called to order: 6:06 PM

Director Quinn read the following notice into the record:

> Under Governor Hochul's Executive Order, which suspends certain provisions of the open meetings law to allow municipal boards to convene public meetings and public hearings via video conferencing up until February 15th, which is how we are meeting here tonight via this platform. In accordance with that executive order, the public has been provided with the ability to view tonight's meeting. And a recording and a transcript will be posted on the city's website following this meeting.

I. APPROVAL OF MINUTES

A motion was made by Lia Harris and seconded by Harvey Flad to receive in print and adopt the meeting minutes for the meeting held on December 28th, 2021

II. COMMITTEE BUSINESS

1. Adoption of 2022 Meeting Schedule

A motion was made by Harvey Flad and seconded by Michael Young to adopt the 2022 meeting schedule.

2. Old Business / Updates

i. LWRP Update – Public Hearing before the Common Council was held on January 18, 2022 and adjourned to February 22, 2022

At their last meeting on January 18, 2022, the Common Council held a public hearing regarding the draft of the Consistency Review Law and the draft LWRP. The public hearing was open for

30 minutes with each speaker being allotted 5 minutes to speak. Due to the number of people who had signed up to speak, not everyone on the list was given the opportunity to speak due to the time constraint. Because of this, Council Chair adjourned the public hearing to February 22, 2022.

Director Natalie Quinn reports to the committee that the document is moving forward, and the Council and the administration have decided to hire Emily Svenson using council funds to complete final edits to the document.

Committee Chair, Europa McGovern, states that she was not aware that public hearings could be rescheduled in that way and that she intends on speaking at the February 22 public hearing. Europa McGovern questions what the proposed timeline for adoption of the LWRP and what next steps for the Common Council would be after the second public hearing takes place. Natalie Quinn provides explanation that while she does not believe there is an official timeline, next steps would include continuing the public hearing and points out that it is the role of the Council Chair to set the agenda items that come before the Common Council.

Natalie Quinn further clarifies that if changes are made to Chapter 18 ½, then the local law would be re-laid on the desk of the Common Council and another hearing would need to be set. While that same process does not necessarily hold true to the LWRP policy document, it is dependent on how substantial the changes being made are.

Chair Europa McGovern inquires what public comments have been made to the Council thus far, if this will be the last round of public comments, and what process is in place to make sure public comments are incorporated. Natalie Quinn states that at this point public comments seem to be going to Common Council, not necessarily city staff. Natalie Quinn mentions that while she would hope that the Council is forwarding all comments, whether written or verbal, to their consultant who would then make a redline version of how those comments either will or will not be integrated. Natalie Quinn states that this is what she would assume would be taking place, as this is the typical process for making edits.

Europa McGovern thanks Natalie Quinn or making that point and also states interest in seeing the next draft in a redline version, as it was very helpful to see in the 2019 draft showing how comments were addressed. Natalie Quinn notes that staff never received comments from the LWRP working group, which she believes committee members Europa McGovern and Lia Harris were members of. Natalie Quinn suggests that the committee check in with Common Council for these notes as they were never shared with staff. Lia Harris states that she does not believe any formal written comments arose from this working group because of the nature of the timeline, Council taking over as lead agency, and litigation. Europa McGovern notes that the working group only had two meetings back to 2020 but remembers that Riverkeeper did submit quite a few pages of comments early on. Europa McGovern also notes that she hopes their comments are included as she thinks the organization was a key stakeholder.
Michael Young inquired about funds that were lined up for BFJ consulting and wanted to know if they had expired with the year-end budget as well as what the current state of the committee's relationship with BFJ is at this point. Natalie Quinn responds saying that while a portion of the funds were expended in the end of 2019 when the supplementary contract was executed, but not

the full amount so it is still there. Natalie Quinn further explains that the contract is still standing and that BFJ is on standby just in case the Council or the Committee wants them to assist with something in the final edits, so long as it is within the budget that is still remaining.

Harvey Flad states concerns that given the number of people who were unable to speak at the last public hearing given the time constraints, the same thing could potentially happen at the February 22 public hearing. Harvey Flad asks if he should instead submit written comments. Natalie Quinn responds in saying that while she hopes that the Common Council budgets enough time in their meeting to hear all remaining speakers who wish to make public comments on this issue, that it is always helpful to send in written comments as well.

Harvey Flad poses a question to Natalie Quinn about a memorandum that he claims to never have received. Natalie Quinn notes that there was a memo from BFJ summarizing the Department of State's comments which was sent to the full Council and the WAC members via email, but that she will resend it to Harvey Flad. Harvey Flad brings up the questions that Lia Harris had posed regarding lawsuits at the December 28 meeting. Natalie Quinn states that while the lawsuit was tangentially related to the LWRP, it was really about the Mayors executive power to veto the Common Council over their ability to hire a second consultant which was decided in the Mayors favor so that matter has been settled. Natalie Quinn explains that in regards to the other two lawsuits pertaining to the southern waterfront, the main point to remember is that the LWRP, as currently is written, doesn't respond to a specific project, it is separate from individual development proposals, and that it is a review document which provides guidance. Natalie Quinn says that the outcomes of these lawsuits should not impact the policies of the LWRP and should not impede the process from moving forward.

ii. Hudson River Estuary Program CAD Design Update

A debriefing session was held at the beginning of January with Natalie Quinn, City Administrator Marc Nelson, Josh Cera and Hudson River Estuary and DEC staff, along with some members of the public and different city entities. Natalie Quinn states that the discussion focused on the feasibility of various components of the student designs. Project staff are working on typing up the minutes for the last meeting and posting them publicly. Natalie Quinn notes that since the project is on an architectural software program, that they are trying to find the best way to post the materials online in a way that would be easier for the public to navigate. It is discussed that a project page could be created on the WAC's page on the city website to make this information more easily available to the public.

Europa McGovern asks if the program is tied to the academic semester and if they will be concluding in the spring. Natalie Quinn says that while there will be an end to working with the students, the project itself is not necessarily coming to an end. Natalie Quinn states that she is hearing from the DEC that they want to continue working with the Committee to vet projects and figure out what concepts should move forward. Natalie Quinn mentions that public support for increased natural plants, natural barriers, and ways to proactively mitigate potential flood damage to property at Waryas Park has been identified as a focus throughout this process.

Europa McGovern brings up that a running agenda item for the Common Council is reports from boards and committees, and poses to fellow WAC members the possibility of drafting a yearend report to bring before the Council Chair, while thinking about how to build bridges and form beneficial working relationships with Common Council so that things such as the delayed adoption of the LWRP, do not happen in the future. Michael Young agrees with this point, stating that the Council should be using that agenda item to get feedback from its committees throughout the city.

iii. New Business

Harvey Flad asks Natalie Quinn about the acceptance of amendments to the NRI, and whether or not these amendments will be posted to the city website. Natalie Quinn responds that she believes a revised version will be posted but that she can request a redline version summarizing changes if need be. Natalie Quinn explains that she does plan to post the revised document as well as revisions to the web-mapping tool with the inclusions of some new layers once it is received from the Environmental Cooperative. Europa McGovern wants to add that she believes the NRI is a great model and is glad that it is being updated and that beneficial collaboration is being continued.

A motion was made by Michael Young and seconded by Harvey Flad to to adjourn the meeting. Meeting is adjourned at 6:39 PM.

POUGHKEEPSIE WATERFRONT ADVISORY COMMITTEE

City of Poughkeepsie Planning Division
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MINUTES OF THE MARCH 22, 2022 MEETING

Members Present: Europa McGovern (Chair), Lia Harris, Terriciena Brown, Jim Nelson, Michael Young (Late)

Members Absent: Harvey Flad (excused)

Also Present: Natalie Quinn, Development Director

Meeting called to order: 6:07 PM

I. APPROVAL OF MINUTES

The adoption of the January 25 meeting minutes is moved to next month's meeting

II. COMMITTEE BUSINESS

1. **Old Business / Updates**
    i. **LWRP Update – Public Hearing before the Common Council was held on 2/22/22 + Next Steps**

The public hearing on February 22, 2022 was held as a continuation of the public hearing held previously on January 25, 2022. Committee member Harvey Flad gave public comment concerning his desire for the new LWRP to reference the updated NRI that was recently reapproved by the Common Council. Director Natalie Quinn reports that Common Council and staff continue to work with Emily Svenson, who was hired to make final edits to the document. Natalie Quinn reassures the committee members that they will be given any updates on additional changes being made to the document and will be provided with redline versions showing how public comments were incorporated. Natalie Quinn expresses to the committee her excitement with the renewed energy behind the document, and mentions Council's interest in seeing to the matter of the LWRP before the comprehensive plan comes before them in the coming months.

Lia Harris questions the timeline going forward, to which Natalie Quinn responds that it is dependent upon the changes that are currently being made by Emily Svenson and Council and although the end of April or early May seem likely, she will get back with a proposed date. Chair

Europa McGovern requests to see the proposed edits made by former Council Member Sarah Brannon, to which Natalie Quinn says that she will recommend that to Emily Svenson and Council.

ii. Hudson River Estuary Program CAD Design Update

Notes from the final debrief session with the studio were circulated to the committee members. Natalie Quinn reports that the results of the project are currently being prepared to be presented in PDF format for ease of public viewing. Natalie Quinn discusses with the committee members the potential opportunity to display boards of the project to the public over the next year. Natalie Quinn proposes the Trolley Barn and the waterfront farmers market as potential public viewing spaces and asks the committee members for ideas on events or spaces where the public can be engaged on this topic in order to continue receiving feedback from local stakeholders. Lia Harris mentions the summer event the Kaal Rock concert series, Michael Young suggests that the boards could be hung up in the City Hall lobby or other locations within City Hall.

iii. New Business

PK4Keeps will be holding an open house event on Thursday evening at the Trolley Barn located on 489 Main Street from 5 to 7 PM. The event will be wrapping up discussions of the comprehensive plan and will include three different stations laying out various aspects of the plan to the public in detail. Natalie Quinn mentions that the first station will be familiarizing people with what a comprehensive plan is and the process for adopting one, the second station will show proposed strategies and actions identified within the plan, while the third station will focus on zoning concepts and how they tie in with the priorities of the plan. Natalie Quinn mentions that the event will be catered by Upstream Cafe - a new local business located on Main Street and that a draft of the comprehensive plan will be posted to the city's website.

Lia Harris asks if an RFP has been put out for the fencing at the DeLaval property, to which Natalie Quinn responds no, not that she is aware of. Lia Harris recommend that this be another task for the committee to look at the recommendations of the Southern Waterfront Taskforce and think about how they can help foster the opening of this space to the public, as opening that space was a goal of the committee last year. Lia Harris also brings up former recommendations made advocating for railings along the bulkhead. Natalie Quinn responds that she will talk with the City Administrator to see if there are any updates on that matter. Europa McGovern suggests as Committee Chair, putting this matter on the agenda for next month's meeting.

Michael Young brings up the matter of dredging that started last year and was supposed to continue into this year, inquiring whether there are any updates in terms of scheduling or if it will continue. Natalie Quinn says she believes the project has been suspended, but will find out in order to give confirmation to committee members.

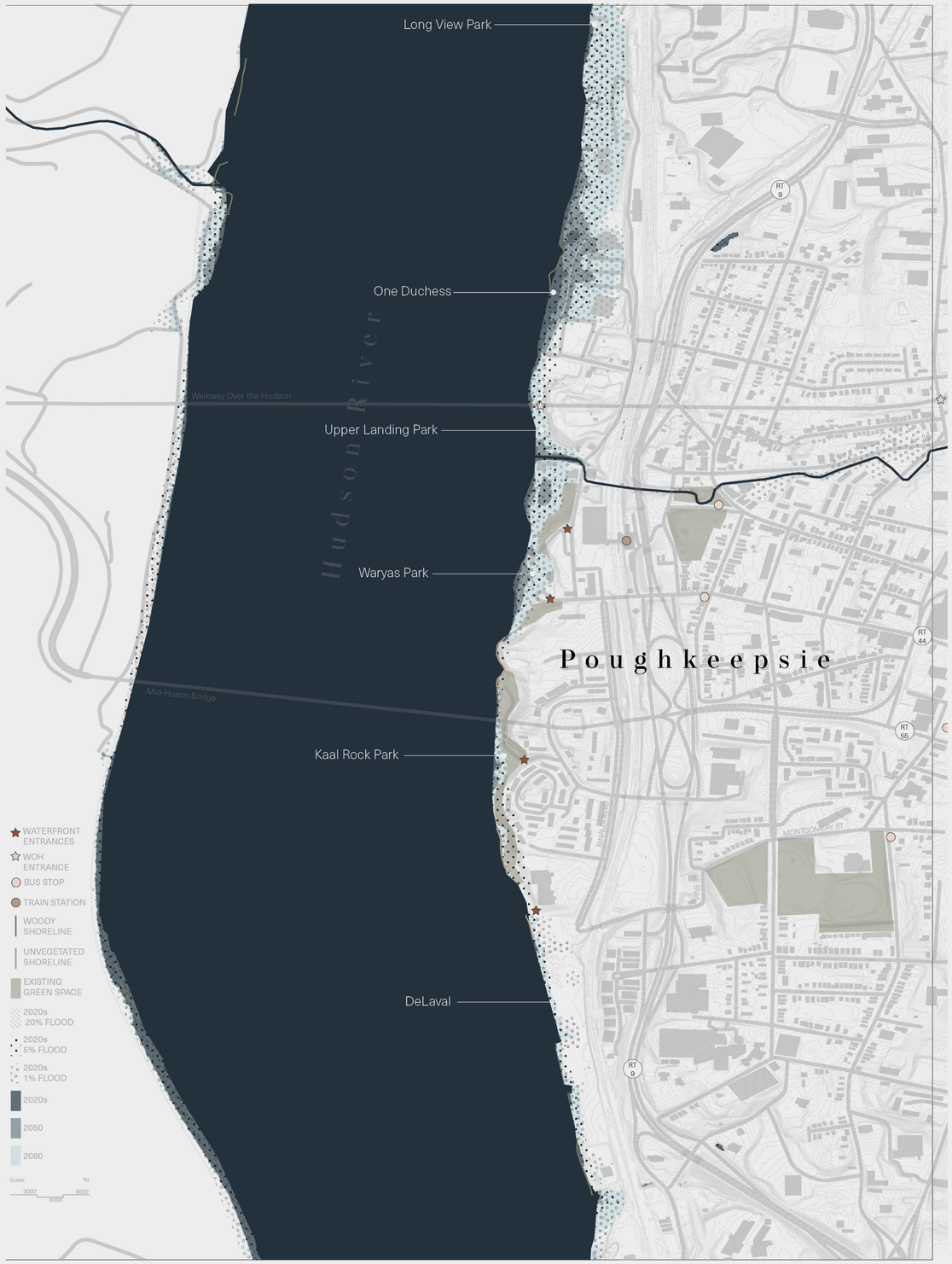
A motion was made by Michael Young and seconded by Jim Nelson to adjourn the meeting at 6:38 PM.

FREEZE, THAW, EXPAND

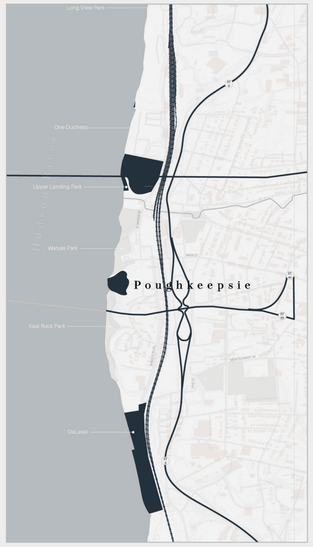
SOPHIE BELLEMARE | LA 7010 | FALL 2021

Throughout history the Poughkeepsie waterfront has proved to be dynamic-- ebbing, flowing, and transforming through time. From the frozen glacier that formed the Hudson River, to the industry that later dominated the shoreline, the waterfront is now in a new transitional phase. With the increasing threats of climate change, the waterfront is in the process of expanding it's critical climate-adaptive and community infrastructure. Freeze, Thaw, Expand seeks to identify current blockages that are preventing waterfront utilization, harness potential processes to improve its accessibility and resilience, and utilizes community feedback to transform the waterfront so that it can serve as a basis for a more climate-adaptive and equitable future.

SITE ANALYSIS



DESIGN CONCEPT

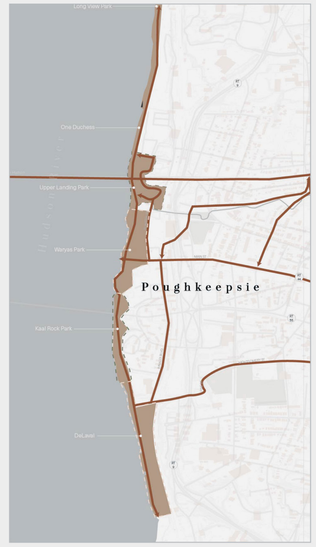


FREEZE: *Immobile, inert, inhibit, solidify*

Certain blockages along the waterfront prevent explicit access to sites, such as the lack of a connector around Kaal Rock, and the current gates surrounding Delaval. The majority armored shoreline provides little water access for both humans and nature. Major roadways such as Rt. 9 and the arterials are heavily trafficked, preventing neighborhood connections to the waterfront.

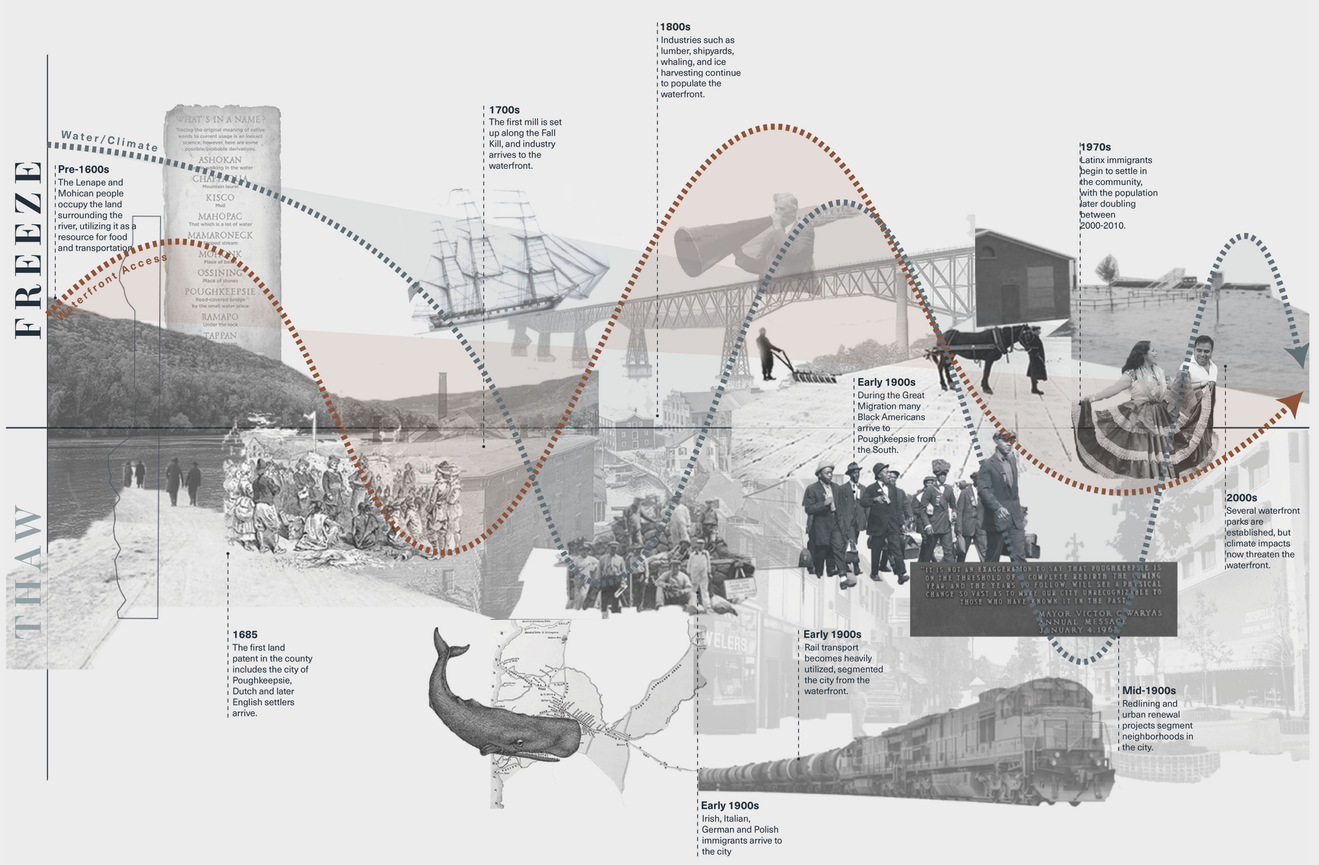
THAW: *Flow, loosen, defrost, release*

The construction of a connecting pathway through Kaal Rock can increase northern and southern circulation, and decision-making surrounding the Delaval property could allow public access. Improving street crossing connections through major roadways, the improvment of park access points and diversified waterfront activities could promote more equitable access. Introducing water onto the site could improve human connection to the waterfront and foster more resilient ecological systems.



EXPAND: *Flourish, Prosper, Grow, Connect*

A waterfront that restores it's north-south connection, as well as greatly improves east-west connections can promote more communities utilizing the waterfront. A revitalized shoreline and enhanced green space fosters stewardship, connection, and ecological resilience, that acts a basis for Poughkeepsie to grow into the future.

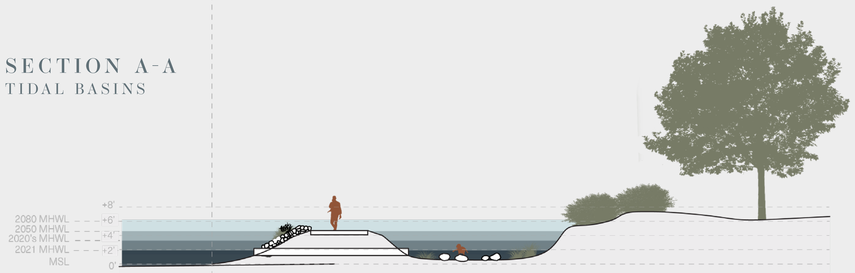


WATER ADAPTIVE MANAGEMENT STRATEGIES

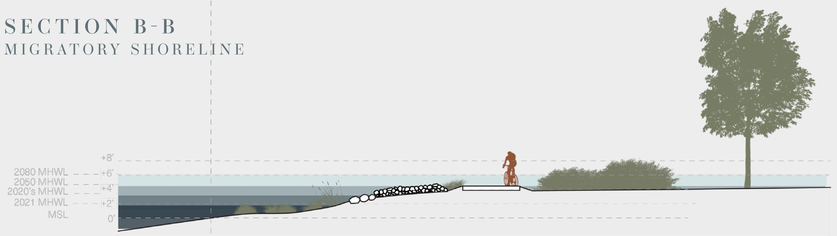
WATER ADAPTIVE STRATEGIES PLAN

FLOOD ADAPTIVE SECTION

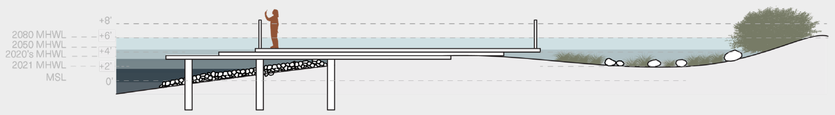
SECTION A-A
TIDAL BASINS



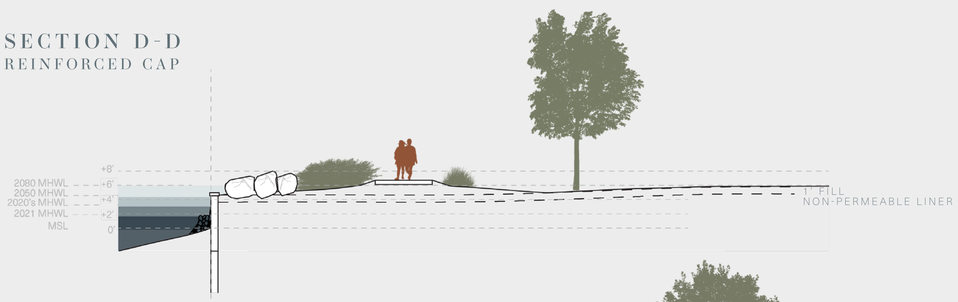
SECTION B-B
MIGRATORY SHORELINE



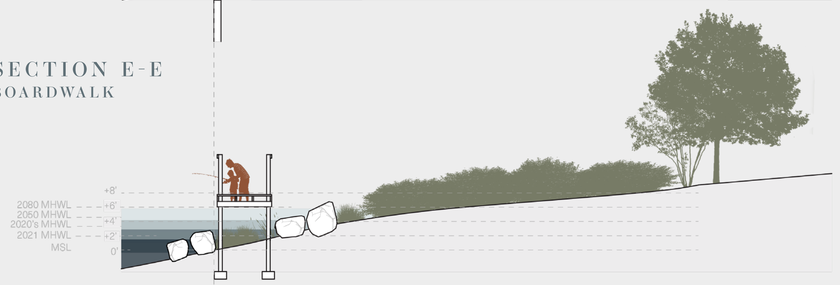
SECTION C-C
ELEVATED PLATFORM



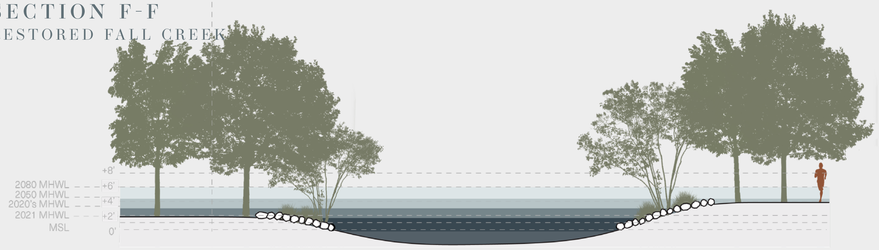
SECTION D-D
REINFORCED CAP



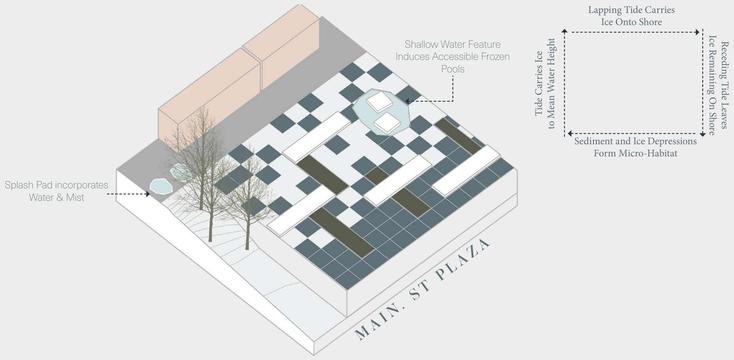
SECTION E-E
BOARDWALK

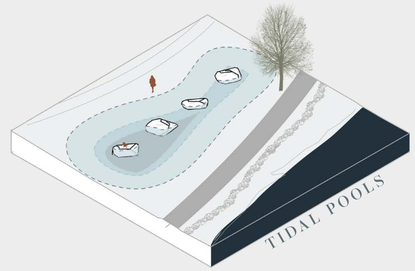


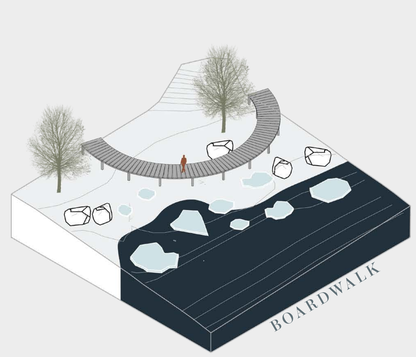
SECTION F-F
RESTORED FALL CREEK

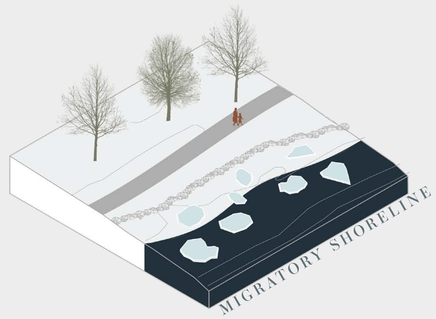


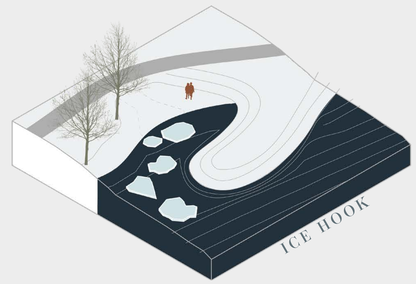
ICE TYPOLOGIES











SITE PLAN

POUGHKEEPSIE WATERFRONT

PHASING PLAN

	Phase I: 2020s CONNECT	Phase II: 2050 ESTABLISH	Phase III: 2080 ADAPT
	(12" SLR)	(30" SLR)	(60" SLR)
ACCESS	Kaal Rock Connector and Primary Pathways	Boardwalk Construction in Kaal Rock Park	Community Collaboration to Replace Inundated Paths
	Main St. Plaza Construction	Establish Upper Path through Central Hudson	
	Enhance Entrance Nodes and City-Wide Connections		
WATER	Establish Migratory Shorelines	Naturalized Shorelines	Reinforce Cap
	Construct Water Entry Points	De-Channelize Upper Fall Kill	
	Re-Naturalize Fall Kill Mouth	Transition Away From CSO System	
	Tidal Pools		
COMMUNITY	Re-Open DeLaval	Relocation of Ice House	Community Collaboration for Re-Programming
	Construction of Warya's Park Mid-Tier	Relocate Museum Pavilion	
	Permanent Facility Construction at DeLaval	Re-Evaluation of Kaal Rock Promontory	

Projected Water Levels

SITE ZOOM IN: WARYAS PARK

ENHANCING ACCESS

EXPERIENTIAL VISIONS

SOUTHWEST VIEW FROM RINALDI DR. APPROACHING FORMER DELAVAL

NORTHERN VIEW FROM PROPOSED MID-TIER OF WARYAS PARK

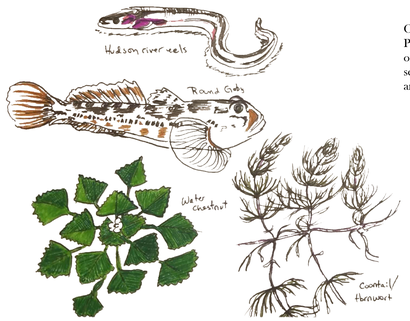
River that Flows Three Ways

Fall 2021

By Lauren Cruvellier

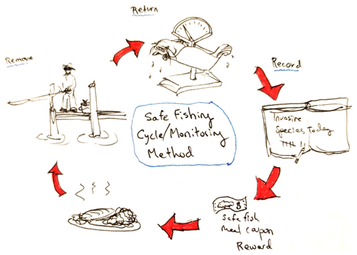
Observation

A series of programs and naturalization interventions designed to raise awareness of the situation of the Hudson River as well as its non-human inhabitants. Primarily focused around Fall Kill Estuary and Waryas Park, other interventions will soften human impacts on the waterfront through floating marshes, enhanced habitat in a way that also allows for human appreciation.

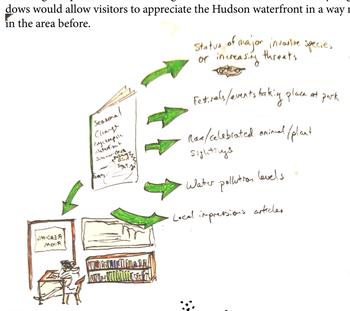


One of the largest efforts towards proper observation and awareness of the Poughkeepsie waterfront is the identification and clearance of many types of invasive species in the area and replacement with native species (represented on the left by the goby and water chestnut–invasive–and the river eel and coontail–native).

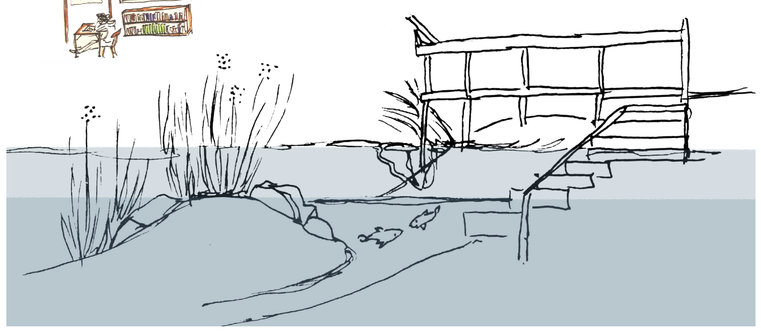
Part of this effort will be regular clearance and mainenance of the waterfront by workers, but other actions can be taken to involve the community, such as providing facilites to register fish caught in the Hudson. A bounty system set up for catching invasive species (example of exchange on the right) could help families that rely on the waterfront as a source of food or income without harming themselves or the local ecology.



A community center/nature center next to the Children's Museum in Waryas Park would allow monitoring activities to take place as well as a gathering place to promote learning about the natural environment that would hopefully return to the Poughkeepsie waterfront through collective efforts. Bird-friendly large windows would allow visitors to appreciate the Hudson waterfront in a way not seen in the area before.



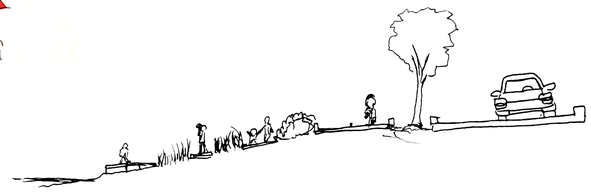
In Waryas Park, the Community/Nature Center would have public facilities such as a reading room with free wifi as well as a cafe, but more importantly it would be a source of regular information about events on the waterfront, both natural and artificial, by way of a periodical (example right)



Activation

Primarily represented through the partial re-routing of Route 9 to Washington street, activating the waterfront also consists of social programming and employment opportunities surrounding the maintenance and functionality of the waterfront parks. Those involved would gain relevant skills related to their job and the promotion of bike accessibility and walkability will give a business/tourism boost in the area for the city to take advantage of.

Facilitating transportation via new, designated bike routes would open up the waterfront not only to recreation, but also for employment opportunities. The nature center would require many forms of maintenance or monitoring of the changing waterfront, as well as construction/repairs of the boardwalks and trails. These jobs could help those lacking in other, more conventional job skills to learn a craft or skill while also helping the community and their families. Necessary training would be provided, so there would be no minimum requirements for education level; only a willingness to learn. Just because Poughkeepsie would have a more naturalized waterfront does not mean that it must stop being a 'working' waterfront. The work just needs to change.

