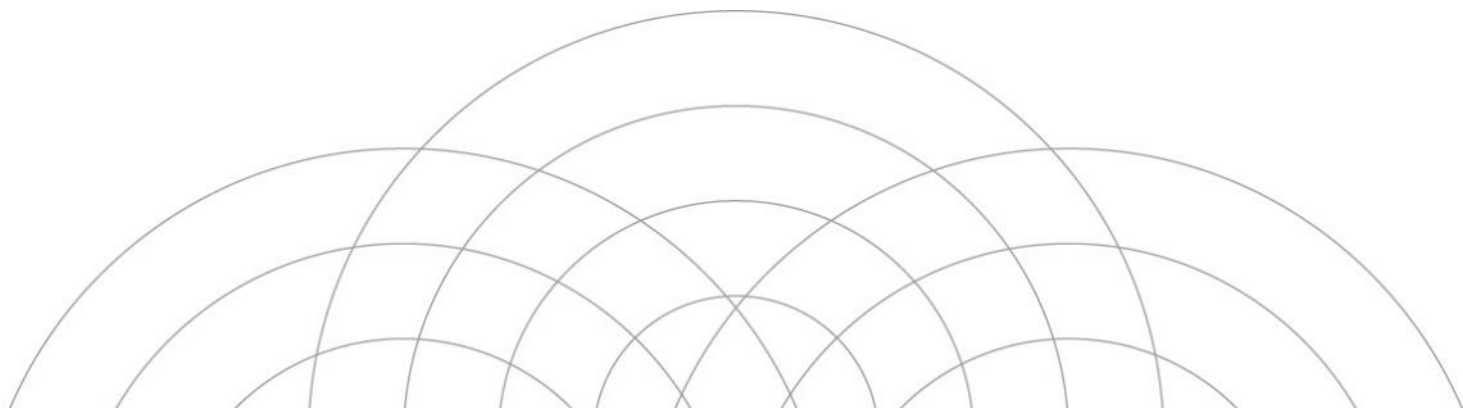


COCHECHO WATERFRONT

Draft Concept Plans

March 15, 2016





Donald W. Powers
Jeremy R. Lake

Architecture/Urban Design



Jonathan Ford
Robert M. Roseen

Civil Engineering/Urban Design



Jeffrey R. Hyland
Jennifer Martel

Landscape Arch./Urban Design



David G. Lamothe
Rebecca Cox

Geotechnical/Environmental

ABRAMSON & ASSOCIATES, Inc.
Real Estate Advisory Services

Barry M. Abramson

Financial Analysis

PROJECT TEAM

COCHECHO WATERFRONT

Project Team Introductions

Project Process

Recap of Previous Session

Draft Concept Plans

Framework Plans

Preliminary Park Designs

Shoreline Approaches

Grading Approaches

Financial Analysis

Waste Remediation Approach

Preliminary Permit Input

Next Steps

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COCHECHO WATERFRONT

Conceptual Design

Task 1: Pre-Design

Task 2: Preliminary Site Concepts

Task 3: Draft Concept Plans

Fast-Tracked Engineering

Task 4: Soil Remediation Plans and Permitting

Task 5: Dock Design and Permitting

Future Tasks (Phase 2)

Soil Remediation Oversight

Dock Construction Oversight

Concept Refinement

Detailed Site Planning/Engineering

Developer RFP Assistance

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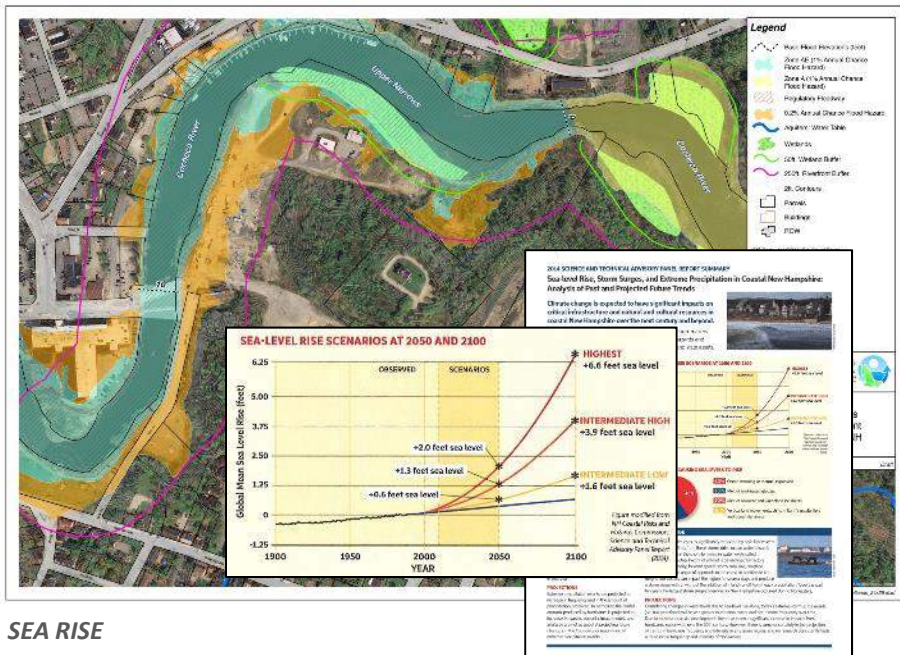
Waste Remediation Approach

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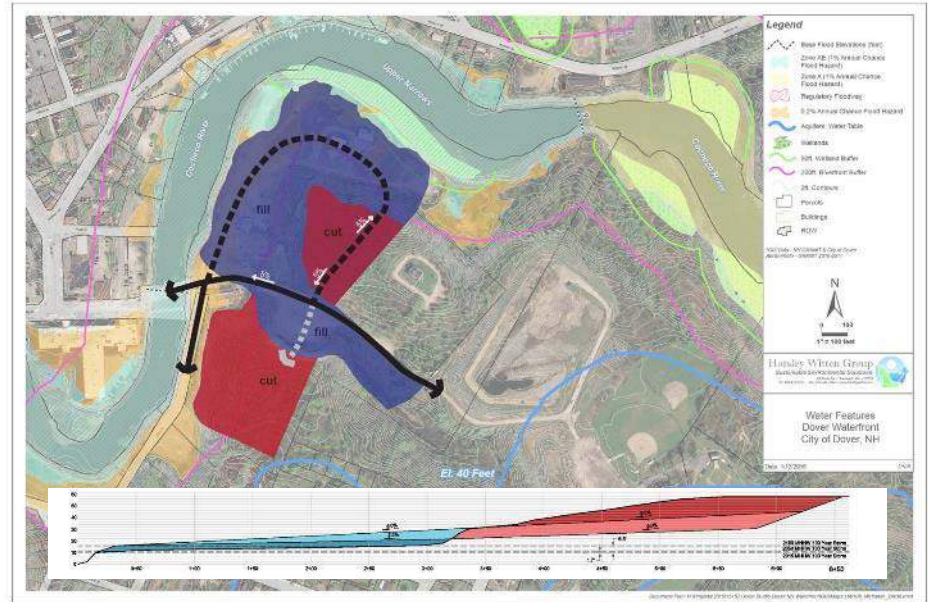
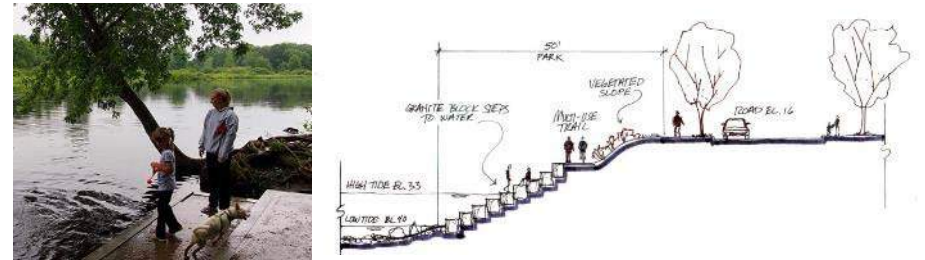
Next Steps

AGENDA

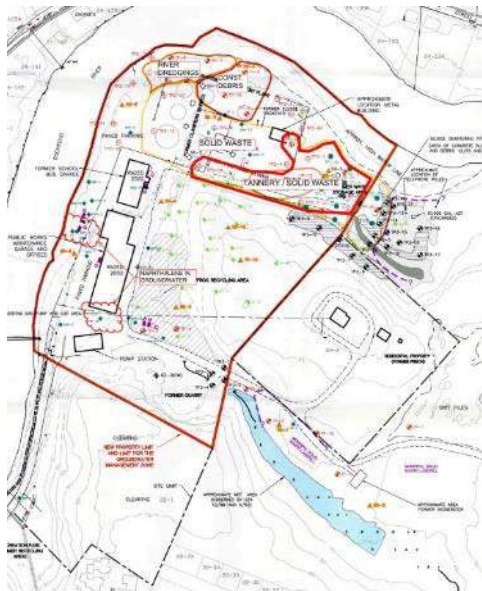
COCHECHO WATERFRONT



SEA RISE



SITE GRADING AND SHORELINE TREATMENTS



WASTE REMEDIATION

PREVIOUS SESSION

COCHECHO WATERFRONT



WATERFRONT PARK



DOCK LOCATION



SITE CONNECTIONS

PREVIOUS SESSION

COCHECHO WATERFRONT



PRELIMINARY SITE CONCEPTS

PREVIOUS SESSION

COCHECHO WATERFRONT



COCHECHO WATERFRONT DEVELOPMENT ADVISORY COMMITTEE - MINUTES

Meeting Type: Regular Meeting
Meeting Location: McConnell Center Room 305, 61 Locust Street, Dover, NH
Meeting Date: **Tuesday, February 16, 2016**
Meeting Time: **5:30 pm**

CITY OF DOVER

PRESENT: Jack Mettee (Chair), Dana Lynch, Sean Fitzgerald, Norm Frac Goodknight (5:50), Peg Parcell, Robbie Woodburn, Dennis G. Gottlob

EXOFFICIO MEMBERS: Mayor Karen Weston, Michael Joyal

STAFF: Steve Bird - City Planner, Gary Bamon - Recreation Director, Dan Development, Dave White - City Engineer

OTHERS: Chris Wyskiel, Amanda Gouge

1. Meeting was called to order at 5:32 pm.

Mettee: You will notice that you have a 3-ring binder on your desk that contains work plan, operating procedures and the 2005 charrette. This is so you can be organized.

2. Minutes of January 19, 2016

Motion: Lynch made the motion to approve the minutes of 1/19/16. Ciotti seconded.

3. Citizens Forum: None

4. Changes to the Agenda: Mettee asked to move item 7-A after items 7-B and 7-C.

5. Correspondence: None

6. Old Business:

A. Review of CWDAC Work Plan

Mettee: The most recent work plan is in the notebook for your review.

7. New Business

B. Review of Pre-Permitting Meeting held on 2/4/16 with Permit

Bird reviewed the meeting summary that was provided to members. It went well and there was good communication, which the agencies appreciated. Discussed included shoreline treatment options, floodplain, sea level solid waste issues. Rob Rosen, Dave Lamontie and Dean Peschel were present from the city.

