

Bangor Waterfront Park and Performance Pavilion Master Plan Study

August 4, 2015



FTL Design Engineering Studio, Architecture + Engineering
Terrence J. De Wan & Associates, Landscape + Planning
Harriman Associates, Associate Architecture + Engineering
Jaffe Holden, Acoustics + Audio/Video





Bangor Tradition ~ logging, railroad, thinking BIG



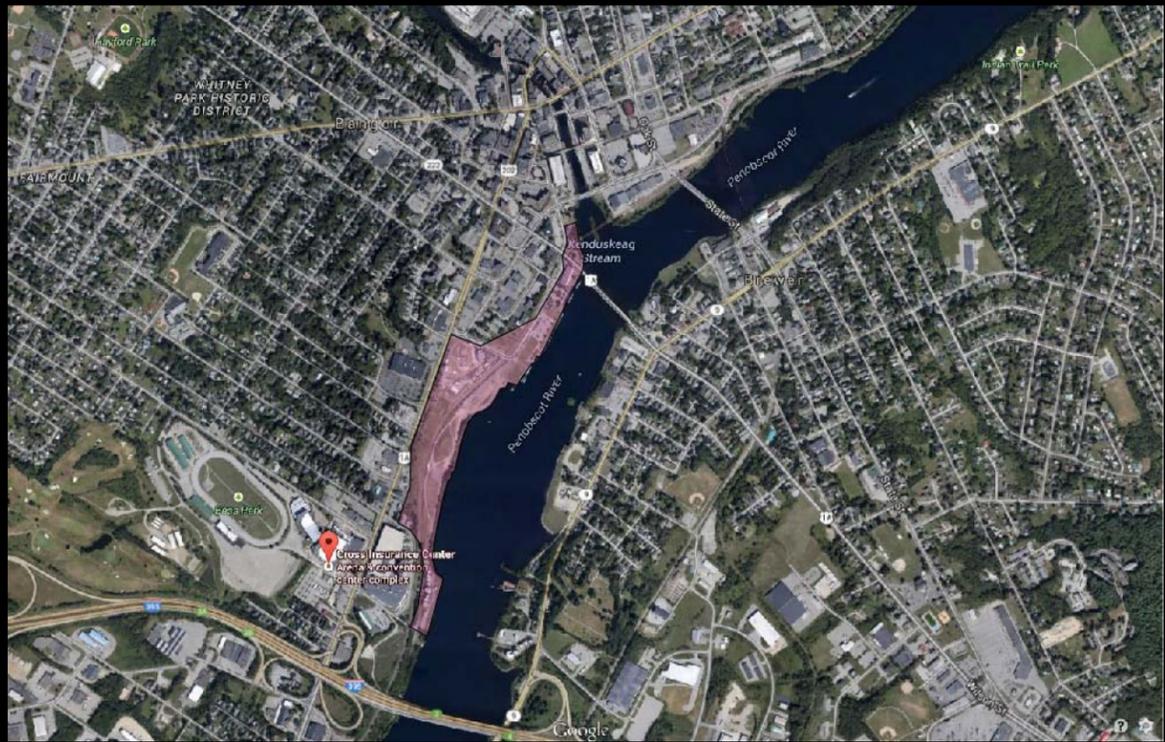
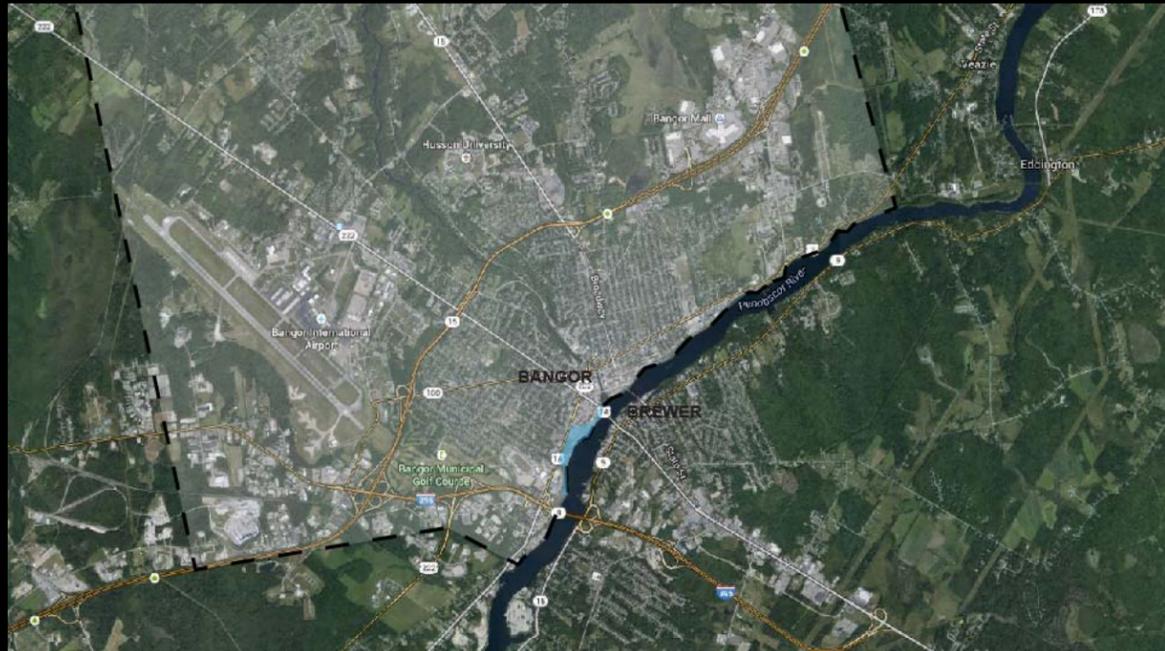
HISTORY : 19th century Lumber ~ Great Fire of 1911 ~ Flight of Suburbia

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100 Years Later ~ 'Healing the Urban Fabric'

Waterfront Park Project Overview / Goals

- PARK a unified waterfront park experience (presently ad hoc)
- KEYSTONE a permanent new performance facility
- ACCESS enhanced community access to the Penobscot river
- MAIN STREET a main street presence
- YEAR ROUND a 4 season use
- INVITING a new entry experience to park and music facility
- HERITAGE a renewal of Railroad street
- CELEBRATION a multitude of festivals (Folk Festival, GBCVB, Town Square)



Area Maps

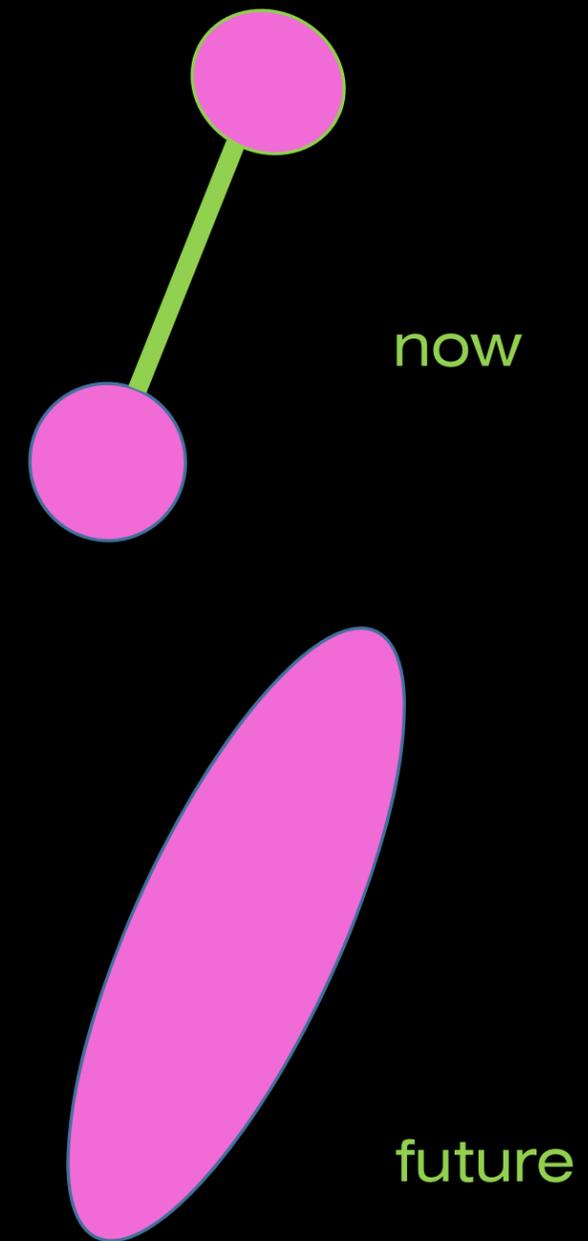
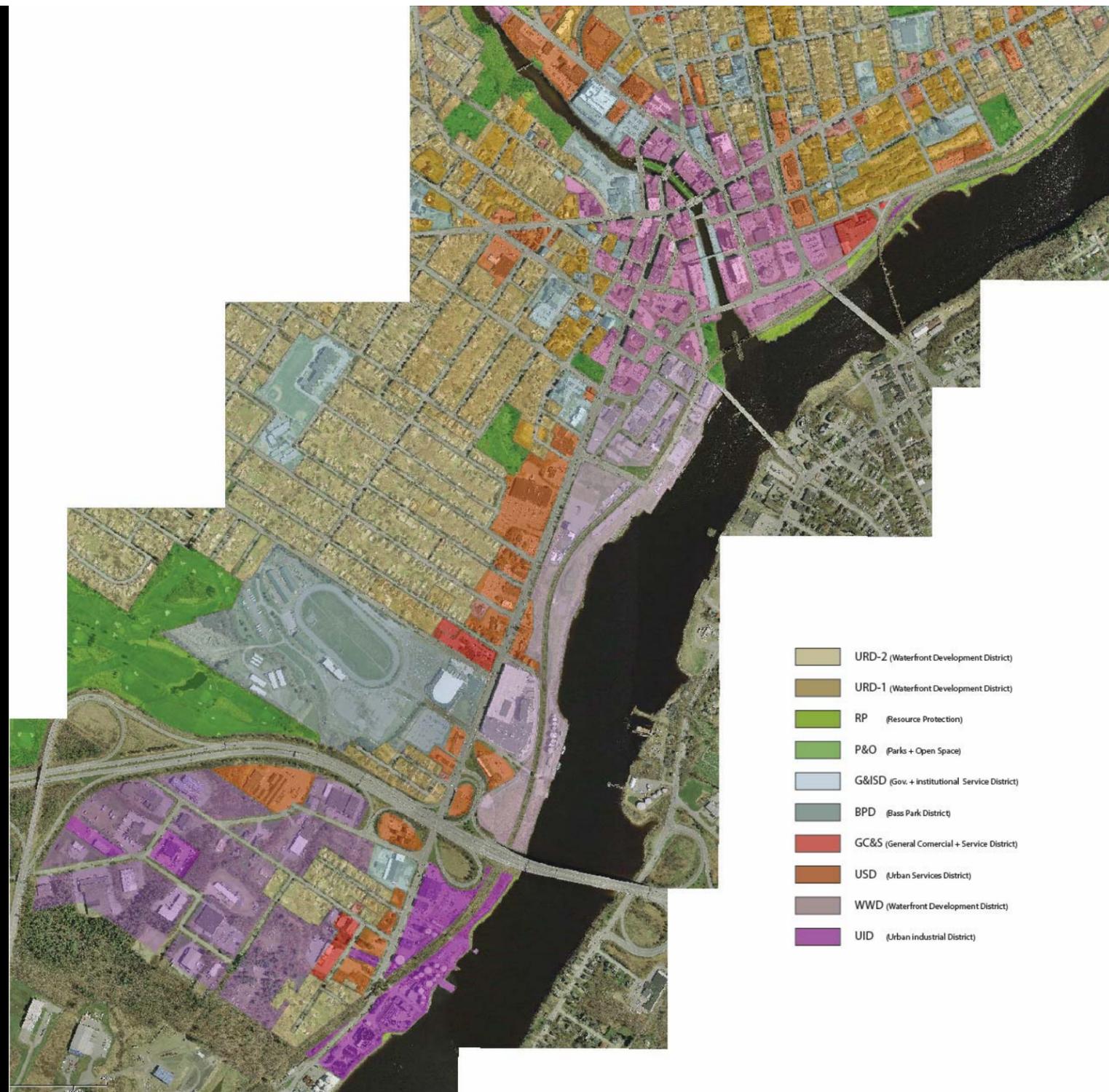