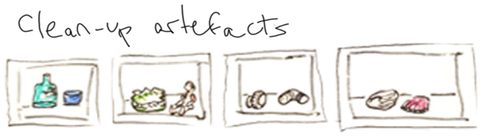


The new boardwalks and pedestrian paths would aim to be as public-friendly and as accommodating as possible, but for those who may not be able to handle the slope of Kaal Rock switchbacks, a short shuttle bus could span the length og the waterfront, especially on weekends, to help those who wished to get from Upper Landing to Delaval in a rush. Additionally, this shuttle can ascend the slope of Main Street back to the more level commercial area as well as to the new open parklands bordering it.

Celebration

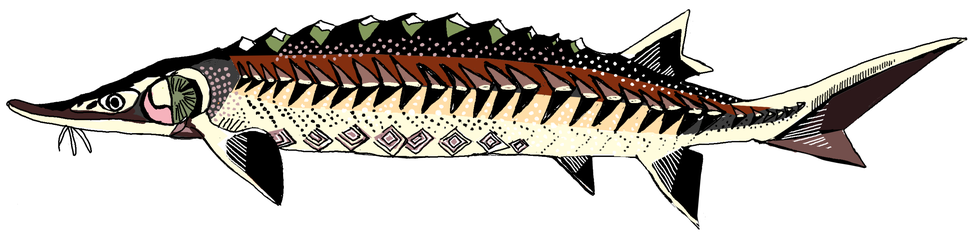
For such a heavily developed waterfront, the history of its use and the residents living in the city cannot be over-empasized. Opportunities for seasonal activities as well as space for festivals, musical events, and waterfront activities will be available throughout the year, with a highlight on the existing Oaxacan Guelaguetza. Along with the newly available sports facilities, the opportunity for public recreational activities and motivations to be along the water will be higher than ever

Programming of the Poughkeepsie waterfromt plays an important part in activating the site and keeping it interesting for locals as well as making it a destination for visitors. The Farmer's Market that was held in the pavillion during the pandemic is a step in the right direction, providing not only a desirable area to visit but also a practical reason to go there. The pavilion would be one of the structures that would be kept in situ on the waterfront, although raising it higher to survive the incoming tides would be necessary to allow it to continue functioning properly.



While often overlooked, a fascinating part of the Hudson River is its long history of occupation, from well before European settlers came into the area. A small part of the Community Center would have a dedicated artefact area with some of the most interesting/significant finds, both archaeological as well as scrounged on the beach, as well as information about the natural and industrial development of the area.

Engaging local artists from various cultural backgrounds will play a large part in celebrating the waterfront of Poughkeepsie. THere are many blank walls and empty pavement where renderings of Poughkeepsie's natural and cultural heritage could engage with people moving around the space.



2020s Overview

Longer-term planning would include a greenway along Fall Kill to absorb more floodwaters and further improve recreational transportation

Bike route access with Walkway Over the Hudson where it meets the ground

Route 9 converted to road with traffic lights, multiple intersections - Formerly Washington Street

The main artery of Route 9 would convert a downtown street from one-way back to two ways for those heading North on Route 9

Widespread designated bike trails connect waterfront to established parks in city

Route 9 reconnects to existing route next to Marist College

Improved bike lanes and bus routes relieve pressure from downtown traffic and improve walkability and business opportunities not as reliant on parking

Re-routing Route 9 North of the Mid-Hudson Bridge opens up a historic area of Poughkeepsie for recreational use as well as reconnecting homes along the waterfront with businesses on Main Street.

Parking lowered into ground allows gently sloping terrace for outdoor eating/recreation as commuters/tourists arrive from trains

New skatepark with competitive/-casual street skating capacity

Professional size soccer field in new park

Main Street has opened up sightlines leading to waterfront

Former Route 9 converted to major bike path to Marist College, turning into minor road for access to One Dutchess and reconnecting businesses and buildings cut off by original highway

Railroad cap along Fall Kill connects Upper Landing to Davies Place for Bikers/Pedestrians

Seasonal flexible marketplace/per-formance plaza with recycled concrete 'cliffs' over bulkhead

A partially public, partially private building provides interior public space on the Delaval waterfront area while expanding residential/commercial opportunities. Building designed to withstand high waters.

One Dutchess development will need to vacate and flood-proof lower units

Raise bridge spanning Fall Kill

Boardwalks span dredged and naturally planted expansion to Fall Kill Estuary as the sea level rises

Convert historic Dutch buildings to be floodable again

Pavilion raised to withstand incoming sea levels

Ice House converted to floating building accessible through floating docks

Nature/Community Center acts as hub for monitoring changing environmental conditions as well as casual visitors to the site taking advantage of free wi-fi and small library

Maintained switchbacks allow pedestrian access across Kaal Rock to Kaal Rock Park

Floating marshes buffer boats from constructed edge of plaza

Natural swimming pool and plaza turned rink for winter activities

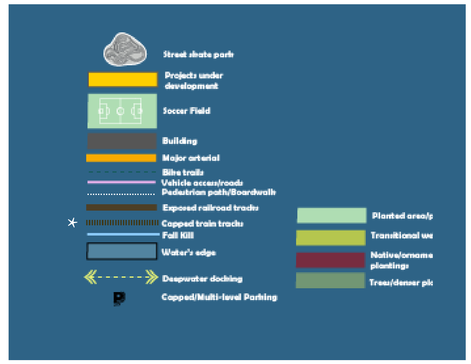
Walkway Over the Hudson

Mid-Hudson Bridge

N

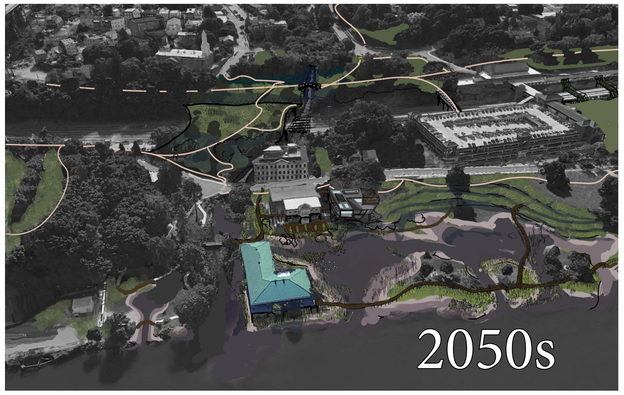
- Street skate park
- Projects under development
- Soccer Field
- Building
- Major arterial
- Bike trails
- Vehicle access/roads
- Pedestrian path/Boardwalk
- Exposed railroad tracks
- Capped train tracks
- Fall Kill
- Water's edge
- Deepwater docking
- Capped/Multi-level Parking
- Planted area/park
- Transitional wetland plantings
- Native/ornamental shrub plantings
- Trees/denser plantings

2050s Waterfront Changes



*Railroad caps, with the exception of the Fall Kill cap, would start from the Main Street overpass and continue South in phases. The area with the most potentual to be opened up again is North of the Mid-Hudson Bridge, where Route 9 gets re-routed. Further South, many industrial/ exclusive residential complexes make bridging the gap less significant for

2080s Waterfront Changes



Fall Kill Estuary Natural Park

(currently Waryas/Upper Landing Park)

While construction of wooden boardwalks would be the primary way to facilitate human interaction with the site (left), all-natural materials would be used (such as Robinia pseudoacacia) and the lowest boardwalks would be built in anticipation of the fact that they will be covered by the rising sea level in the future. Therefore, not only are they a temporary structure beneficial to humans, but also an important wildlife sanctuary.

The regular planting of native species in the wetlands will help as the area transitions to a more natural, pre-fill state. Plants native to the area but less commonly seen, such as Spatterdock (below) represent a beautiful side of natural plantings that is often overlooked in conventional parks. An appropriate and functional planting plan, beautiful in all seasons, would go a long way in allowing residents and tourists to appreciate the Poughkeepsie waterfront anew.

The area of Waryas Park that would be returned to a wetland would displace the more conventional parkland to exist on a higher level, above the current park and bridging (both literally and metaphoerically) the gap between the city and the waterfront.

Fall Kill Estuary Native Plantings

Freshwater Tidal Marsh

Heteranthera reniformis
Iris versicolor
Leersia oryzoides
Nuphar advena
Polygonum hydropiperoides
Sagittaria subulata
Scirpus americanus/Schoenoplectus americanus
Peltandra virginica S+
Pontederia cordata S+
Sagittaria latifolia S+
Impatiens capensis S+
Typha angustifolia S+
Zizania aquatica S+

Additions as salinity increases -> Brackish Tidal Marsh

Hibiscus moscheutos
Bolboschoenus fluviatilis
Bolboschoenus novae-angliae
Bolboschoenus robustus
Solidago sempervirens
Nuphar advena ssp.
Peltandra virginica
Pilea sp.
Schoenoplastus americanus
S. Tabernaemontani
Thelypteris palustrus var. pubesens

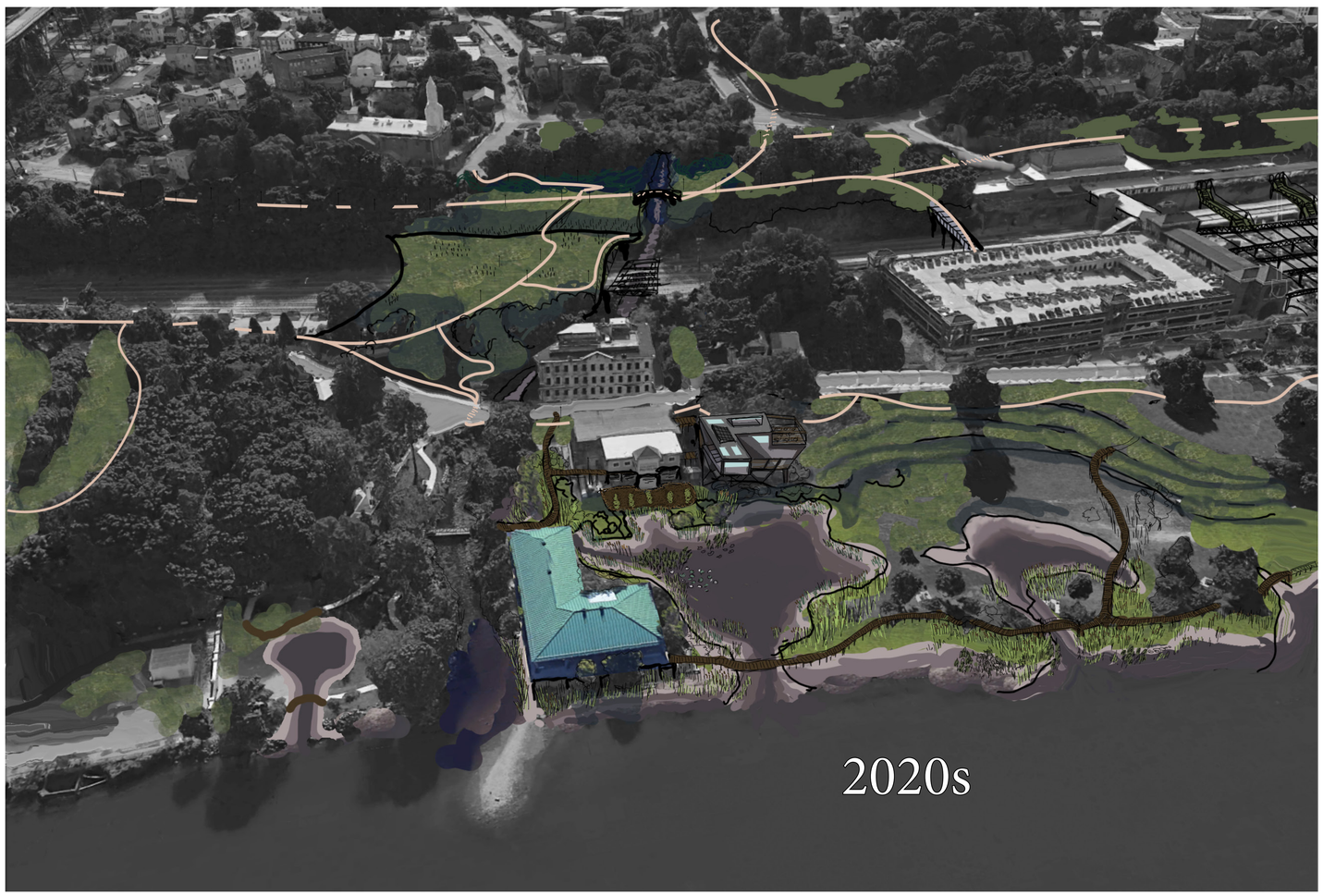
Freshwater Mudflats

Heteranthera reniformis
Orontium aquaticum
Sagittaria graminae
Sagittaria rigida
Sagittaria monteridensis ssp. Spongiosa S+
Sagittaria subulate S+

Additions as salinity increases -> Brackish Mudflats

Scirpus americana
Ceratophyllum demarsum
Filamentous algae
Green algae
Limosella australis
Potemogeton crispus
Vallsinaria americana
Zannichellia palustris

The creation of freshwater tidal marshes and a larger estuary system at Waryas park would be a boon for birds reliant on this habitat that are native to the area, such as the Least Bittern (right) or Green Heron (seen in Fall Kill tidal area before).

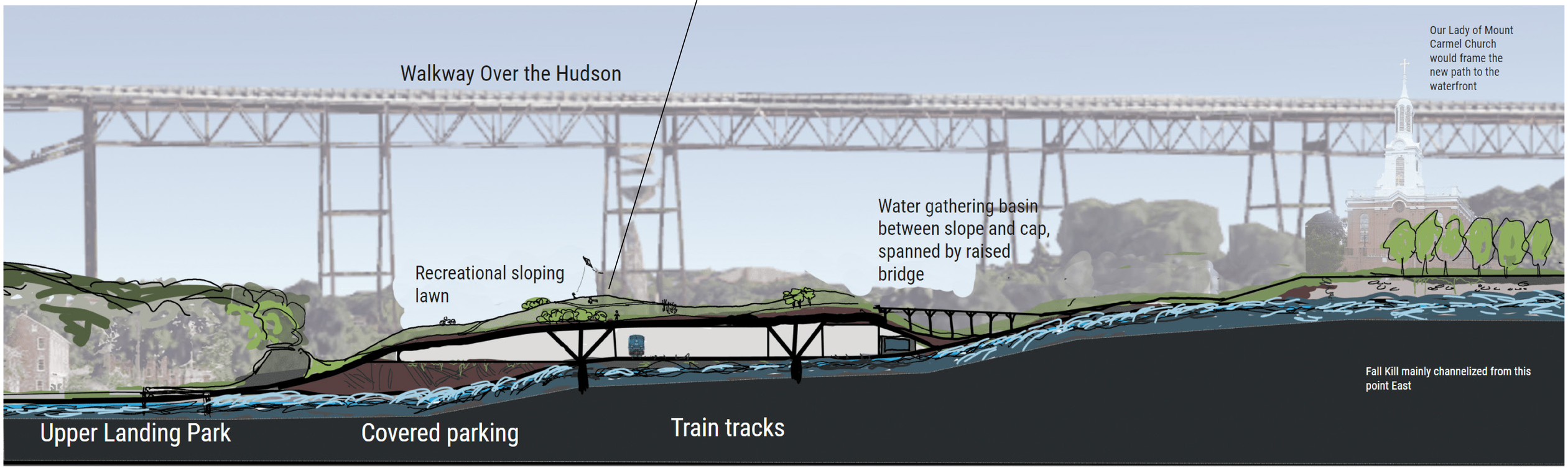


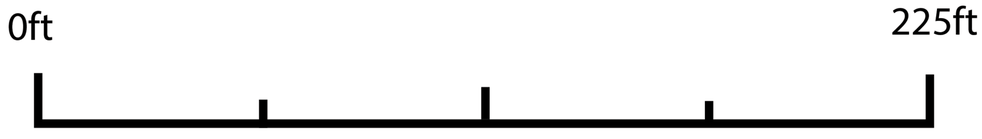
Fall Kill Cap

(Bridges Upper Landing Park to Mill Street as well as new bike lane in place of Route 9)

An important aspect of engaging the waterfront would be the accessibility through the 'caps' over the sunken railway, combined with the rerouting of part of Route 9. These two features would mean that there is no more physical barrier to people walking to and from the waterfront from downtown Poughkeepsie, and opens up many new recreational options. The section below shows a cut along the re-exposed Fall Kill facing North. Notice how trains can concinue uninterrupted as activities happen on top. This also opens up a way for bikers/pedestrians to head to the base of Walkway Over the Hudson in the case of the elevators not working(!).

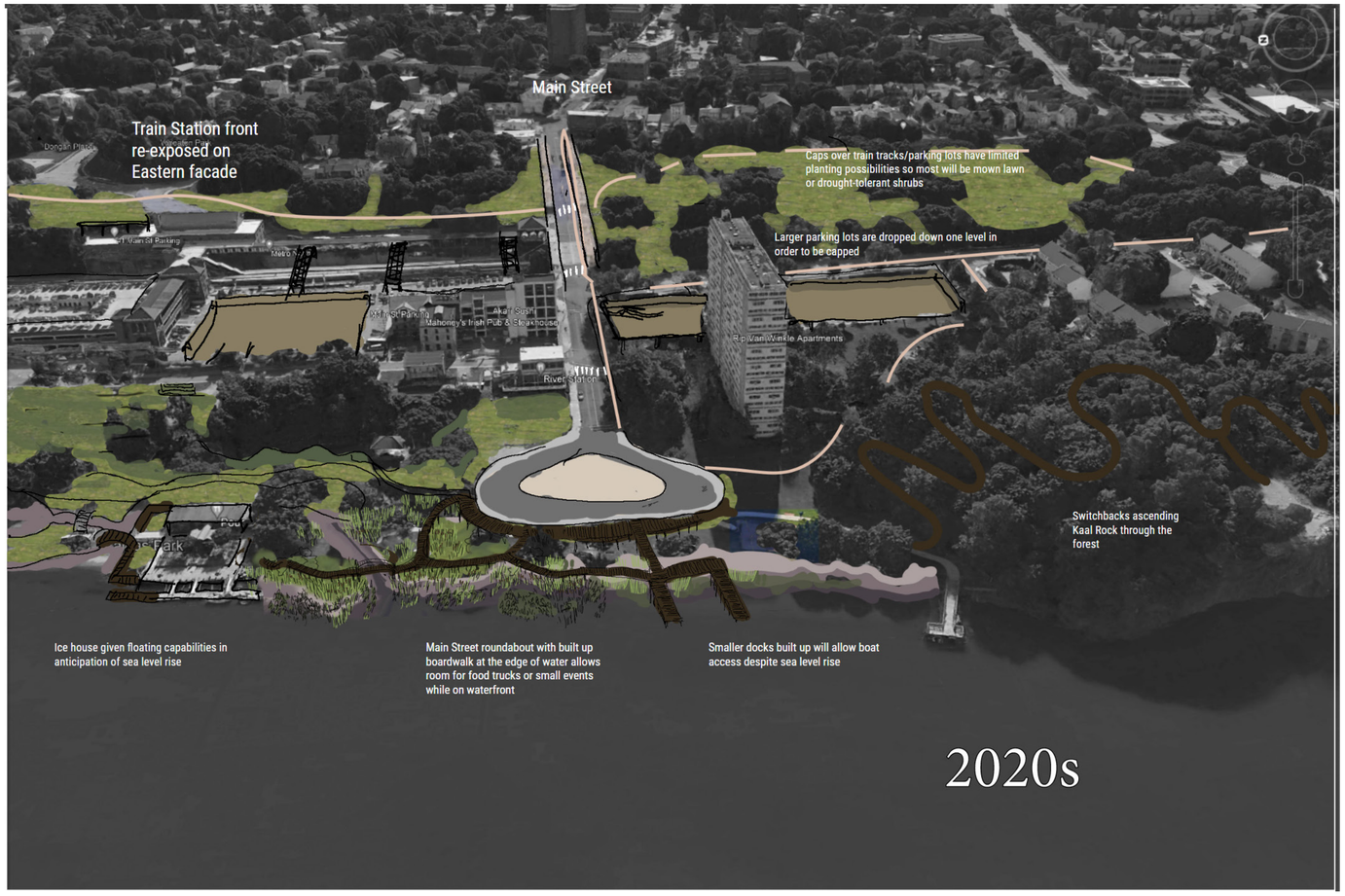
The Fall Kill Cap would allow bikers or those renting bikes to easily cross from the Upper Landing area or nearby One Dutchess to get to the Falls, or other parks more inland.





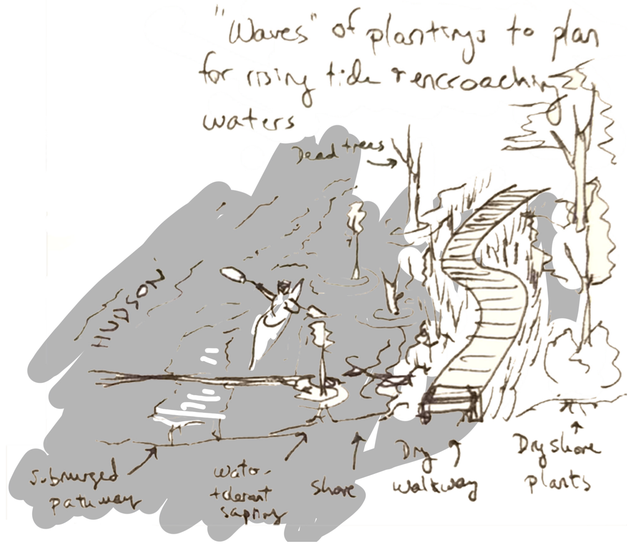
Main Street Green and Waterfront Plaza

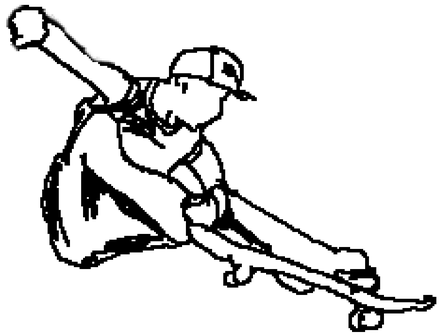
An example of a switchback through the woods at Kaal Rock. The plantings around the boardwalk would help diversify existing ecology as well as leaving the cliff face exposed to the water. Areas of the ground that are too steep would be built out as raised walkways to help ease the slope as much as possible, while also providing an informal overlook to the surroundings.



As the sea level rises and encroaches on the Main Street turnaround, activities such as canoeing and kayaking will become the main activities in the area.

The new docks would allow for visitors from the water, as well as an area to tether the Ice House when it begins to float, all while allowing regular pedestrians access.

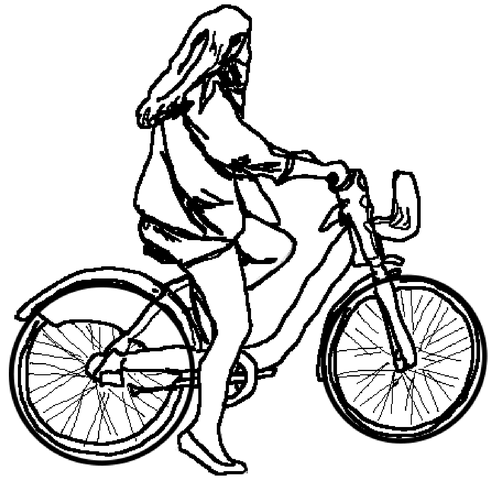




New skate park next to Mid-Hudson Bridge near new cap. Larger, better facilities allow spectators for competitive AND casual street skating, putting this place on the map for large-scale skating events

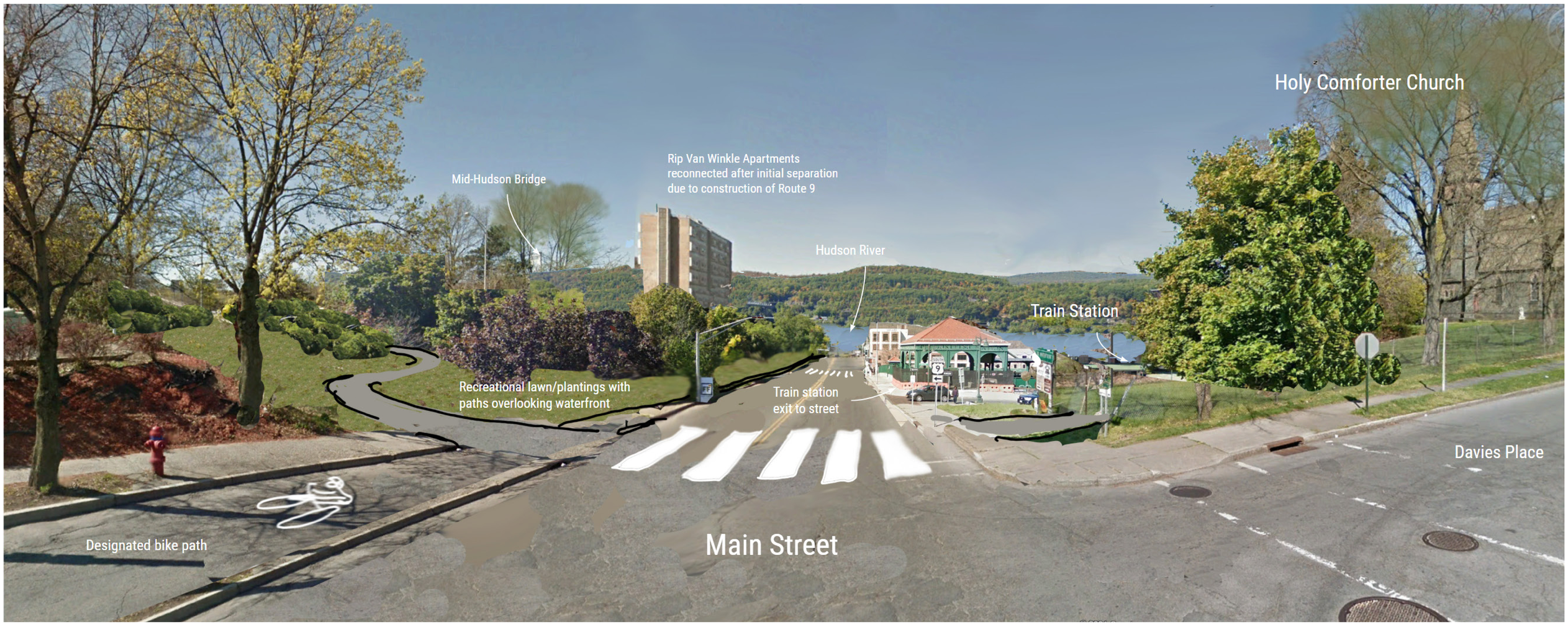
Several popular sports would take a new and central stage in downtown Poughkeepsie, increasing the capacity to host larger competitive or recreational events both within the city and in the larger region.

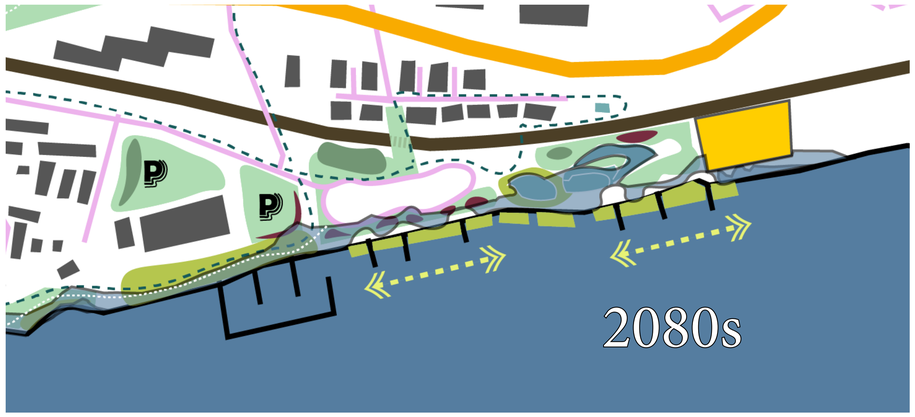
Casual bike borrowing services would compliment the designated bike paths to facilitate those going to and from the waterfront, as well as for tourists who may have casually taken the train into town. (right)



A professional-sized soccer field would be placed in the area where Route 9 formerly was. Stadium seating would allow for games to be easily accessible to people from Main Street. Covered parking would be included in the area to allow access for those coming from farther away.

View West from Main Street with Route 9 removed

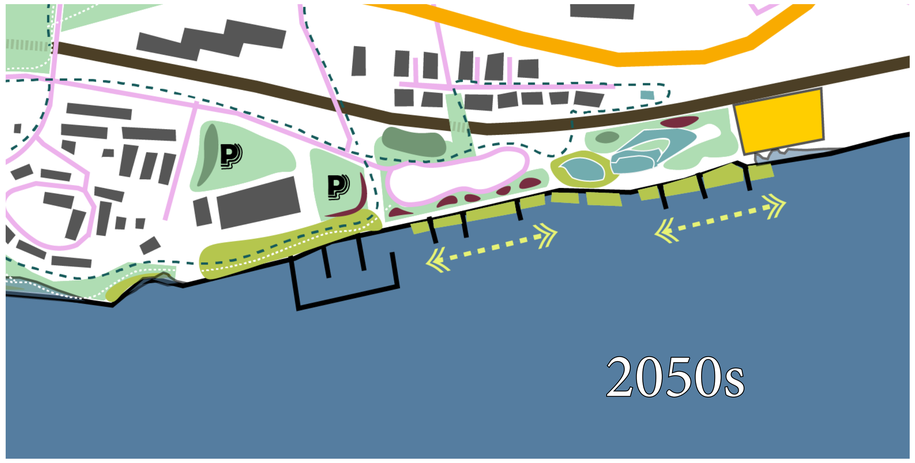


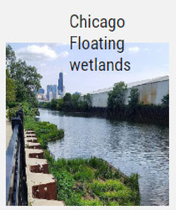


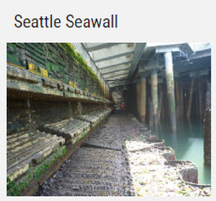
Cap Remediations and Interventions:

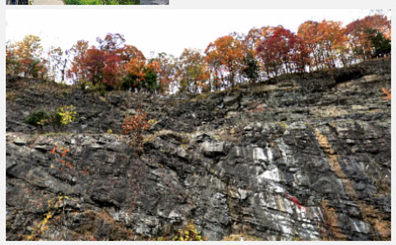
Contaminated area capped another 2', any soil rounded up and moved to contained raised planters with benches around edge. Plants would consist of types beneficial to phytoremediation in soil areas (sunflower, mustard, etc) and grasses/cliff plants for cliff 'face'.
Floating wetlands between the deepwater docks and the 'cliff faces' to provide habitat for fish.
Natural pool near tunnel where CSO (remediated) was. Turns into skating rink in winter.
Modular market stalls that can be moved as needed for seasonal use.
Overpass connecting 'gated' community to area.
Dance plaza in area closest to the entrance with seating around made of recycled concrete.