Lynch: Was there any concern about the long term stability of the shore? Bird: The questions had more to do with the fact that the wall was left in place. Wetlands permit said anything about the wall having to be removed. Engineers may have obtained the permit for the wall.

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Document Posted on: February 18, 2016

Lynch: What was the mention of the federal channel all about?

Bird: There was a portion of the federal navigation channel that was decommissioned prior to the dredge because there was encroachment from the marina docks into the channel and this was seen as the best solution. The channel now ends south of the docks. It is helpful now because the channel will not be an issue if the dock or boat slips are placed north of the channel.

Mettee: The only downside is that any future dredging will have to be done by the federal government.

Bird: There was also discussion about the potential need to do more characterization testing but DES has funds to help pay for that. We are meeting with DES next week to discuss that option. There was support from the hill to cover the site for the benefit of providing a barrier to plan for sea level rise.

C. Review of Newly Proposed CWDAC Operating Procedures

Mettee: Revisions were made to the previous draft with the assistance of Weston. You can see the changes in the tracked changes version in the notebook. Weston: I think we need to add something on the length of terms and Mettee: Vacancies are addressed. I think the 3 year term was not added because someone is appointed to fill the remaining term.

Bird: We could add a sentence to section III-B that specifies that the Weston: That doesn't address the vacancy issue.

Mettee: Since we can't agree on this, let's work on revising the work plan agenda.

A. Waterfront Site Issues for CWDAC Discussion

Mettee: This is an opportunity for the committee to provide input to the city. I prepared a matrix to assist in reviewing the issues. We should review the work session format and complete the matrix as we go. I would like to have the bottom up as they are listed in order of importance.

Mettee read the vision and goals from the 2005 charrette to remind the committee of the direction that should be kept in mind.

Old Jail Site

- Acquisition or easement option?
- Easier to develop if it was included.
- Proceed assuming the parcel is not included.
- Consider right of first refusal option.

Consensus was to move forward assuming that parcel is not included.

River Street

- Redesign of street?
- Move street away from river without going around pumps
- Look at options east and west of pump stations.
- Related to bluff removal.
- Cost is factor.
- Weigh value of increased land value versus cost.

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Consensus was to consider the redesign of the street during initial phase especially with respect to redesigning the ROW to ensure more usable linear area between the shoreline and street.

Bluff Excavation

- Reasons to remove a portion of bluff include the use of the material on site, allows for the redesign of River Street, and increases the possibility of development on the bluff
- Not enough information to form a preference at this time.
- Would like more detailed sketches of the options of bluff development.
- Cost benefit analysis looking at order of magnitude costs.

Sea Rise/Site Regrading

Full support for this strategy.

Treatment of Water's Edge

Full support for the three types of treatment.

Dock Location

- Dock needs to be close to boathouse.
- Access to the dock for crew boats and non-motorized boats and their trailers is an issue.
- Need to hide shell trailers from sight to not detract from the public's view.
- Non-motorized boat dock or ramp on south side of shore.
- Dock for tour boats near the knuckle.
- Need to see how dock fits into the bigger picture of park elements.
- Show us some design options for dock location.
- Maintenance costs associated with a dock need to be considered in dock design.

Waterfront Park Program

Committee members discussed the 8 elements from the Union Studio memo and decided that each member would assign a value from 0 to 3, with 0 being least desirable and 3 being most desirable, for each element. The elements and the cumulative score received from the ten members is listed below.

- Marina - 2
- Large ramp motorized boats - 1
- Public bathroom - 26
- Visitor's Center - 13
- Landing area for boats/gundalow - 27
- Public Transient Dock - 27
- Canoe/kayak ramp - 25
- Public plaza - 25
- Boathouse - 14

8. Committee member comments: None

9. Adjournment

Mettee declared the meeting adjourned at 7:35 pm.

Document Created by: Planning Department 2016.02.16_WaterfrontDevelopmentAdvisoryCommitteeMinutes.docx
Document Posted on: February 18, 2016 Page 3 of 3

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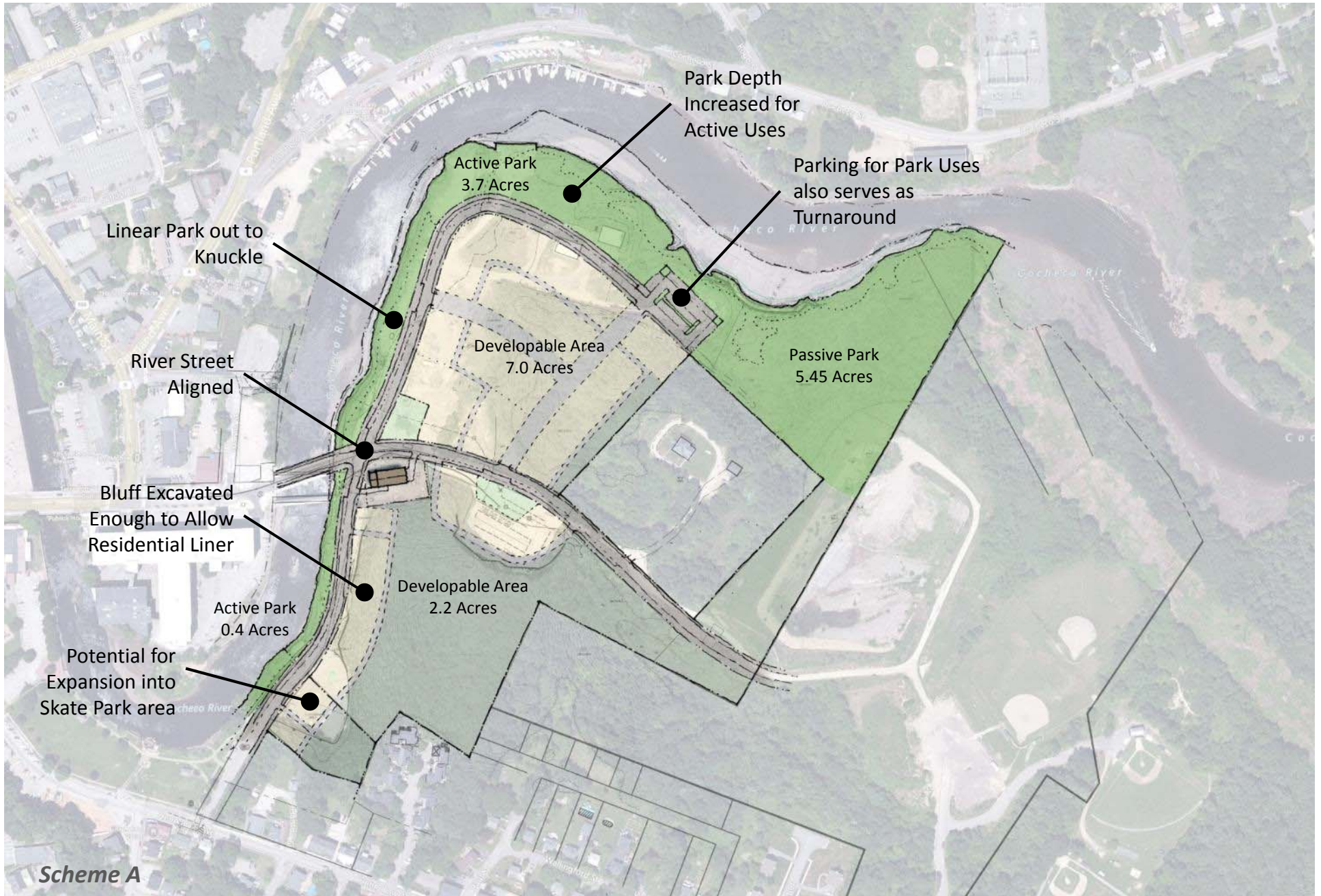
Waste Remediation Approach