SITE: past

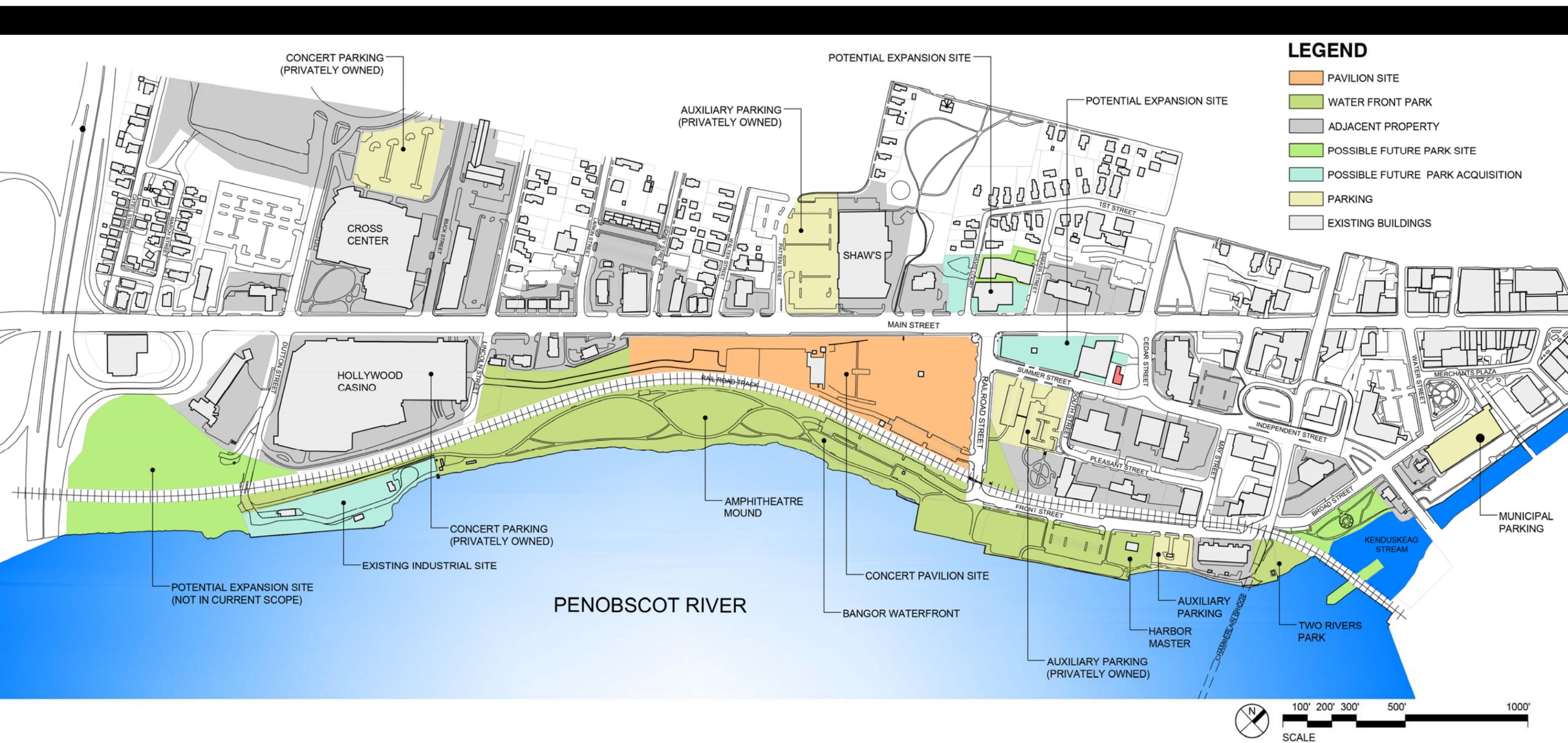
present

future

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Zoning ~ link between commercial centers ~ park as dumbbell connector



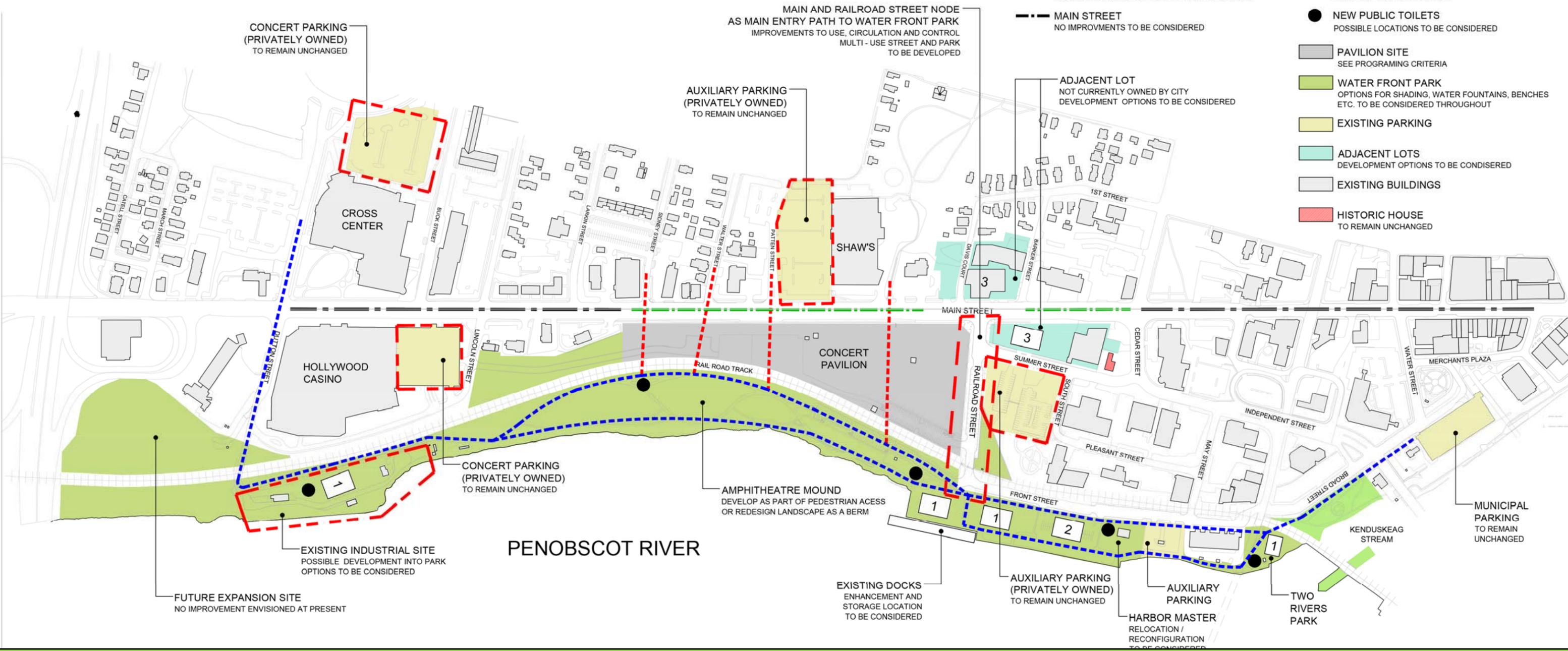
Existing Waterfront and Concert Pavilion Site



Penobscot, Railroad, Park, Front street, Main Street

LEGEND

- - - PUBLIC ACCESS TO WATERFRONT
OPTIONS TO BE EXPLORED
- - - ENHANCED PATH
ACCESS, ADA, WAYFINDING TO BE EXPLORED
- - - MAIN STREET
POSSIBLE IMPROVEMENTS TO EAST SIDE OF STREET
- - - MAIN STREET
NO IMPROVEMENTS TO BE CONSIDERED
- 1 PUBLIC STAGE
LOCATION TO BE CONSIDERED
- 2 HARBOR MASTER, DOCK STORAGE
LOCATION TO BE CONSIDERED
- 3 VISITOR CENTER, RETAIL, RESTURANT
LOCATION TO BE CONSIDERED
- NEW PUBLIC TOILETS
POSSIBLE LOCATIONS TO BE CONSIDERED
- PAVILION SITE
SEE PROGRAMING CRITERIA
- WATER FRONT PARK
OPTIONS FOR SHADING, WATER FOUNTAINS, BENCHES
ETC. TO BE CONSIDERED THROUGHOUT
- EXISTING PARKING
- ADJACENT LOTS
DEVELOPMENT OPTIONS TO BE CONSIDERED
- EXISTING BUILDINGS
- HISTORIC HOUSE
TO REMAIN UNCHANGED



Programing Goals



- 1 Performance Center + Forecourt
- 2 Plaza Green
- 3 Main Street Presence
- 4 Dutton Street Underpass
- 5 Bridge to Amphitheater Mound
- 6 Way Finding
- 7 Two Rivers Park
- 8 Park Amenities