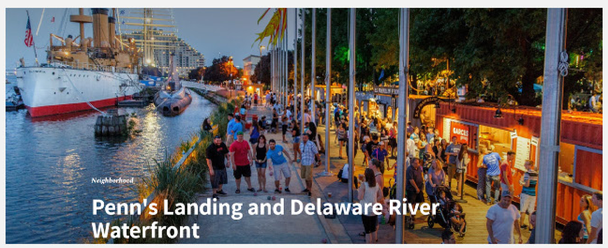
Recycled concrete pieces stacked and secured with coco coir to allow for vegetation to attach
Interior space – gallery, residential



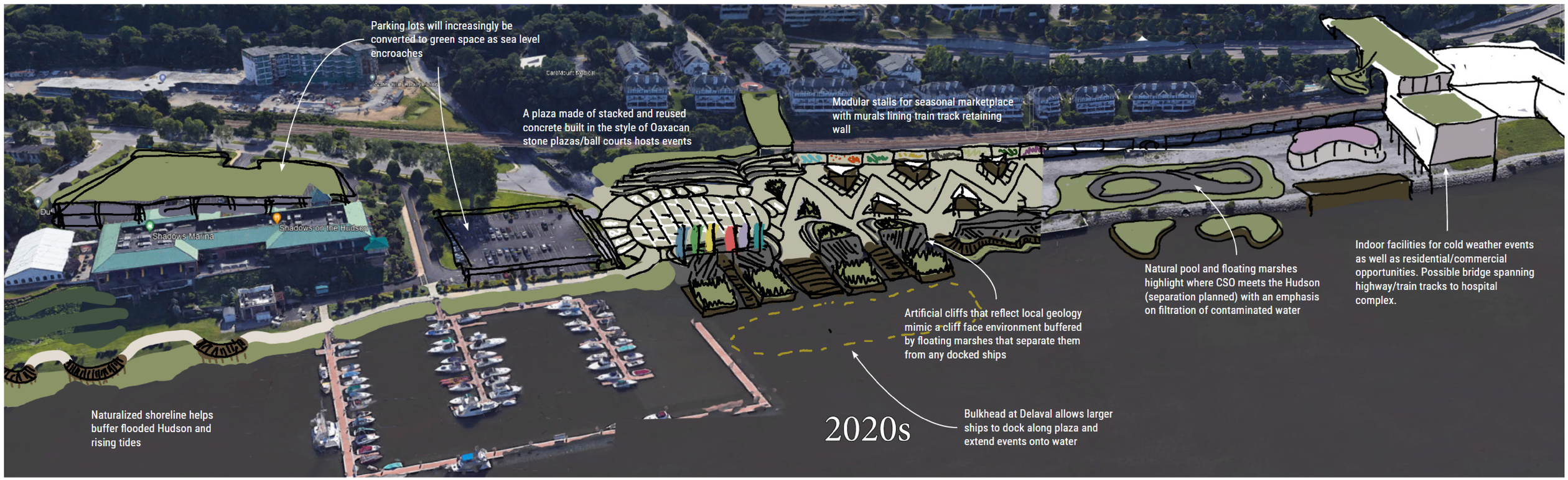






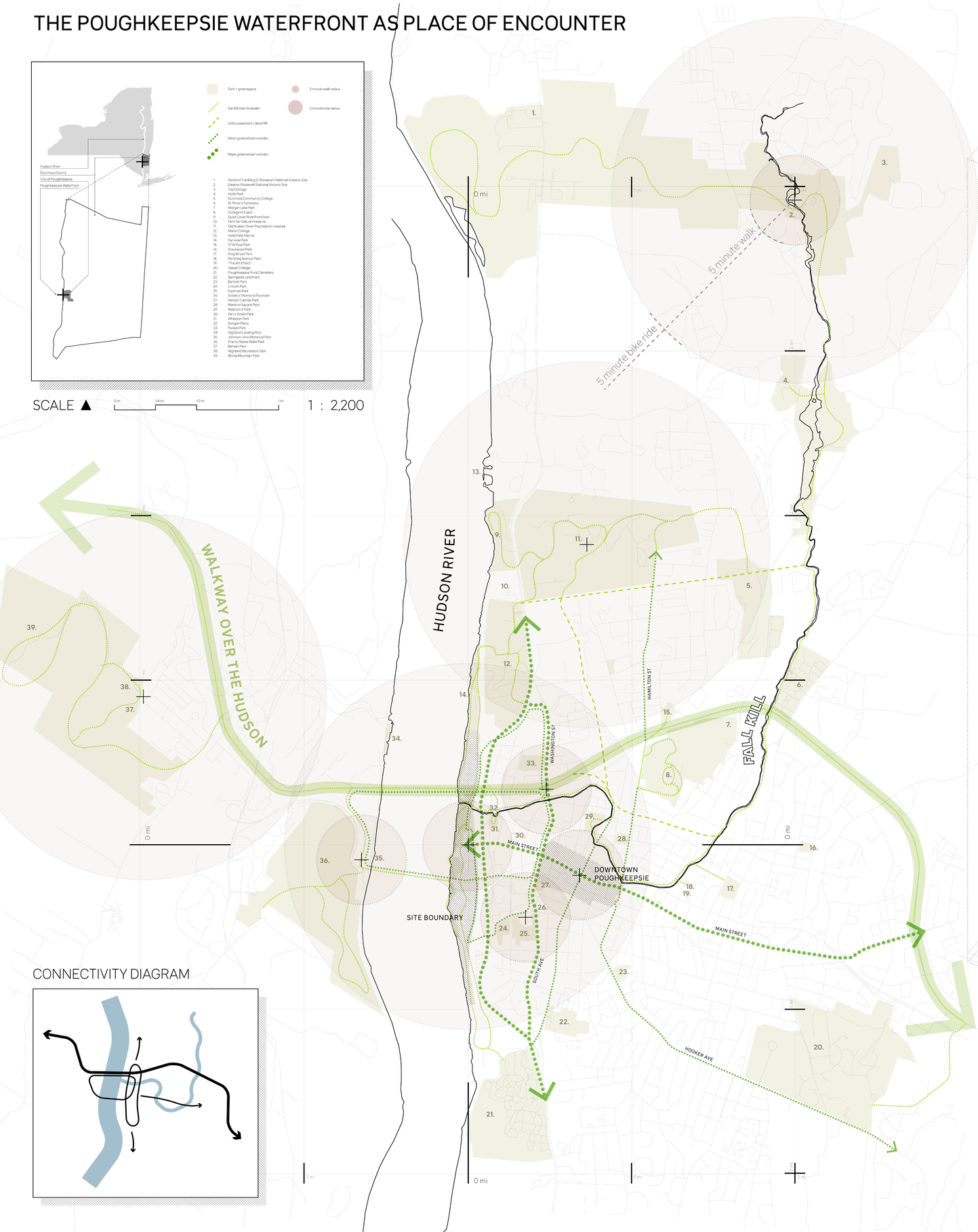


Delaval Plaza and Deepwater Docks



THE POUGHKEEPSIE WATERFRONT AS PLACE OF ENCOUNTER

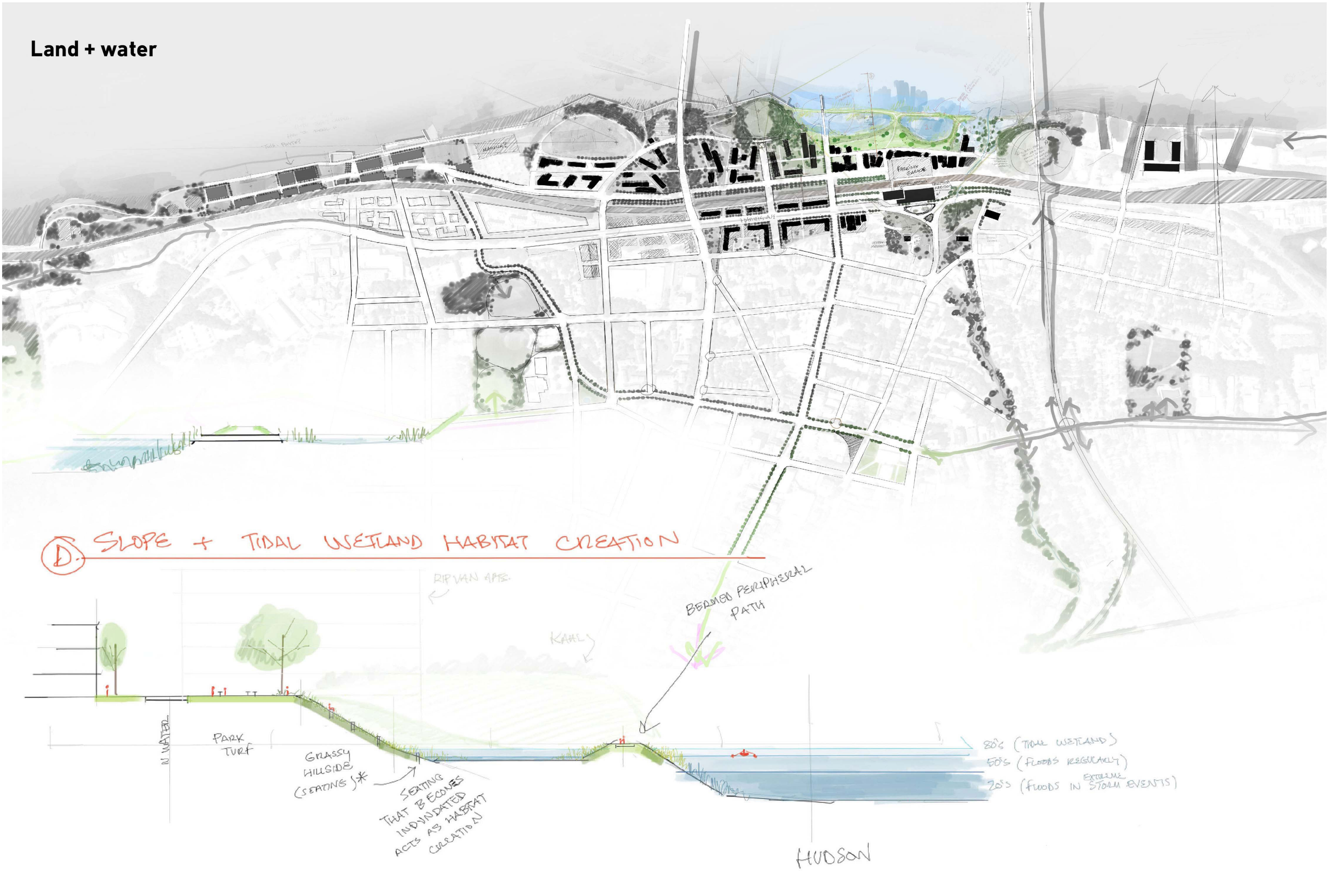
SCALE ▲ 0 mi 1/4 mi 1/2 mi 1 mi 1 : 2,200



CONNECTIVITY DIAGRAM

HUNTERS POINT CULVERTS
FOR TIDAL WETLANDS
CHILDREN'S MUSEUM/
SCIENCE CENTER
PERSPECTIVE
PATH
20'S = FLOODABLE SPACE
50'S = WETLAND PLANTS
100'S = MORE OR LESS
PERMANENTLY
FLOODED.
NEW HABITAT
CREATION
ETC...
RAISED
BERM
PARKING
GARAGE
HISTORIC STRUCTURES
(CHILDREN'S MUSEUM)
HISTORIC STATION
NEW STA
ADDITION
HISTORIC
MANSION
HISTORIC
FACTORY
LAWN
MARINA

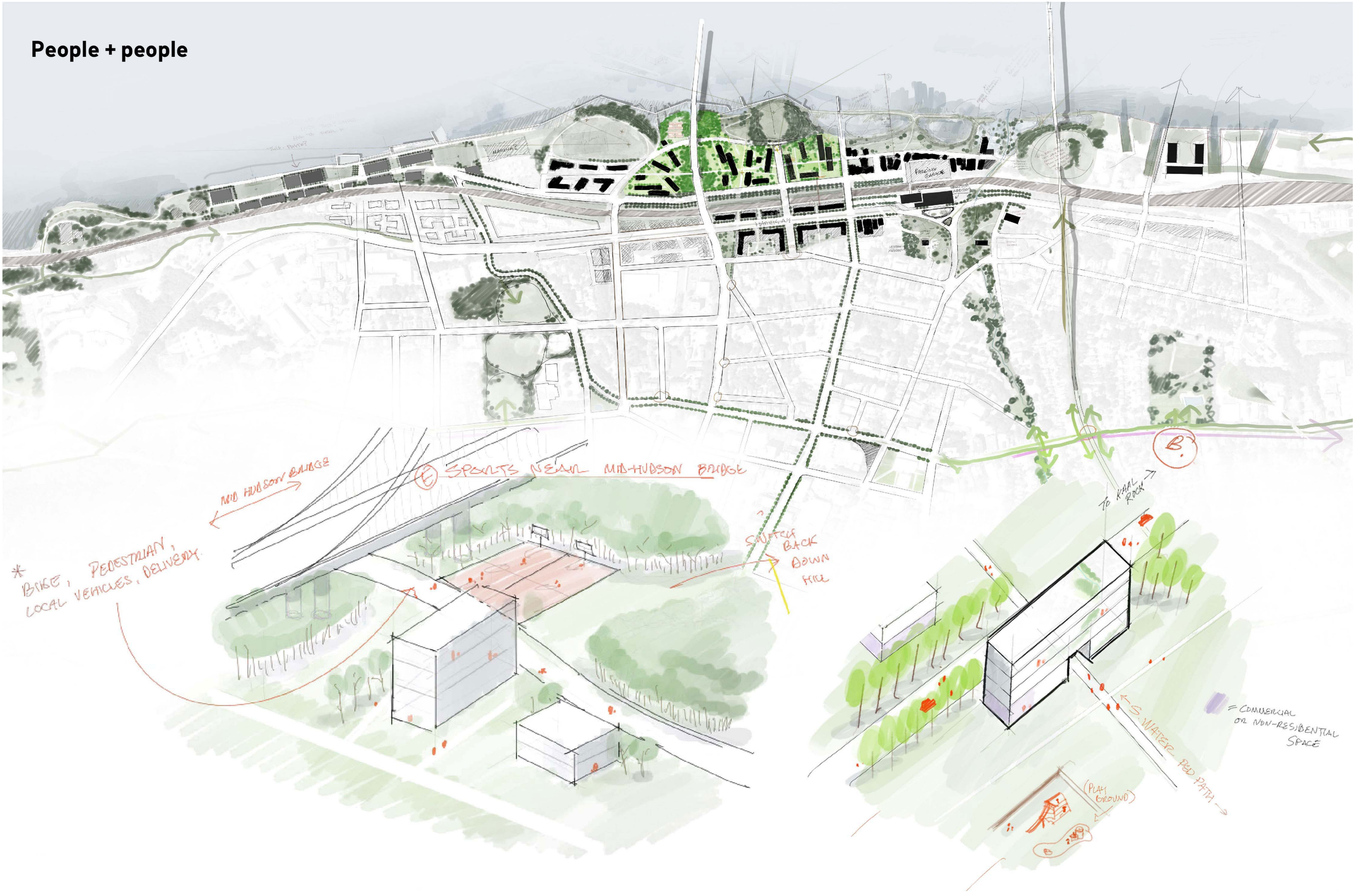
Land + water

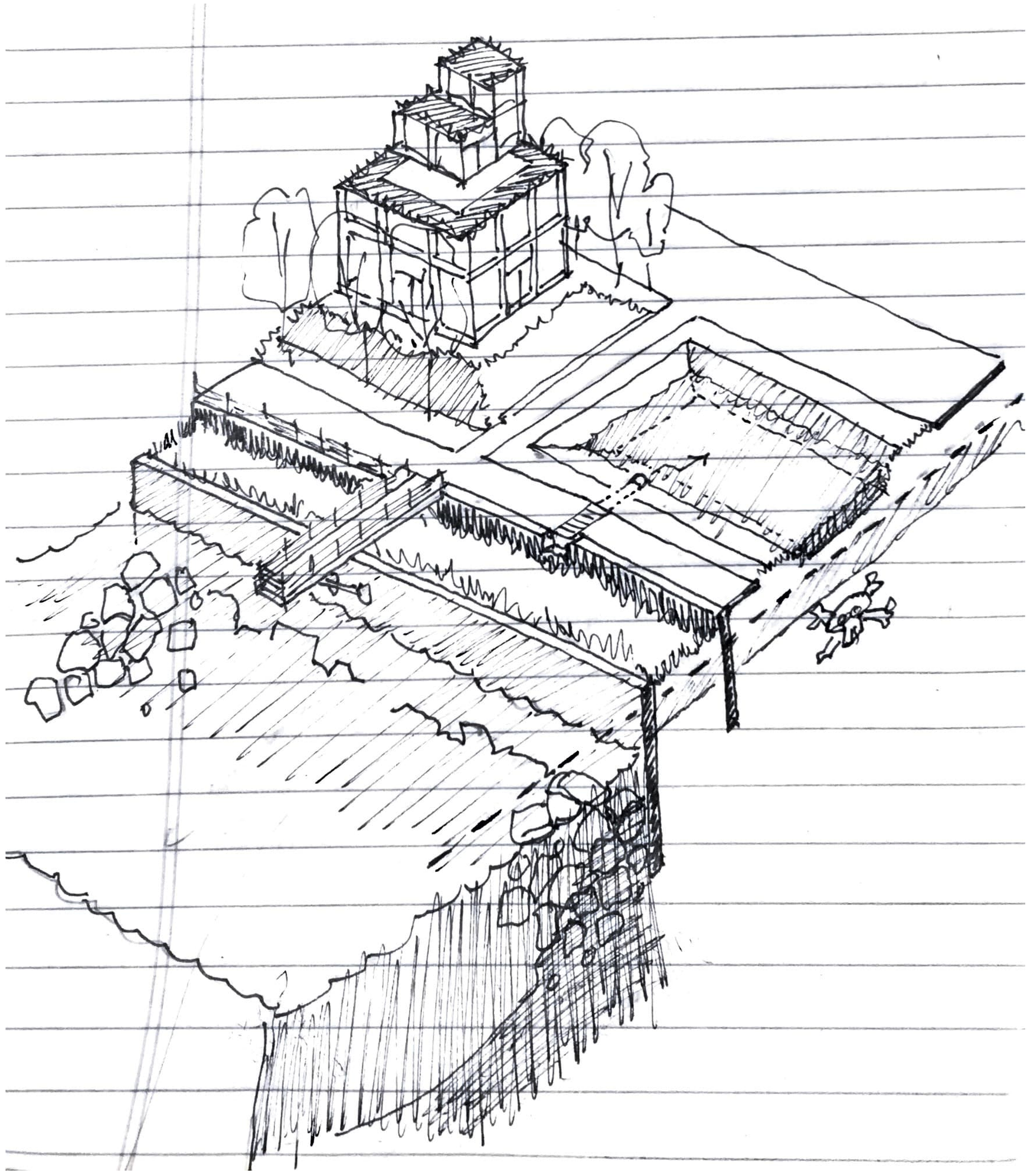

D. SLOPE + TIDAL WETLAND HABITAT CREATION
RIPARIAN AREA
KAHL
BEAMEN PERIPHERAL PATH
N WATER
PARK TURF
GRASSY HILLSIDE (SEATING)*
SEATING THAT BECOMES INUNDATED ACTS AS HABITAT CREATION
80's (TIDAL WETLAND)
50's (FLOODS REGULARLY)
20's (FLOODS IN EXTREME STORM EVENTS)
HUDSON

People + land

SECTION A.
LOW LYING WOODY SHRUBS
2050 - 2080
(HIGHER IN ELEVATION?)
HOUSING
STREET
PED/BIKE
AMTRAK
HARRIS BLVD (OLD RT 9)
C. EXPERIENTIAL QUALITY OF PARK PATH
KIOSK
COMPRESSION (FORESTED)
RELEASE (OPEN)
HOUSING

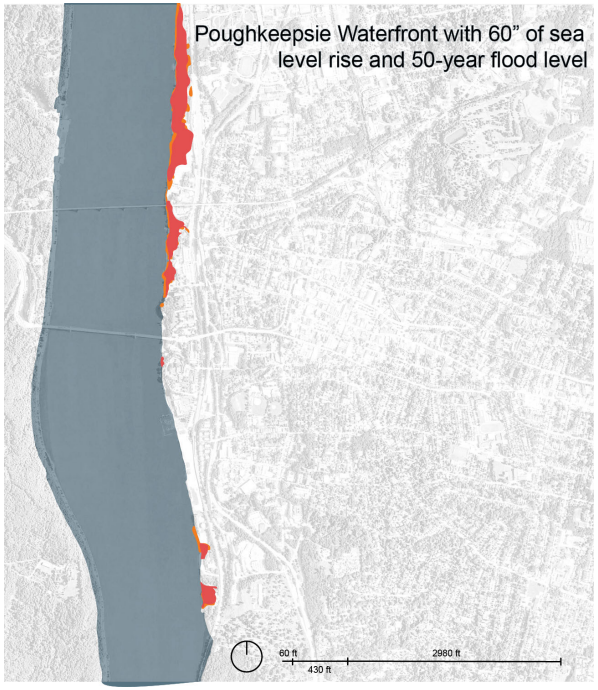
People + people

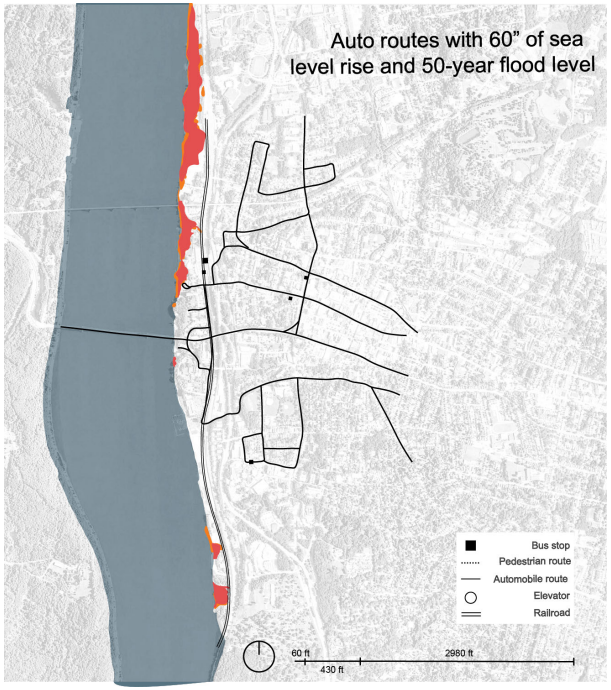


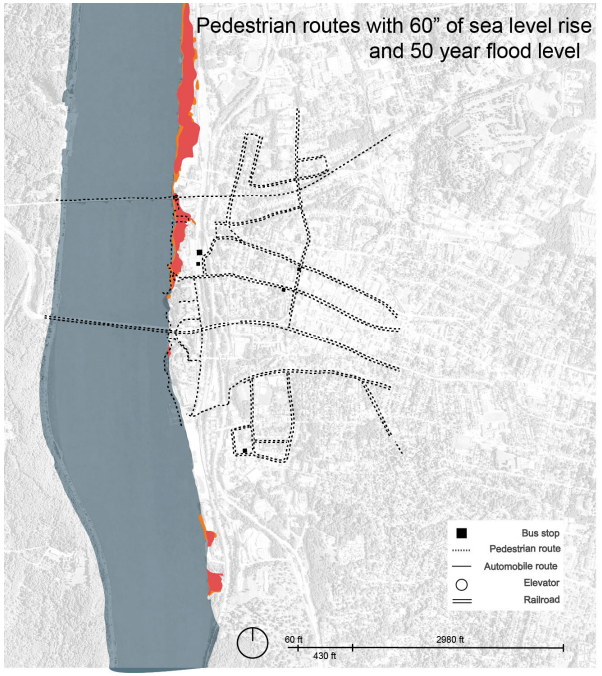


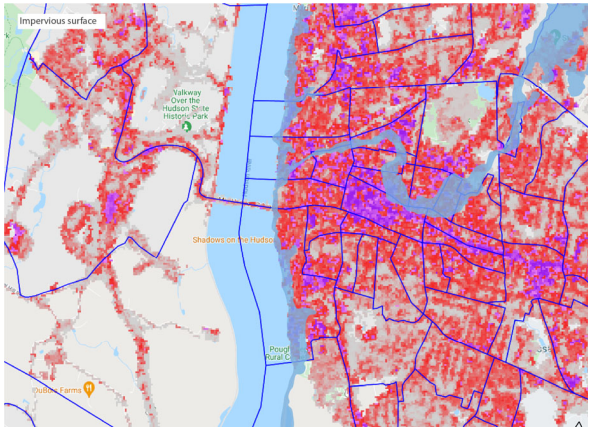
Permeable Connection

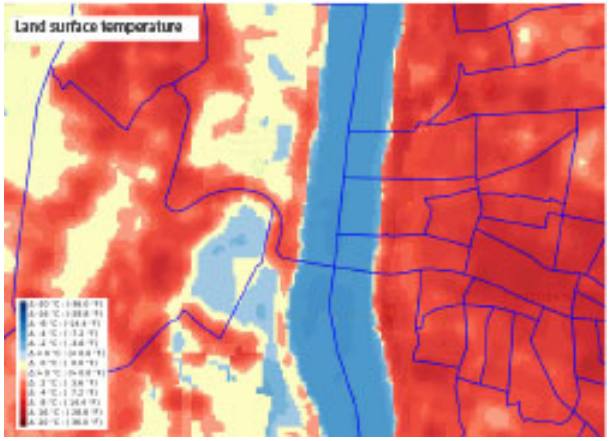
My goal for this project is to open up connections to and between waterfront parcels in order to open up pedestrian mobility in Poughkeepsie in a way that also increases flood permeability and capacity.

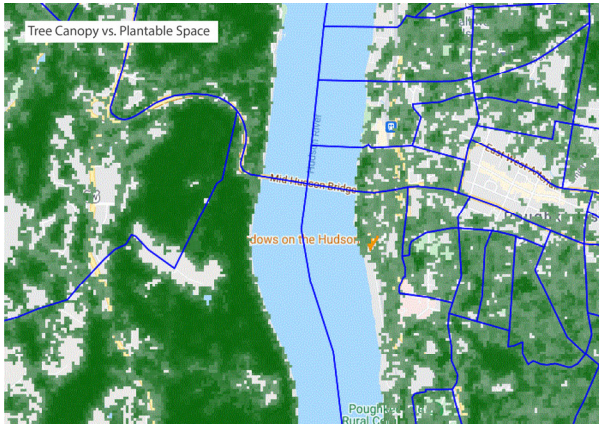

Poughkeepsie Waterfront with 60” of sea level rise and 50-year flood level
60 ft
430 ft
2980 ft


Auto routes with 60” of sea level rise and 50-year flood level
Bus stop
Pedestrian route
Automobile route
Elevator
Railroad
60 ft
430 ft
2980 ft


Pedestrian routes with 60” of sea level rise and 50 year flood level
Bus stop
Pedestrian route
Automobile route
Elevator
Railroad
60 ft
430 ft
2980 ft

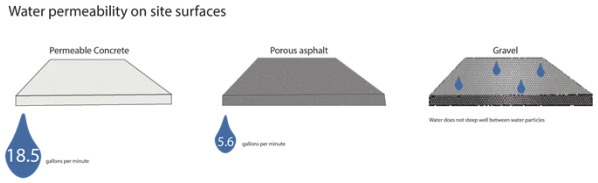

Impervious surface

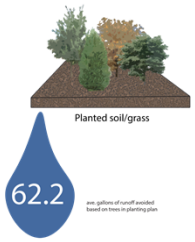

Land surface temperature

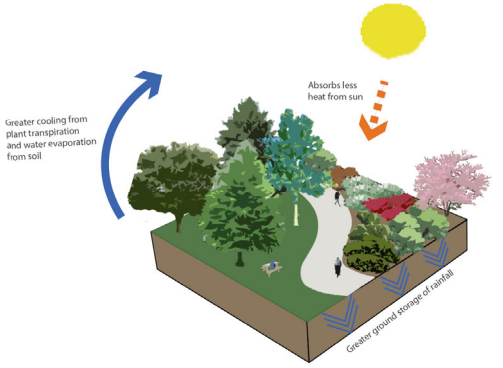

Tree Canopy vs. Plantable Space

Community Feedback
Give people a sense of belonging and ownership
Better connect housing to water
Consider managed retreat
Bring more kids to the waterfront
Implement a greenway
Performance space
Connect to other parks and neighborhoods
Be able to safely access the water
A place to cool down
Clean up contamination
A more natural shoreline

Porous asphalt trail
Permeable concrete trail


Water permeability on site surfaces
Permeable Concrete
18.5
gallons per minute
Porous asphalt
5.6
gallons per minute
Gravel
Water does not sleep well between water particles
Packed soil
Water moves very slowly through soils with low permeability


Planted soil/grass
62.2
ave. gallons of runoff avoided based on trees in planting plan

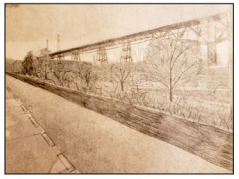

Greater cooling from plant transpiration and water evaporation from soil
Absorbs less heat from sun
Greater ground storage of rainfall

Imagined Connections

Entrance to Delaval site from Kaal Rock promenade

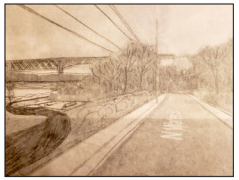
Delaval site

Rinaldi Ave. entrance to Delaval site



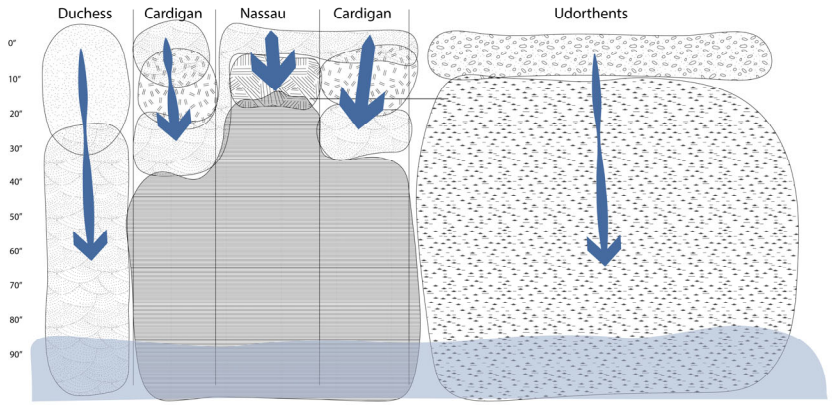
Dutchess Ave.

Rowing center parking lot



Waryas Park Skate Park

Hard surface and soil permeability on the Poughkeepsie Waterfront



Land complex & percent makeup of site

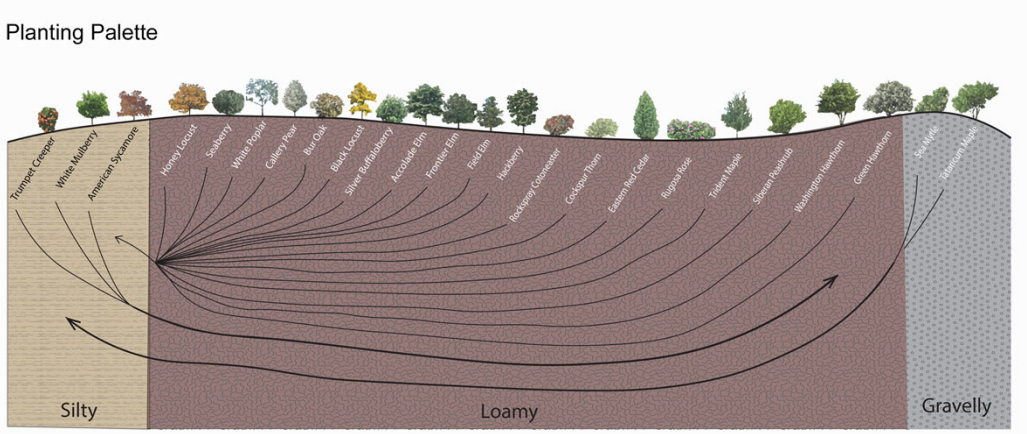
Dutchess-Cardigan 7.8%
Nassau-Cardigan 1.9%
Urdorthents 39%
Urban land 16.1%
Water 35.2%

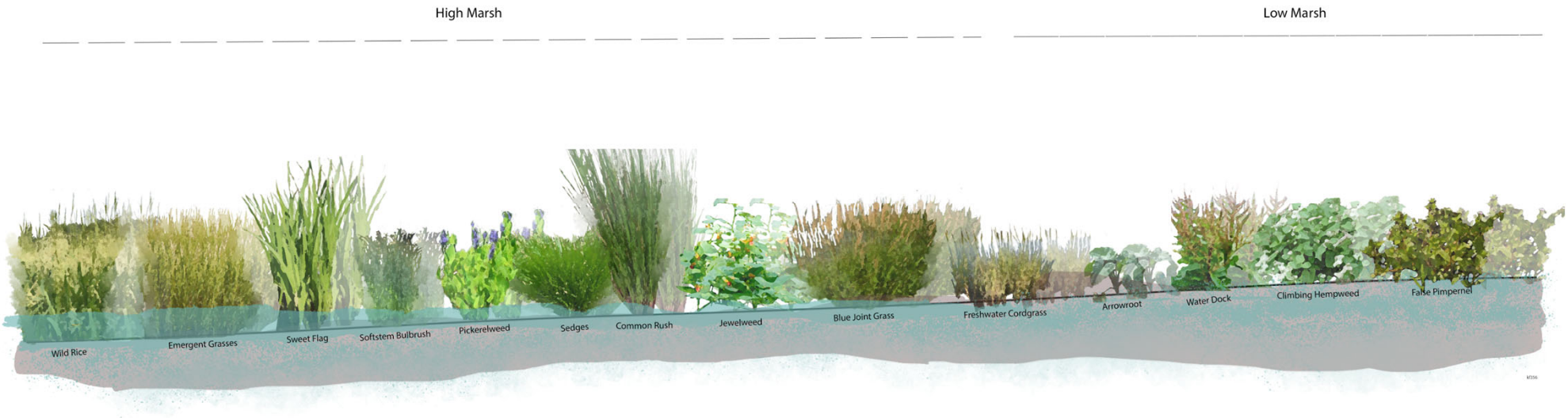
Drainage

Excessively drained
Well drained

Soil types

silt loam
channery silt loam
channery loam
very channery silt loam
gravelly loam
very gravelly loam
unweathered bedrock
water table





Material and Plant Palette

permeable concrete

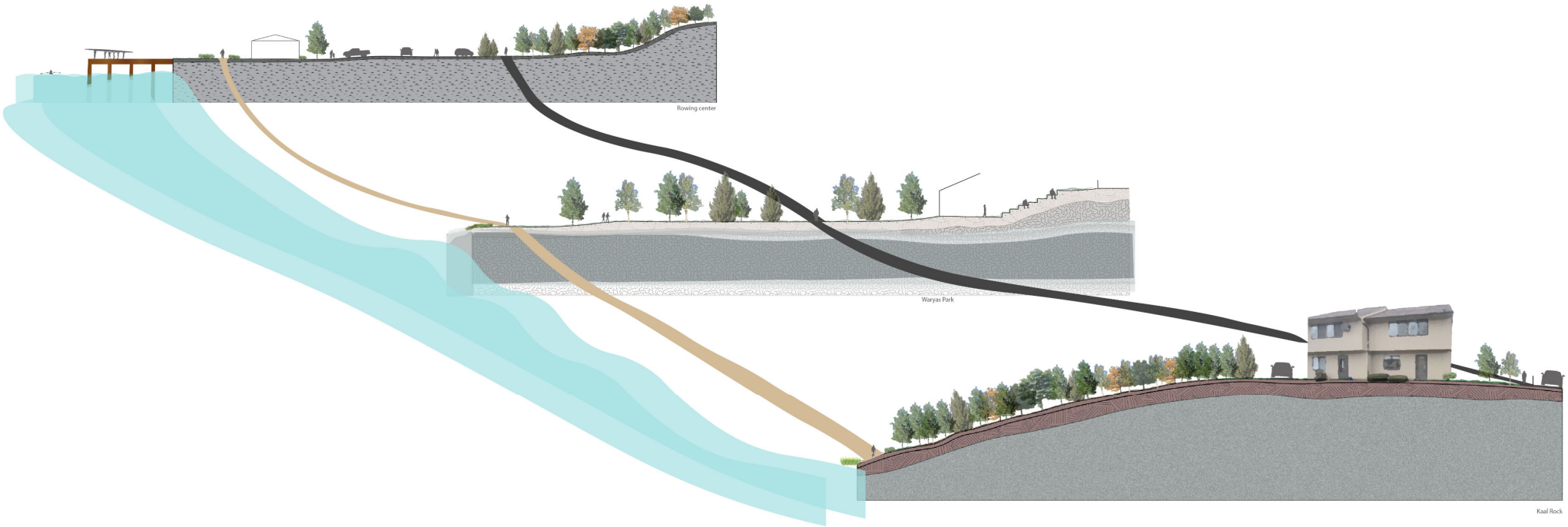
porous asphalt

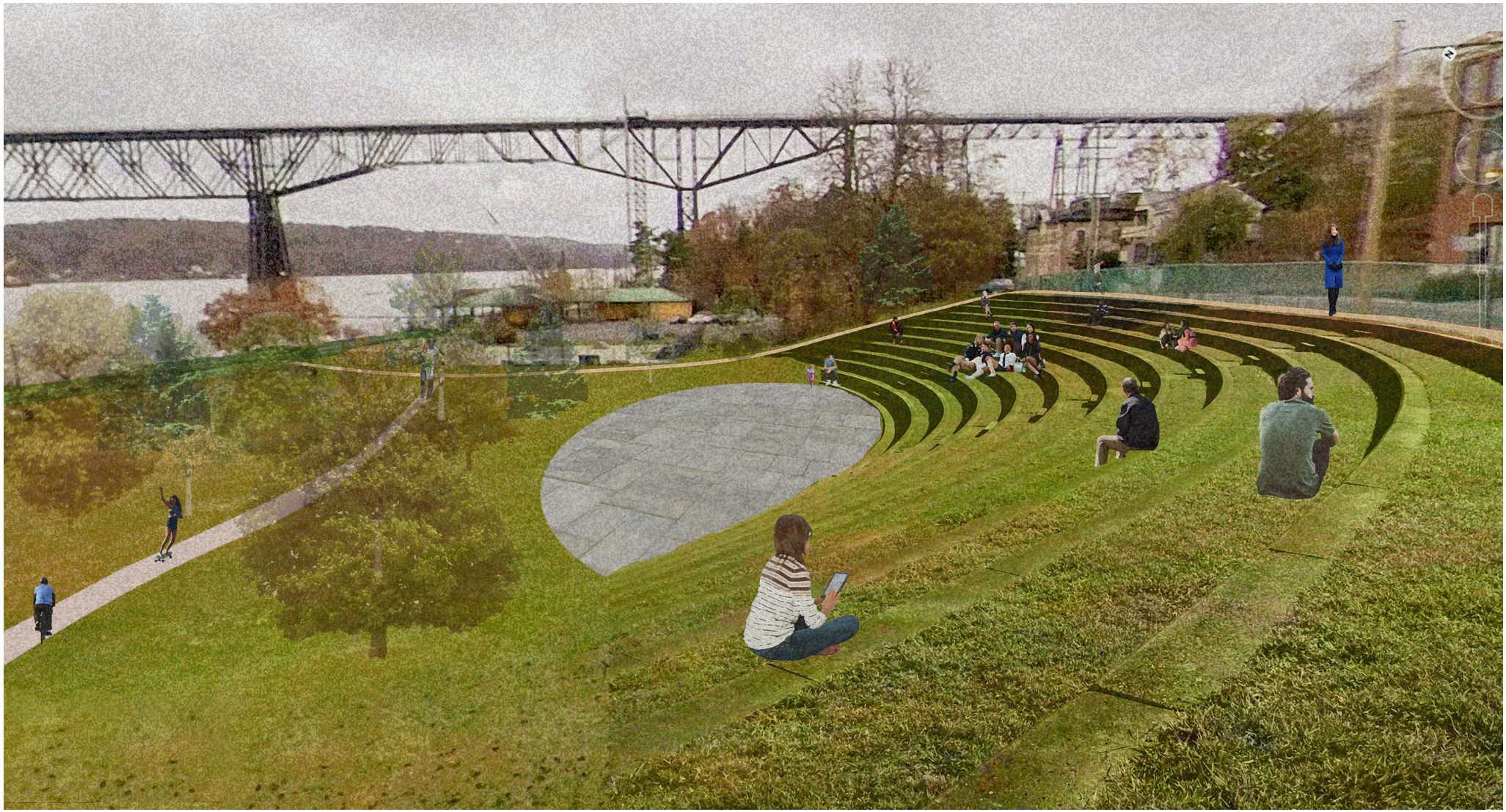
native grass blend

increased natived tree canopy

river marsh

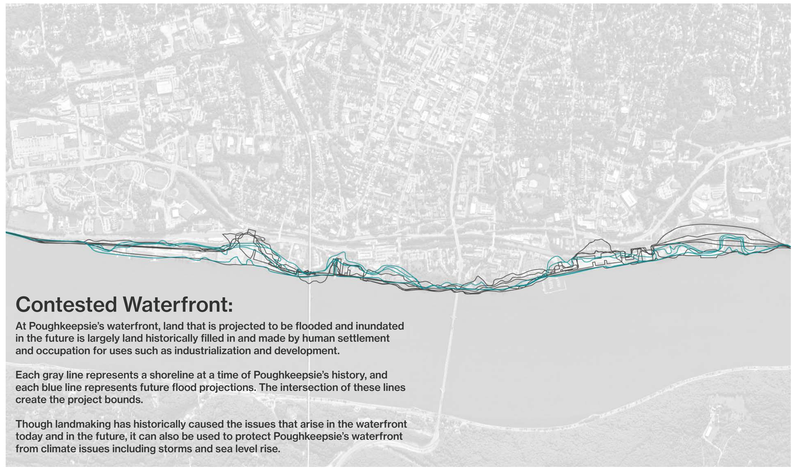
rip rap


Rowing center
Waryas Park
Kaal Rock



FLOOD // LAND

MAKING AND UNMAKING LAND
AT THE POUGHKEEPSIE WATERFRONT



Contested Waterfront:

At Poughkeepsie's waterfront, land that is projected to be flooded and inundated in the future is largely land historically filled in and made by human settlement and occupation for uses such as industrialization and development.