Preliminary Permit Input

Next Steps

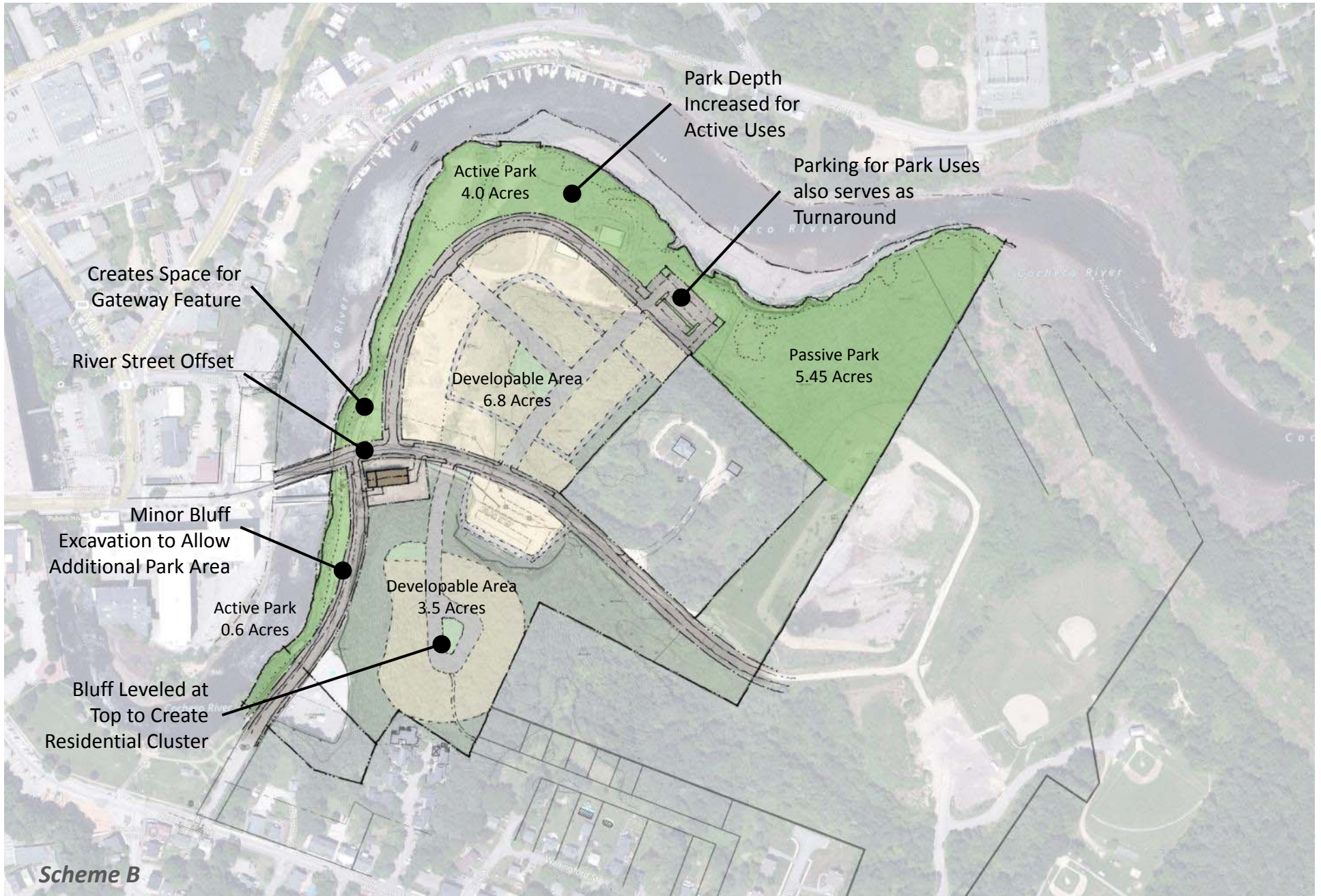
AGENDA

COCHECHO WATERFRONT



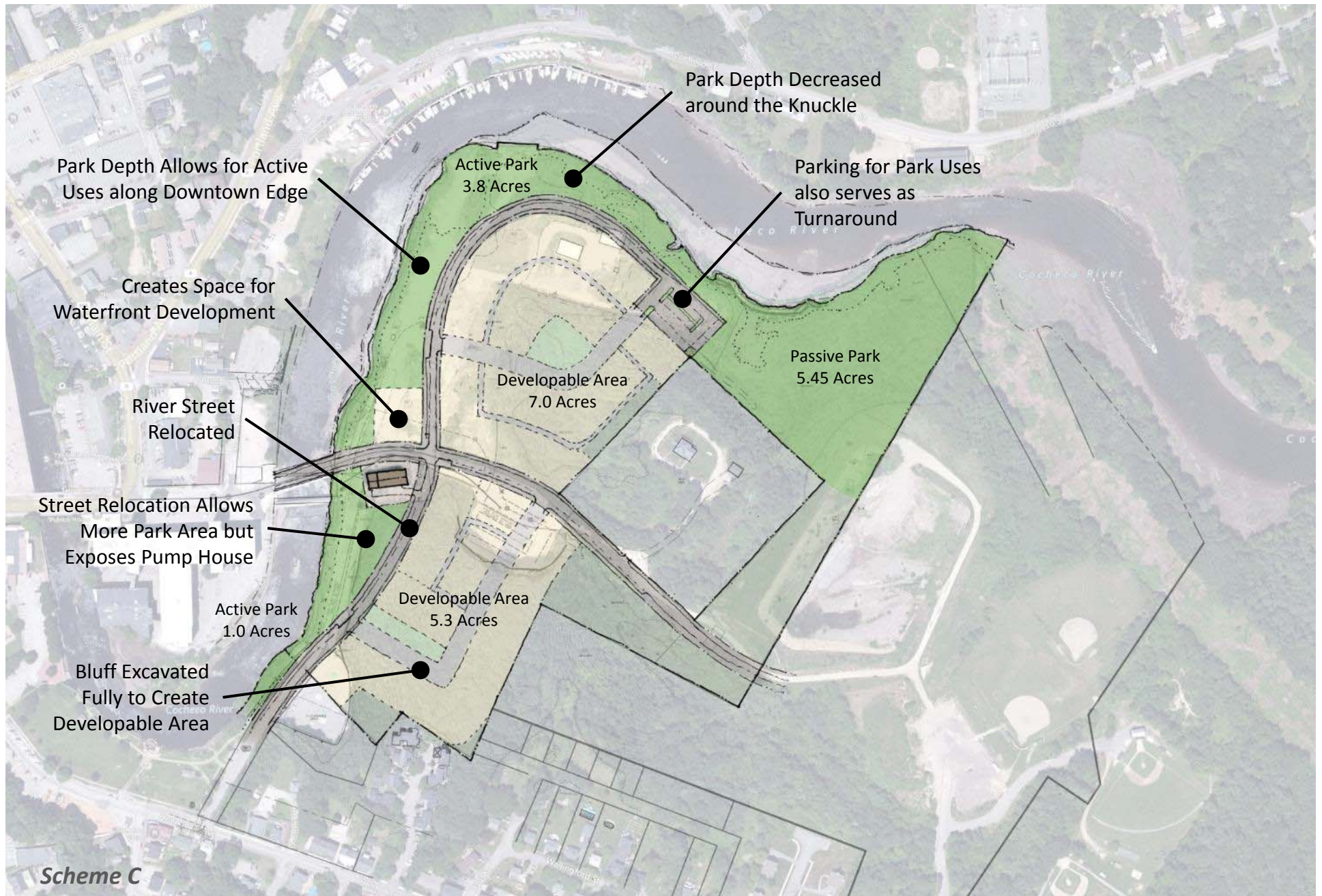
FRAMEWORK PLANS

COCHECHO WATERFRONT



FRAMEWORK PLANS

COCHECHO WATERFRONT



FRAMEWORK PLANS

COCHECHO WATERFRONT



Scheme C

FRAMEWORK PLANS

COCHECHO WATERFRONT



Scheme C North, Scheme A South

FRAMEWORK PLANS

COCHECHO WATERFRONT



Scheme C North, Scheme B South

FRAMEWORK PLANS

COCHECHO WATERFRONT



Scheme A North, Scheme A South



Scheme B North, Scheme B South



Scheme A North, Scheme C South



Scheme B North, Scheme A South



Scheme B North, Scheme B South



Scheme B North, Scheme C South



Scheme C North, Scheme A South



Scheme C North, Scheme B South



Scheme C North, Scheme C South

FRAMEWORK PLANS

COCHECHO WATERFRONT

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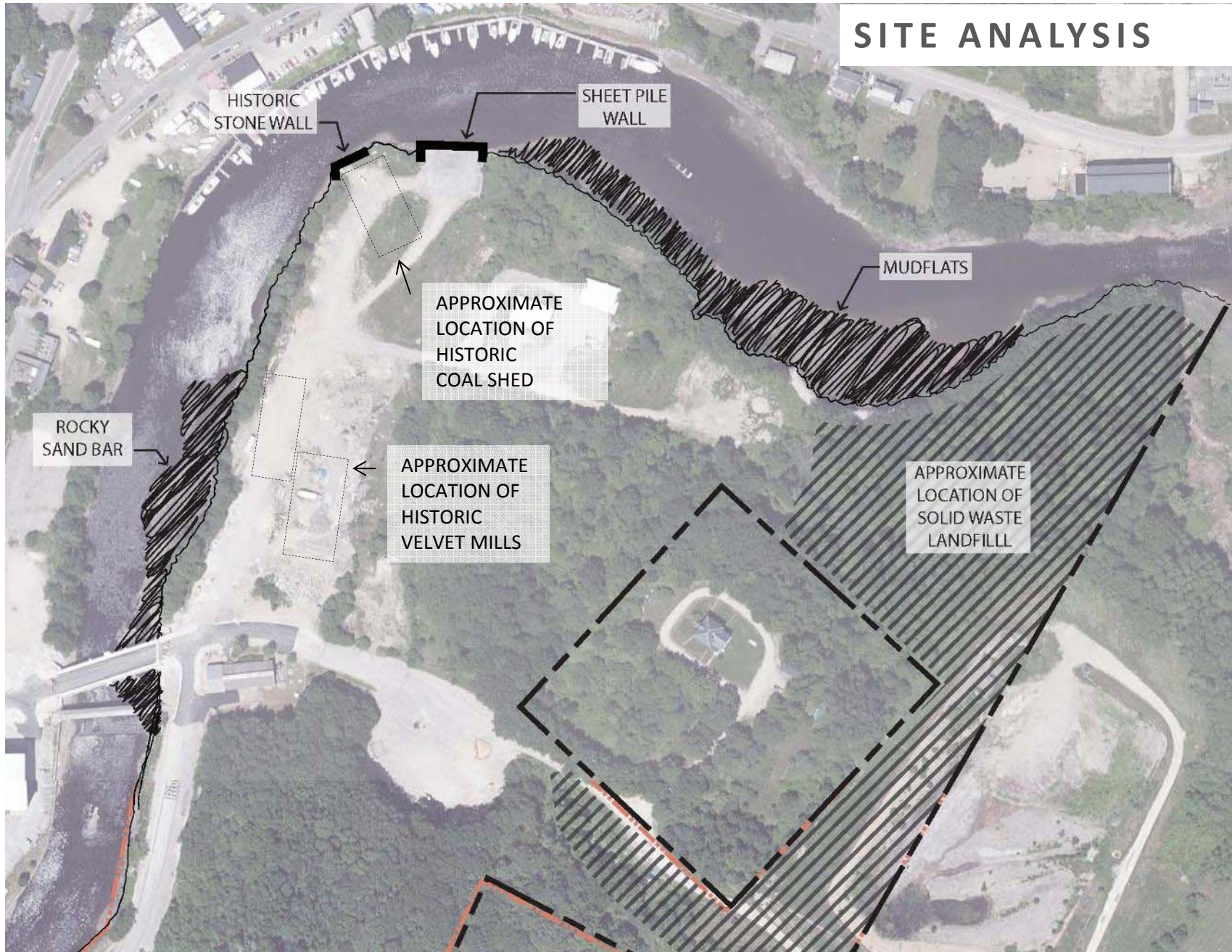
SITE ANALYSIS