Master Plan Drawing + Key



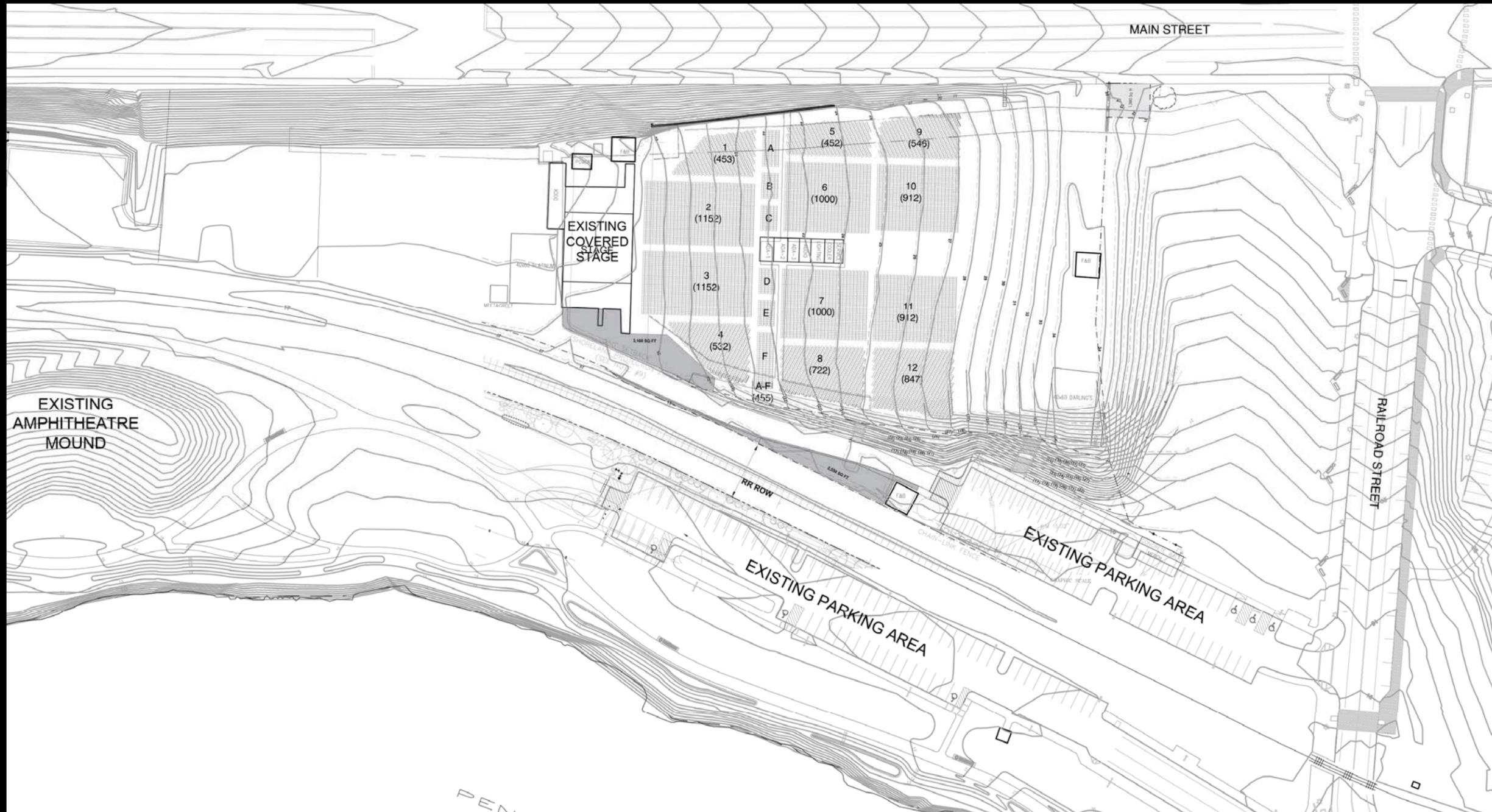
past



present



Venue Photos: fencing, road, slope, backstage, access



Current venue layout
10,000 Seats

Circulation concerns

Emergency access issues

Public access concerns

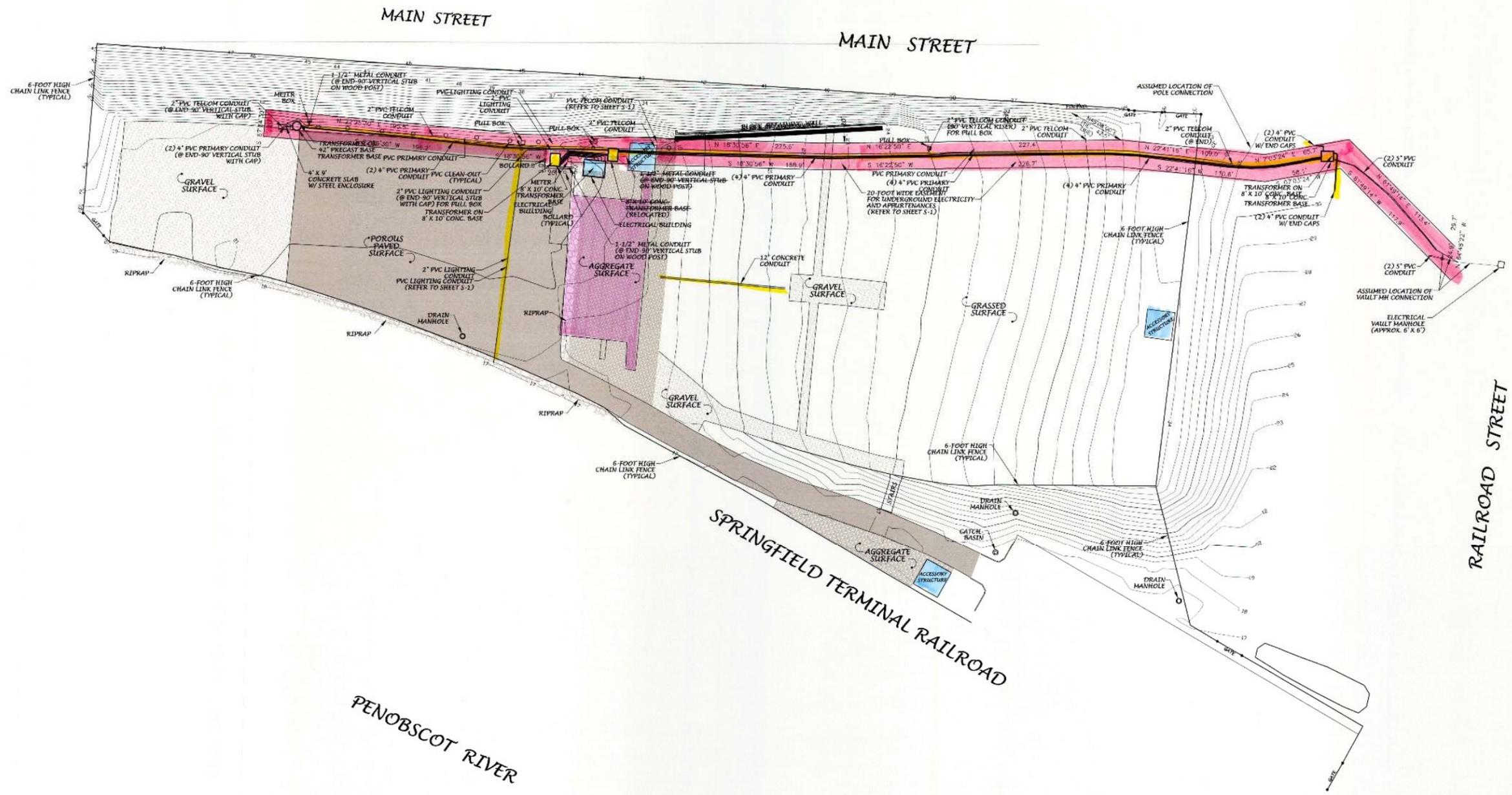
Off season limitations

Viewer/performer conflict

Vehicular access

Sound control issues

Use Issues



Existing Site Utilities

CITY OF BANGOR MAINE

Division Director and Code Enforcement Officer
Jeremy Martin

CONSTRUCTION PERMITS REQUIRED

Bangor Construction Permit (Contractor to Apply)
Fire Marshal's Construction Permit (Architect to Apply)
Fire Marshal's Barrier Free Permit (Architect to Apply)

ZONING ORDINANCE

Waterfront Development District (WDD)

APPLICABLE CODES

Effective December 1, 2010 State Laws mandates the following codes under the Maine Uniform Building Code Act.

- 2009 International Building Code
- NFPA 101 Life Safety Code 2009
- ADA

Other Codes

- 2009 International Energy Conservation Code
- 2014 National Electric Code
- 2009 Maine State Plumbing
- 2007 ASHRAE Standard 90.1.2007
- 2007 ASHRAE Standard 62.1 - 2007
- IBC Base Climate Data
 - Ground Snow Load 80 lbs
 - Wind Speed 80 mph - 3 seconds sustained gust
 - Frost Depth 5 feet
 - No Special seismic requirements
 - No hurricane requirements

MAXIMUM HEIGHT

65 Feet; except 35 in the Shoreland Zone within 250 feet of mean high-water mark of the Penobscot River.

SET BACKS

Front Yard: 0 feet
Side Yard: 20 feet
Rear Yard: 20 feet
Water: 50 feet

Assumed Occupancy: 15,000

2009 International Building Code

Occupancy activities)

A-5 (Assembly: participation or viewing outdoor

Section 303

Assumed

15,000 people

Height

Unlimited
Section 503

Stair and Aisle

Width of Aisle for Smoke-Protected Assembly
Section 1028.6.3
0.08 in per total occupant served
Main Exit to accommodate 50% of occupant load

(Indoor only?)

Travel Distance

No greater than 400 feet (open air seating)
Section 1028.7

Number of Exits 4 Minimum

Table 1021.1

NFPA 101 Life Safety Code 2009

Occupancy

Assembly Occupancy (3.3178.2)

Assumed

15,000

ADA 2010

Wheelchair Seating

86 Wheelchair Spaces
36 plus 1 for each 200 or fraction thereof, over 500
Table 221.2.1.1

Companion Seating shall be provided for

At least one companion seat complying with 802.3 each wheelchair space
Section 221.3

Lawn Seating to an accessible

Where fixed seats are not provided, it must connect route
Section 221.5

Bathrooms

Where toilet compartments, water closets, urinals, lavatories, and mirrors are provided, at least one (of each type) toilet compartment shall comply with ADA 604.

2009 Maine State Plumbing Code

Table 4-1

Occupancy

Assembly Places – for public use

Assumed

7500 Men
7500 Women
Total: 15,000

Water Closets

Men: 18
Women: 68
Total: 86

Urinals

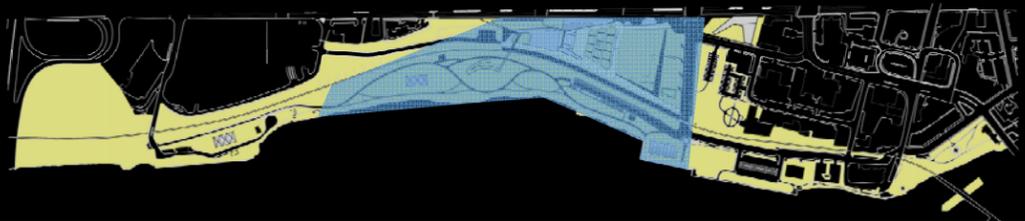
Men: 27
Women: N/A
Total: 27

Lavatories

Men: 17
Women: 17
Total: 34

Drinking Fountains

Total: 32



Waterfront Park Site Plan

Primary Criteria

All benchmark square foot minimums are estimated and based on previous experience with amphitheatres based on typical capacities.

Performance Facility	<u>88,000 SF</u>
<ul style="list-style-type: none"> o Stage <ul style="list-style-type: none"> • 7,000 SF Total • Main 60' x 60' (existing) 3,600 SF • Wings 60' x 20' x 2 (existing) 2,400 SF • Loading Dock 1,000 SF o Covering 60,000 SF (estimated plan area) o Seating (Fixed and Standing) <ul style="list-style-type: none"> • Capacity 58,000 SF 6,500 people • Typical Area Fixed Seats x10 SF/per 50,000 SF 5,000 people • Standing (G.A.) x5 SF/per 7,500 SF 1,500 people o Reception 5,000 SF o Toilets 3,500 SF o Concessions 4,500 SF o Back of House 10,000 SF • Green/ VIP/ Talent Room(s) • Toilets • Hospitality • Catering • Storage • Office 	

Park / Lawn Seating

o Lawn	82,000 SF 8,000-10,000 people
o Day of Show Tickets	1,000 SF
o Public Toilets	3,500 SF
o Concessions	4,500 SF

Forecourt / Plaza Green

(30% - 50% of capacity)

o Toilets	3,500 SF
• Permanent	3,500 SF
• Temporary	3,500 SF
o Concessions	
• Permanent	4,500 SF
• Temporary	4,500 SF
o Support Facilities	2,000 SF
• Security	
• Storage	
• Janitorial	

Community Performance Space

min.

Stage 40'x60'	2,400 SF
Capacity	2,000 people
Typical Area (Standing) x5 SF/per	10,000 SF

Entrance treatment

ADA accessibility + Code Compliance

Exit strategies

- Crowd Egress
- Emergency Access

Lighting

Sound Control

91,000 SF

82,000 SF
8,000-10,000 people

1,000 SF
3,500 SF
4,500 SF

42,000 SF

3,500 SF
3,500 SF

4,500 SF
4,500 SF

2,000 SF

14,400 SF

2,400 SF
2,000 people
10,000 SF

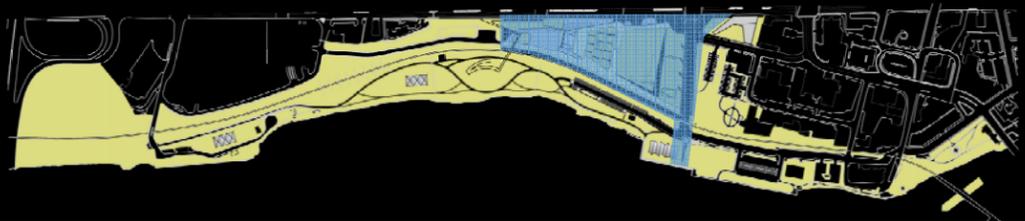
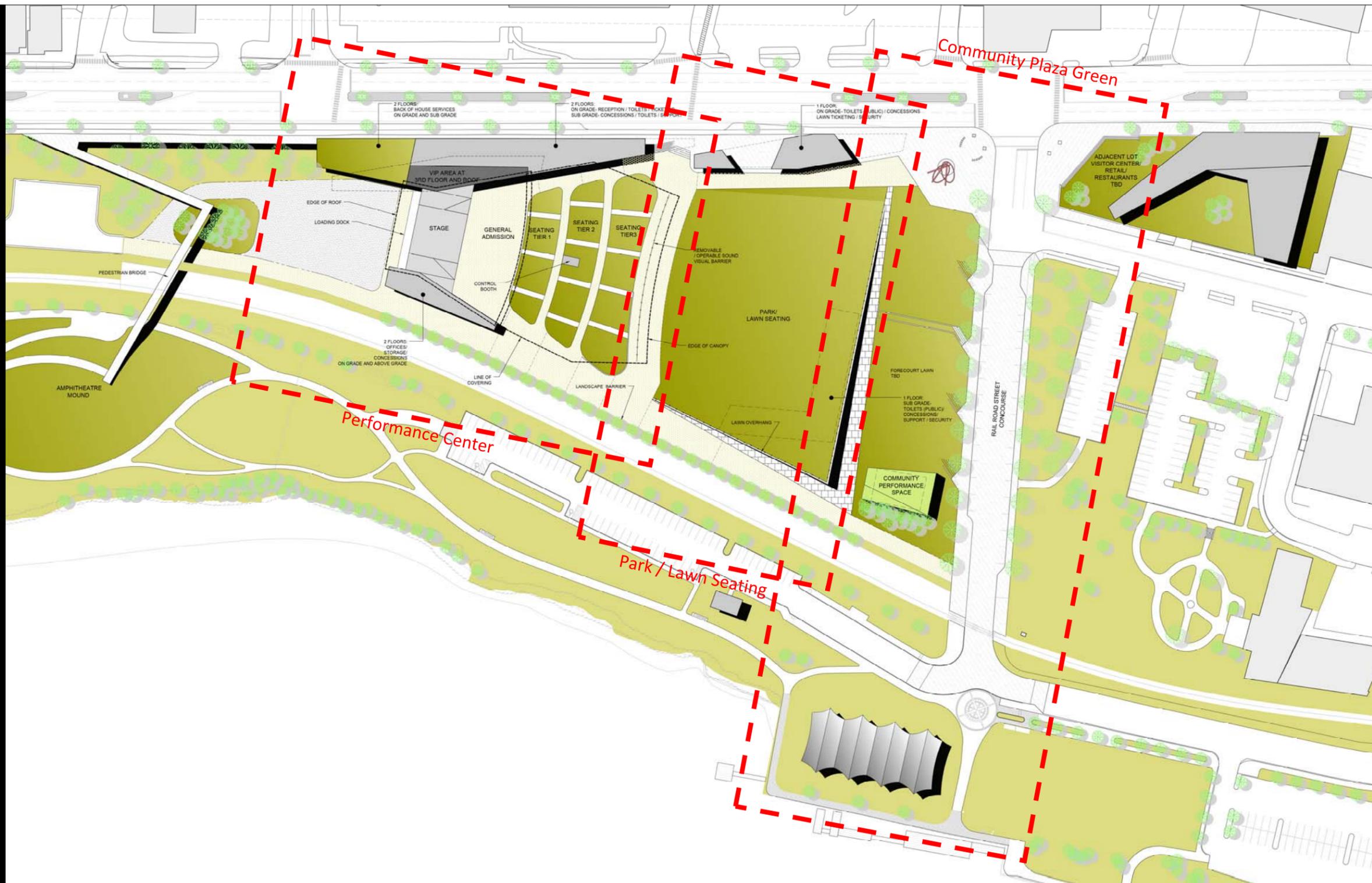
Secondary Criteria