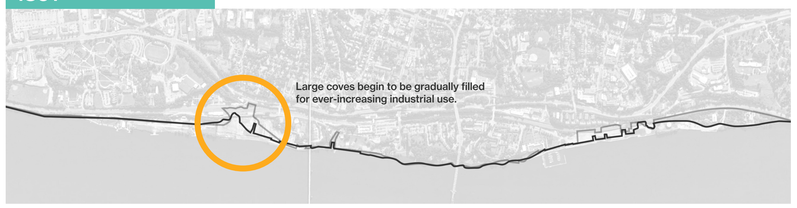
Each gray line represents a shoreline at a time of Poughkeepsie's history, and each blue line represents future flood projections. The intersection of these lines create the project bounds.

Though landmaking has historically caused the issues that arise in the waterfront today and in the future, it can also be used to protect Poughkeepsie's waterfront from climate issues including storms and sea level rise.

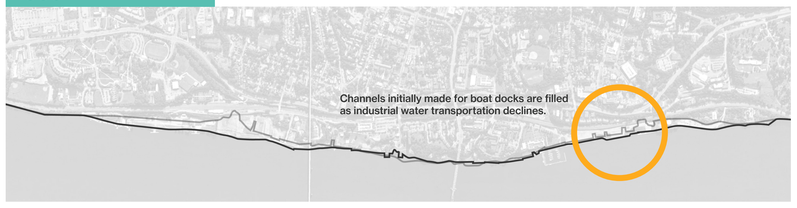
1799

1867

1891

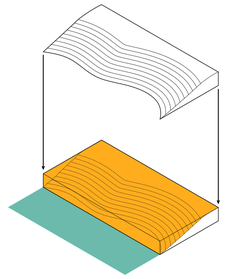


1950

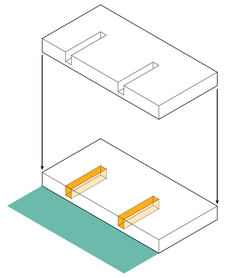


2021

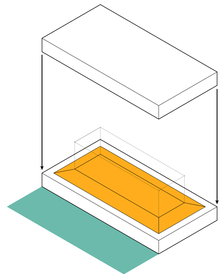
Landmaking as Limiting Water



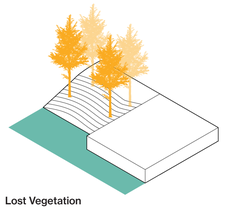
1800s: Large-scale Fill



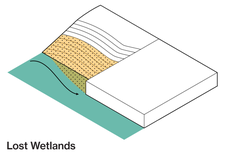
1900s: Channel Fill



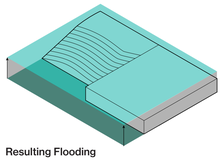
2000s: Building Fill



Lost Vegetation

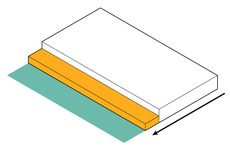


Lost Wetlands

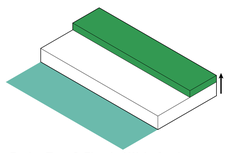


Resulting Flooding

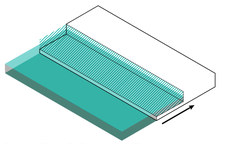
Landmaking and Unmaking for Water



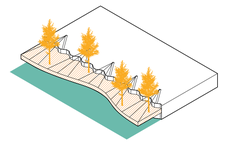
Design Type 1: New "Fill"



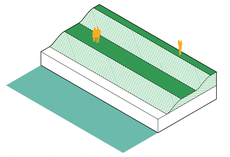
Design Type 2: Elevated Waterfront



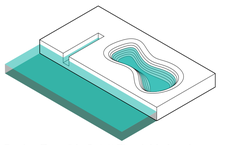
Design Type 3: Controlled Flooding



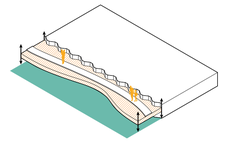
Design Type 1A: Suspended Wetland



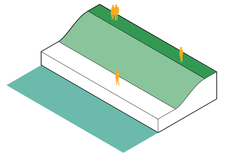
Design Type 2A: Terraced Fill



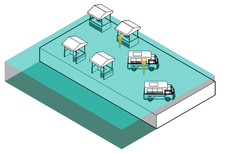
Design Type 3A: Cut // Floodable Land



Design Type 1B: Floating Wetland // Walkway

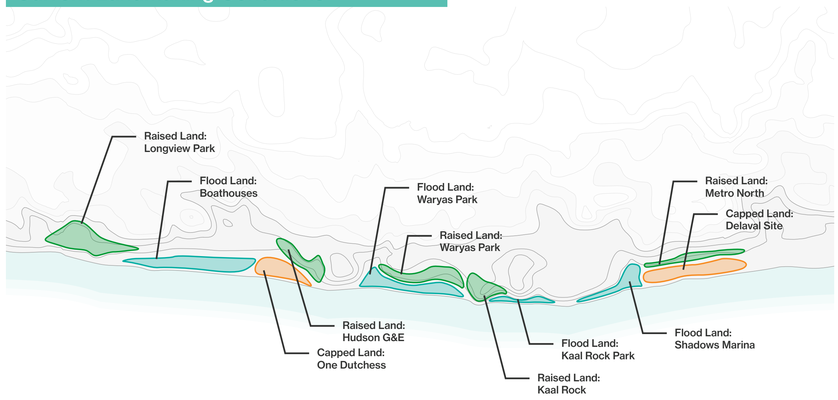


Design Type 2B: Considering New Waterfront

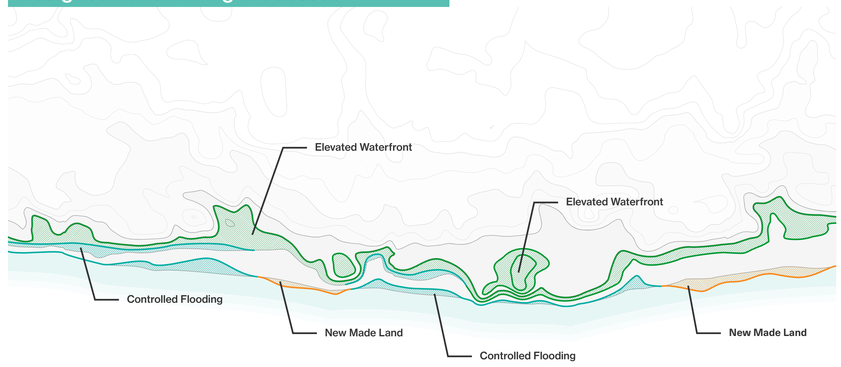


Design Type 3B: Flexible // Floodable Program

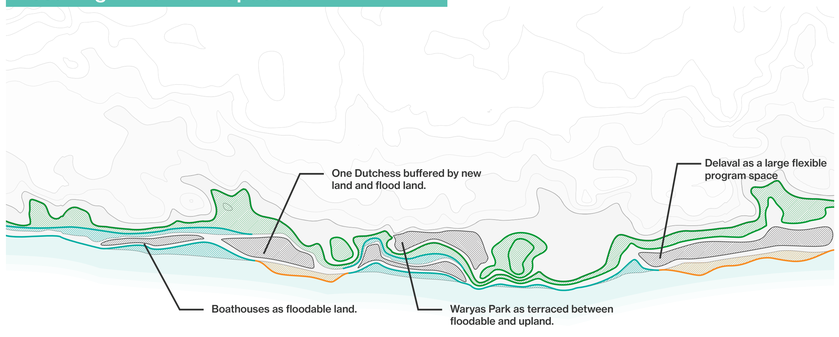
Current Landmaking Conditions



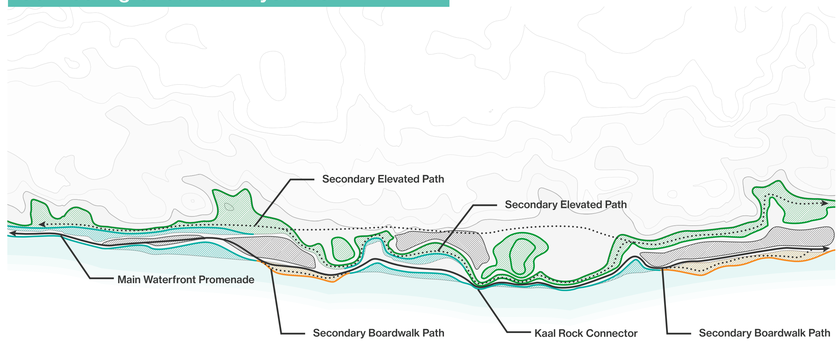
Designed Landmaking Processes



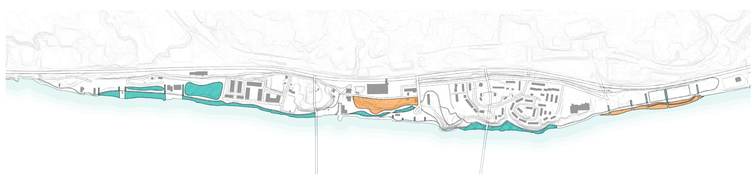
Resulting Waterfront Spaces



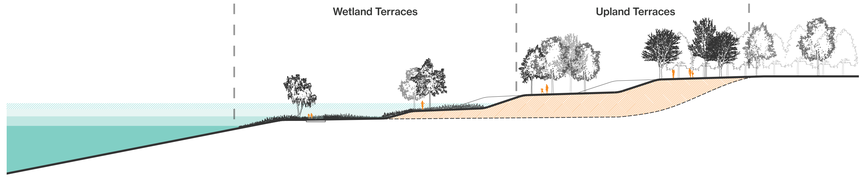
Connecting Circulation Systems



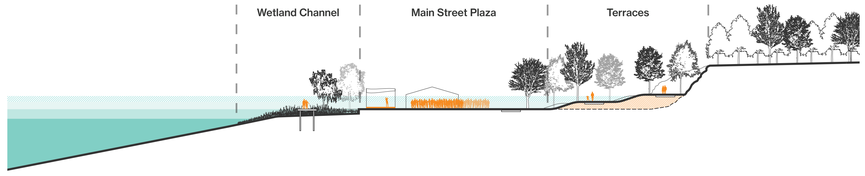
Cut // Fill



Waryas Park

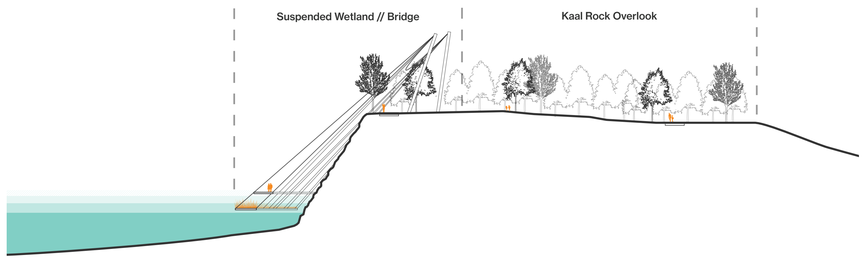


Main Street Plaza

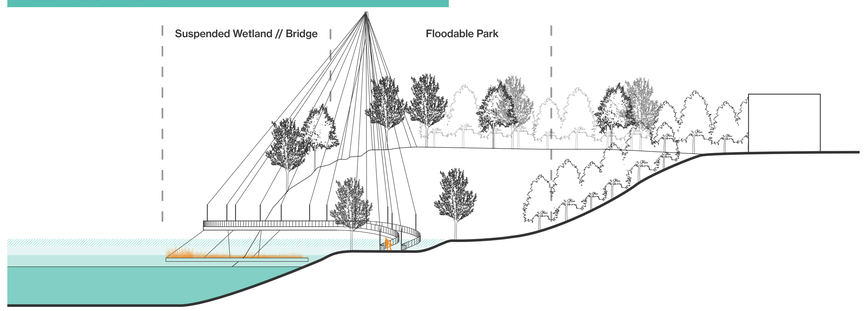


Natural Shorelines and Sediment Flows

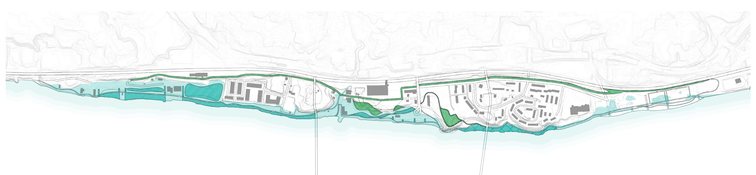
Kaal Rock



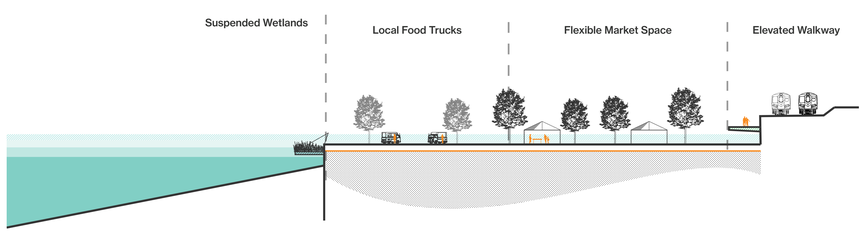
Kaal Rock Park



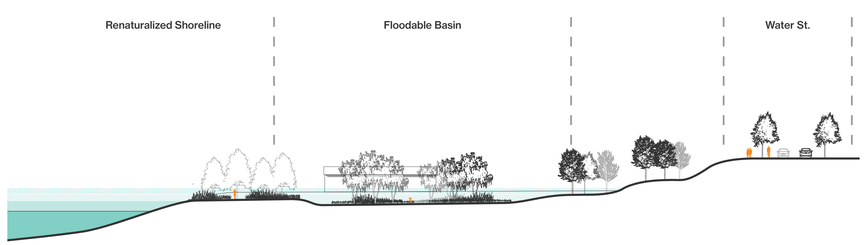
Flooded Park



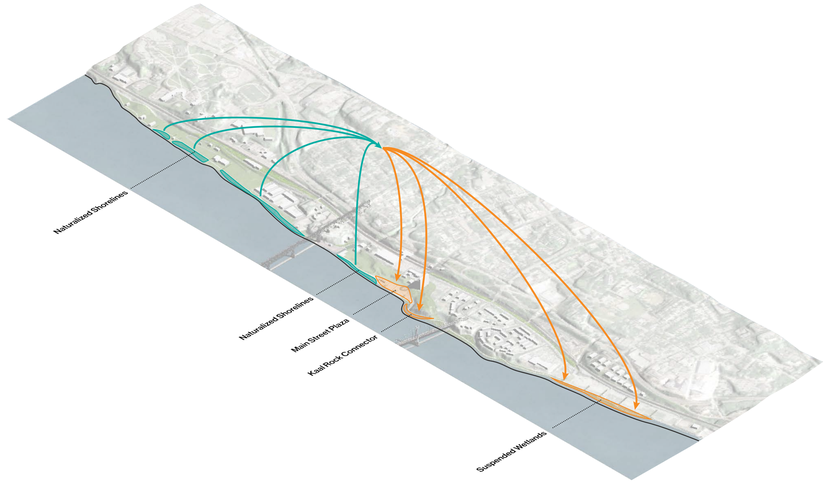
Former Delaval Site



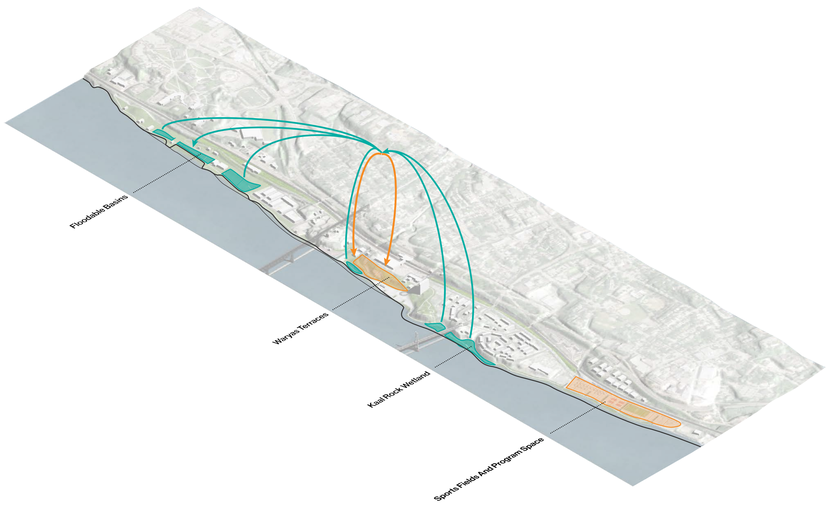
Boathouse Row

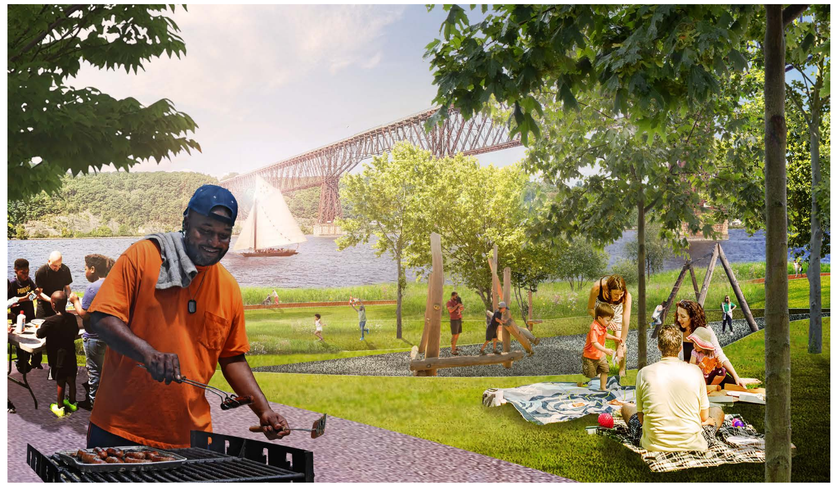


Phase 1: Reconciling Past Landmaking (2020s)

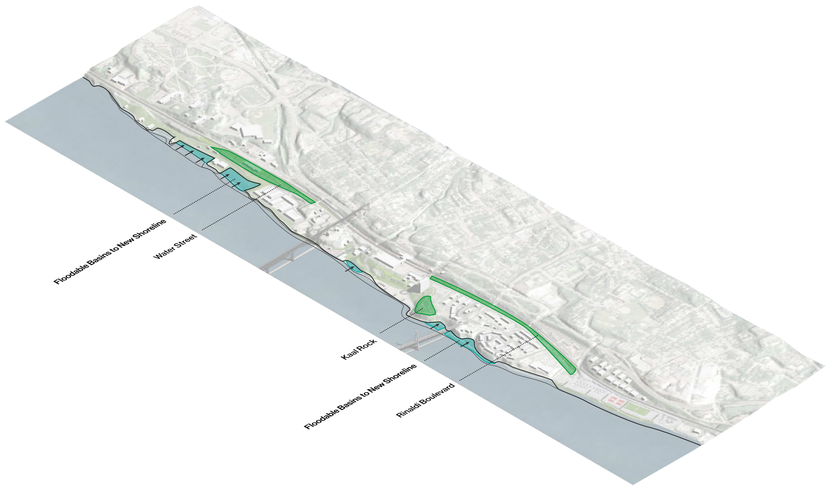


Phase 2: Preparing for Unmaking (2050s)





Phase 1: Land Unmaking (2080s)



ECOLOGICAL

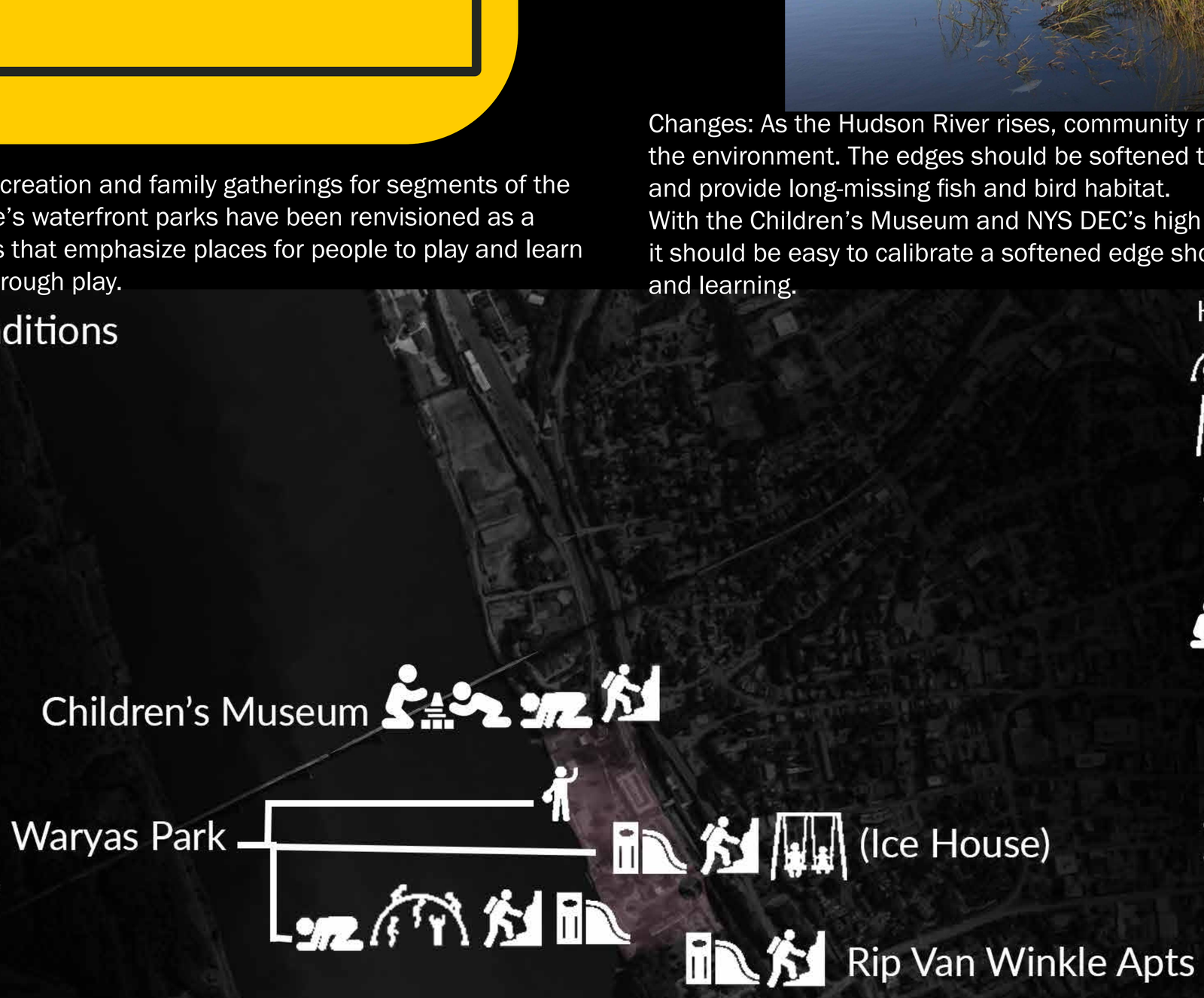
RESTORATION AT PLAY

Presently, local hub for recreation and family gatherings for segments of the population, Poughkeepsie's waterfront parks have been renvisioned as a connected series of parks that emphasize places for people to play and learn about the environment through play.

Current Conditions: The Poughkeepsie shoreline parks are narrow, disconnected land parcels. The shorelines are either rip rap or bulkheads, which aren't friendly for fish and aquatic plant usage.

Changes: As the Hudson River rises, community members will need to refocus on the environment. The edges should be softened to help reclaim some of the land and provide long-missing fish and bird habitat.
With the Children's Museum and NYS DEC's high school volunteer program nearby, it should be easy to calibrate a softened edge shoreline as a play of explortory play and learning.

Current Play Conditions



Key:

Upper Body Movement
Swing
Spin
Crawl
Construction
Slide
Open Field
Climb

Present Play Textures:
Metal Plastic

Nature-Based Play Options:
Rip Rap Climb Trees

Precedents: POD Playground, Molonglo, Australia

Precedents: Wild Walk, Tupper Lake, NY

Precedents: Tumbling Bay Playground, London, U.K.

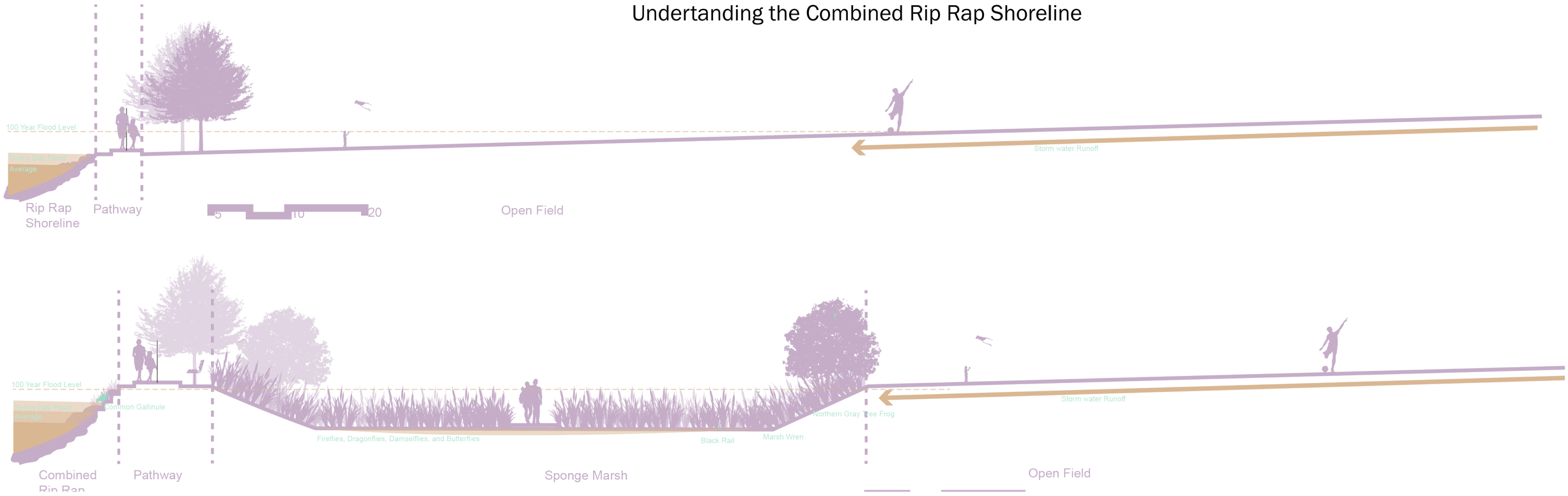
Yvette Pollack

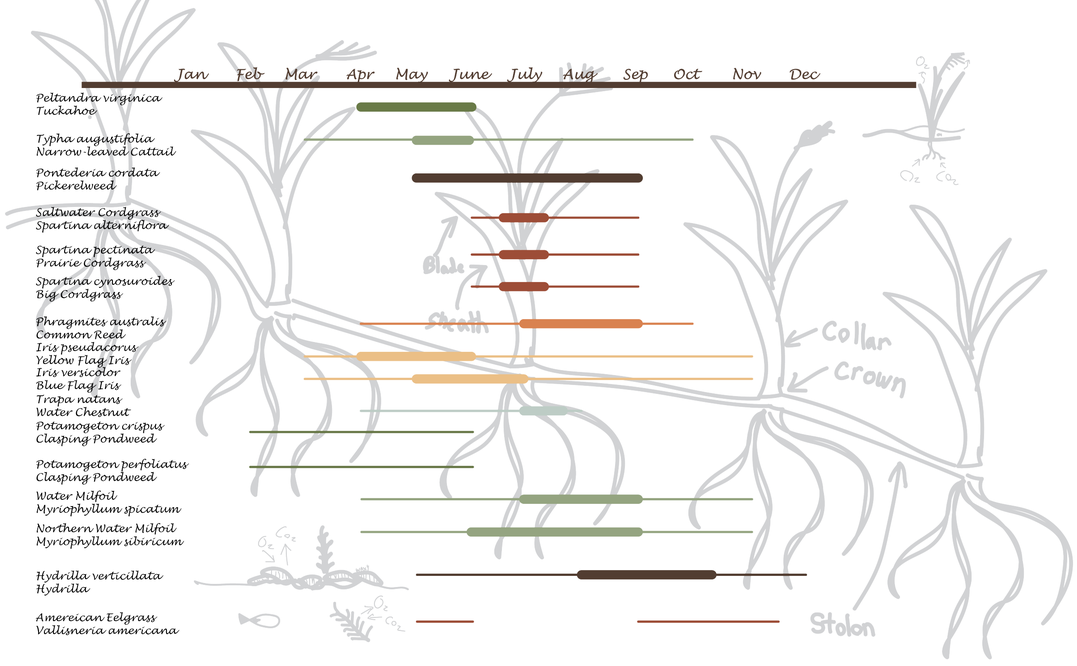
The main challenges with Poughkeepsie is tying all of the parks together and dealing with climate change. I studied how climate change was dealt with locally in Tarrytown and how Pittsburgh handled having a narrow waterfront. I also looked at how ecologically-minded, cutting edge firms such as Neslon Byrd Woltz created soft edges that mimicked missing ecosystems in Houston, Texas.