PRELIMINARY PARK DESIGNS

COCHECHO WATERFRONT

SITE ANALYSIS



PRELIMINARY PARK DESIGNS

COCHECHO WATERFRONT

SITE ANALYSIS



1888 DRAWING

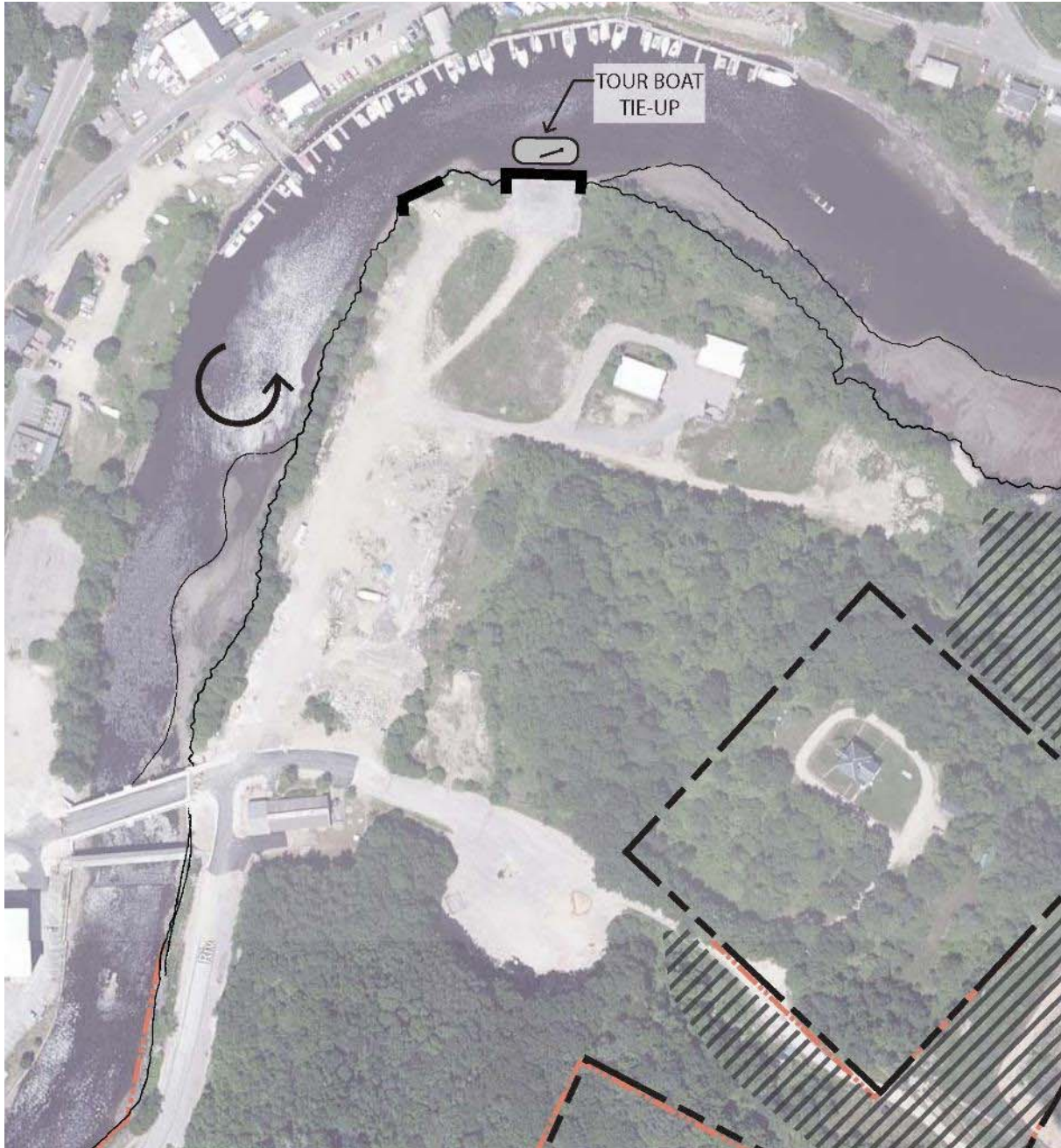
FARMHOUSE

COAL SHED

PRELIMINARY PARK DESIGNS

COCHECHO WATERFRONT

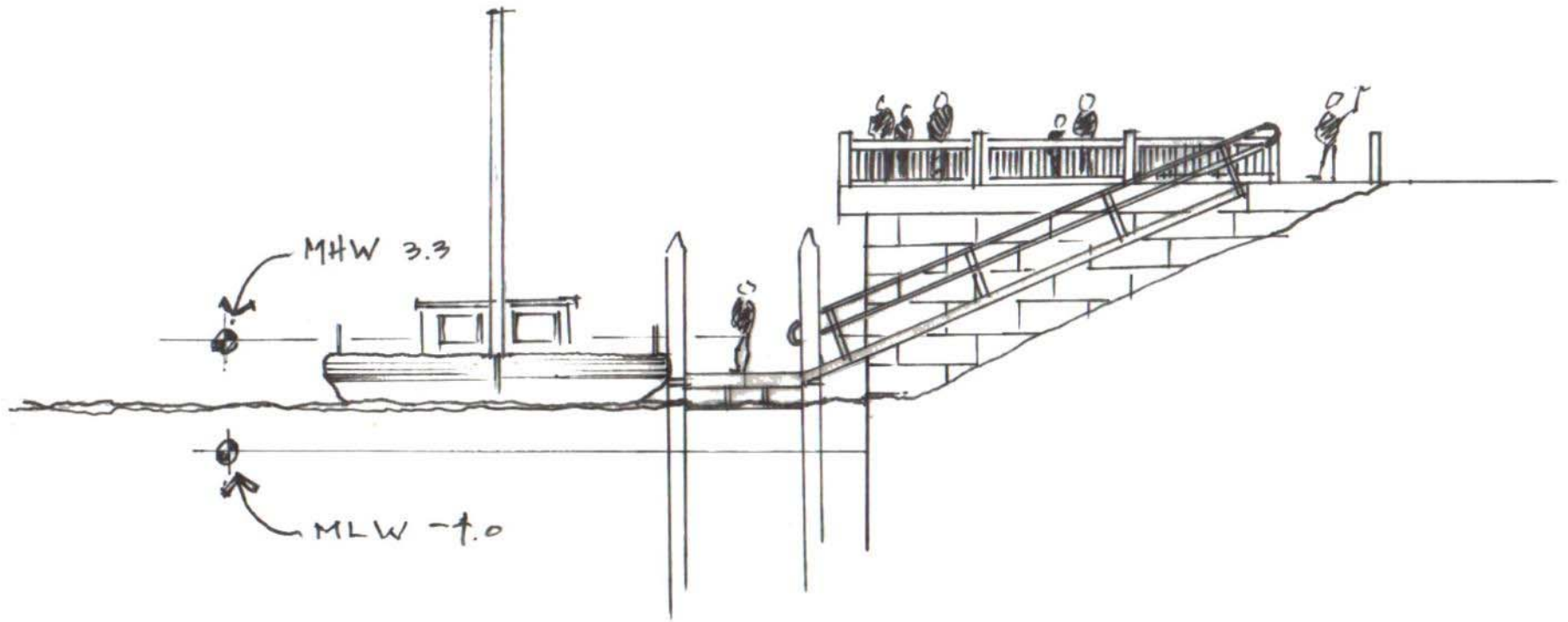
PARK PROGRAM: TOUR BOATS



PRELIMINARY PARK DESIGNS

COCHECHO WATERFRONT

PARK PROGRAM: TOUR BOATS



PRELIMINARY PARK DESIGNS

COCHECHO WATERFRONT

**PARK PROGRAM:
CIVIC PLAZA**



PRELIMINARY PARK DESIGNS

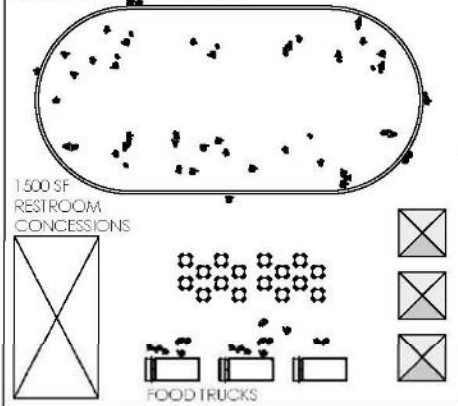
COCHECHO WATERFRONT

PARK PROGRAM: CIVIC PLAZA