- o Way Finding
- o Off Site Stage
- o Shading (trees or structures)
- o Water Fountains
- o Benches
- o Winter use
- o Additional Utilities
- o Approach to Amphitheater Mound

Tertiary Criteria

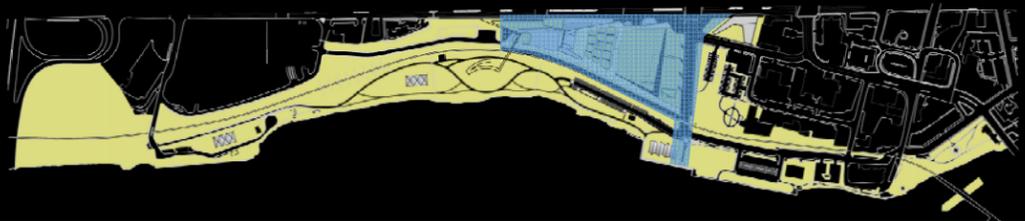
- o Public events (i.e. fireworks, Bangor band, etc.)
- o Food Trucks
- o Vending
- o Harbor Master Office
- o Docks
- o Dock Storage Center (off-season)
- o Visitor Center
- o Wi-Fi
- o Sculpture
- o

The Performance facility should contribute to the surrounding context as well as honor the ecology, make a positive impact on the lives of the people who live and work in the community and accomplish something that points toward 'Architecture' rather than a mere 'building'.

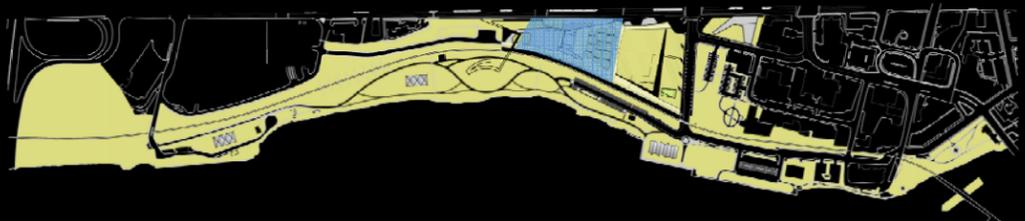
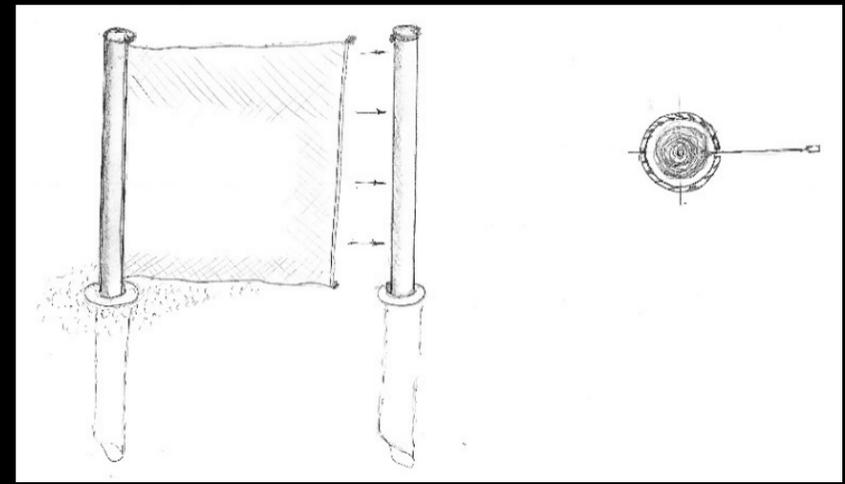
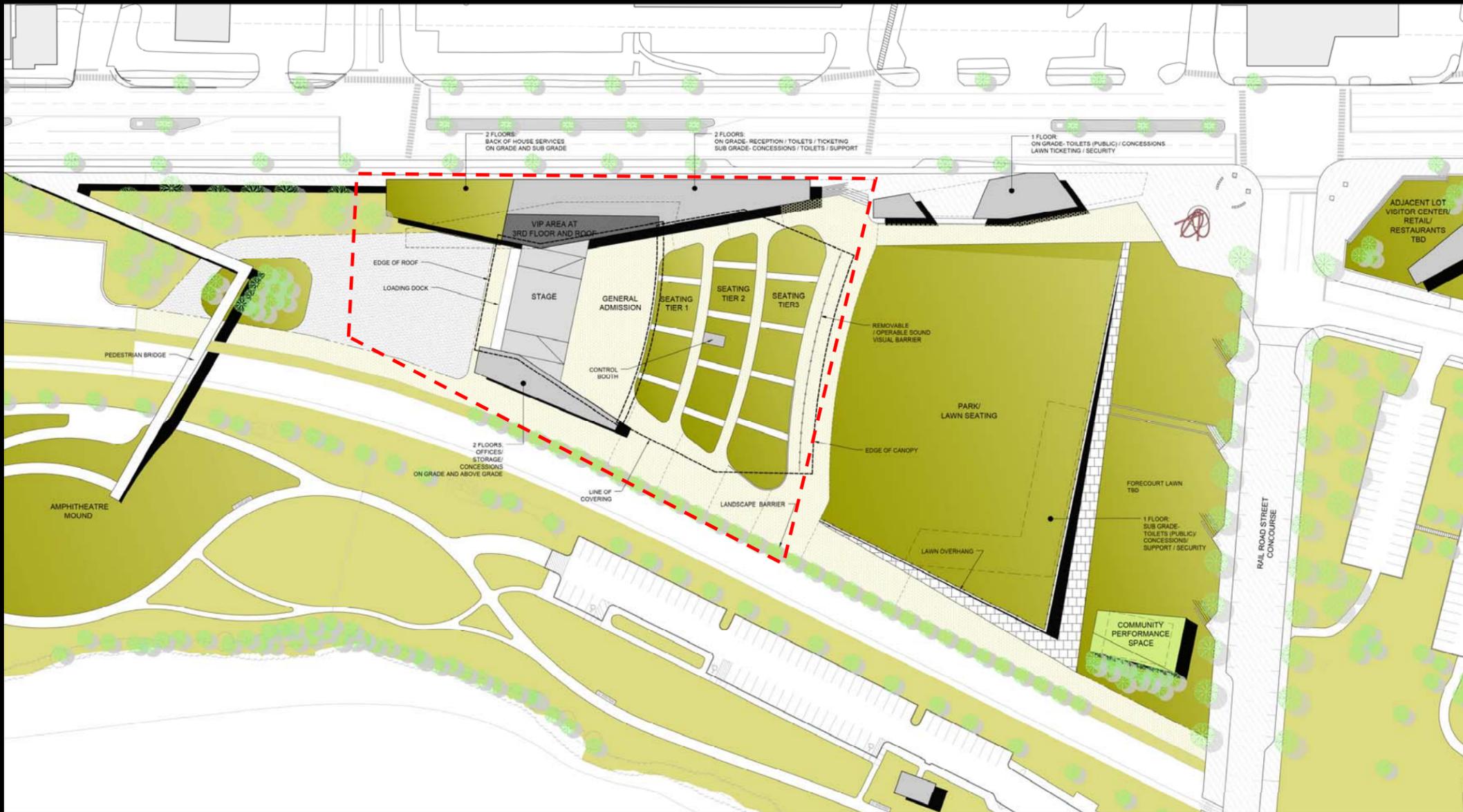


Proposed Performance Facility and Forecourt Layout

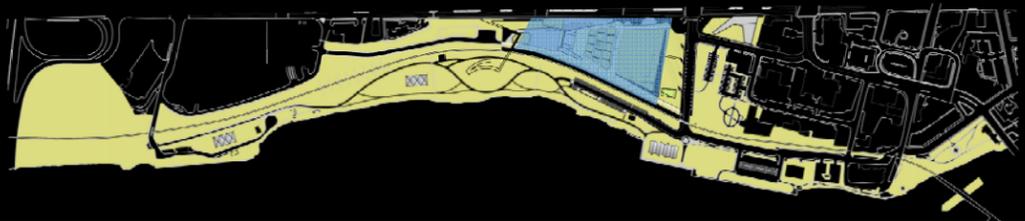
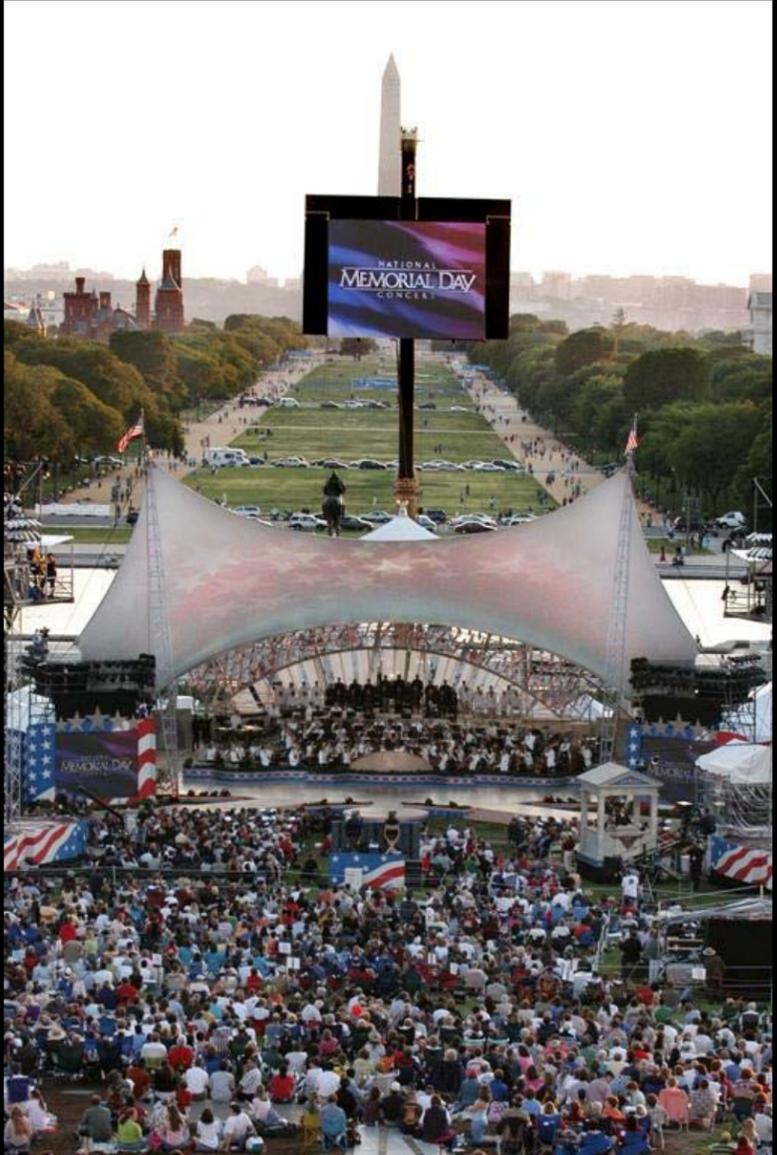
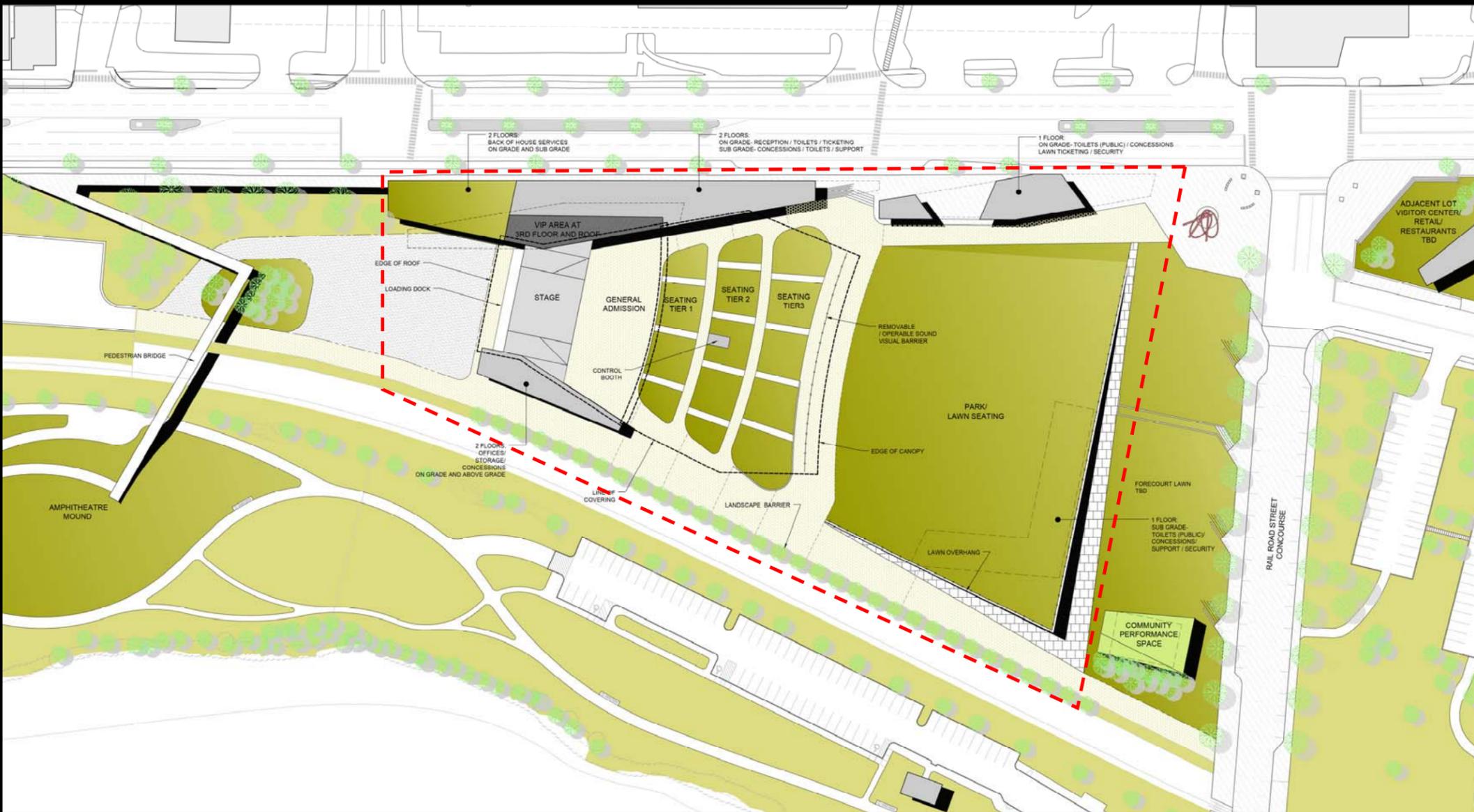
Layering of space and Function