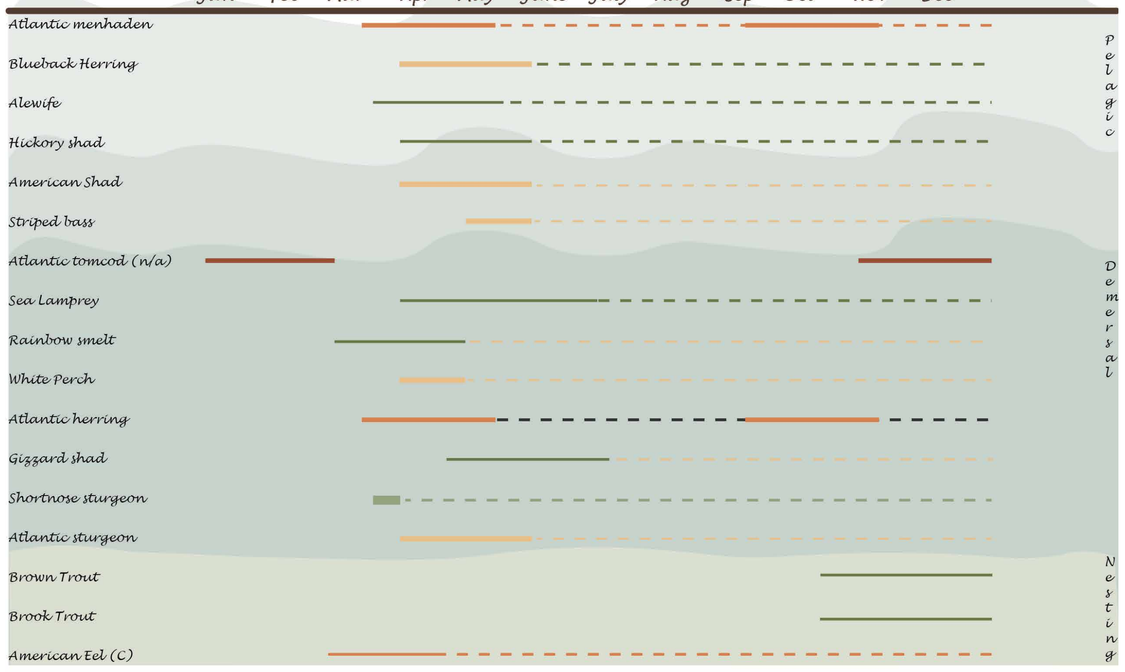
View looking at Waryas Park from the Walkway Over the Hudson. Note how Waryas is focused on both ecology and exploratory play.

Above: Zoom in on Waryas Park//Below: Eco-type Plantings//Sides: Interactive Signs

Undertanding the Combined Rip Rap Shoreline







2025

6a

1: Scoop + dump vacant land to become ropes course and start planting trees

2035

1: Start raising shoreline at Waryas Park and creating protective Marsh

2: start bringing children in to observe the marsh

3: Install Connection Bridge around Kaal Rock

2045

1: Start construction on Delaval buildings and seed them

2: Open up ropes course in newly created upland forest

2055

1: Install nature-based playground in Waryas

2: Create mud flat marshes in anticipation of further river water rise along One Duchess and Kaal Rock Park

3: Make cut out along Fall Kill for people to swim and have easy access

2065

1: Create Raised walkways and over river walkways in floodable areas that weave in and out to give river views

2: Seed for more natural river ecosystem types. Experiment to see what survives the best.

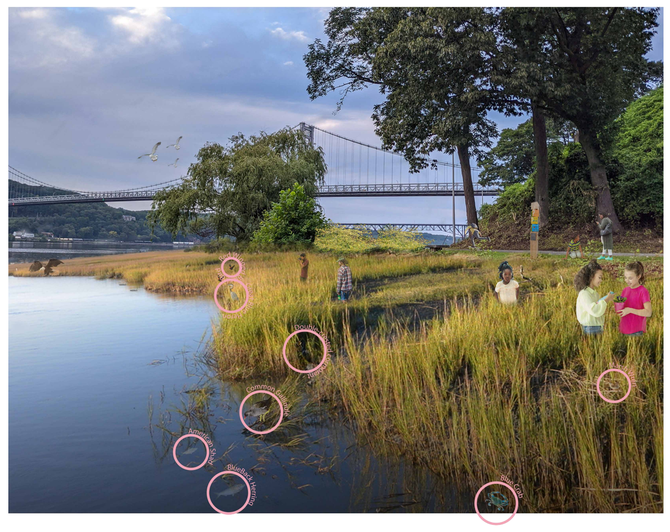
2075

1: Adjust heights of walkways based on actual water rise

2085

Max 8a

1: Cull trees that haven't survived well in the climate change and replant with better-suited plants



Above: Phasing Diagram
Side: Changes to the shoreline will provide habitat for many animals and become an ideal resource as an outdorr classroom
Below: Planning out the Ropes Course Forest

Walkway Over the Hudson
UPPER LANDING PARK
DYSON FOUNDATION
SKATE PARK
WARYAS PARK
CITY PARK
KAAL ROCK PARK
CITY PARK
HUDSON RIVER
PULASKI PARK
1260 FT
William R. Steinhaus Dutchess Rail Trail
650 FT
Walkway Loop Trail
DONGAN PLACE
N PERRY ST.
FALL KILL
MALCOM X PARK
HUDSON VALLY REENTRY NETWORK
730 FT
MANSION SQUARE PARK
HULME PARK
SOLDIERS MEMORIAL
NATIONAL HISTORIC SITES
EASTMAN PARK
RESERVOIR SQUARE PARK
MORGAN LAKE PARK
COLLEGE HILL PARK
BLACK HERITAGE CLUB
UNDERWEAR
FACTORY
PRINTMAKING
STUDIOS
ART CENTRO
TROLLEY BARN
PERSHING AVE PARK
106 FT
1260 FT
KING STREET PARK
1060 FT
1300 FT
CLINTON
HOUSE
STATE
BARTLETT PARK
SPRINGSIDE LANDMARK
RECREATION FACILITIES
WATERFRONT PARKS
NORTHERN WATERFRONT
FALL KILL
0
750
1500 FT

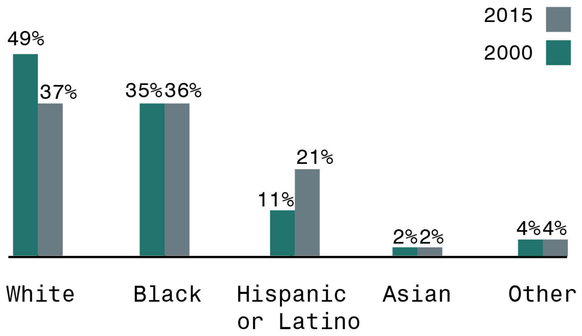
WALKWAY OVER HUDSON

HUDSON RIVER

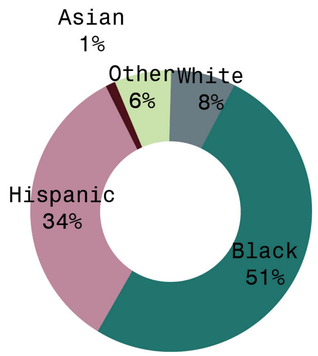
MAIN STREET

MID-HUDSON BRIDGE

DOWNTOWN



Population by Race and Ethnicity



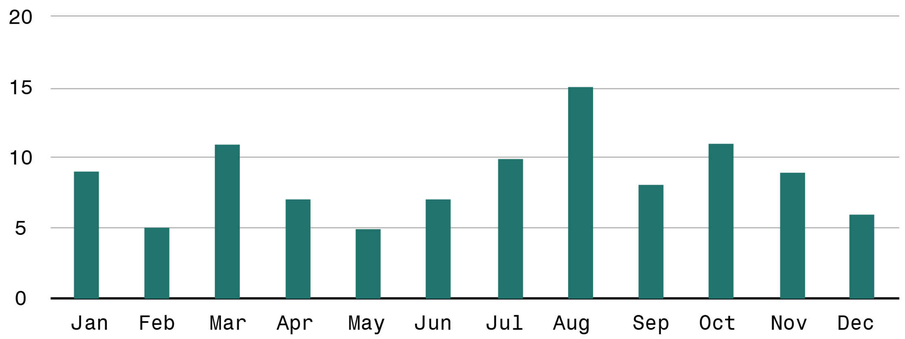
Race&Ethnicity of Students

26% Population under age 20

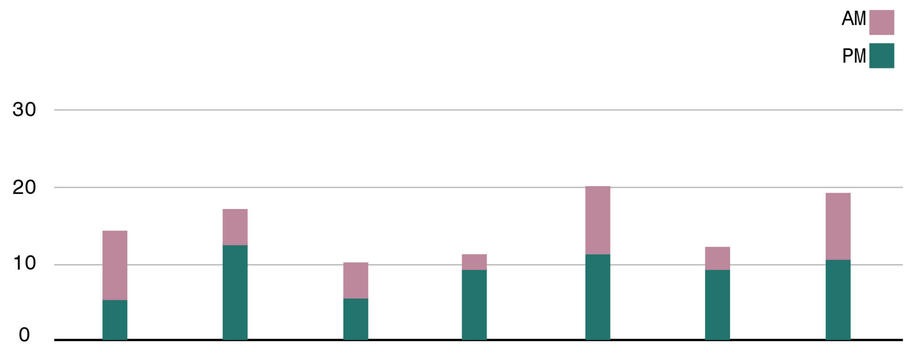
60% Population ages 20-64

14% Population 65 and older

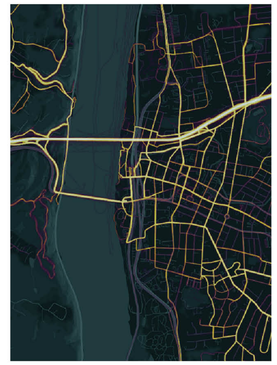
Community Snapshot



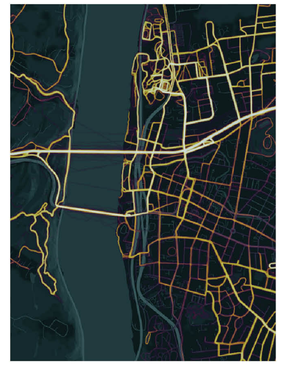
Accidents distribution by month



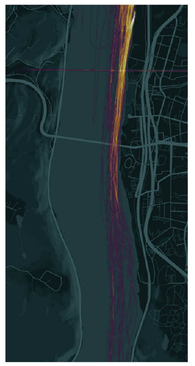
Accidents distribution by weekday and time



Biking

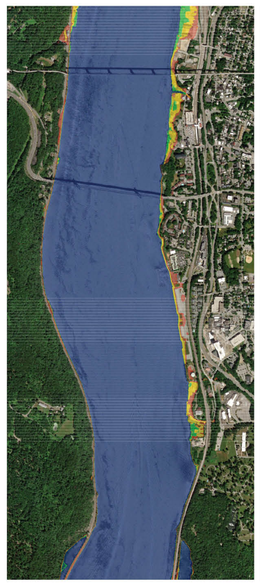


Running/Walking

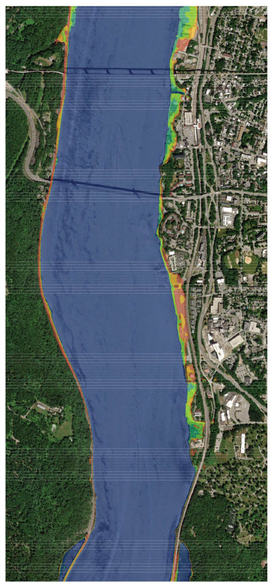


Swimming

current 20y



2050 20y

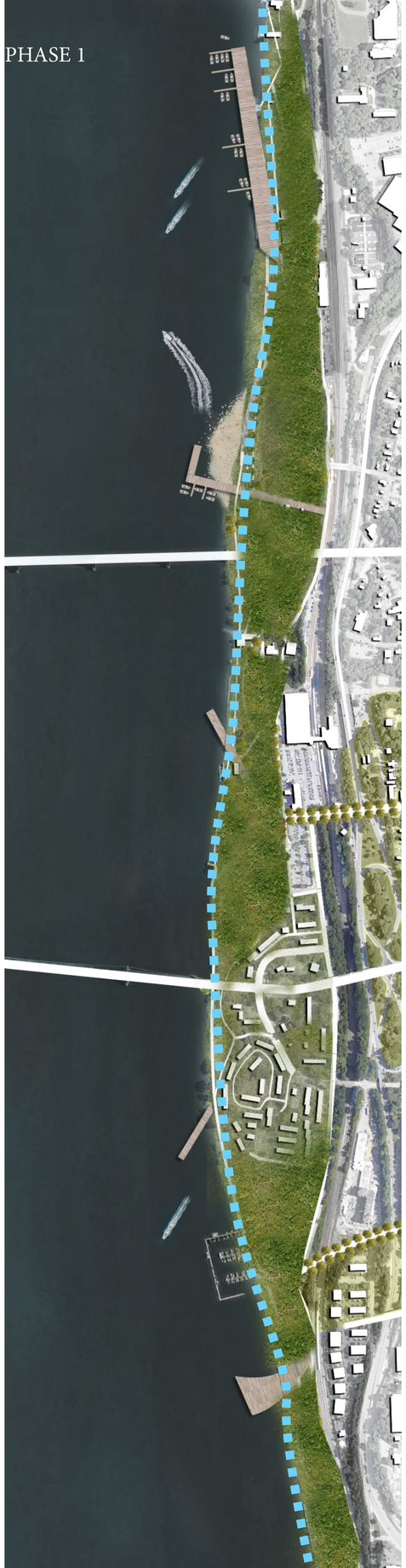


2080 20y

Exisiting Issues

0 50 100 200FT
Kaal Rock
Shadows Marina
DeLaval
Google Earth

PHASE 1



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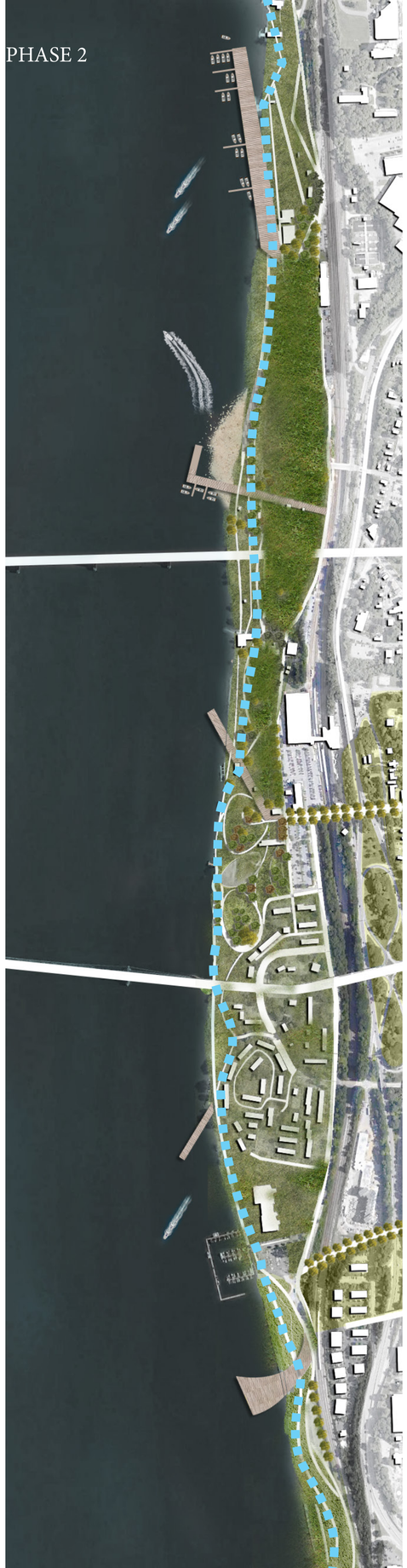
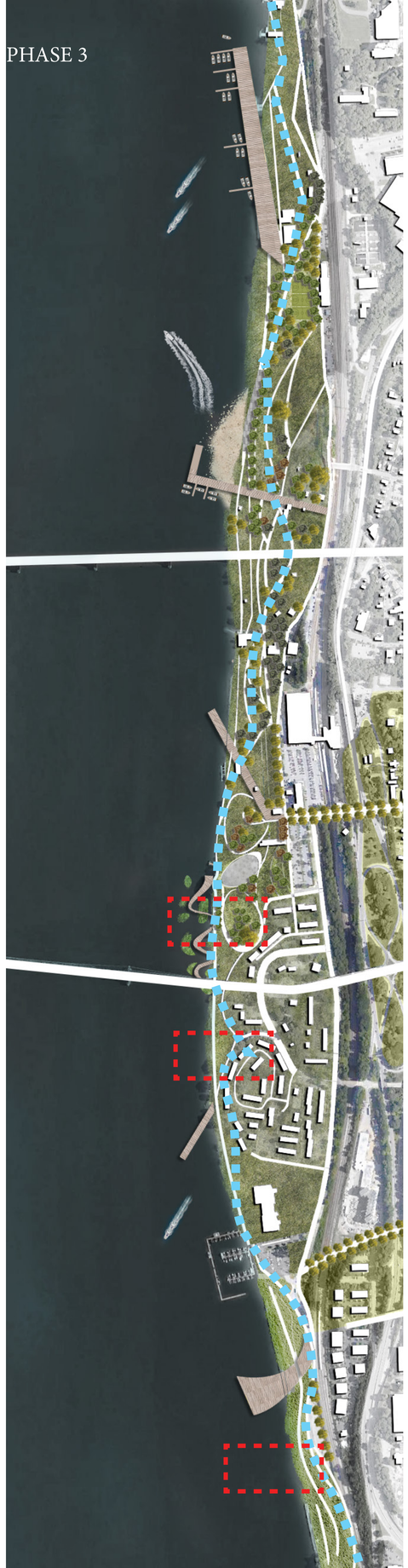
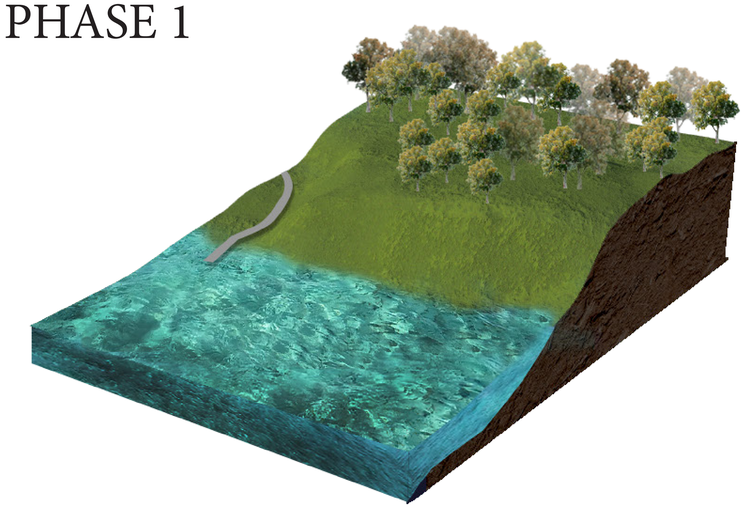


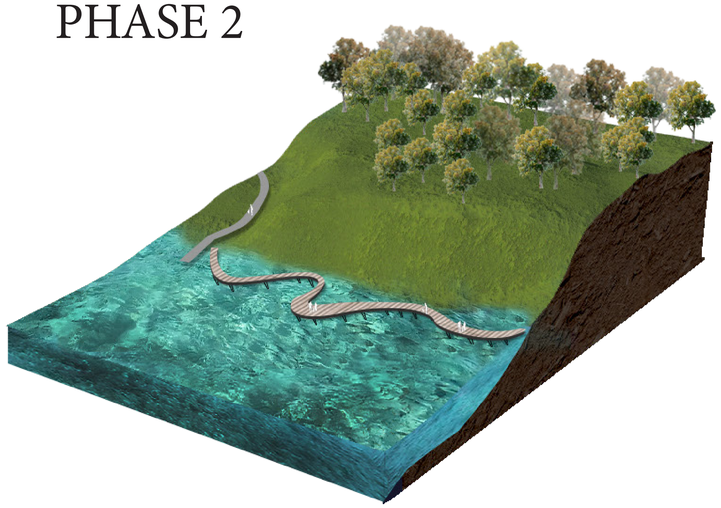
PHASE 3



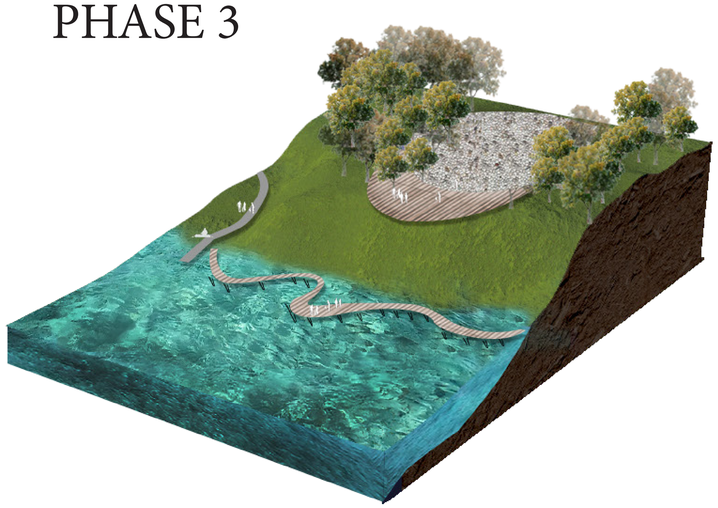
PHASE 1

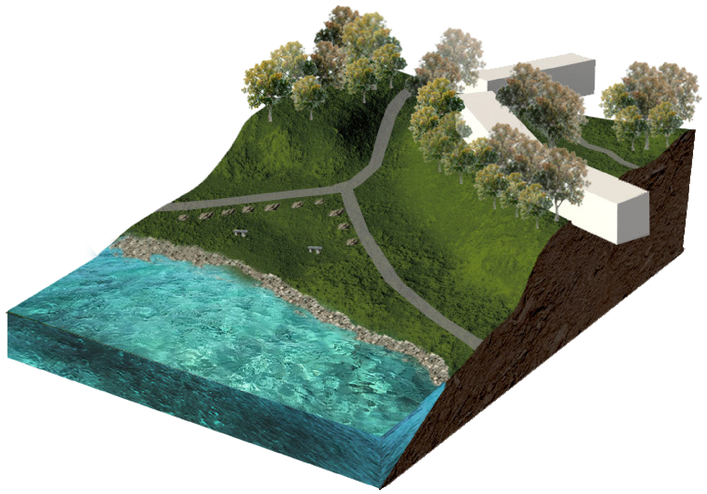


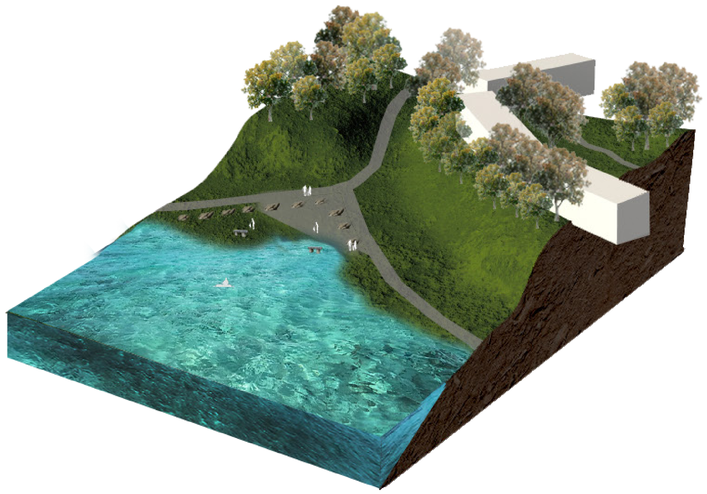
PHASE 2

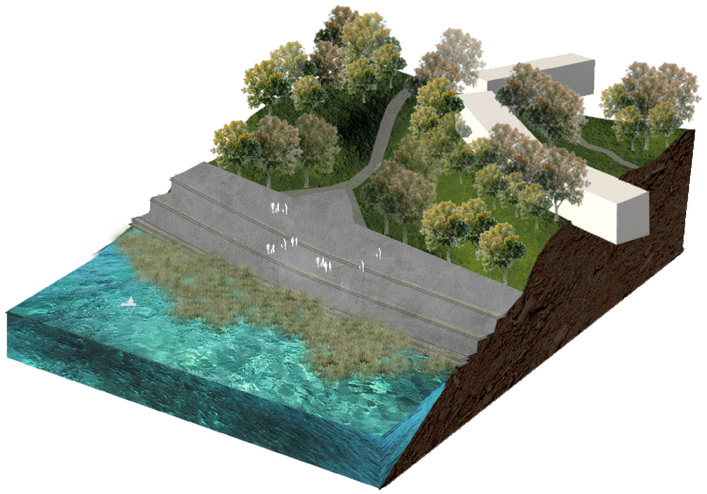


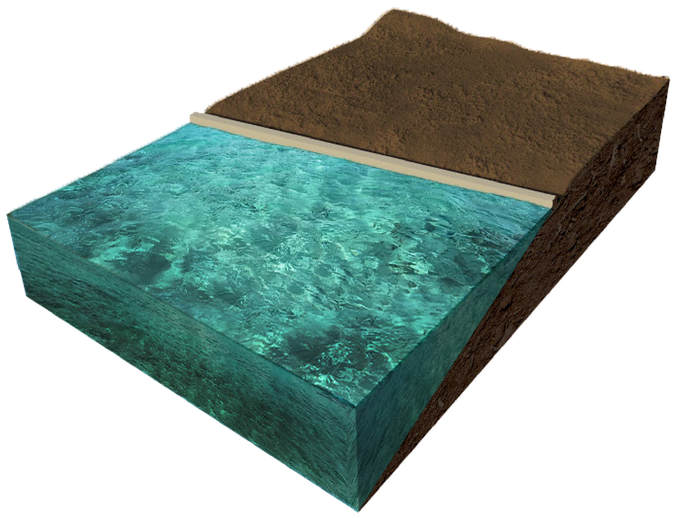
PHASE 3

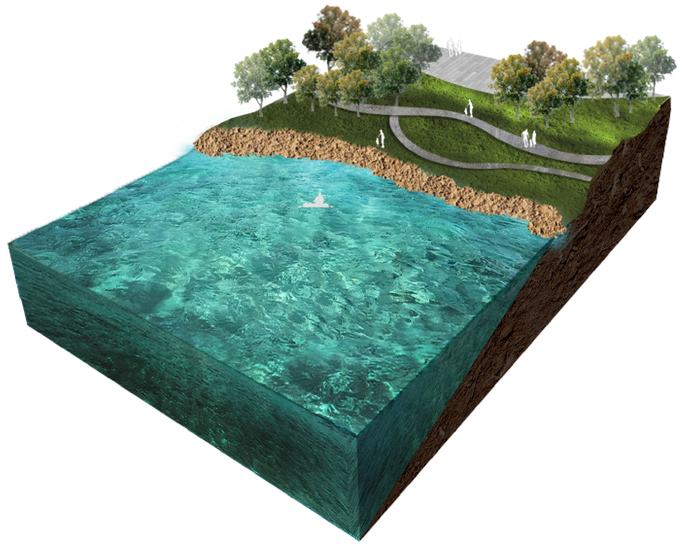


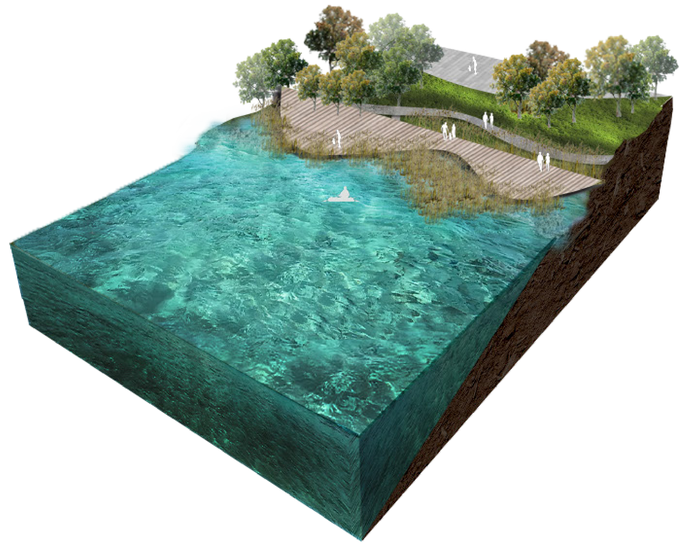












METAMORPHIC HUDSON

MONICA ROURKE

CLIMATE-ADAPTIVE STUDIO
F/W 2021

PHASING PROPOSAL

FEDERAL
STATE
MUNICIPAL
NGOS

0\35 YEARS

MINIMAL ADAPTIVE CAPACITY

COMPROMISED SITE USE

COST-PROHIBITIVE

FEDERAL
STATE
MUNICIPAL
NGOS

0\10 YEARS

25\50 YEARS

50\180 YEARS

INCREASED ADAPTIVE CAPACITY

CONTINUOUS SITE ACCESS/USE

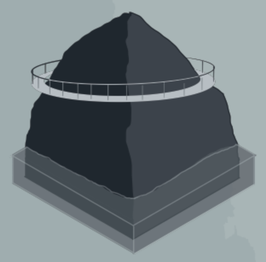
BUDGETED/RESOURCE-DEPENDENT

EXISTING WATERFRONT IDENTITY

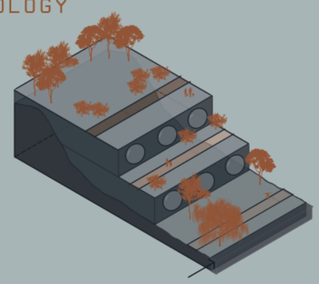
TRANSFORMATIVE
PHASE

WATERFRONT
FUTURE

VERTICAL
TYPOLOGY

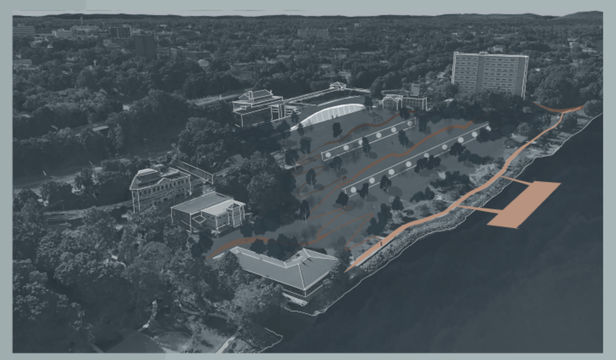


HORIZONTAL
TYPOLOGY

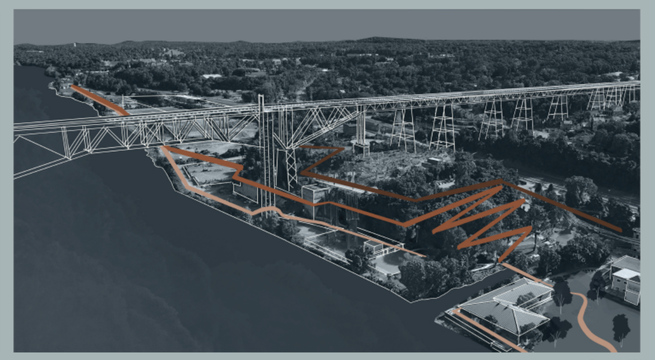


EVOLUTION I: ESTABLISH

EVOLUTION II: EXPAND



EVOLUTION III: EMERGE



2020

SECTION A

UPPER-UPPER LANDING PARK

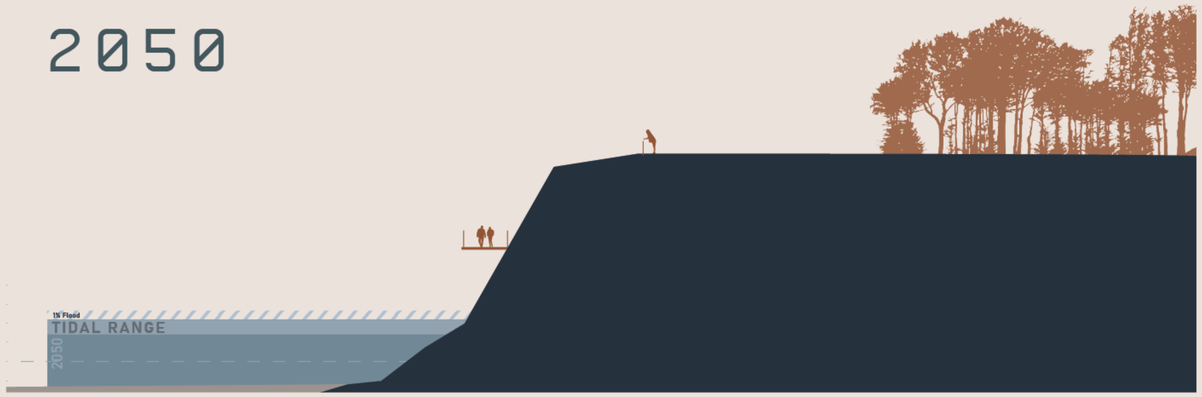
2020

SECTION B

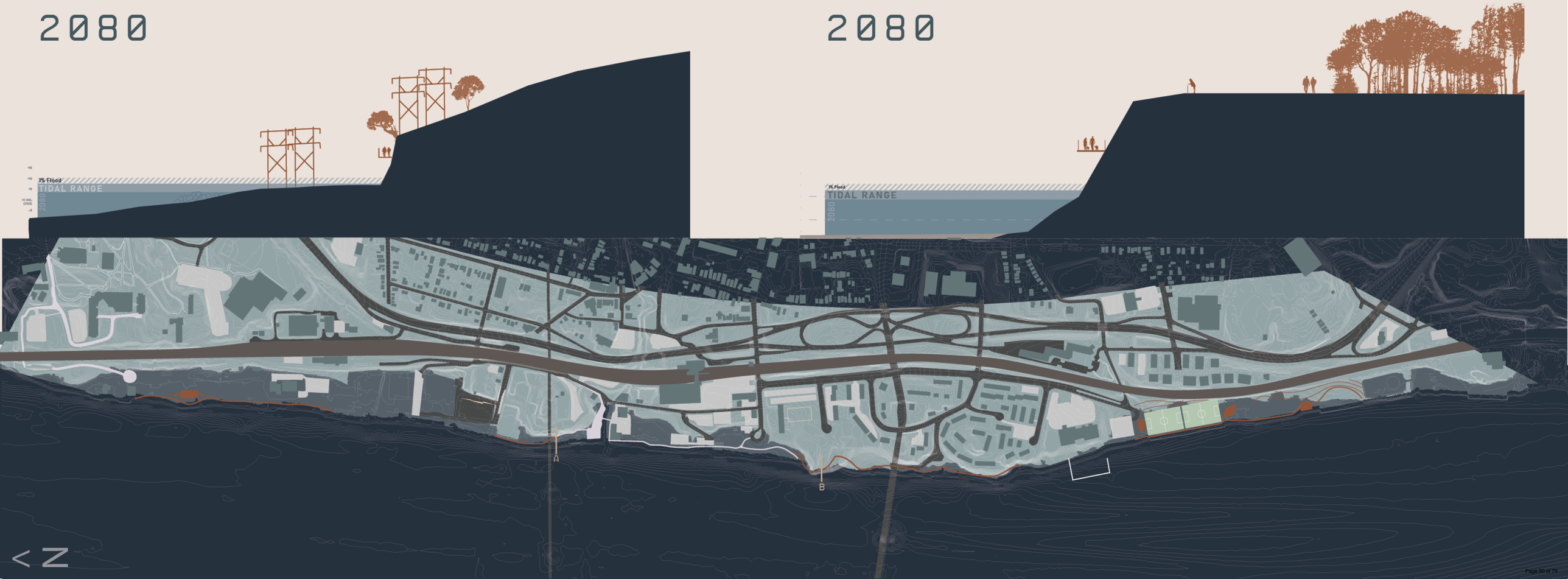
KAAL ROCK CONNECTOR

2050

2050



2080

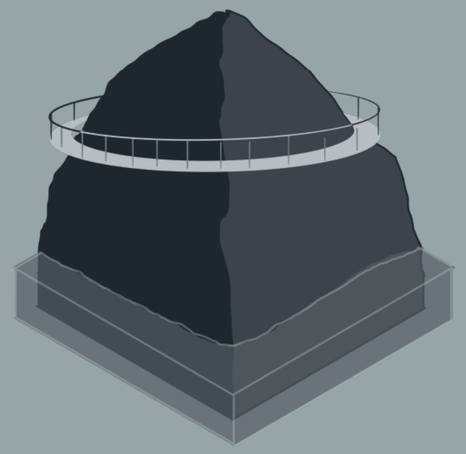


2080

2025

EXISTING

VERTICAL
TYPOLOGY



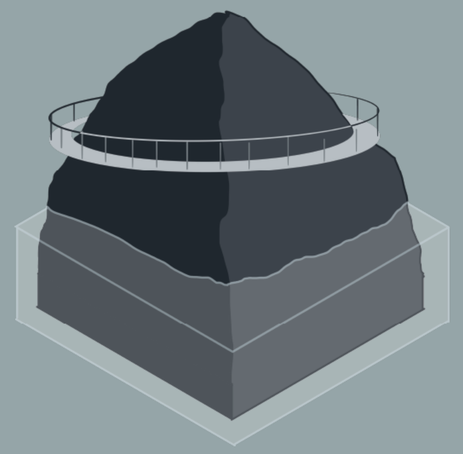
KAAL ROCK PARK

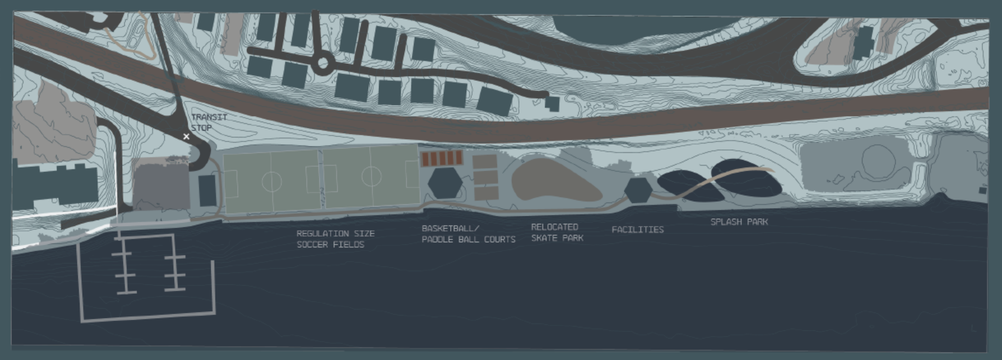
PHASE GOALS:

ESTABLISH CONTINUOUS WATERFRONT

LOW IMPACT & IMPERMANENT INFRASTRUCTURE

EXPAND COMMUNITY AMENITIES

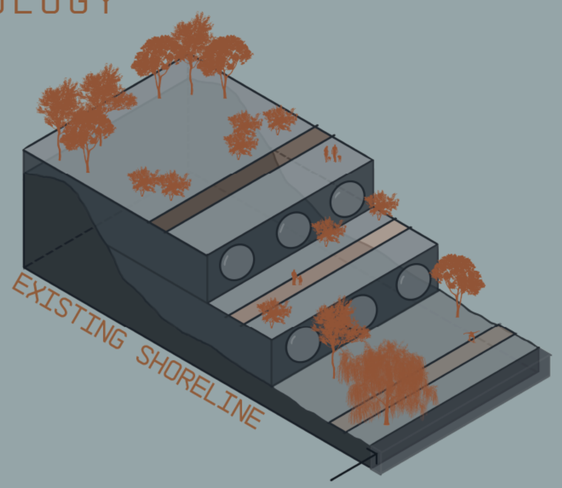


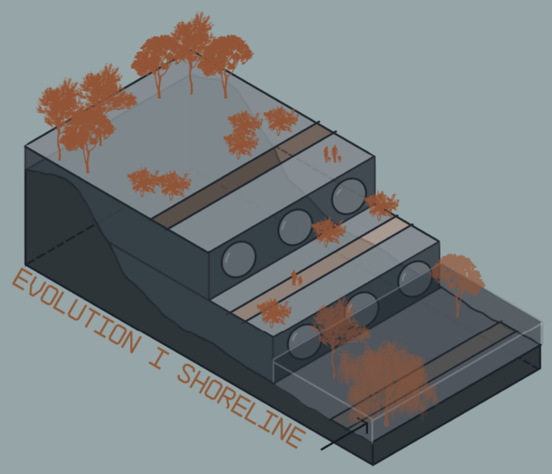


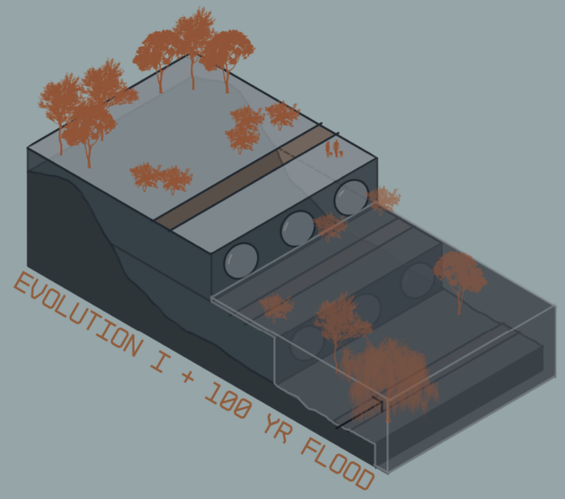
CIVIC CENTER

WARYAS TERRACE

HORIZONTAL
TYPOLOGY







PHASE GOALS:

CONSOLIDATE IMPERVIOUS SURFACES

MAXIMIZE LAND USE

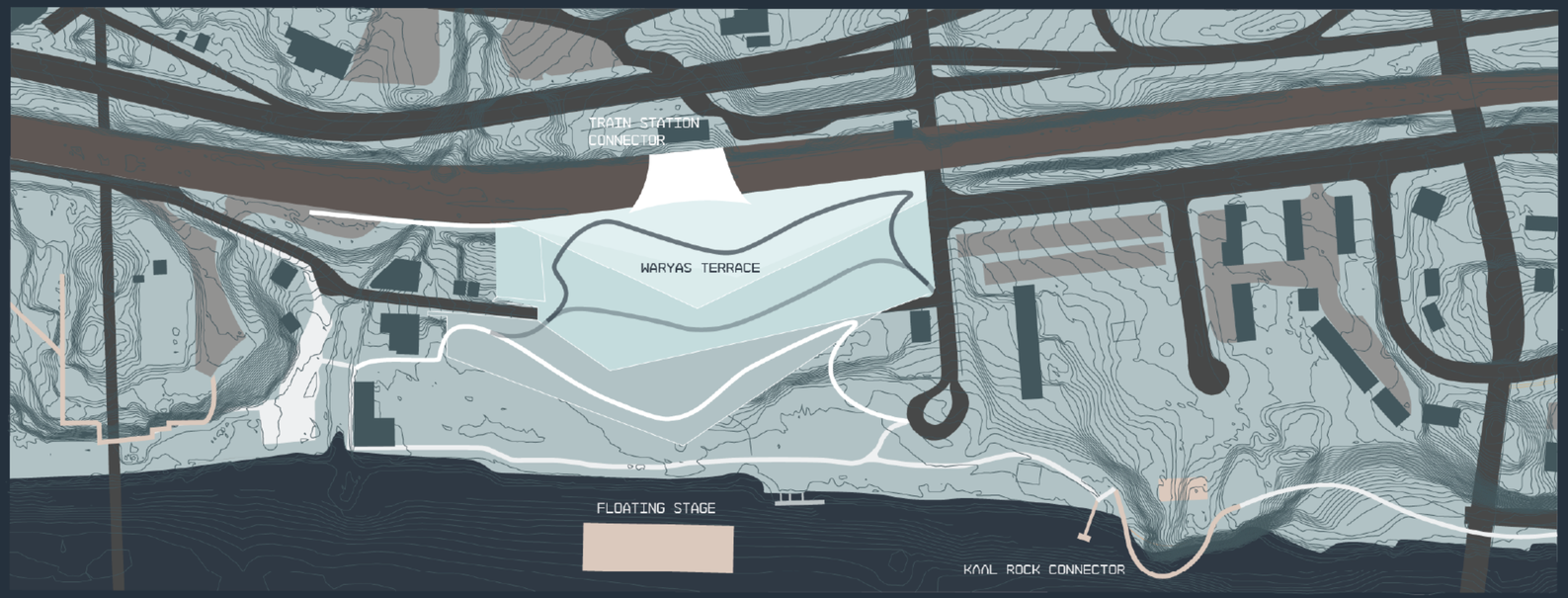
EXPAND PROGRAMMING

KATWIJK COASTAL DEFENCE
OKRA LANDSCHAPSARCHITECTEN

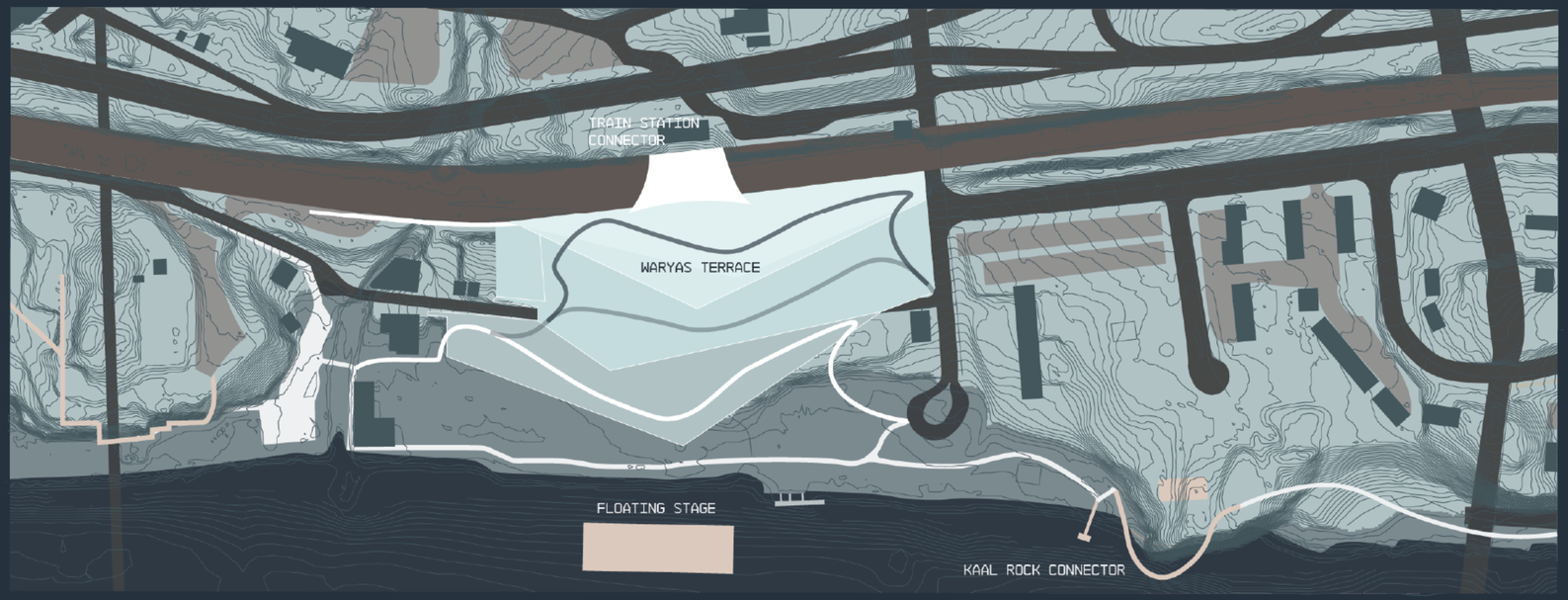
THE FLOATING KAYAK CLUB
FORCE4

ALBERT CUYP
PARKING GARAGE
ZJA ARCHITECTEN

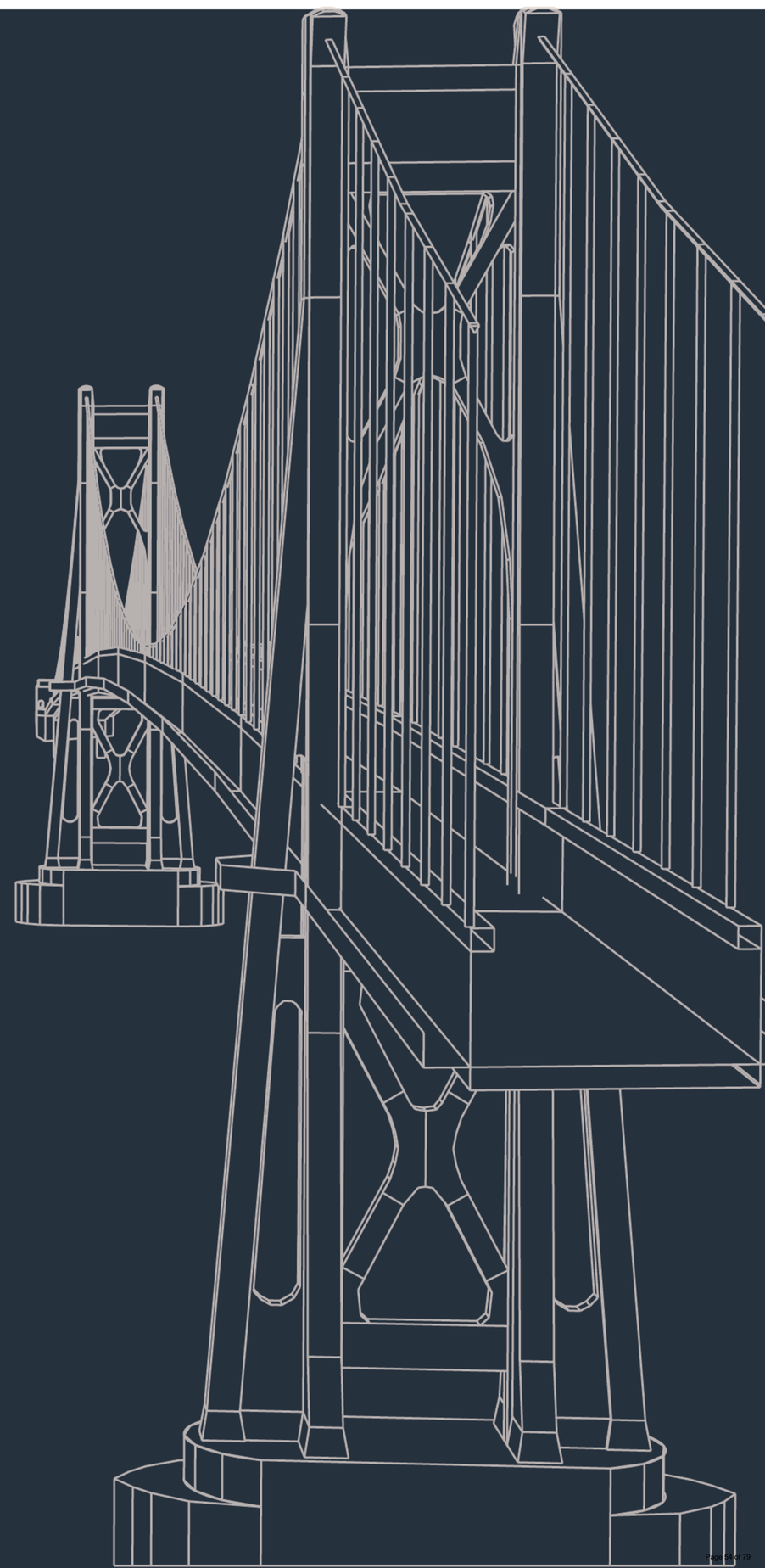
UNDER
SNOHETTA



SLR 00" + NO FLOOD

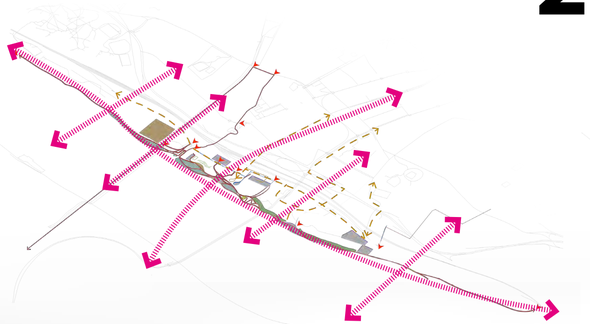


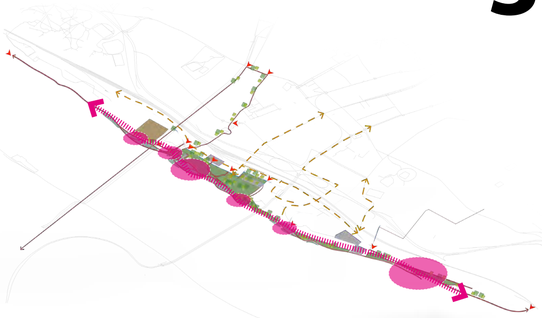
SLR 30" + 100 YR FLOOD



A LIVING SHORELINE FOR ALL

1 RESOLVING BOUNDARIES + 2 REUNION HUMAN & NATURE = 3 RECIPROCATE HUMAN & NATURE



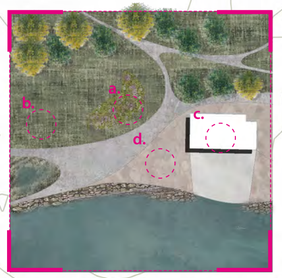


WATER RESILIENCY

SOCIAL RESILIENCY

MASTER PLAN OF POUGHKEEPSIE WATERFRONT

ECO-cityLAB.1
FALL KILL EDUCATION LAB
a. Education Station
b. History Education Stone Wall
c. Wetland adaption lab



ECO-cityLAB.2
LIVING SHORELINE LAB
a. Storm water management lab
b. Human activity lab
c. Kayak storage
d. Permeable concrete slab

ECO-cityLAB.3
CARBON LAB
a. Carbon sequestration lab
b. Viewing Point
c. Kaal Rock Path
d. Elevated broadwalk

ECO-cityLAB.4
URBAN LAB
a. Pytoremediation lab
b. Living bulkhead
c. Open space for commercial

ECO-cityLAB.1
FALL KILL LAB

ECO-cityLAB.2
LIVING SHORELINE LAB

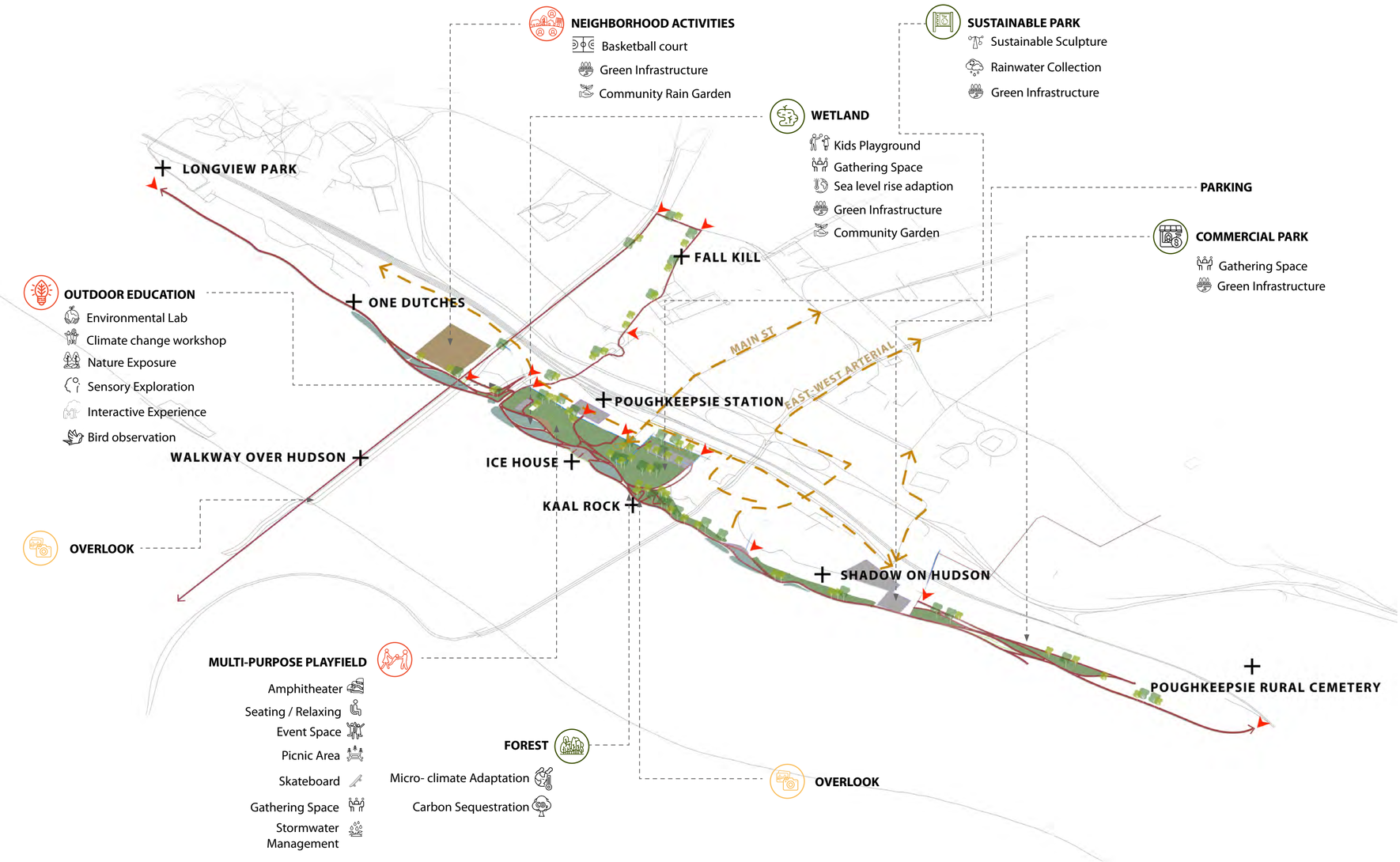
ECO-cityLAB.3
CARBON LAB

ECO-cityLAB.4
URBAN LAB

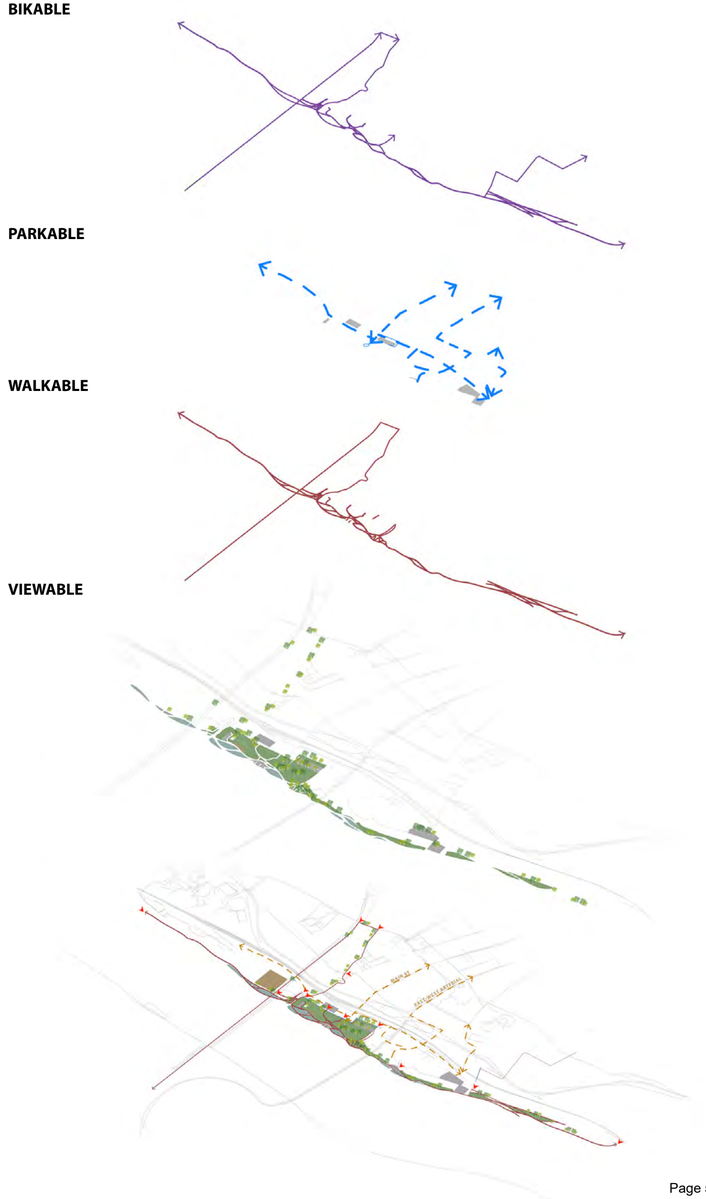
N

0 500 1000 2000 ft

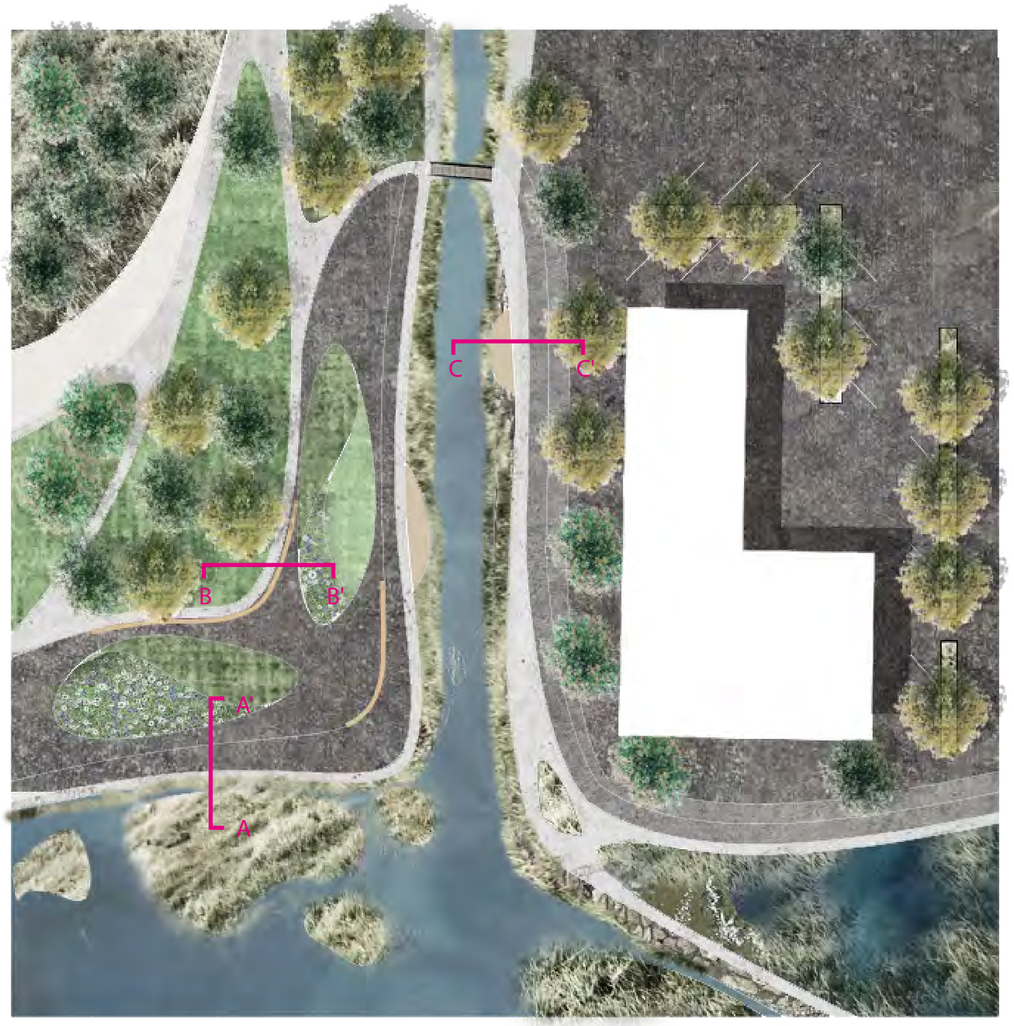
LIVING SHORELINE STRATEGY PROGRAMMING



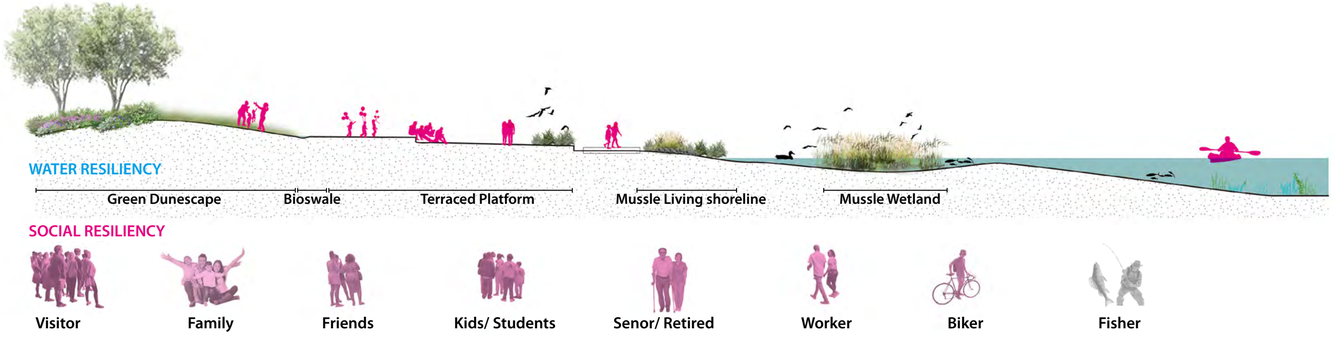
LIVING SHORELINE STRATEGY OVERLAY



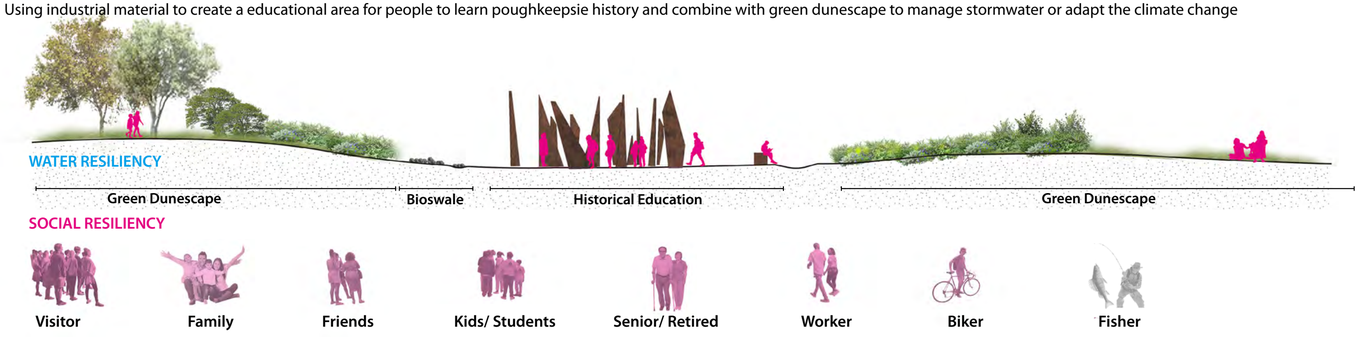
TYPE 1 *ECOLOGICAL cityLAB* WETLAND IN WAYRAS PARK



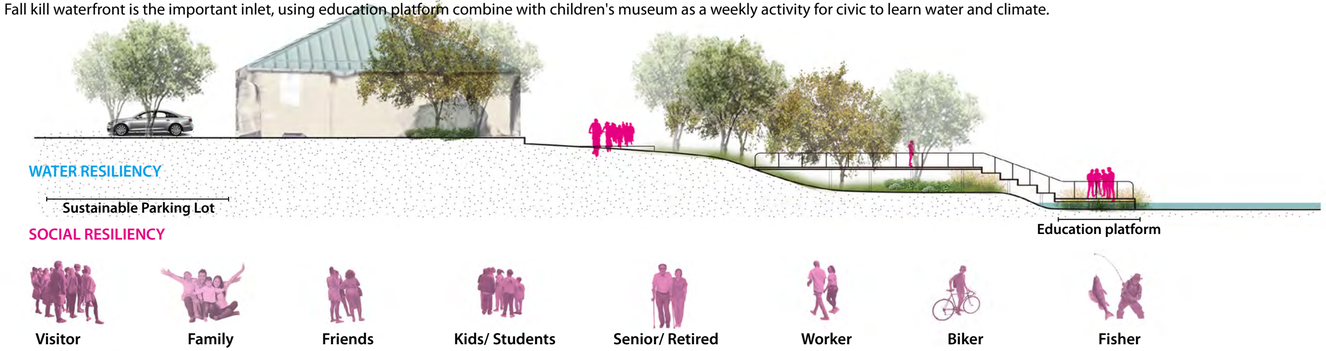
SECTION A-A' Mussle living shoreline
Using mussle as a meida combine with marshes to create a natural based shoreline and become the ecological study area for students and visitors.