WINTER CARNIVAL

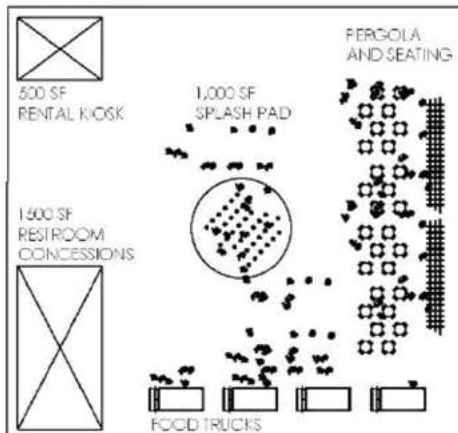
20,000 SF PLAZA

6,500 SF POP-UP SKATING RINK



SUMMERTIME FUN

20,000 SF PLAZA



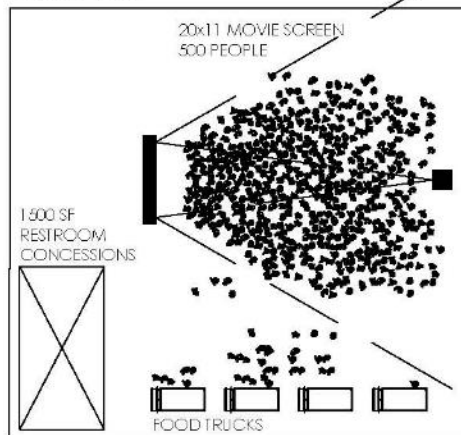
PRELIMINARY PARK DESIGNS

COACHECHO WATERFRONT

PARK PROGRAM: CIVIC PLAZA

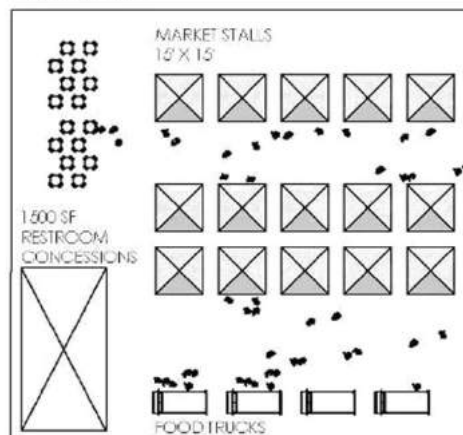
MOVIE NIGHT

20,000 SF PLAZA



FARMER'S MARKET

20,000 SF PLAZA



PARK PROGRAM: ROWING DOCK



PRELIMINARY PARK DESIGNS

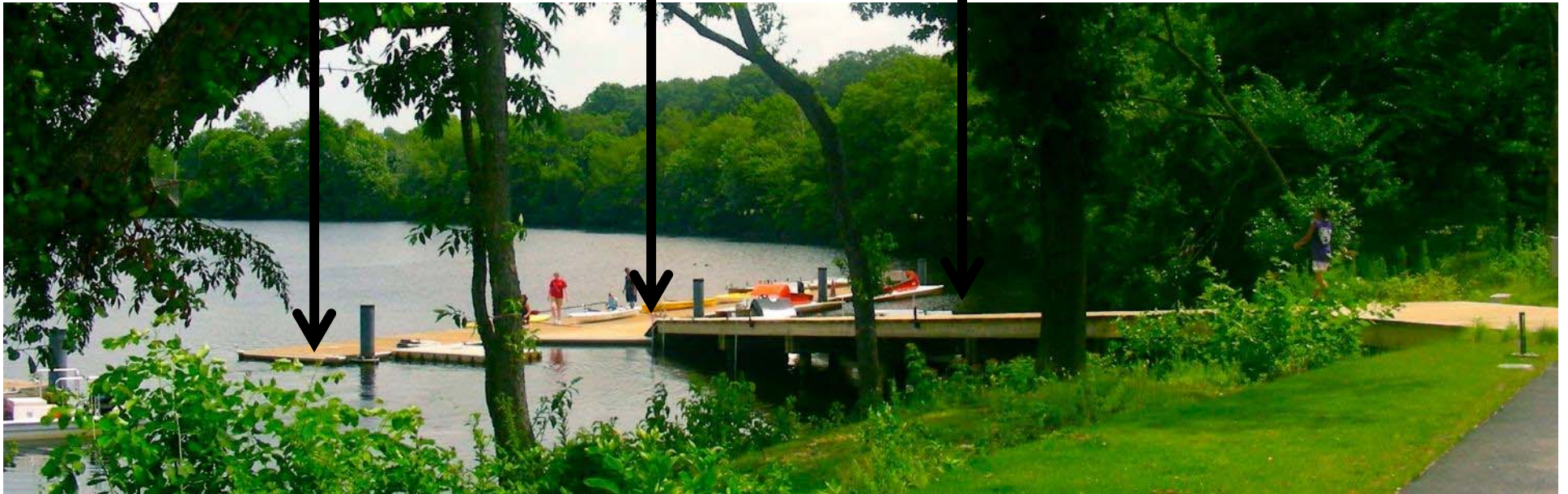
COCHECHO WATERFRONT

**PARK PROGRAM:
ROWING DOCK**

FLOAT

RAMP

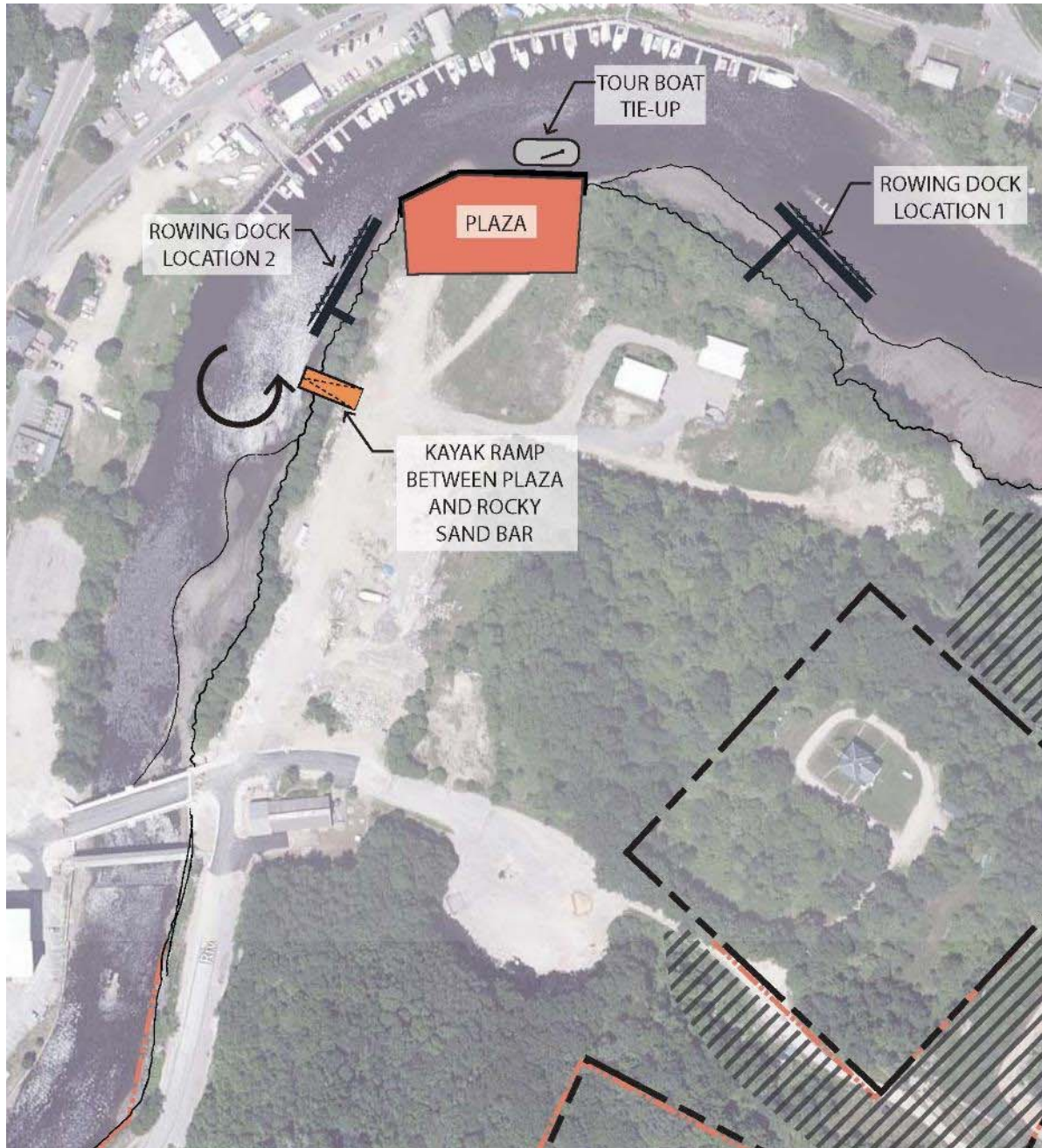
PIER



PRELIMINARY PARK DESIGNS