Proposed Performance Facility
and Forecourt location



Performance Center ~ typical (6,000 max.)



Large Performance (12,000 people)

The new pavilion for the Bangor Waterfront will be a venue that will be excellent acoustically for audience and performers alike and will provide reduced sound levels in the community.

The current facility at the site consists of a steel truss work stage from which line array speaker clusters are suspended from that provide sound to the audience. Sound levels were measured at the facility and in the neighboring areas of downtown and across the river in Brewer. These levels averaged between 70 and 80 decibels in Bangor and between 65 and 70 decibels across the river in Brewer depending on volume of show.

The design of the tensile structure will provide a degree of sound containment due to its shape and absorptive material and even more importantly the loudspeaker arrays will now be divided. This means that the main line arrays will only need to supply sound to the patrons inside the pavilion while supplemental speakers will provide sound to lawn patrons. This splitting up of the system means that sound levels are reduced from each system as the main line arrays no longer need to supply sound coverage to the patrons at the back of the lawn. This results in reduced sound levels to the community from unavoidable sound propagation. The lawn speakers are also positioned and aimed such that sound spill beyond the grounds is greatly reduced.

We estimate that these two factors will reduce the sound levels in the community by 5 decibels and as much as 10 decibels, depending on atmospheric conditions and the program; which is a clearly noticeable reduction.

Acentech Report Review by Jaffe Holden

The acoustic report by Acentech is well done. We understand that the exemption has been granted by the DEP for the impact to Brewer but that it would need to be monitored during the concert season. We recommended that the city not only contract for the monitoring but also to put in place an enforcement piece to insure compliance this season. We also recommended that the first concert on May 9th be well controlled to reduce the amount of complaints which would make the rest of the season easier since that concert, Rise Above Festival, is by far the loudest event of the season. Other uses of the park that also use audio reinforcement and playback include the Folk Festival and to a lesser degree the CDB events. These events also are included in the DEP exemption and could be subject to a violation if too loud.

We discussed physical options to reduce sound and the only one that has a potential to reduce some sound would be a roof structure. Through the use of a distributed sound at the edge of lawn seating that the venue controls, it is possible to reduce the sound levels by the promoter's bands inside the pavilion.

City of Bangor
July 25, 2014
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CURRENT SOUND PROPOGATION MAP

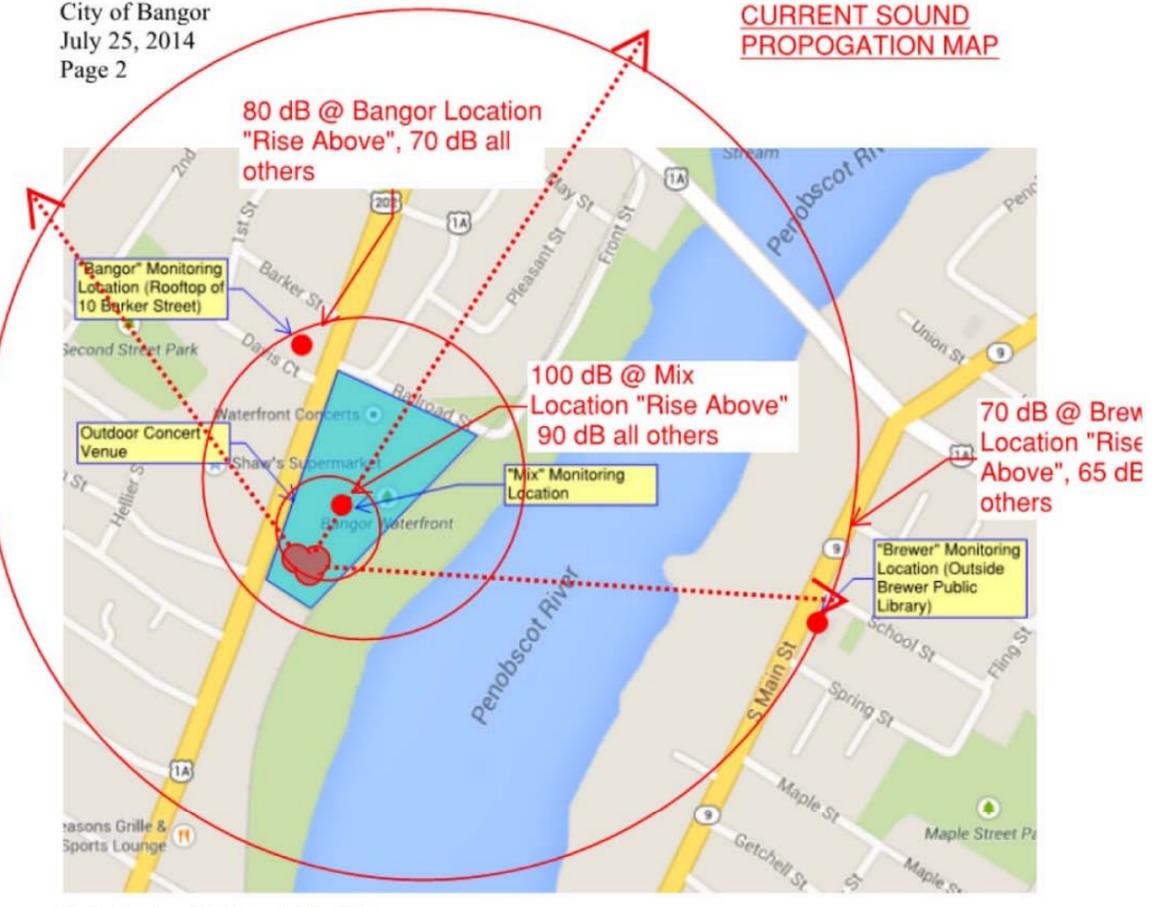


Figure 1. Sound level monitor locations.

City of Bangor
July 25, 2014
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ANTICIPATED NEW SOUND PROPOGATION MAP

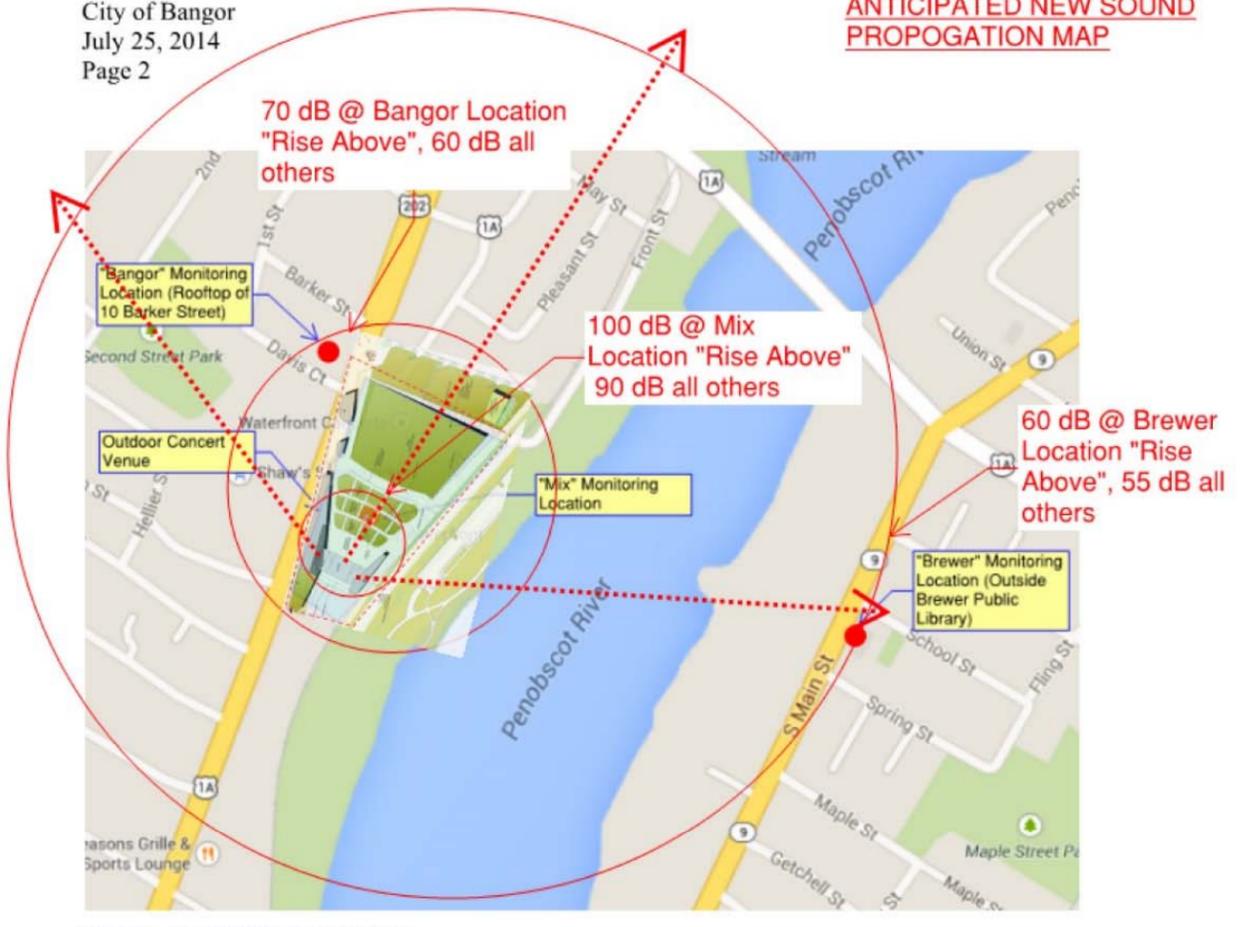


Figure 1. Sound level monitor locations.