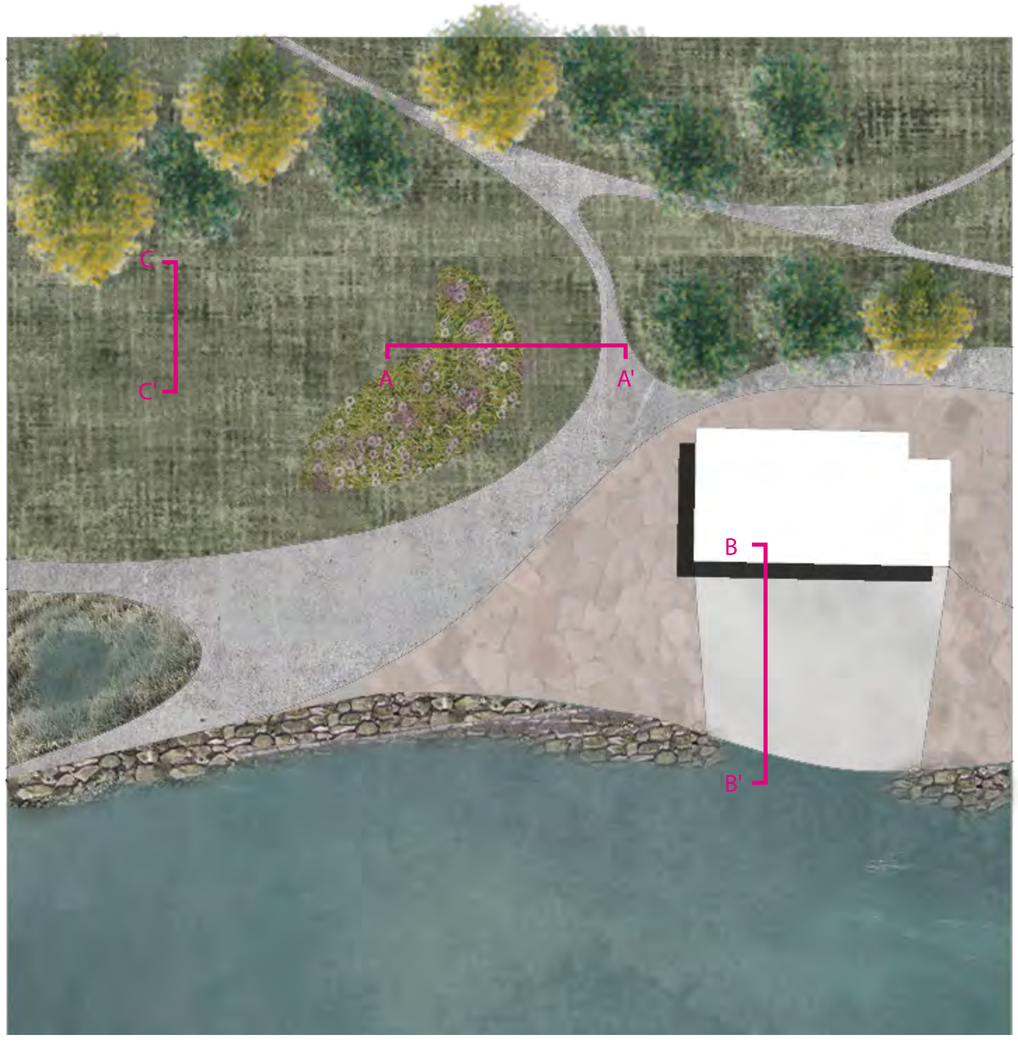
SECTION B-B' Historical education area
Using industrial material to create a educational area for people to learn poughkeepsie history and combine with green dunescape to manage stormwater or adapt the climate change



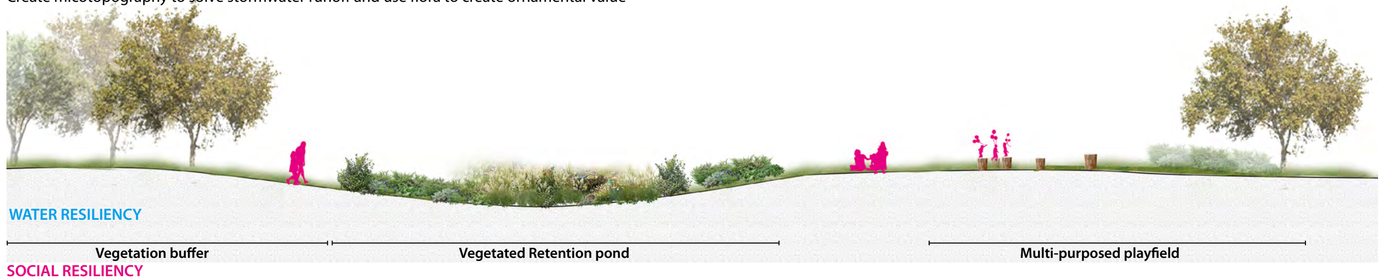
SECTION C-C' Environmental and civic education spaces
Fall kill waterfront is the important inlet, using education platform combine with children's museum as a weekly activity for civic to learn water and climate.



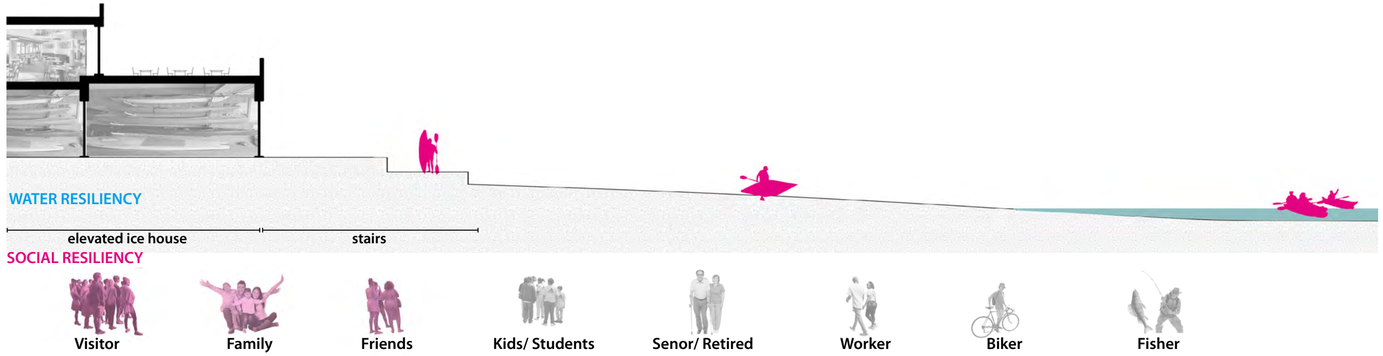
TYPE 2 *ECOLOGICAL cityLAB* LIVING SHORELINE LAB



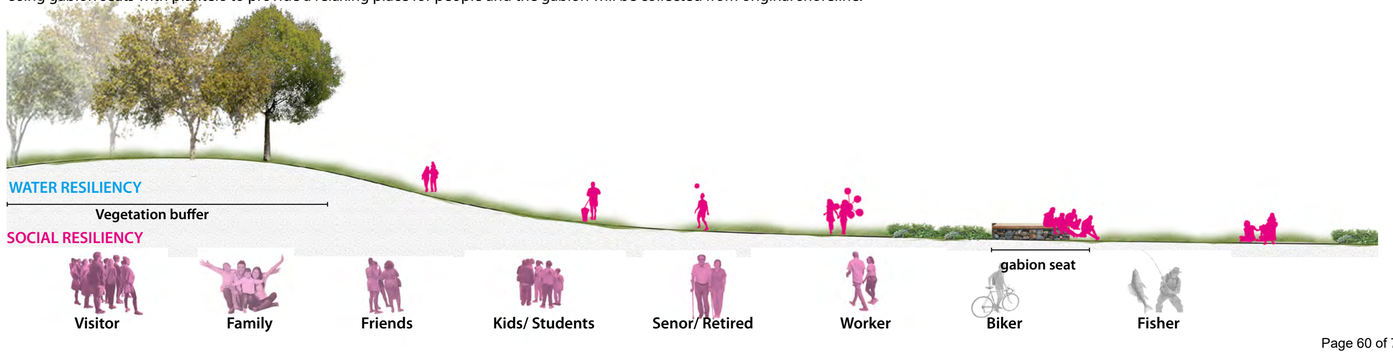
SECTION A-A' Multi-purposed lawn
Create micotopography to solve stormwater runoff and use flora to create ornamental value



SECTION B-B' Elevated ice house
Elevated Ice house will change to a kayak restaurant and a kayak storage and dock.

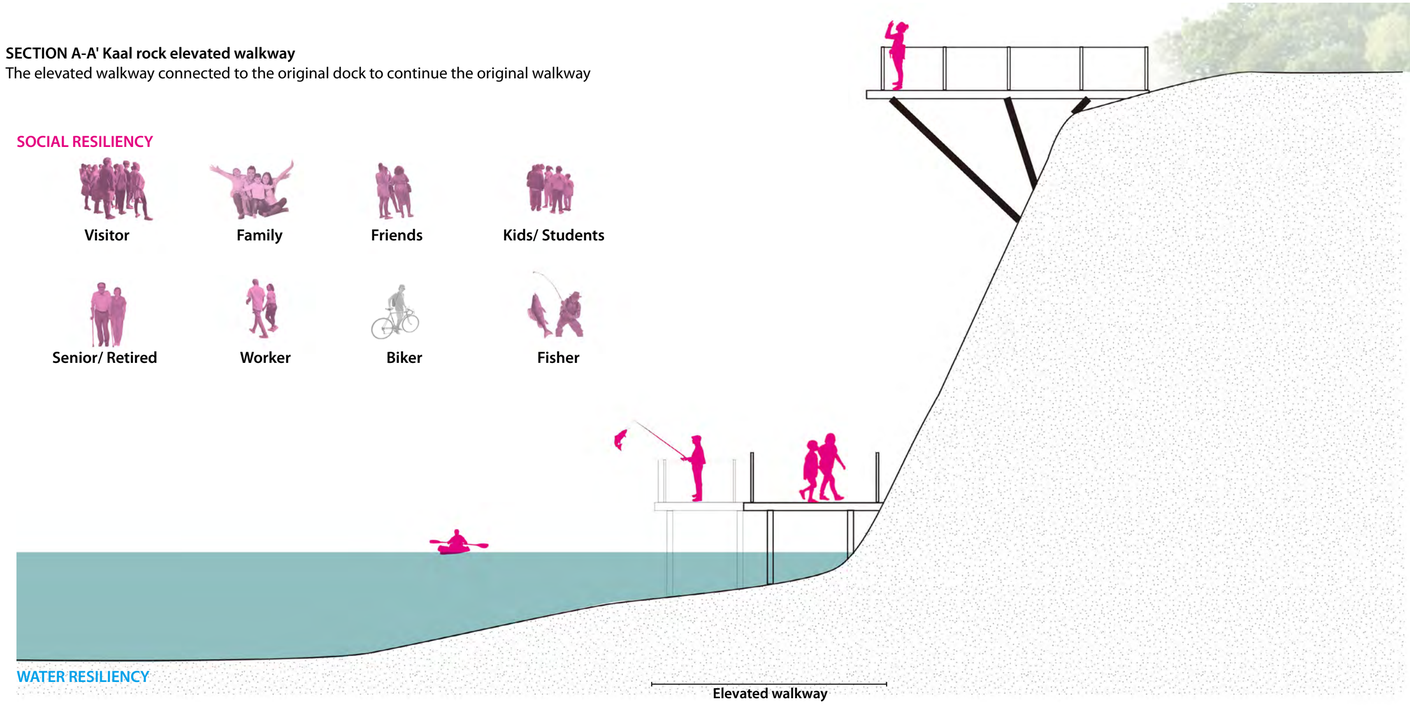


SECTION C-C' Multi-purposed lawn
Using gabion seats with planters to provide a relaxing place for people and the gabion will be collected from original shoreline.

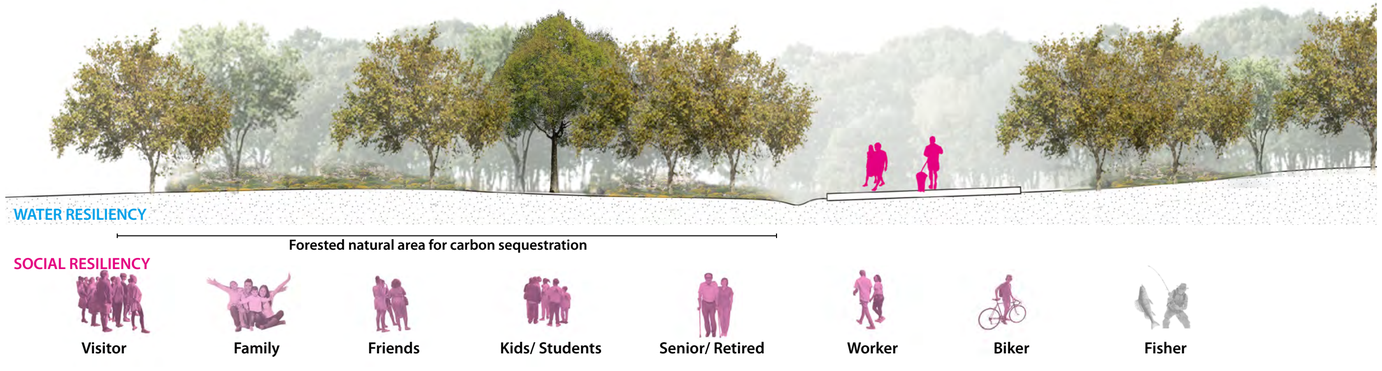


TYPE 2 *ECOLOGICAL cityLAB* CARBON LAB IN KAAL ROCK

SECTION A-A' Kaal rock elevated walkway
The elevated walkway connected to the original dock to continue the original walkway

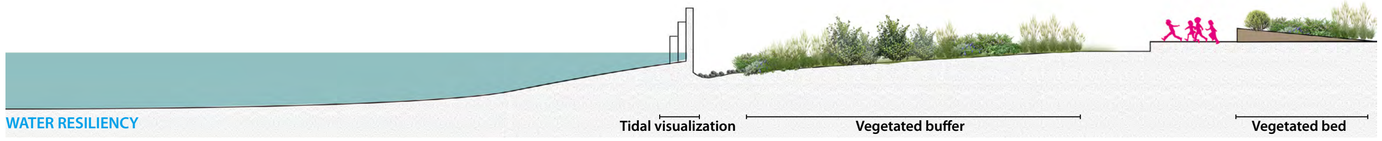


SECTION B-B' Kaal rock Forest trail
Maintain its original forest feature and grow more Tulip tree and Oat tree for carbon sequestration.



TYPE 4 *ECOLOGICAL cityLAB* URBAN LAB

SECTION A-A' Tidal shoreline
Using gabion seats with planters to provide a relaxing place for people and the gabion will be collected from original shoreline.



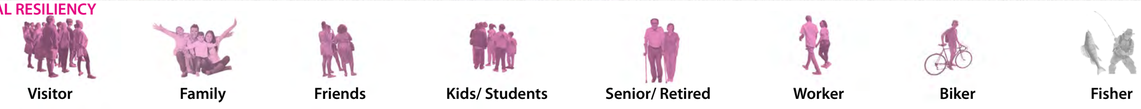
SOCIAL RESILIENCY

SECTION B-B' Elevated Plaza
Using vegetated basin to create the recreational and visual

SOCIAL RESILIENCY

SECTION C-C' Multi-purposed lawn
The lawn can be used as the temporary famers' market and commecial area or gathering area.

SOCIAL RESILIENCY



LIVING SHORELINE STRATEGY- TYPE 2 *ECOLOGICAL cityLAB* LIVING SHORELINE LAB

PAVILLION

SHORELINE ADAPTABLE WALKWAY

Anas platyrhynchos- Mallard

ECOLOGICAL LAB
Provide a place for students and people to learn ecology and climate change. And has the function of infiltration and climate adaption.

SHORELINE AMPHITHEATER

SHORELINE PLAZA

Anas fulvigula- Mottled Duck

2080 MHWL+6'

2050 MHWL+4'

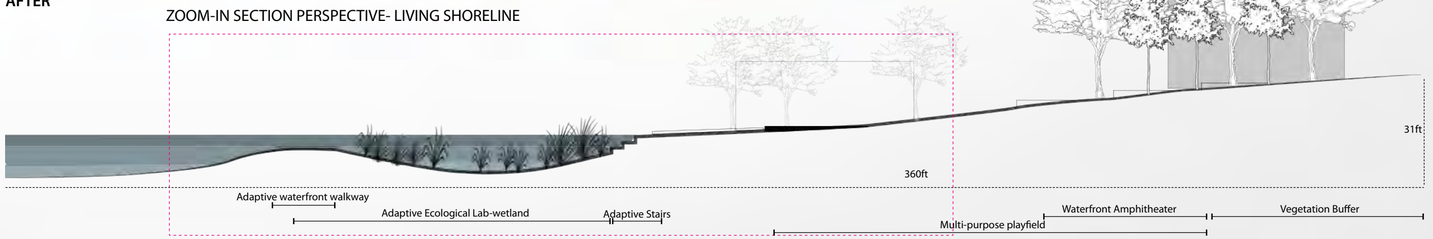
2021 MHWL+2'

Anas platyrhynchos- Mallard

SECTION A-A
AFTER

BEFORE

ZOOM-IN SECTION PERSPECTIVE- LIVING SHORELINE

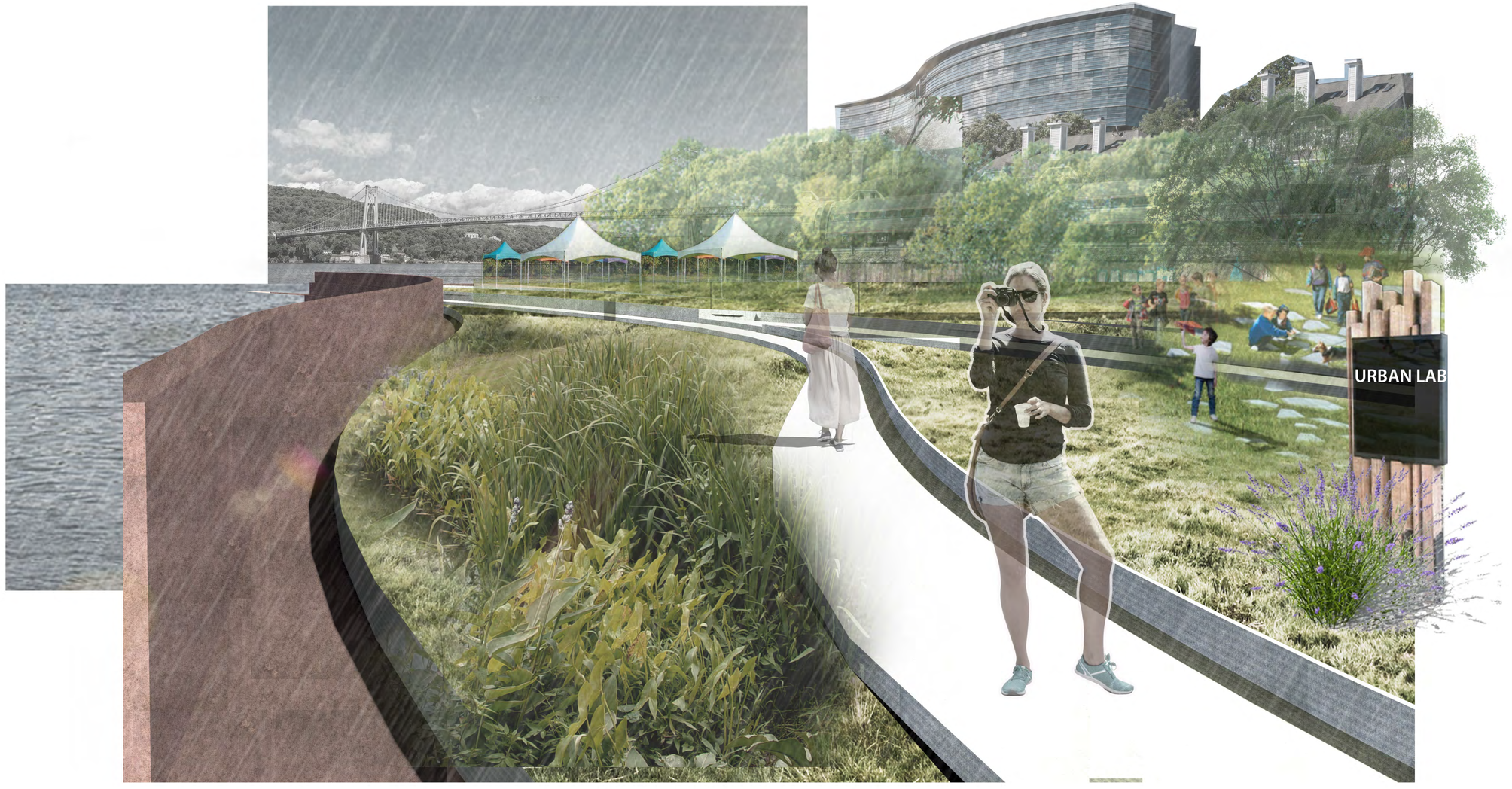


LIVING SHORELINE STRATEGY- TYPE 3 *ECOLOGICAL cityLAB* CARBON LAB

EDUCATION PLATFORM AROUND FALL KILL MOUTH

HISTORYCIAL EDUCATION AROUND UPPER LANDING PARK

DELLAVAL URBAN PARK



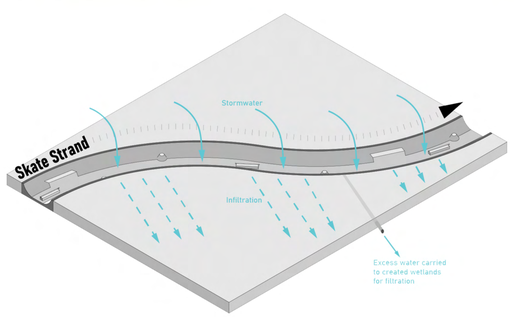
Strand Forms

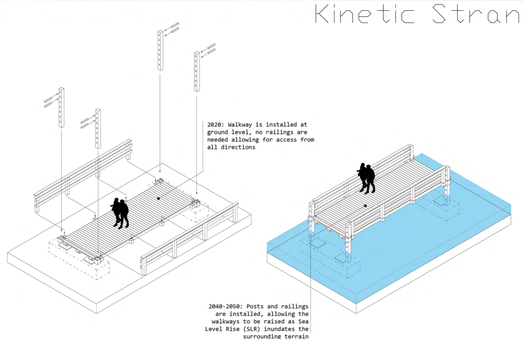
Dustin Smith

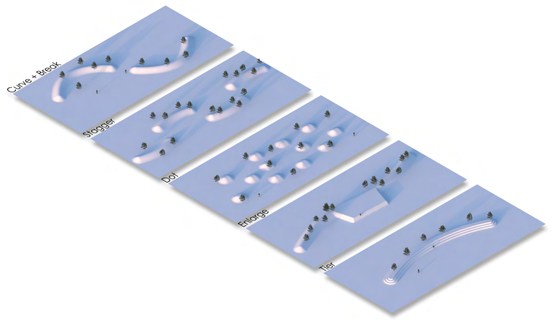
Skate Strand

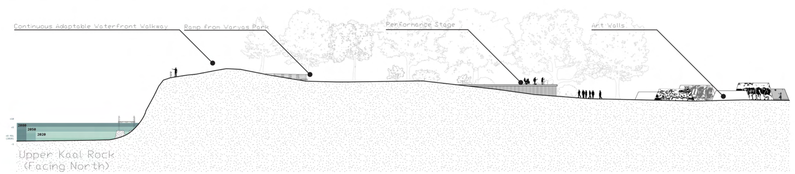
Kinetic Strand

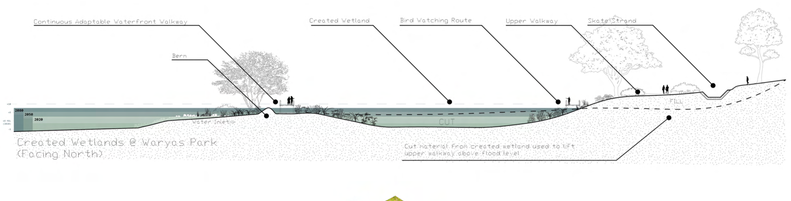
Eco Strand

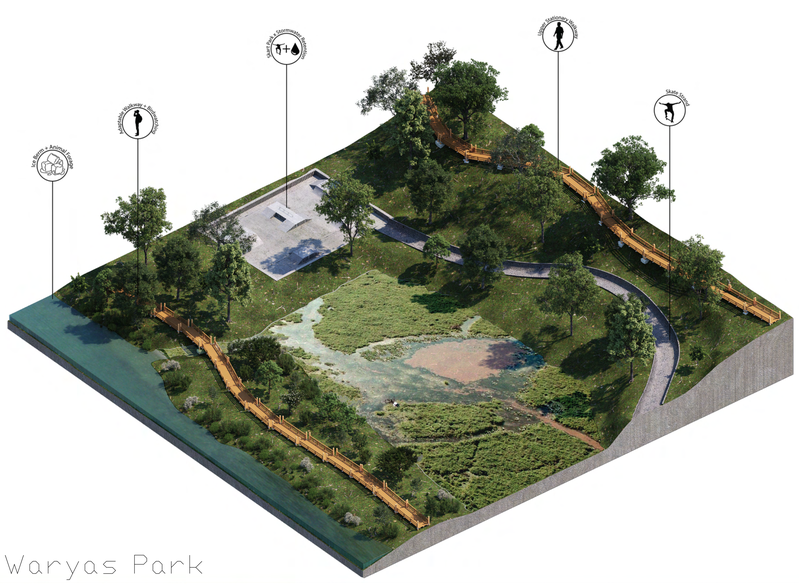












LIGHTNESS, CONNECTION, & FOLDING MEMORIES
REFRAMING POUGHKEEPSIE WATERFRONT

LA 4010/7010 URBAN DESIGN STUDIO
TINGYUE TAN

The design concept is established on the idea that formation of a city is a gradual composition of layers of time, which each layer representing a period that embedded distinct historic values that are often underestimated by contemporary design procedures.

The current Poughkeepsie waterfront consist of three major obstacles: extreme climate events, inconsistency of connectivity, and insufficient representation of historical importance of the city.

To cope with the problems mentioned above, three sub-concepts are introduced accordingly: Lightness, Connection, and Memory.

MASSACHUSETTS
CONNECTICUT
NEW YORK
NEW JERSEY
CATSKILL
KINSTON
POUGHKEEPSIE
NEWSBURGH
WEST POINT
PEEKSKILL
TARRYTOWN
MANHATTAN
9
44
55
MAJOR HIGHWAY
RAILROAD
0 4.5 9 18 27 36 Miles
Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

SITE ANALYSIS

HIIGHLAND

TOWN OF POUGHKEEPSIE

CITY OF POUGHKEEPSIE

ONE DUTCHESS
UPPERLANDING PARK
FALL KILL

UPPERLANDING ECOLOGY STUDY AREA

FOOD

PAVILLION / FARMER'S MARKET

CONNECTION TO RAIL TRAIL SYSTEM

CHILDREN'S MUSEUM

SKATEPARK

WALK OVER THE HUDSON

VERTICAL ACCESS

FALL KILL

WALKWAY

SWIMMING

WHALING INSTALLATION

COMMERCIAL

CHILDREN'S PLAYGROUND

WARYAS PARK
UNION DOCK
MAIN STREET HISTORIC DISTRICT
KAAL ROCK

UNION STREET
HISTORIC DISTRICT

MID HUDSON BRIDGE

SHADOW ON THE HUDSON

SHADOW ON THE HUDSON
DELAVAL

LINE

9

44

55

- PLAYING
- ART
- EDUCATION
- ENTERTAINMENT
- SPORTS
- RECREATION
- COMMERCIAL
- WATER ACCESS
- MAJOR HIGHWAY
- RAILROAD
- PEDESTRAIN WALKWAY

0 200 400 800 1,200 1600

HISTORIC TIMELINE

INDIGENEOUS PEOPLE WAPPINGER RESIDENTIAL

SAILLING AND STEAMBOAT INDUSTRIES

GLASS WORK & HUDSON RAILROAD BRIDGE

ELECTRICITY POWER PLANT

WALK OVER THE HUDSON

DOCK & SAILING STORE

WHALING COMPANY

VASSAR BREWERY & GILMAN'S KAAL ROCK BREWERY

IRON WORK

MAIN STREETDOCK & EXCHANGE HOTEL

ADRIANCE, PLATT & CO I HARDWARE BUSINESS

BUCKEYE MOWER

CREAM SEPARATOR INDUSTRY

STATE REGULATED PARK FIELD
STILL CONTAMINATED

SEA LEVEL RISE HEIGHT TIMELINE

6 in
3 in
6 in
3 in
6 in
3 in

1700 1750 1800 1850 1900 1950 2000 2020 2050

SITE ANALYSIS

HIIGHLAND

TOWN OF POUGHKEEPSIE

ONE DUTCHESS
UPPERLANDING PARK
FALL KILL

UPPERLANDING ECOLOGY STUDY AREA

FOOD

PAVILLION / FARMER'S MARKET

CONNECTION TO RAIL TRAIL SYSTEM

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WARYAS PARK
UNION DOCK
MAIN STREET HISTORIC DISTRICT
KAAL ROCK

UNION STREET
HISTORIC DISTRICT

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SHADOW ON THE HUDSON

SHADOW ON THE HUDSON
DELAVAL

9

44

55

- PLAYING
- ART
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- ENTERTAINMENT
- SPORTS
- RECREATION
- COMMERCIAL
- WATER ACCESS
- MAJOR HIGHWAY
- RAILROAD
- PEDESTRAIN WALKWAY

0 200 400 800 1,200

HISTORIC TIMELINE

INDIGENEOUS PEOPLE WAPPINGER RESIDENTIAL

SAILLING AND STEAMBOAT INDUSTRIES

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CREAM SEPARATOR INDUSTRY

STATE REGULATED PARK FIELD
STILL CONTAMINATED

6 in
3 in
6 in
3 in
6 in
3 in

1700 1750 1800 1850 1900 1950 2000 2020 2050

SEA LEVEL RISE HEIGHT TIMELINE

LIGHTNESS

wetland shrub walkway

ginko riverfront boulvard

W

malus garden

birch walkway

submerged aquatic vegetation

freshwater tidal wetland garden

DxC

magnoliа garden

Ud

DxB

prunus garden

freshwater tidal wetland terrace garden

Ur

NwD

diciduous tree garden

willow boulvard

pine garden

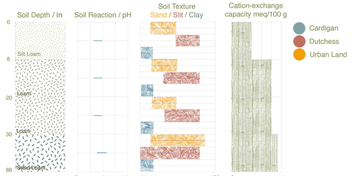
Ud

rehibilitated garden

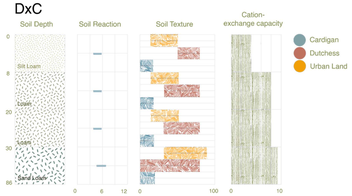
indiangrass walkway

rehibilitated garden

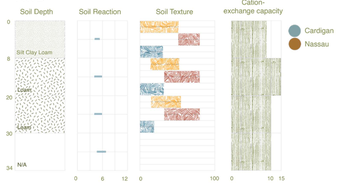
DxB



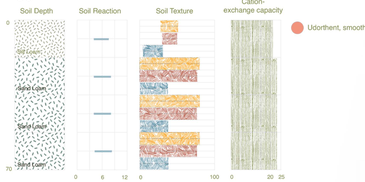
DxC



NwD



Ud



*Notes:
1. **"Depth"** to the upper and lower boundaries of each layer is indicated.

2: **"Soil reaction"** is a measure of acidity or alkalinity. It is important in selecting crops and other plants, in evaluating soil amendments for fertility
and stabilization, and in determining the risk of corrosion.

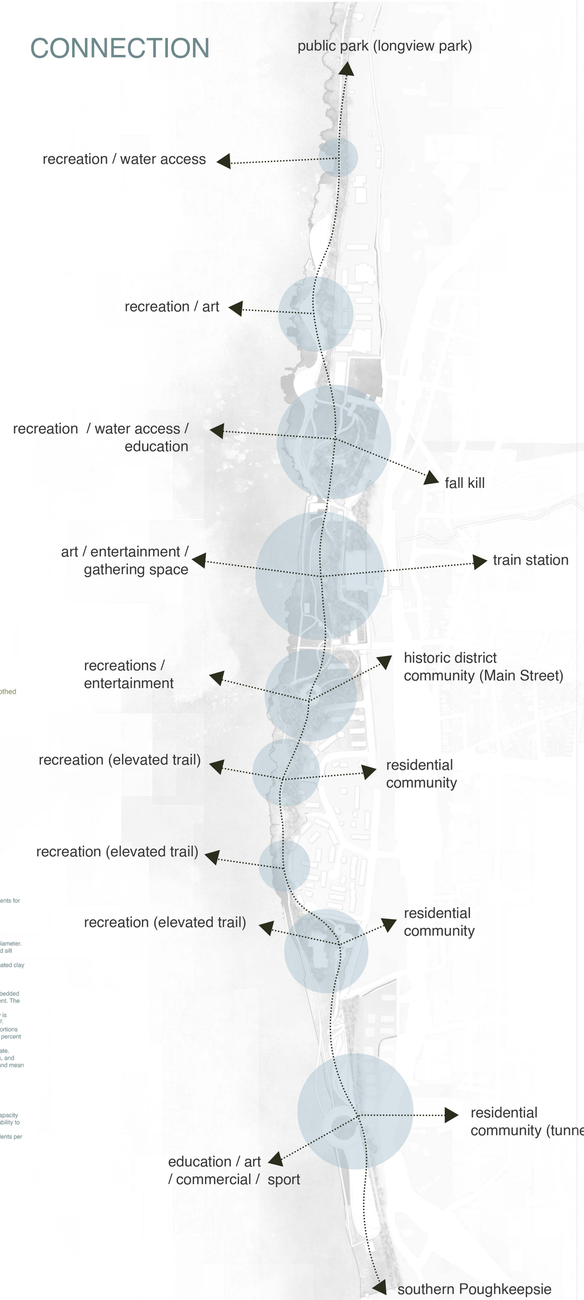
3. The content of sand, silt, and clay affects the physical behavior of a soil.
- **"Sand"** as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In this table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.
- **"Silt"** as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In this table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.
- **"Clay"** as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

4. "Soil Established Series"
- **"Cardigan"** Series consists of moderately deep, well drained soils formed in till or colluvium. They are underlain by folded interbedded phyllite, slate, shale, and schist. They are on bedrock controlled landforms on hills and mountains. Slope ranges from 0 to 80 percent. The mean annual temperature is about 8 degrees C and mean annual precipitation is about 1066 mm.
- **"Dutchess"** series consists of very deep, well drained soils on glaciated uplands. They formed in loamy glacial till. Permeability is moderate. Slopes range from 0 to 70 percent. Mean annual precipitation is 38 inches. Mean annual air temperature is 48 degrees F.
- **"Urban Lands"** areas consist mostly of sites for buildings, paved roads, and parking lots. Most areas are in intensely built-up portions of Providence and New port Counties. The areas are mostly rectangular and range from 5 to 100 acres. Slopes range from 0 to 10 percent but are dominantly 0 to 5 percent.
- **"Nassau"** series consists of shallow, somewhat excessively drained soils formed in channery till derived from acid shale and slate. They are nearly level to very steep soils that overlie shale bedrock at depths of 25 to 50 cm. They are found on summits, shoulders, and backslopes of ridges and hills on glaciated uplands. Slope ranges from 0 to 70 percent. Mean annual temperature is 9 degrees C and mean annual precipitation is 1,200 mm.
- **"Udorthents, smooth"** are in areas that have been cut to a depth of 2 feet or more or are on areas with more than 2 feet of fill. Udorthents consist primarily of moderately coarse textured soil material and a few small areas of medium textured material.