COCHECHO WATERFRONT

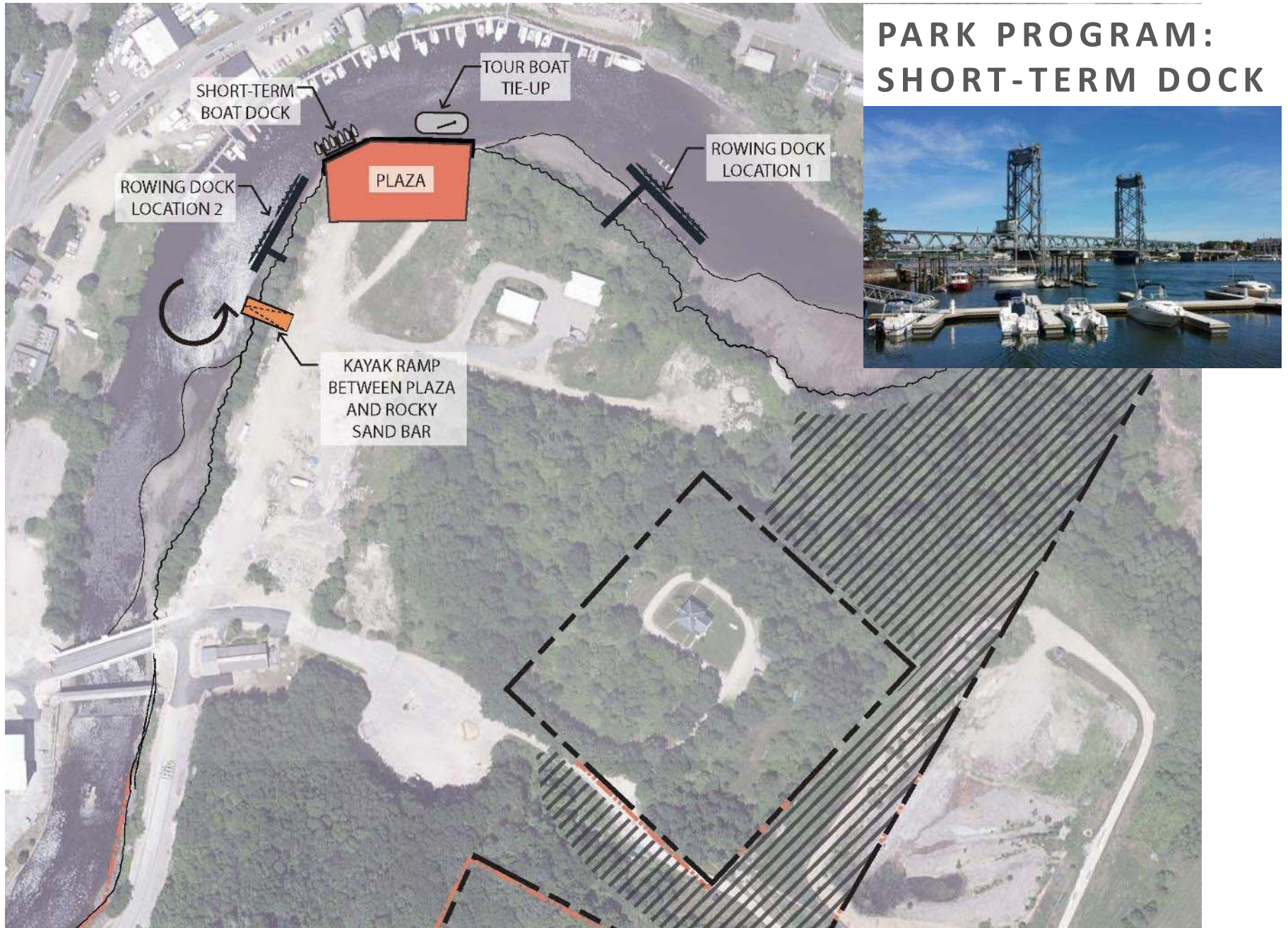
PARK PROGRAM: KAYAK RAMP



PRELIMINARY PARK DESIGNS

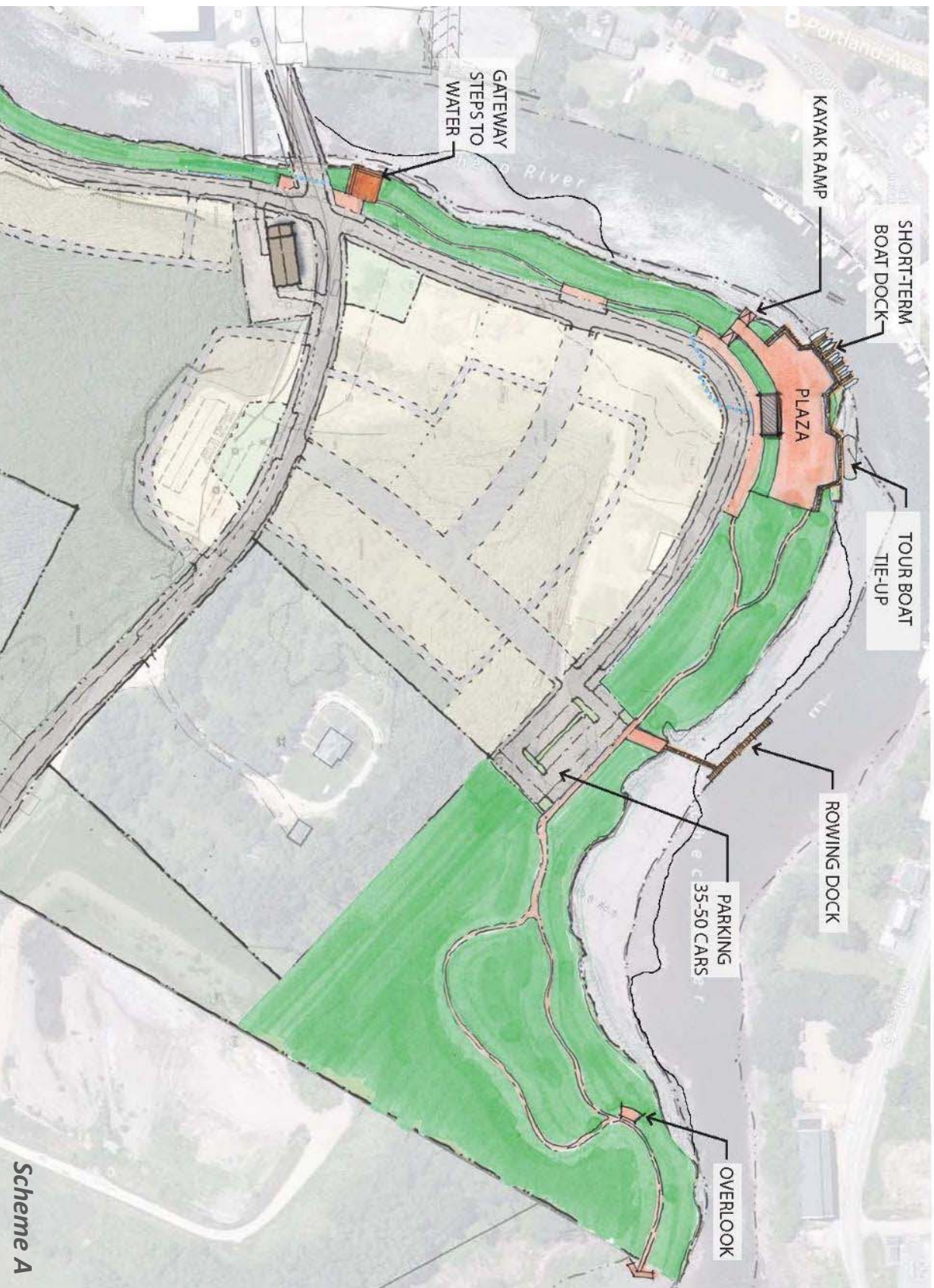
COCHECHO WATERFRONT

PARK PROGRAM: SHORT-TERM DOCK



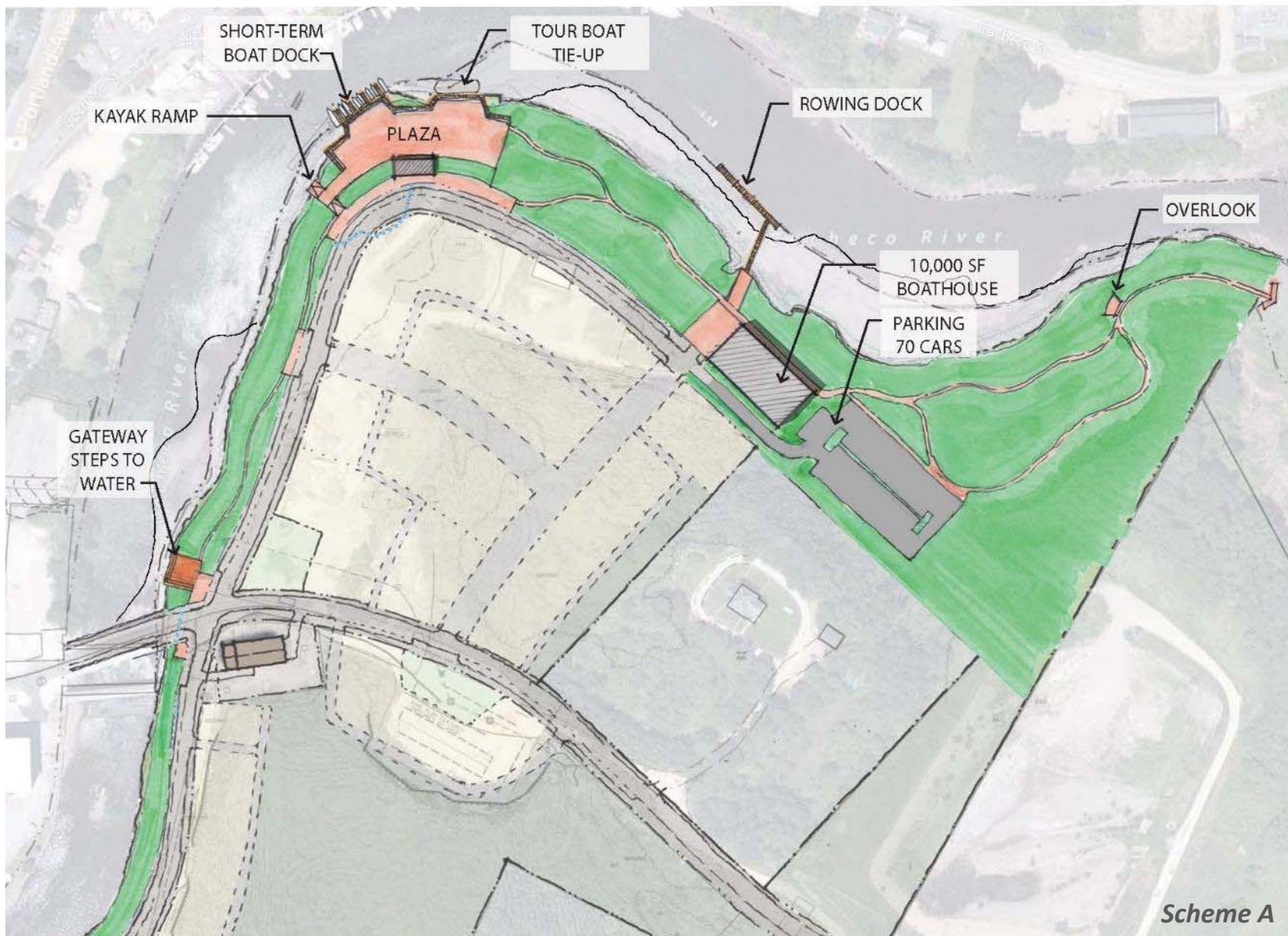
PRELIMINARY PARK DESIGNS

COCHECHO WATERFRONT



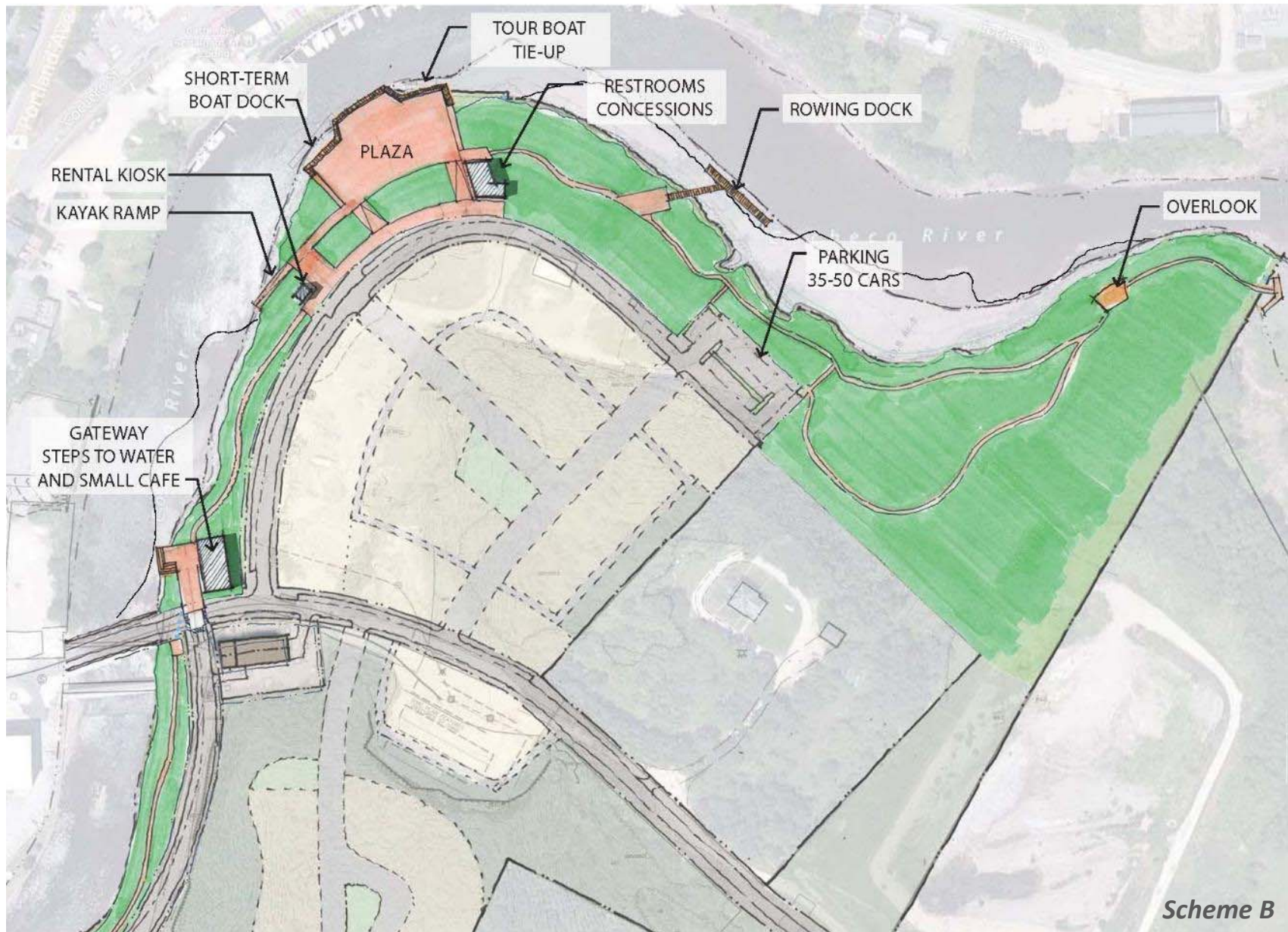
PRELIMINARY PARK DESIGNS

COCCHECHO WATERFRONT



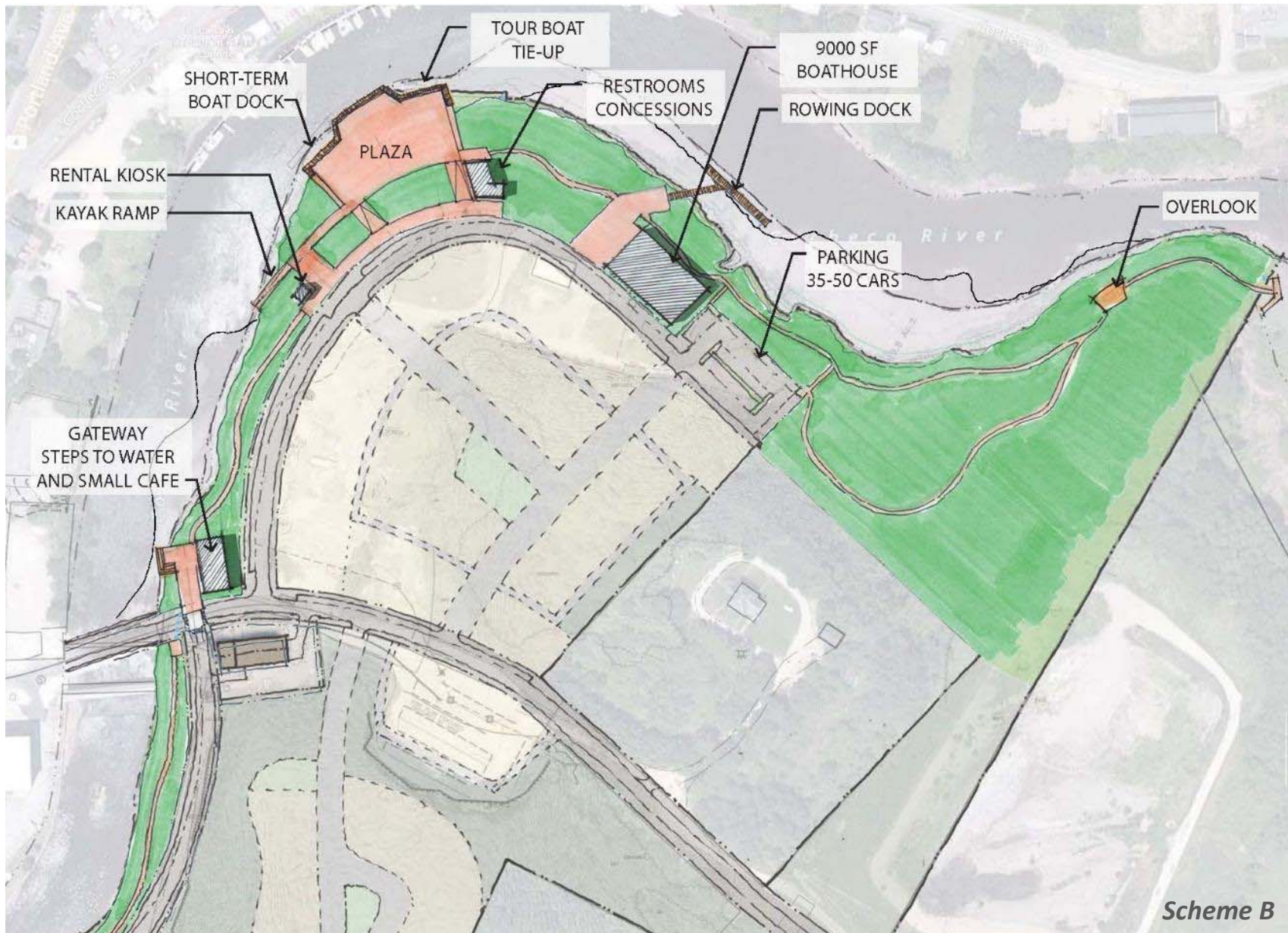
PRELIMINARY PARK DESIGNS

COCHECHO WATERFRONT



PRELIMINARY PARK DESIGNS

COCHECHO WATERFRONT



PRELIMINARY PARK DESIGNS

COCHECHO WATERFRONT