NEW PAVILION DESIGN REDUCES SOUND LEVELS IN THE COMMUNITY 10 DECIBELS



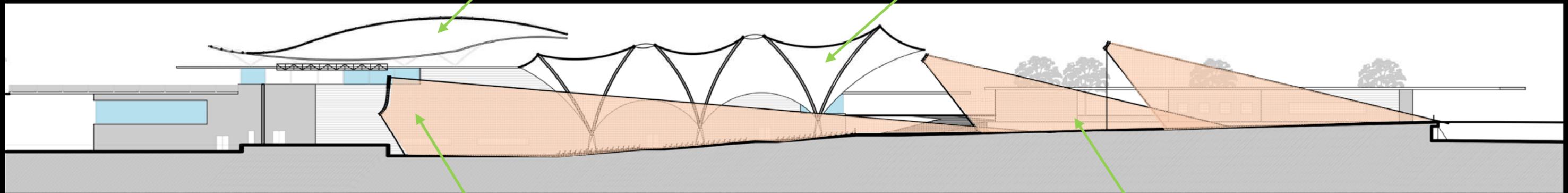
Sound Propagation Studies

1/2 as loud as 70dB

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acoustic shell ~ projection/absorption

tensile roof ~ sound blending

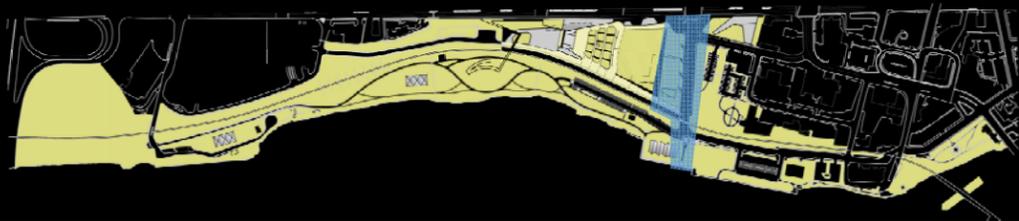


main speaker array

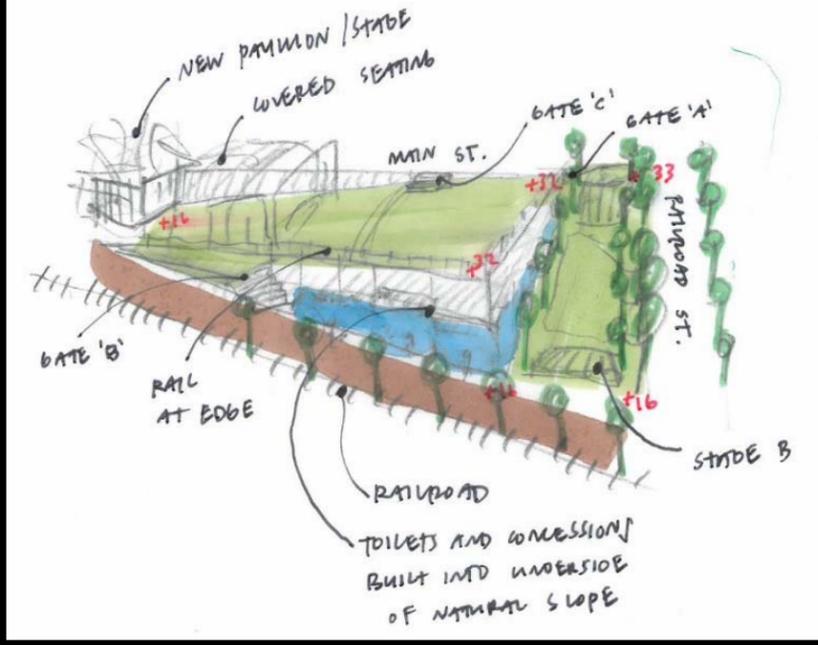
lawn speaker arrays



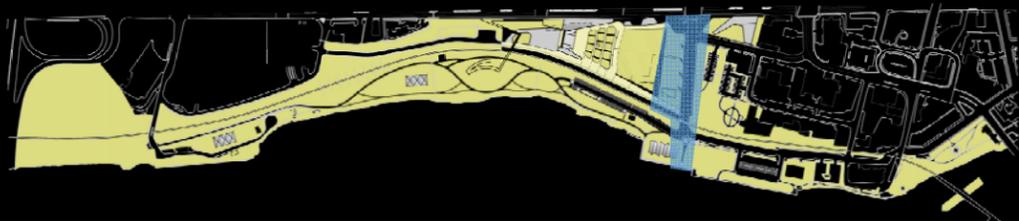
Acoustic Strategies



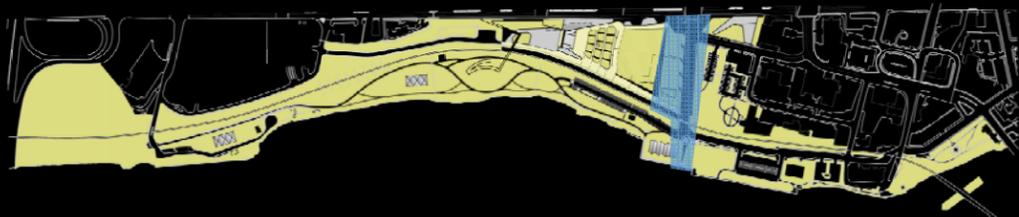
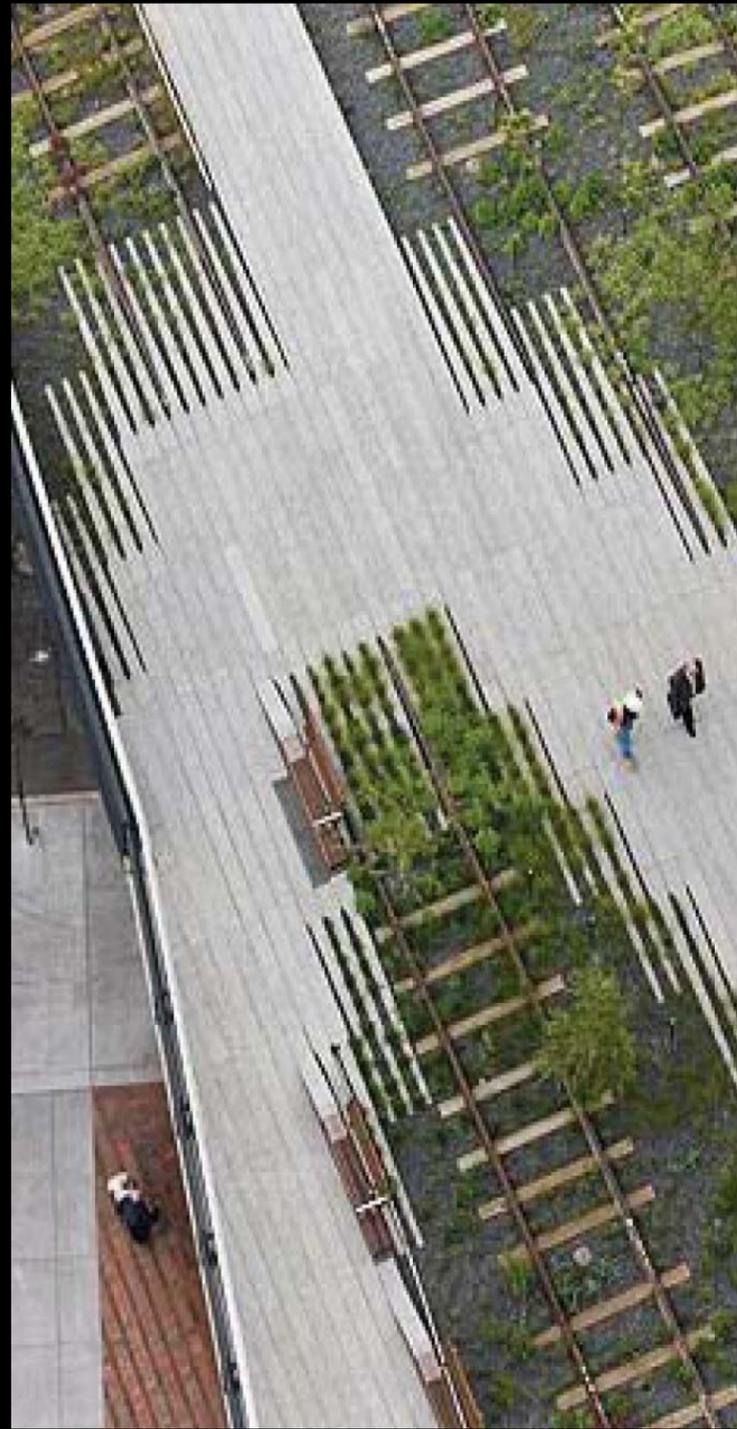
Community Plaza Green



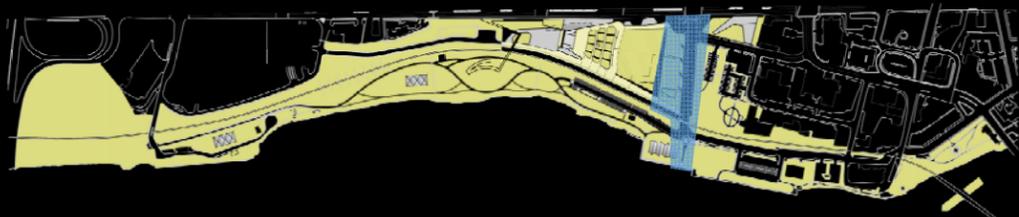
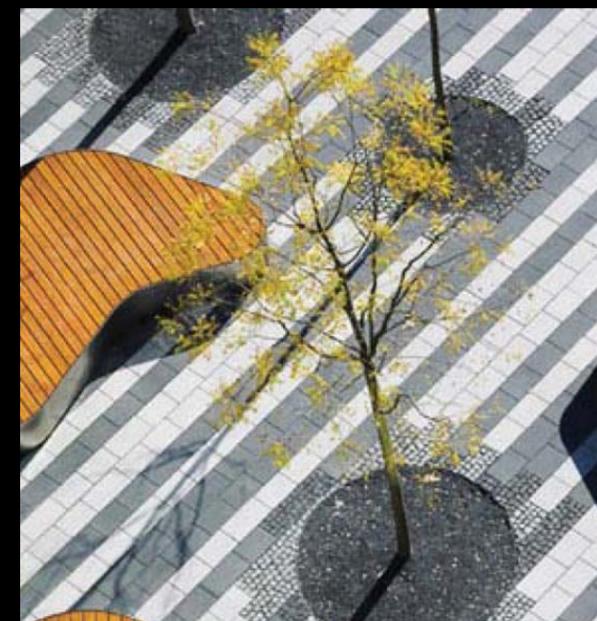
Lawn + Design Precedents