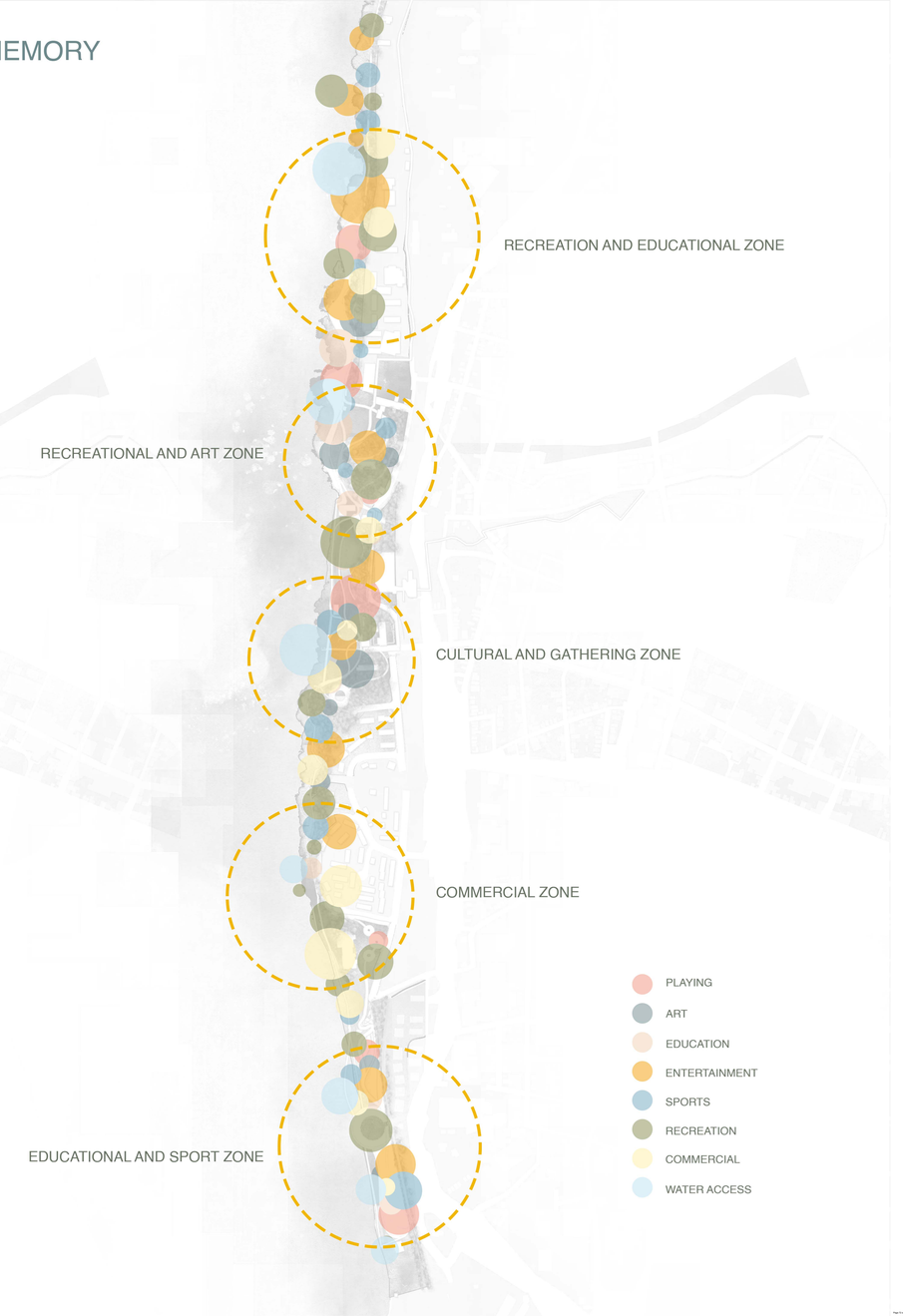
5. Contamination soil cleanup capacity
- **"Cation-exchange capacity"** is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.
- **"Effective cation-exchange capacity"** refers to the sum of extractable bases plus aluminum expressed in terms of milliequivalents per 100 grams of soil. It is determined for soils that have pH of less than 5.5.

Abbreviation - Soil Types
DxB: Dutchess-Cardigan-Urban land complex, undulating, rocky
DxC: Dutchess-Cardigan-Urban land complex, rolling, rocky
NwD: Nassau-Cardigan complex, hill, very rocky
Ud: Udorthents, smoothed
Ur: Urban land
W: Water

CONNECTION



MEMORY

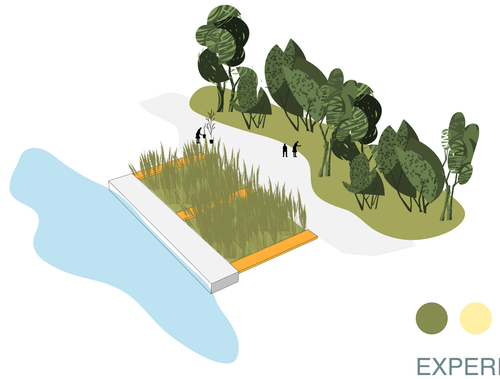


STRATEGIES PROTOTYPES

SCREEN

ACCESS

REROUTE

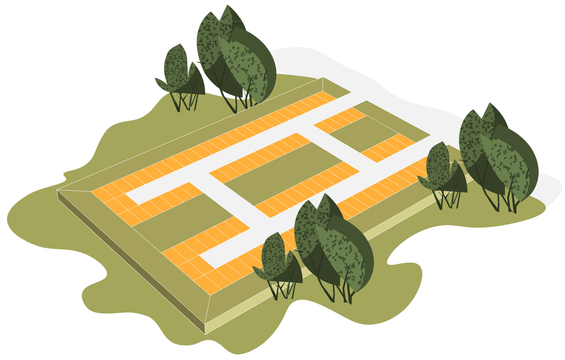


EXPERIMENT

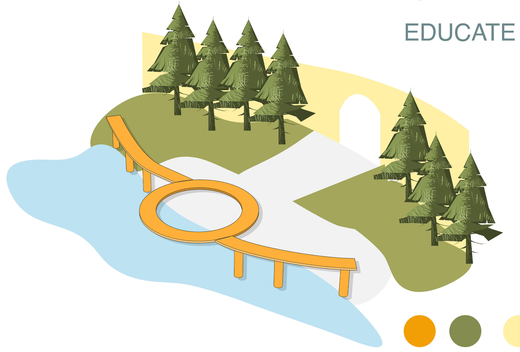
EDUCATE

ELEVATE

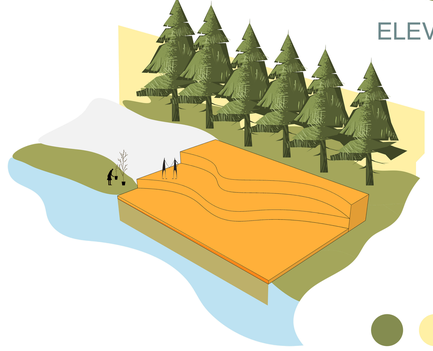
EMPHASIZE



MULTIPURPOSE



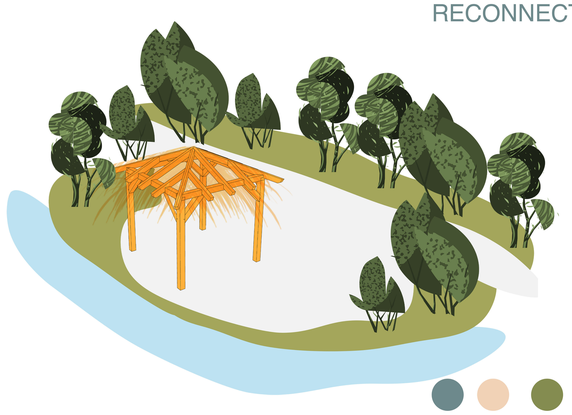
RECONNECT



FILL & RESHAPE

VERTICAL CONNECT

CELEBRATE



REVIVE

EXPAND

ACCESS

RECREATE

PHASING STRATEGIES

PHASE 3 (2080)

EDUCATE & MAINTAIN
ECOLAB ESTABLISHMENT

EXTEND
FALL KILL PLAN

EXTEND
HISTORIC DISTRICT

CELEBRATE
OUTDOOR HISTORY MUSEUM

MULTIPURPOSE
REDUCE PARKING SPACE

FILL & RESHAPE
WARYAS MULTIPURPOSE BIOSWALE TERRACE

REPURPOSE & SCREEN
WARYAS MALUS BOULVARD FOR PEDESTRAIN AND BICYCLISTS

EMPHASIZE & CONNECT
KAAL ROCK AMPITHEATER & MAIN STREET DOCK

TRANSIT
COMPREHENSIVE PUBLIC TRANSIT PLAN

PHASE 2 (2050)

REHABILITATE
FRESHWATER TIDAL WETLAND

EMPHASIZE & CONNECT
GLASS MOSAIC ELEVATED TRAIL

REVIVE
DOCK WITH WAPPINGER PAVILLION

MULTIPURPOSE
GREEN PARKING

RESILE
UPPERLANDING BIOSWALE FOR STORMWATER STORAGE

TRANSIT
COMPREHENSIVE PUBLIC TRANSIT PLAN

CELEBRATE
OUTDOOR HISTORY MUSEUM

EXPERIMENT
CONTAMINATION CLEAN-UP REHABIILITATION FILED

EXPAND
MAIN STREET PLAZA FOR GATHERING

CONNECT
WATERFRONT ELEVATED TRAIL

MULTIPURPOSE
GREEN PARKING

EXTEND
LOCAL COMMUNITY

PHASE 1 (2020)

RECREATE
SKATEPARK

EDUCATION & COMMERCIAL
INTERACTIVE & GATHERING SPACE

SEA LEVEL RISE

RAILROAD

ROUTE 9

ELEVATED WALKWAY WITH FRESHWATER TIDAL HABITAT

FLOATING WOODEN DECK WITH INDIGENOUS ARCHITECTURE

STEPPING STONE WITH WATER ACCESS

CONTINUOUS ELEVATED WALKWAY

ECOLOGICAL BIOSWALE TERRACE WALKWAY

KAAL ROCK ELEVATED WALKWAY

CONTINUOUS ELEVATED WALKWAY WITH SHORELINE WETLAND

OUTDOOR HISTORY MUSEUM

OVERALL SECTIONS

EMPHASIZE & CONNECT
GLASS MOSAIC ELEVATED TRAIL

A-A'

REVIVE
DOCK WITH WAPPINGER PAVILLION

REHABILITATE
FRESHWATER TIDAL WETLAND

B-B'

MULTIPURPOSE
GREEN PARKING

REHABILITATE
UPPERLANDING BIOSWALE FOR STORMWATER STORAGE

EXTEND
FALL KILL PLAN

C-C'

D-D'

REPURPOSE
GATHERING PLAZA

FILL & RESHAPE
WARYAS MULTIPURPOSE BIOSWALE TERRACE

REPURPOSE & SCREEN
WARYAS MALUS BOULVARD FOR PEDESTRAIN AND BICYCLISTS

E-E'

EXPAND
MAIN STREET PLAZA FOR GATHERING

EXTEND
HISTORIC DISTRICT

EMPHASIZE & CONNECT
KAAL ROCK AMPITHEATER

F-F'

CONNECT
WATERFRONT ELEVATED TRAIL

MULTIPURPOSE
GREEN PARKING

G-G'

CELEBRATE
OUTDOOR HISTORY MUSEUM

EXTEND H-H'
LOCAL COMMUNITY

EDUCATION & COMMERCIAL
INTERACTIVE & GATHERING SPACE

MASTER PLAN

0 200 400 800 1,200 1,600 Feet

ROUTE 9

RAILROAD

RECREATE
SKATEPARK

EDUCATION
INTERACTIVE
INSTALLATION FOR
REIMAGING WATERFRONT

ELEVATE
ELEVATED PLAZA

COMMERCIAL
FOOD & MARKET

CELEBRATE
WATERFRONT OUTDOOR MUSEUM

EXPERIMENT
REHABILITATION FIELD

RECONNECT
TUNNEL OPENING FOR
COMMUNITY ENGAGEMENT

FILL & RESHAPE
FLOOD PREVENTION

MULTI-PURPOSE
GREEN PARKING

ZOOM-IN PLAN 1/400

EXPERIMENT
REHABILITATION FIELD

CELEBRATE
WATERFRONT OUTDOOR MUSEUM

FILL & RESHAPE
FLOOD PREVENTION

CONNECT
ELEVATED TRAIL

2080S
2050S
2020S

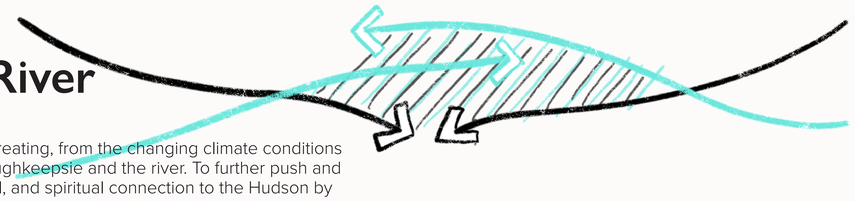
DELAVAL

RAILROAD

SECTION 1/16

Intertwining Poughkeepsie and its River

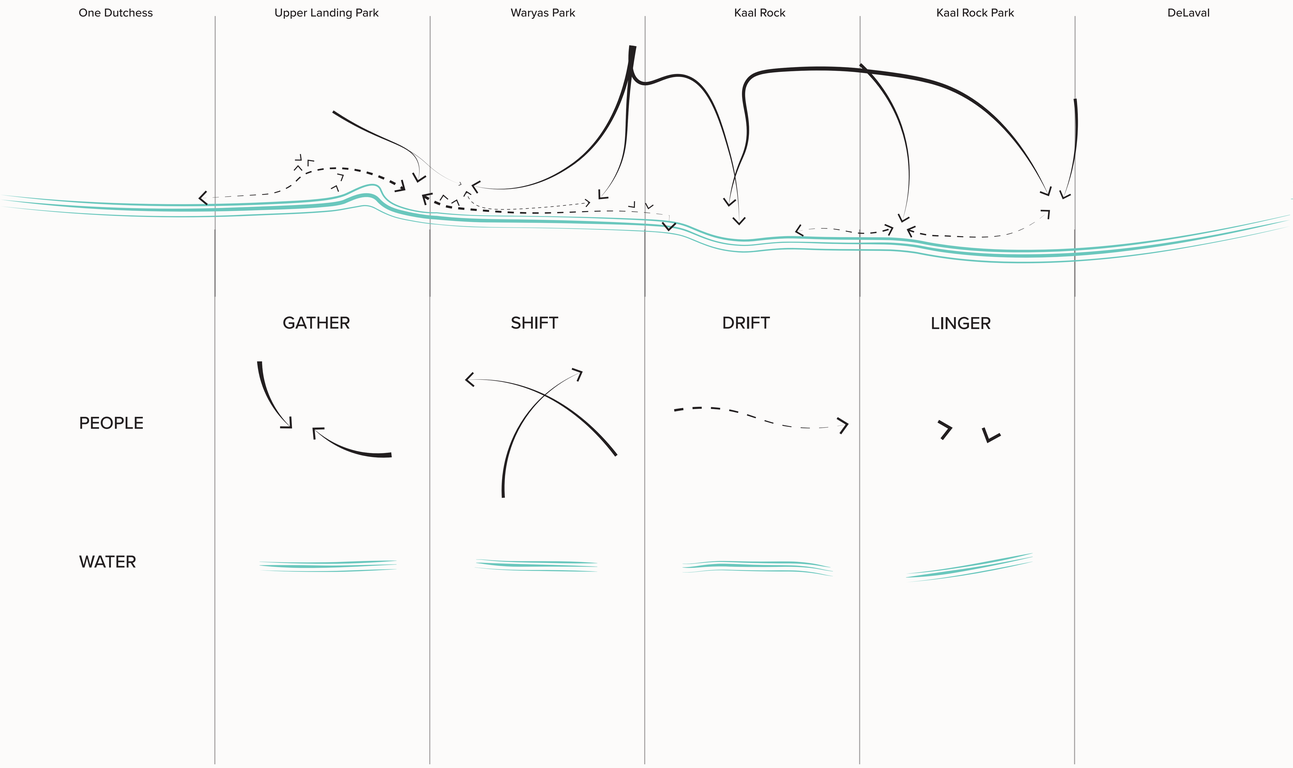
Kelly Zhan // CAD Fall 2021



This project amplifies what people love about the waterfront while embracing, instead of retreating, from the changing climate conditions and river forces of the Hudson to create a unified and intertwined park for the people of Poughkeepsie and the river. To further push and create a fonder attachment to the river, this project hopes to strengthen the physical, cultural, and spiritual connection to the Hudson by embracing climate change projections and enhancing community values of the waterfront.

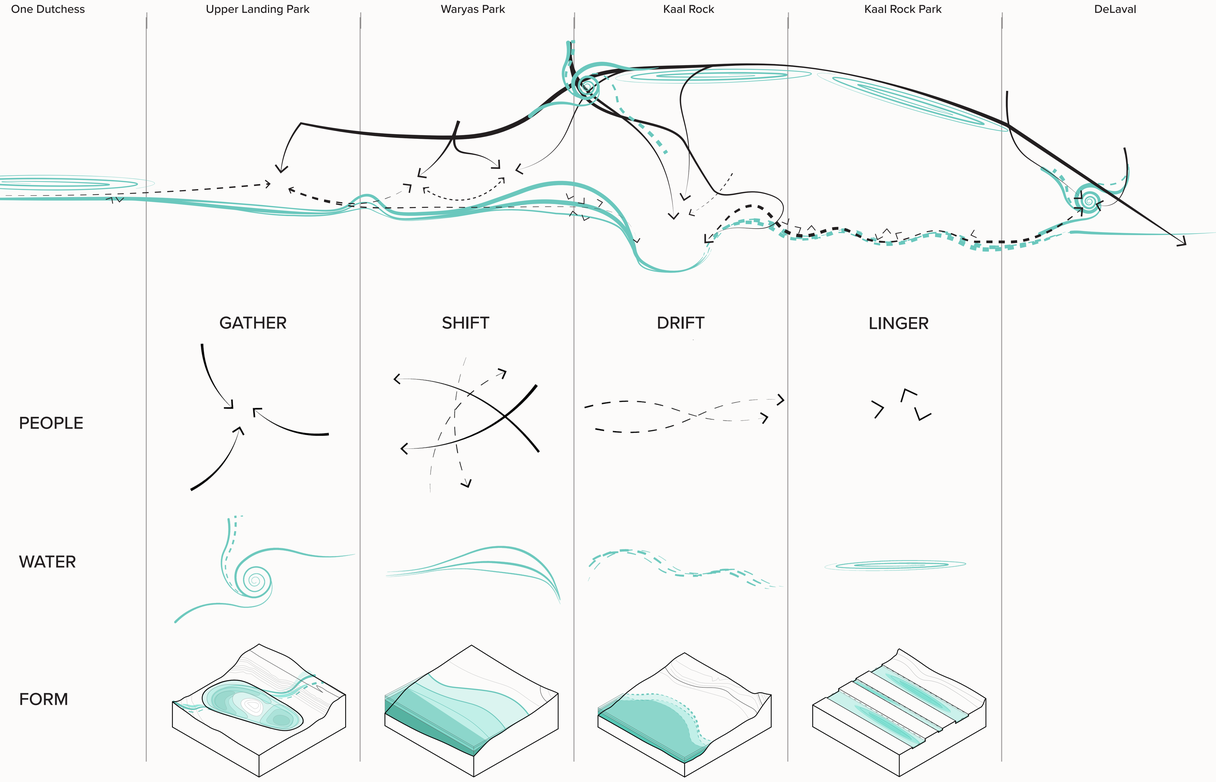
Existing Flows

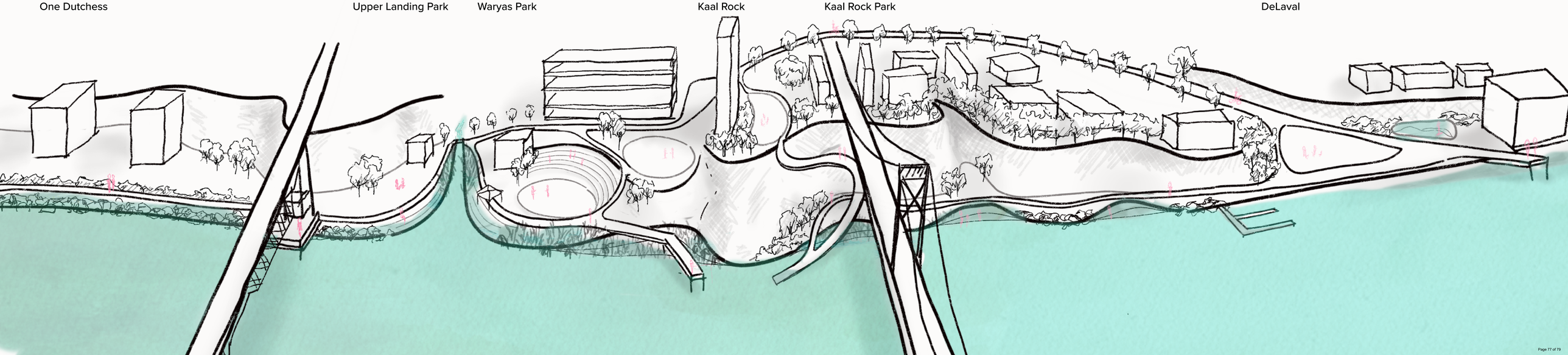
This diagram maps the movement of people based on site visit observations and community discussions. There were consistent patterns of gathering and shifting that were characterized by collective, lively, and programmed events. People also used the areas directly adjacent to the shoreline for drifting, as in slow travel, or for lingering, where they stayed and watched people and the river flow past. In all these spaces of diverse movement, the flow of the water remained constant, usually limited by the rigid and hard shoreline.



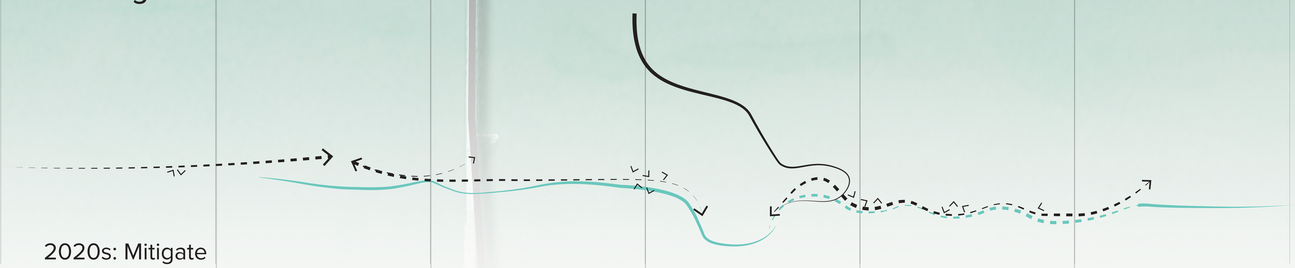
Proposed Flows

By viewing water flows in a similar fashion to the movement of people, there are possibilities for meaningful intersections and co-existences between the two. In the proposed design, people movements are enhanced by the dynamic qualities of the river which respond to rising sea levels and flooding events. Water can pool in the same way people gather, water levels are encouraged to shift, water can be collected and slowed, and finally water can be retained like people linger. Different forms will be created to encourage these movements of water.



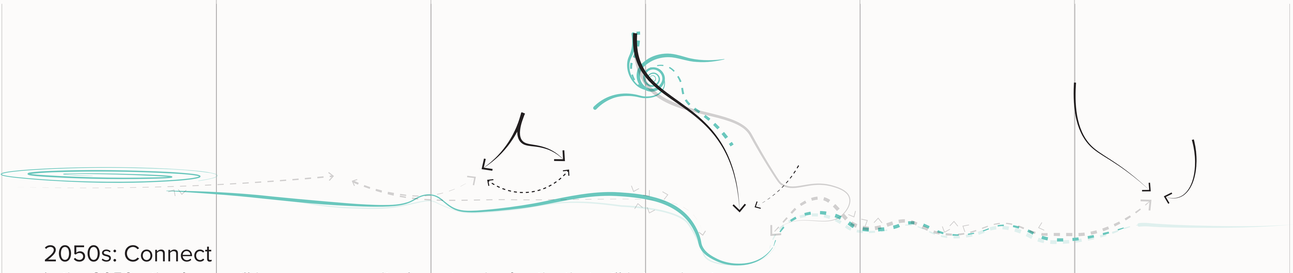


Phasing



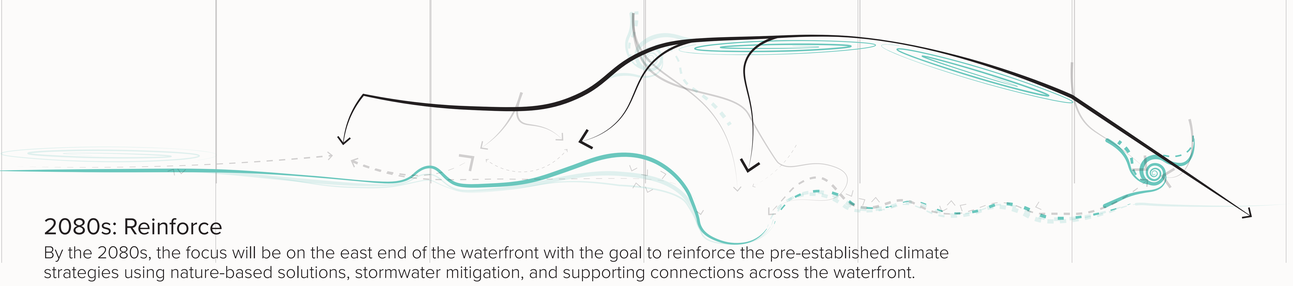
2020s: Mitigate

In the 2020s, the focus will be along the shoreline, where the waterfront is at most risk to sea level rise in the future, and to allow for nature-based mitigation to be established over time.



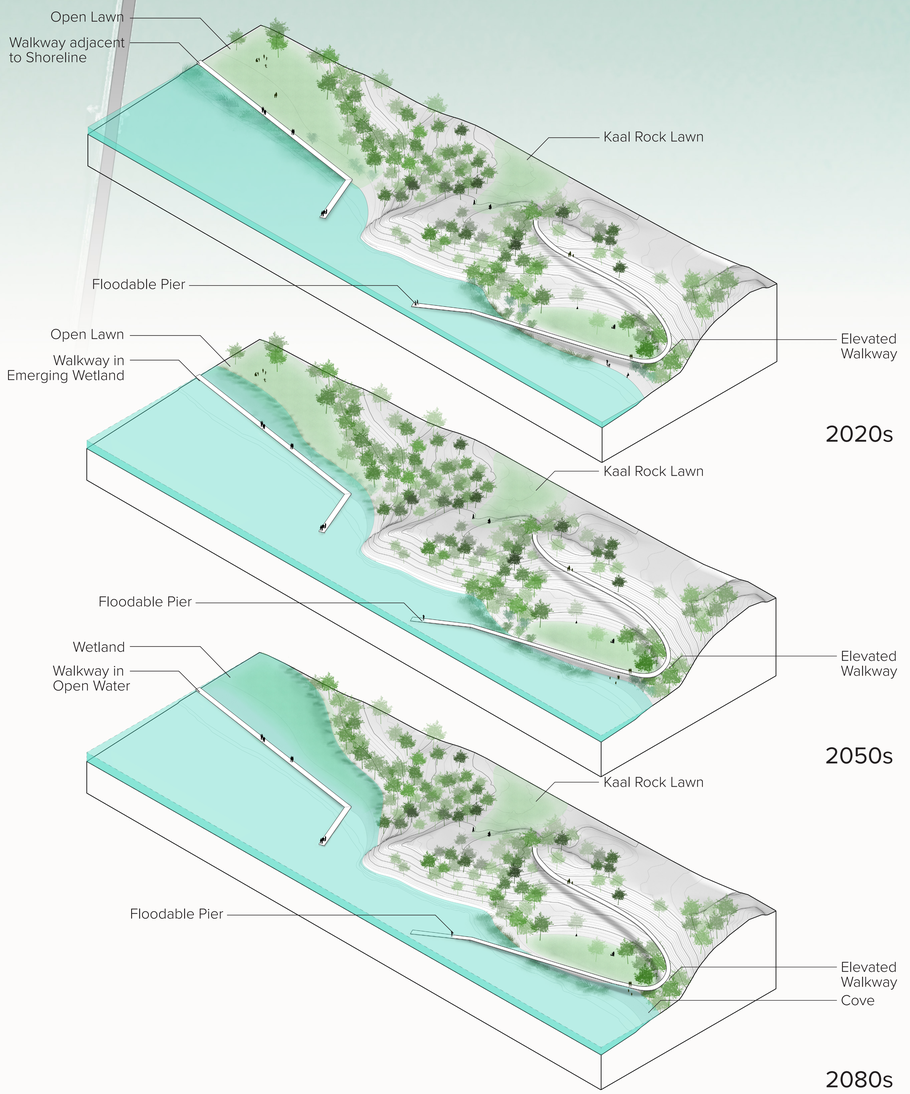
2050s: Connect

In the 2050s, the focus will be on a perpendicular network of paths that will bring about necessary connections between the city of Poughkeepsie and the Hudson River to create a more holistic waterfront.



2080s: Reinforce

By the 2080s, the focus will be on the east end of the waterfront with the goal to reinforce the pre-established climate strategies using nature-based solutions, stormwater mitigation, and supporting connections across the waterfront.



Waryas Park & Kaal Rock Park

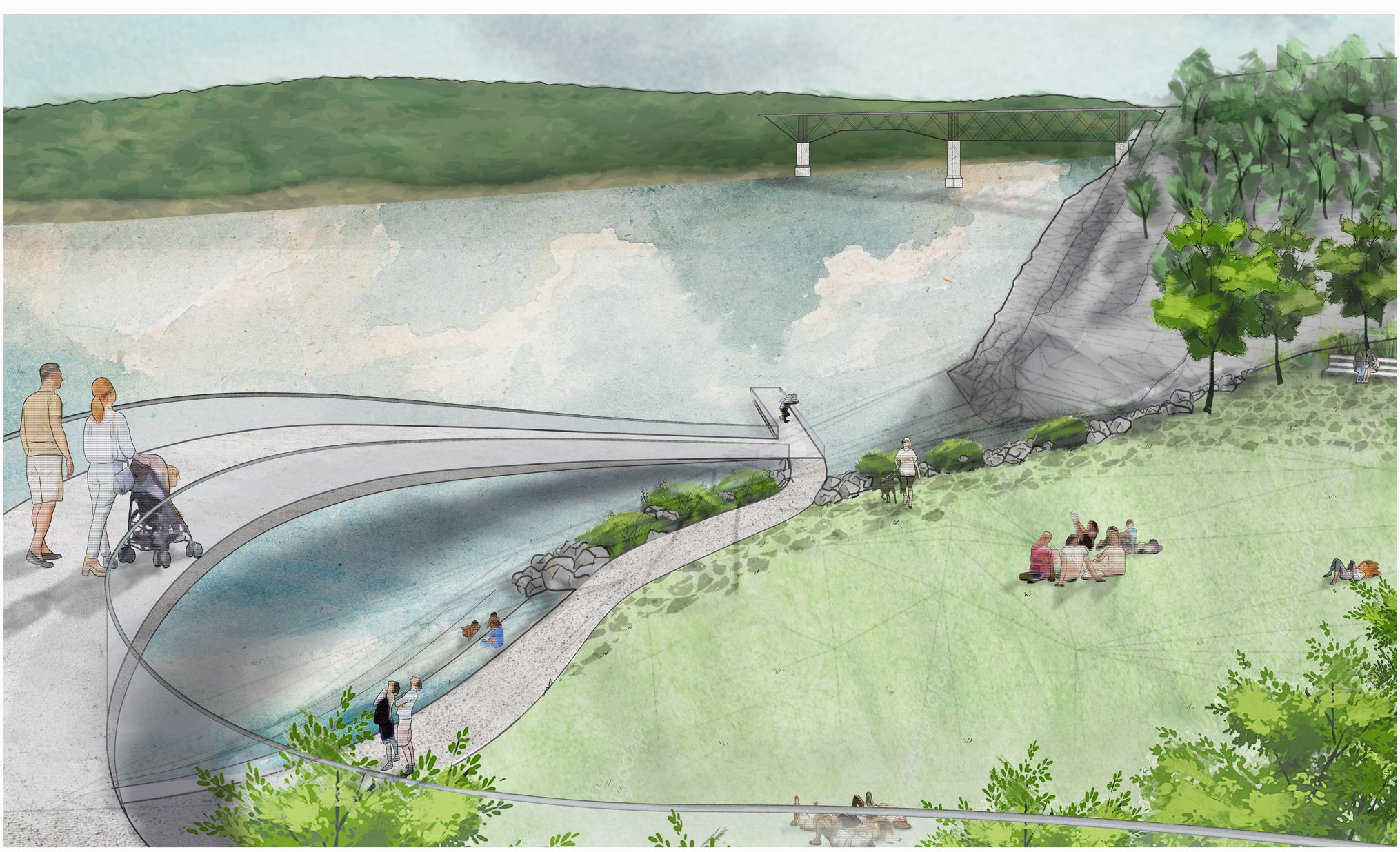
Shifting water levels and drifting water typologies are applied in these spaces to strengthen the relationships of paths, programming, and people with the river over time. In both spaces, people's experience of the river develops and deepens; it shapes how they can physically exist on land and water, and it forces people to notice the effects of climate change.

Waryas Park 2020s

At Waryas, there is a large gathering lawn in the early phases. Over time, the river slowly seeps into the lawn, replacing it with new wetland habitat. Since inundation of this area is encouraged, the disconnected piers will stick out further out into the river, allowing people to walk further out into the water and illustrating how dramatic the water conditions can be.

Kaal Rock & Main Street Plaza 2050s

In the 2050s, the Main Street Plaza will be constructed to strengthen the connections between the city of Poughkeepsie and the waterfront. It gathers water, with rain gardens, and people, as an activated space.



Kaal Rock Park 2080s

At Kaal Rock Park, an elevated walkway brings people from the top of Kaal Rock directly into the water and allows people to cross over the water overhead. By the 2080s, the cove will deeped dramatically due to sea level rise. The cove captures and slows water, so people can physically drift in the protected areas.