PRELIMINARY PARK DESIGNS

COCHECHO WATERFRONT



PRELIMINARY PARK DESIGNS

COCHECHO WATERFRONT

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COCHECHO WATERFRONT

STRUCTURAL

- Revetment
- Seawall
- Gabion Wall
- Bulkhead

LIVING SHORELINE

- Vegetated stabilization
- Fringing salt marsh
- Live crib wall



Wall/Wetland Combination
(various wall materials alternatives)



Steps



Green Gabion Wall



Live Crib Wall



Brush Mattress



Root Wad



Imbricated Riprap



Riprap



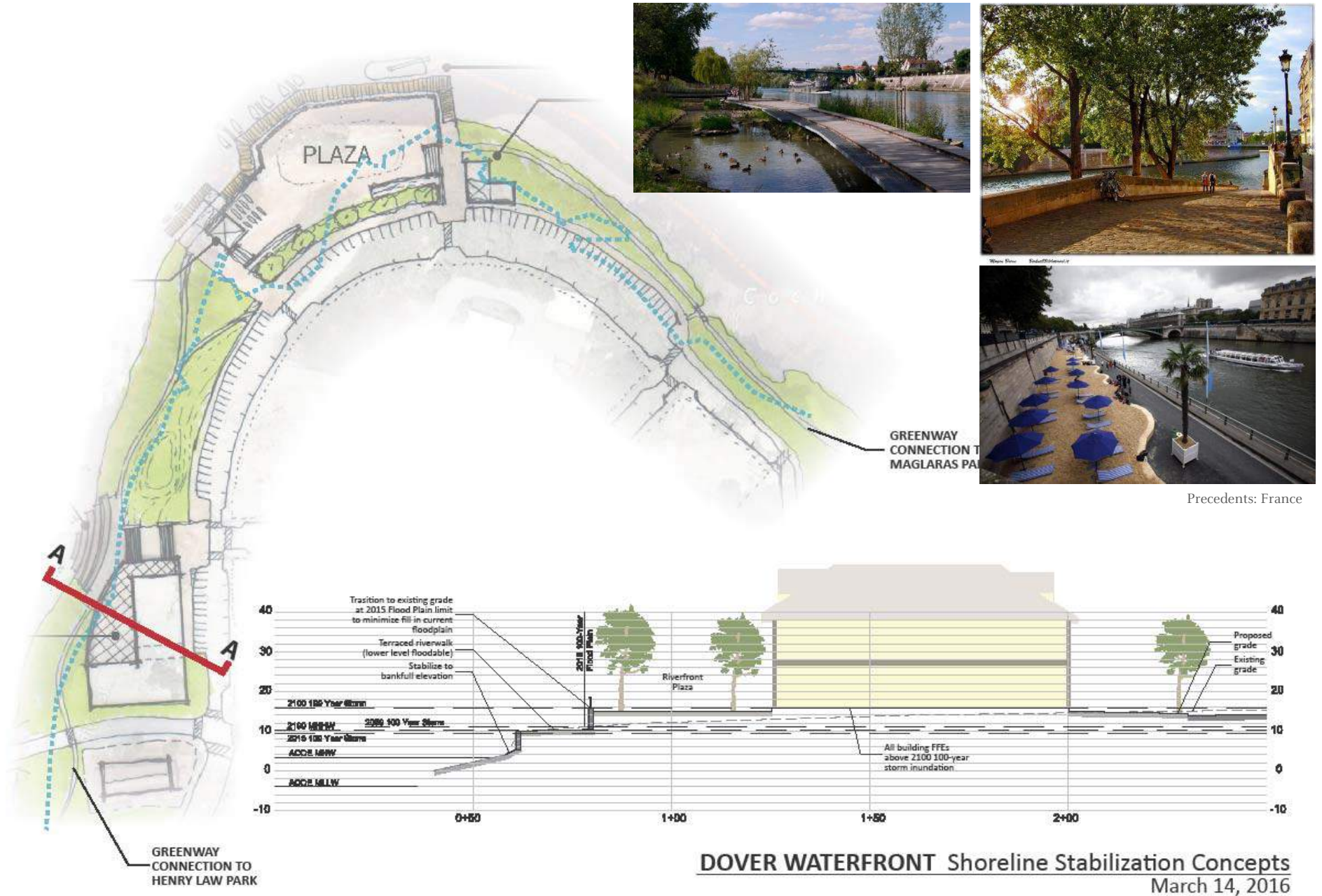
High Salt Marsh



Low Salt Marsh
(frequent inundation)