Community Plaza Green ~ process



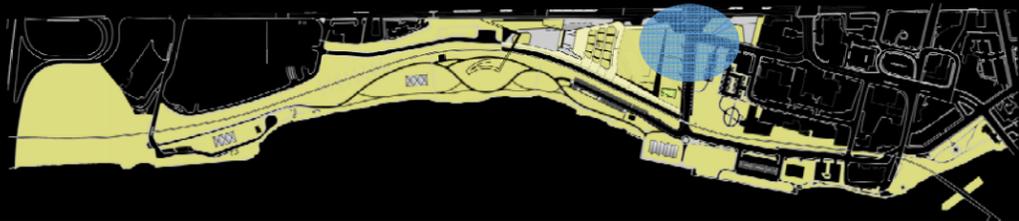
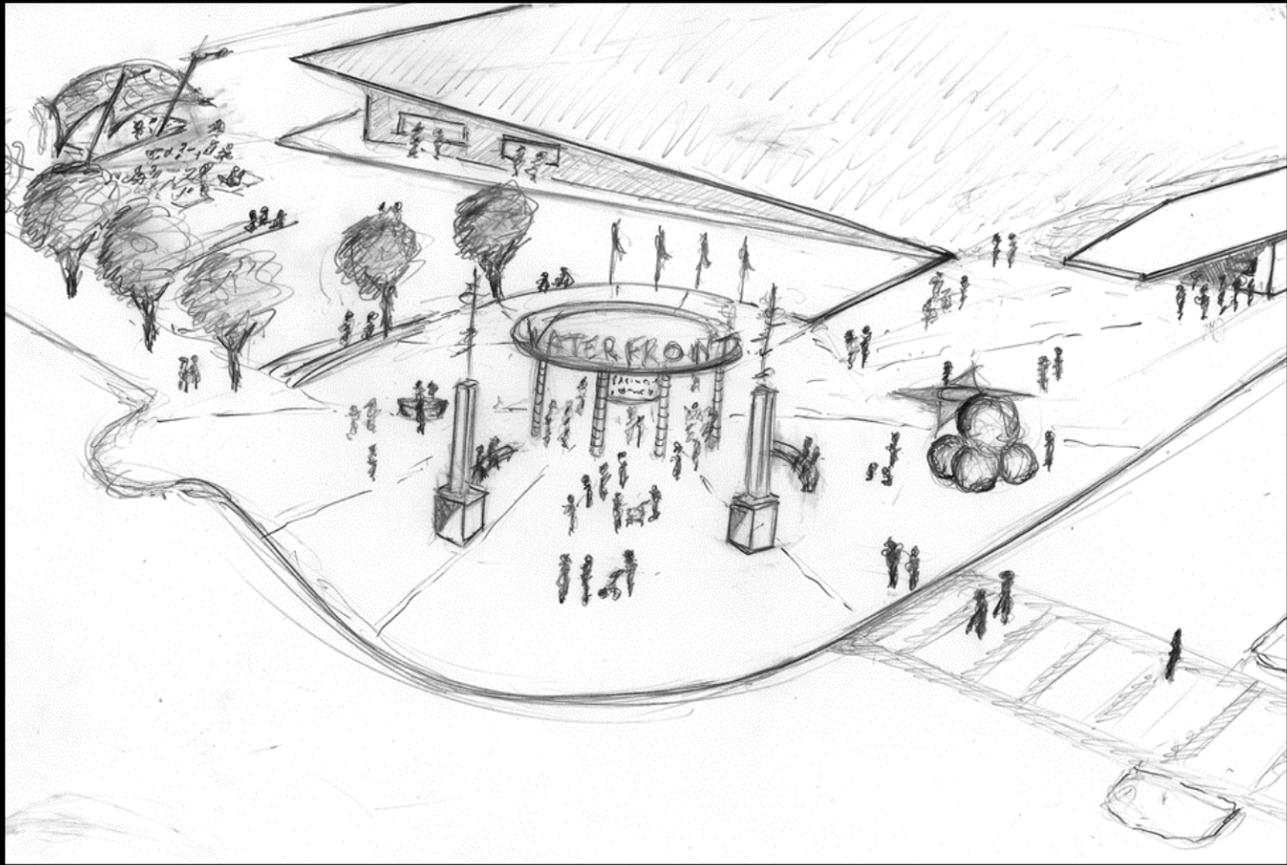
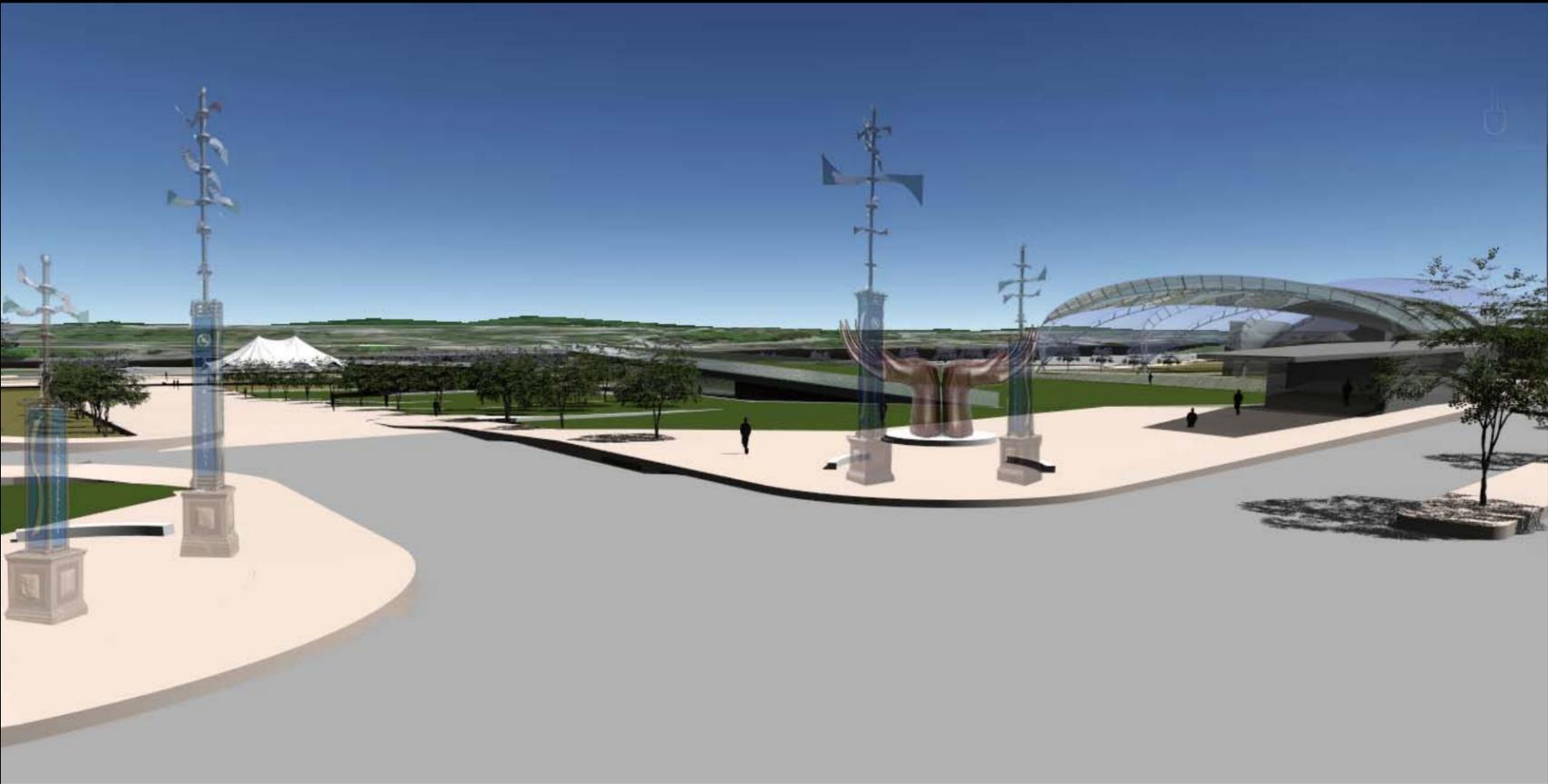
Community Plaza Green



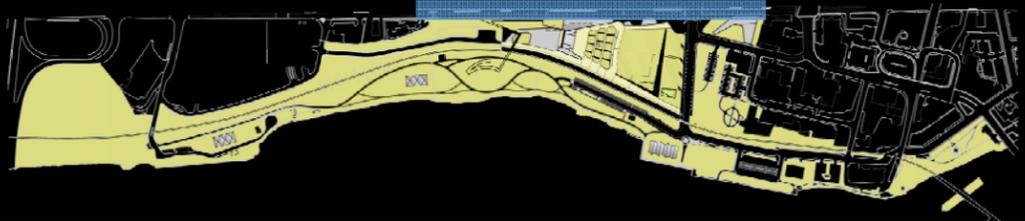
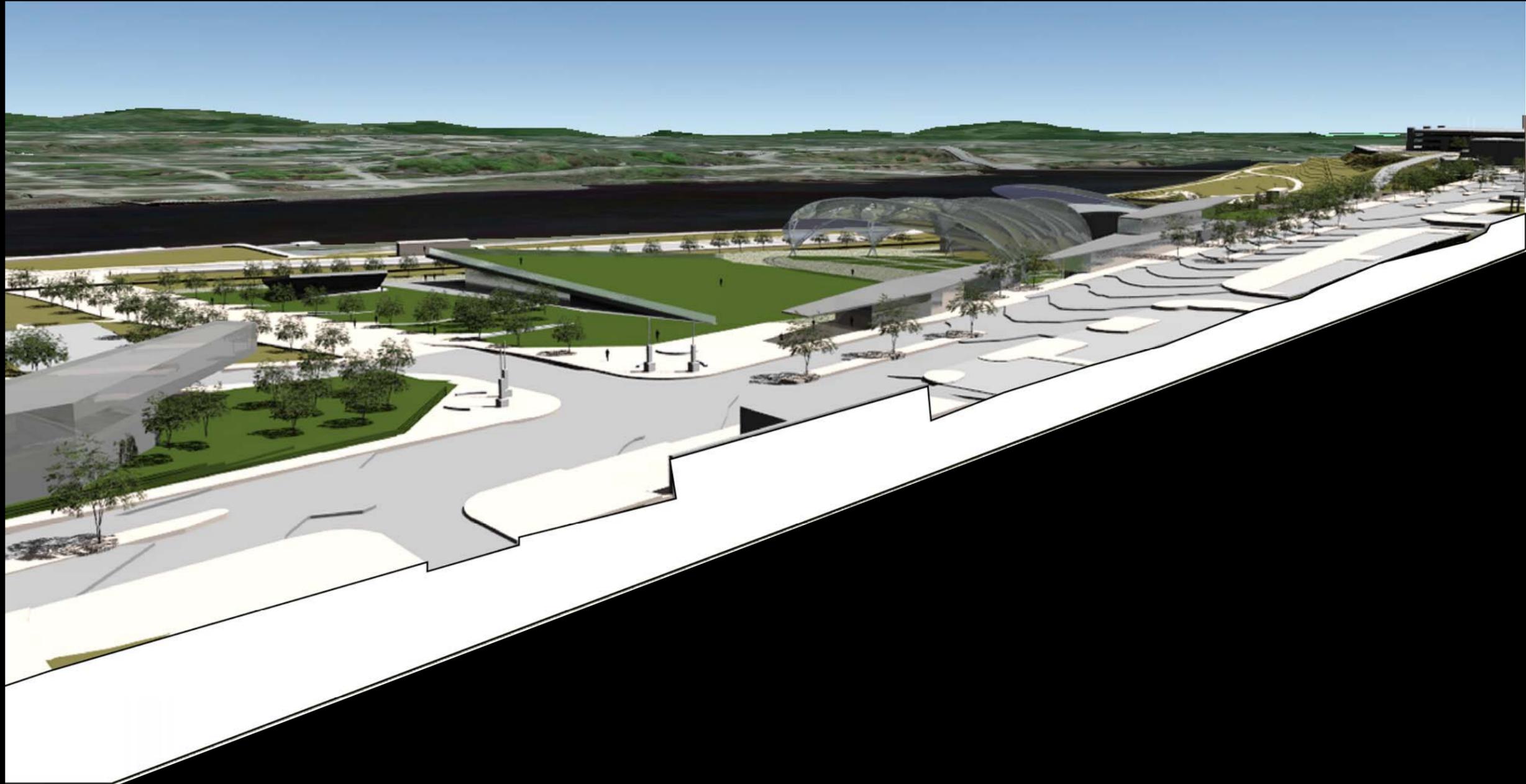
Paving Precedents: grasscrete, striped, hardscape



Main Street Presence



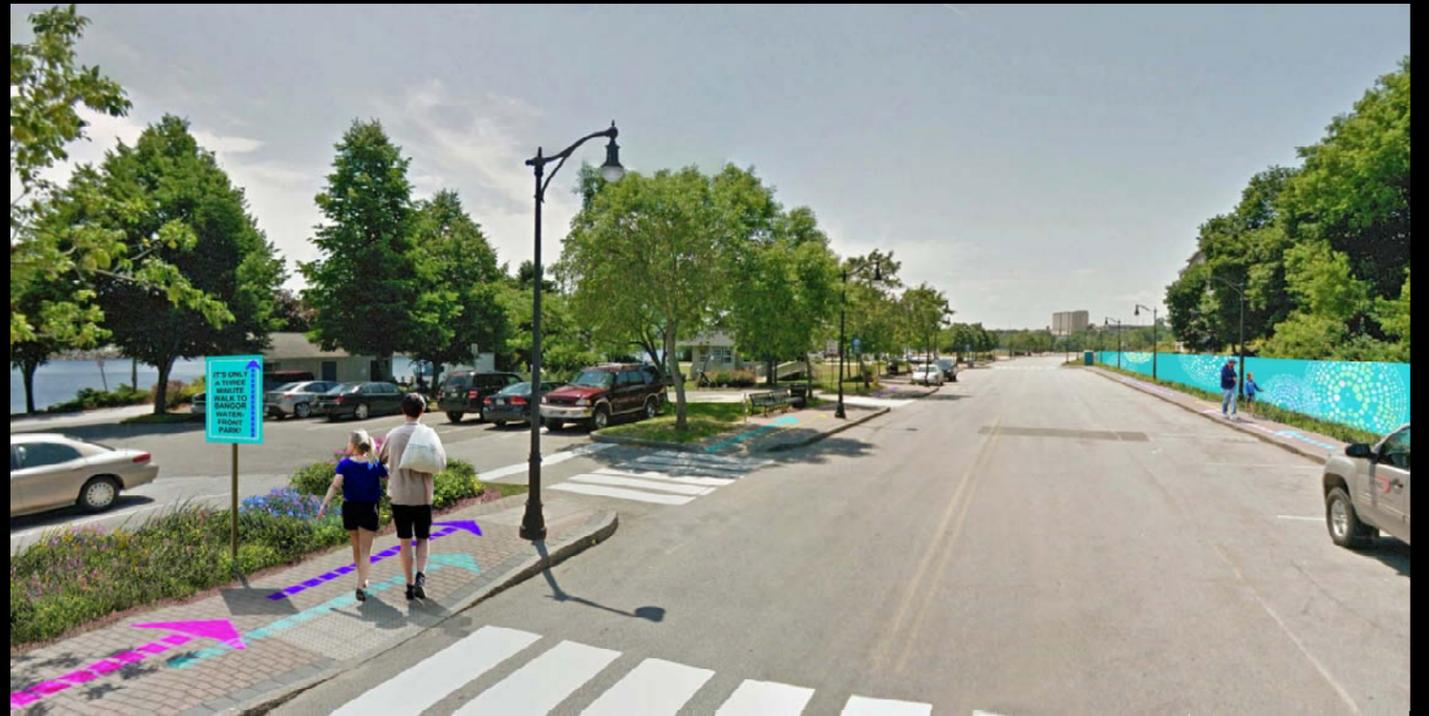
Gateway to the Waterfront Park



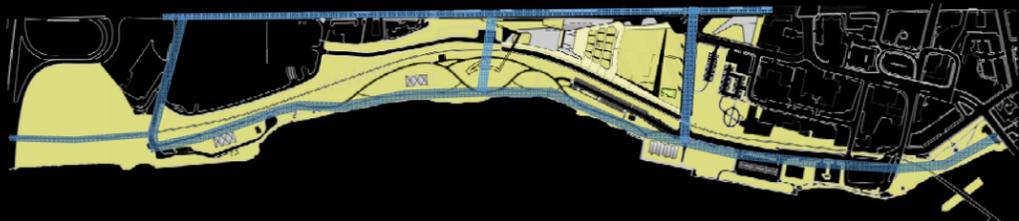
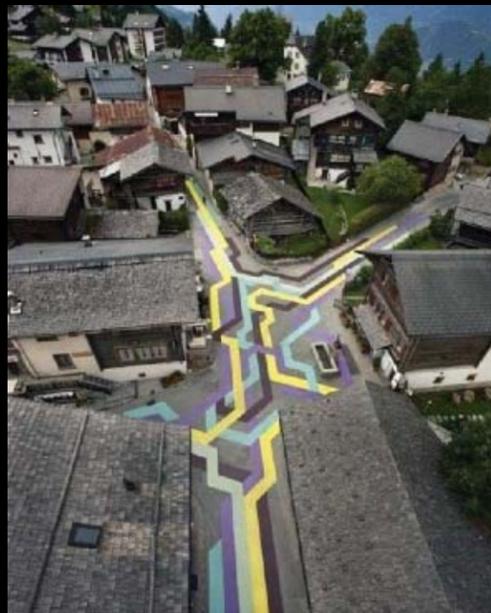
Main Street Presence



present



future



Way Finding ~ involve the public



Summer Green



Winter Plaza

BANGOR: WINTER CITY

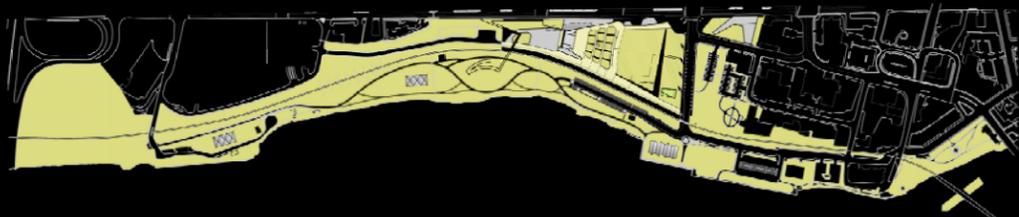
TAKE ADVANTAGE OF WHAT GREAT RESOURCES WE HAVE



present



future



Winter City: skating, skiing, snowcross

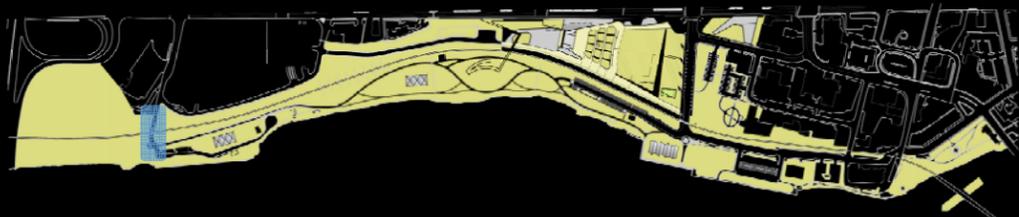
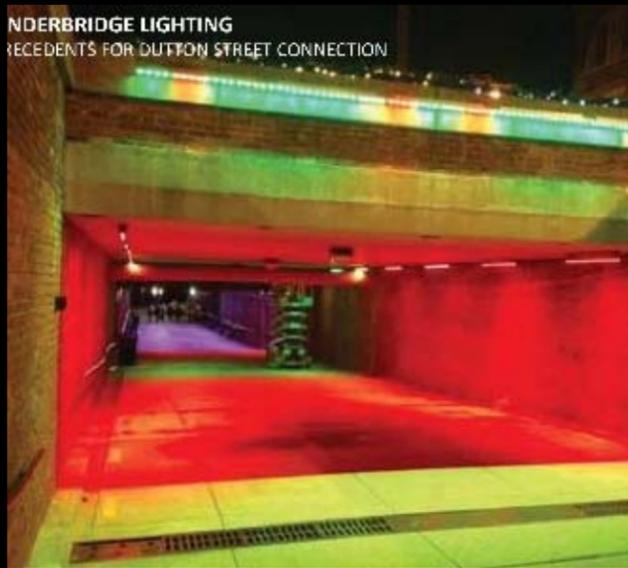
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present



future



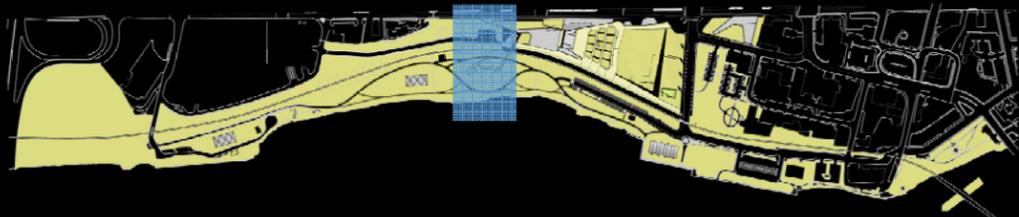
Dutton Street Underpass



present



future



Bridge to Amphitheater Mound



present



Current use as music ~ small event location

Use has developed organically

Recommendations

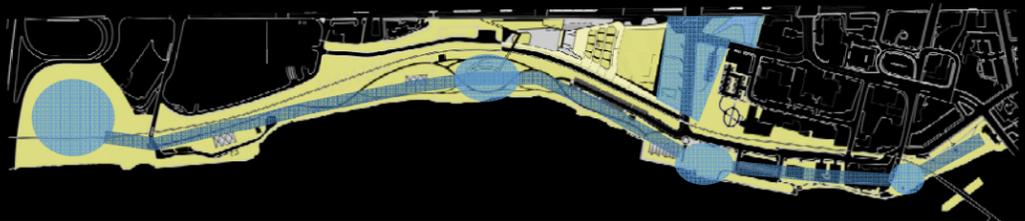
- Light touch
- Focal point - stage
- Enhance views
- Year round use
- Gateway to North end of the Waterfront



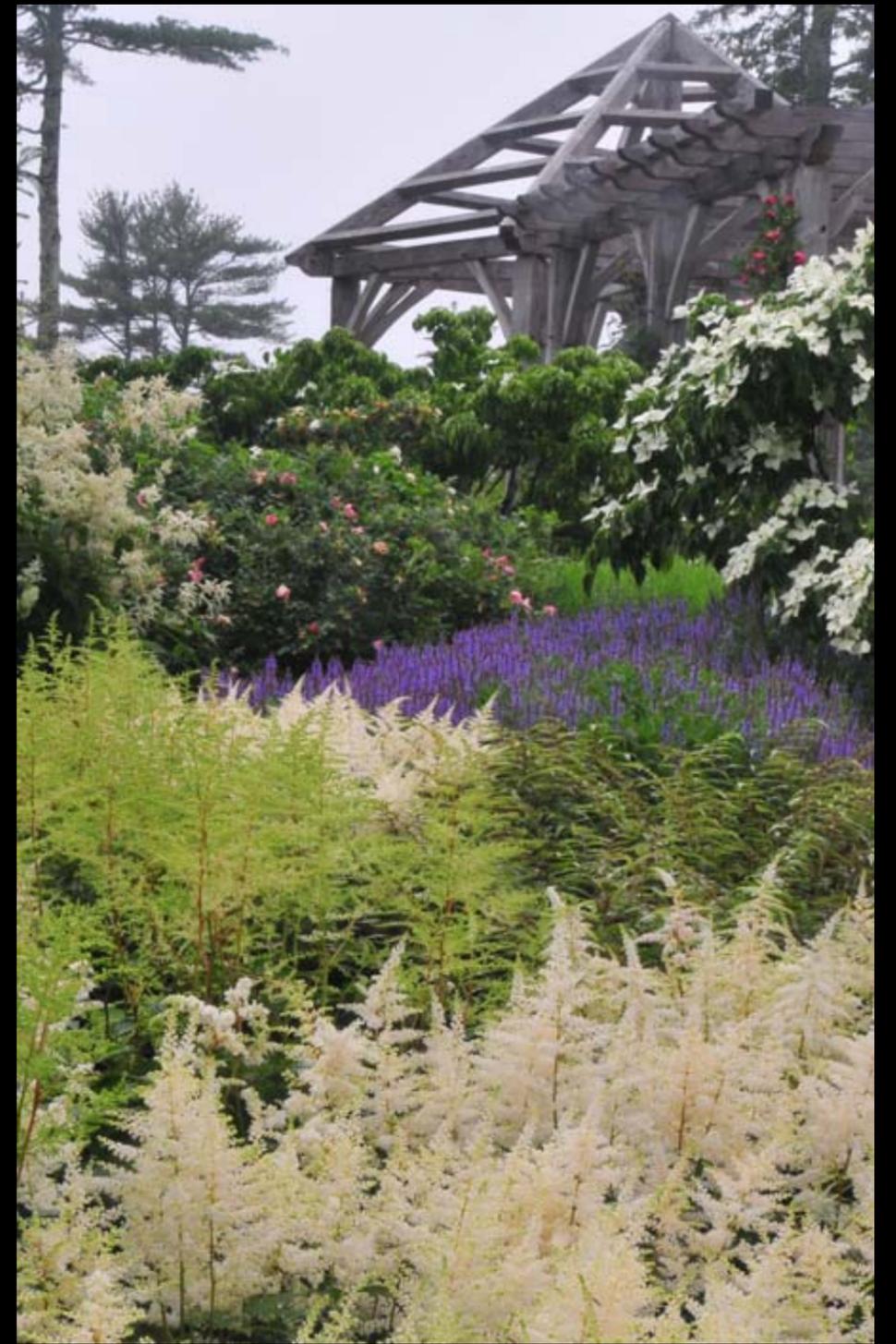
Two Rivers Park



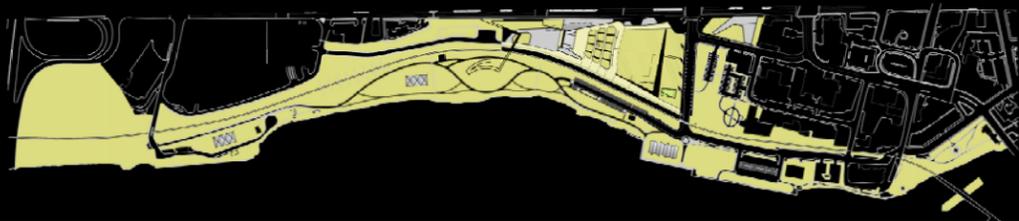
Container Kiosks: green, sustainable, temporary ~ trucks



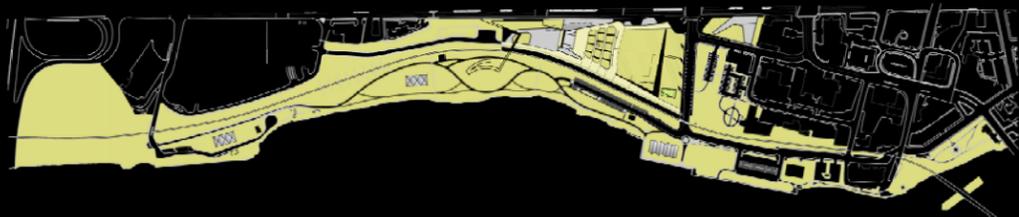
Public Sculpture



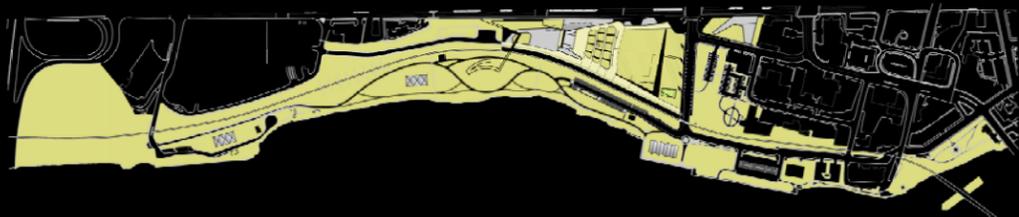
Flora and Plantings



Park Amenities - benches



Park Amenities ~ water



Park Amenities – shade





2018

ftl

A melding of the built form and landscape
creating a waterfront destination that is
uniquely Bangor



HARRIMAN
Architects + Engineers

tjd&a

Terrence J. DeWan & Associates
Landscape Architects & Planners

JaffeHolden

Acoustics • Audio/Video • IT Infrastructure

Project Team