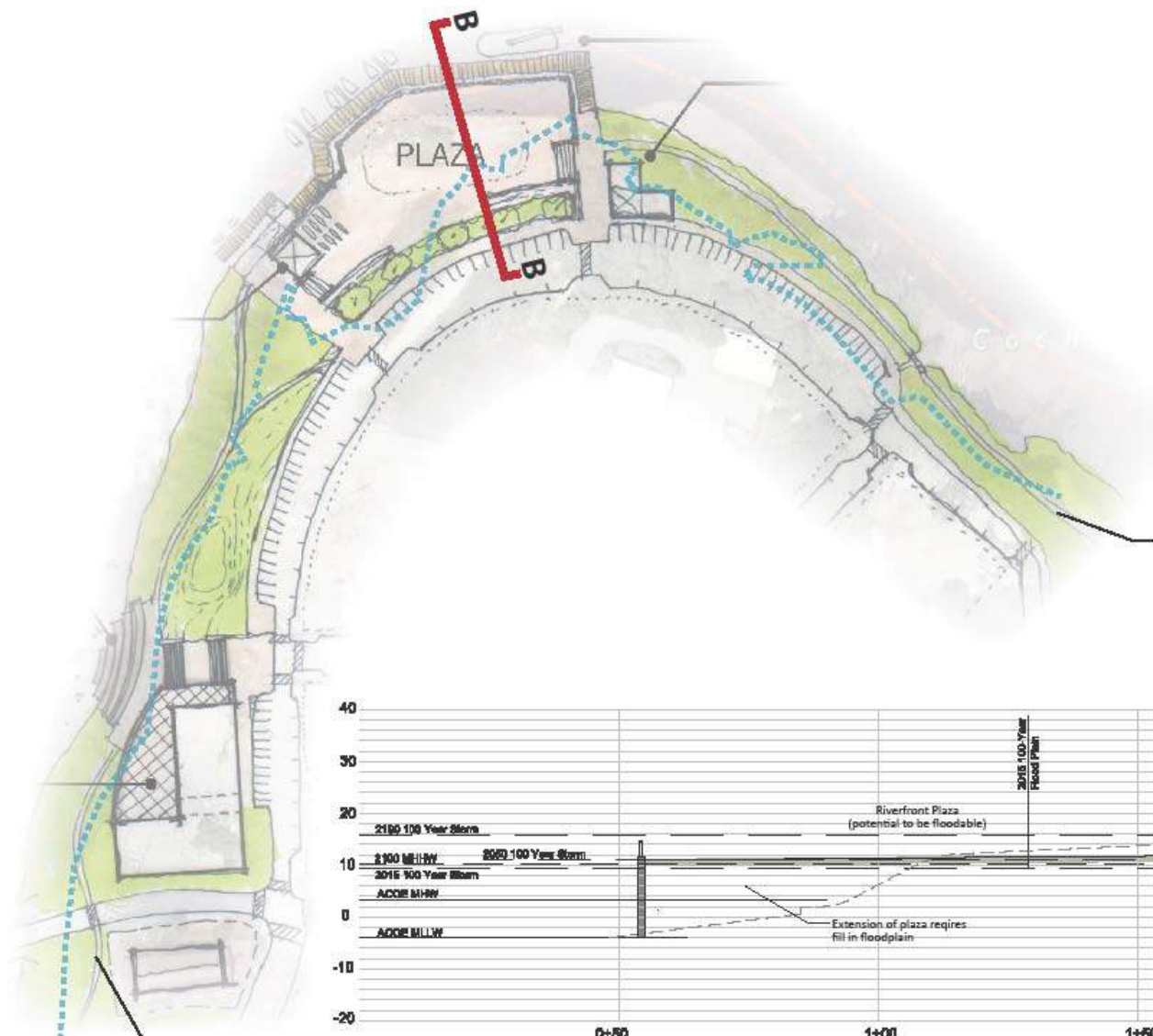
SHORELINE APPROACHES

COCHECHO WATERFRONT



SHORELINE APPROACHES

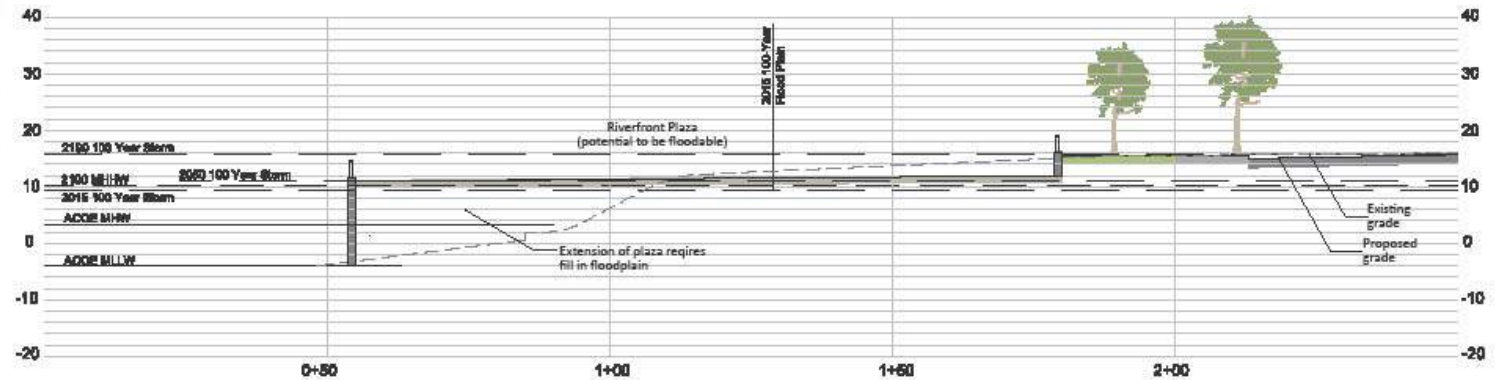
COACHECHO WATERFRONT



Precedents: Milwaukee, New York

GREENWAY
CONNECTION TO
MAGLARAS PARK

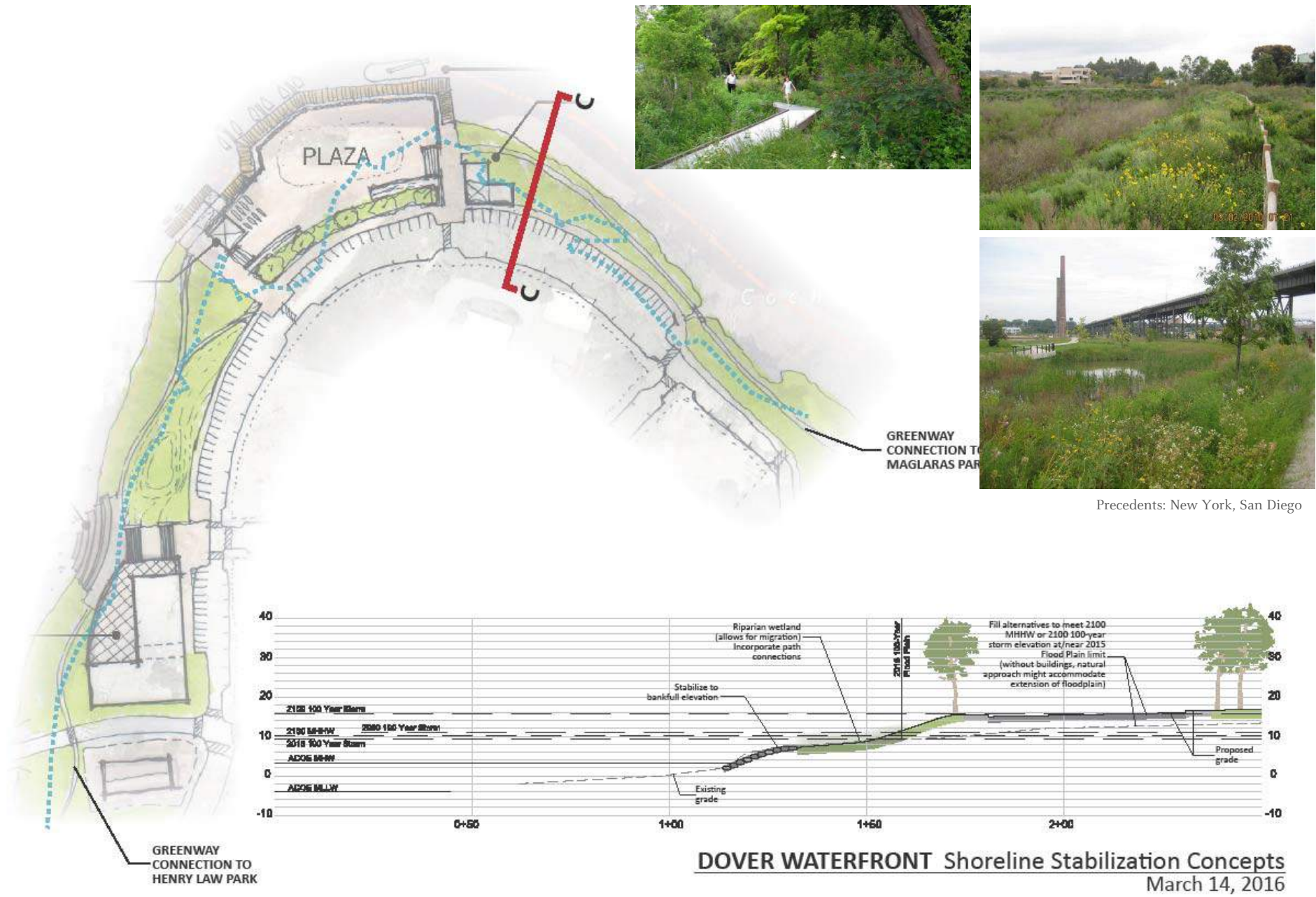
GREENWAY
CONNECTION TO
HENRY LAW PARK



DOVER WATERFRONT Shoreline Stabilization Concepts
March 14, 2016

SHORELINE APPROACHES

COACHECHO WATERFRONT



SHORELINE APPROACHES

COACHECHO WATERFRONT

Summary

1. Range of shoreline stabilization/restoration approaches – structural to living shoreline
2. Creative & strategic application of approaches consistent with place type & public access

To Be Determined

1. Location of riverfront street
2. Plaza locations and design
3. Detailed grading transition from riverfront street to water (approach varies across site)
4. Floodplain & wetlands approach

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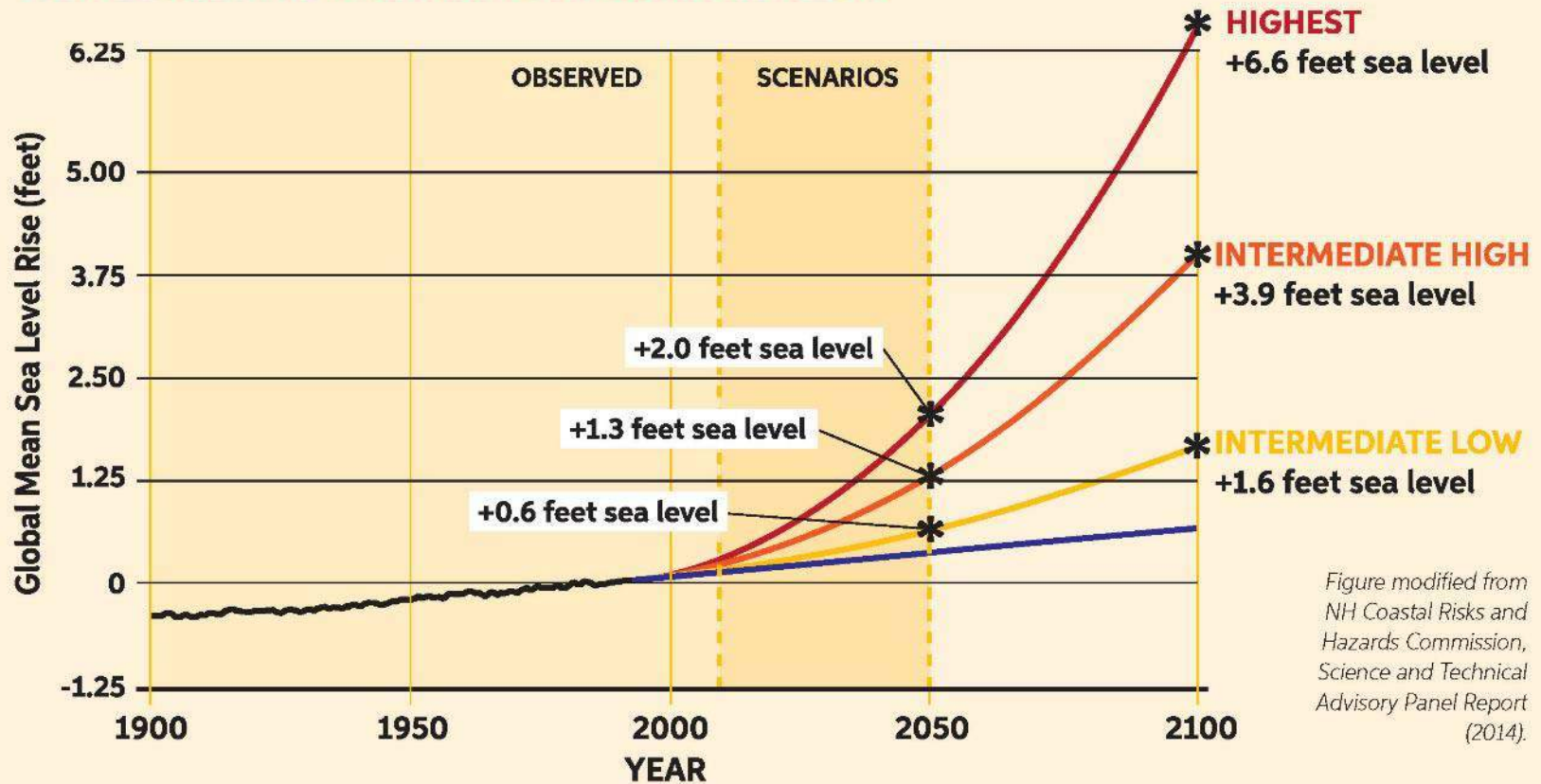
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COCHECHO WATERFRONT

SEA-LEVEL RISE SCENARIOS AT 2050 AND 2100



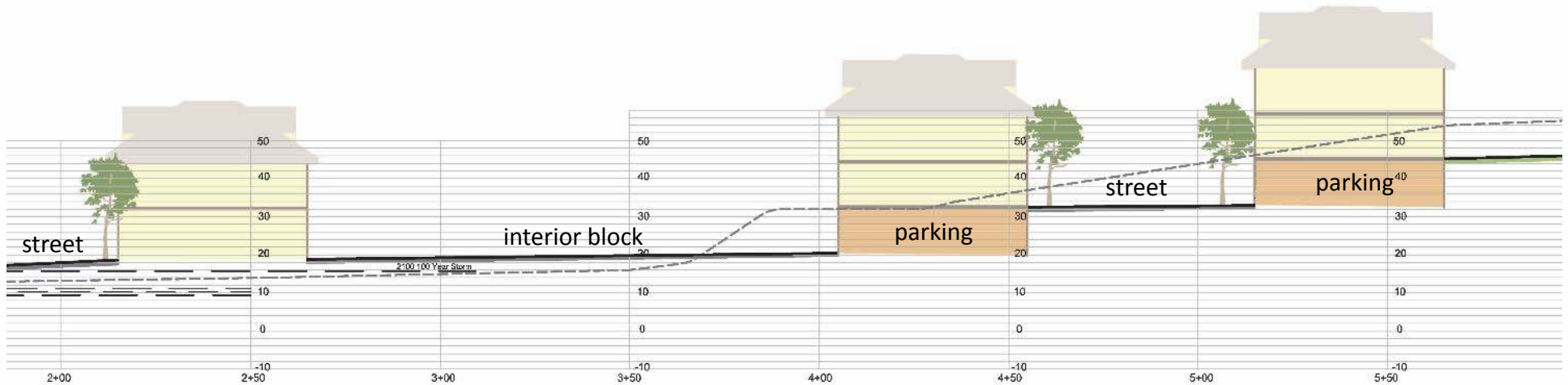
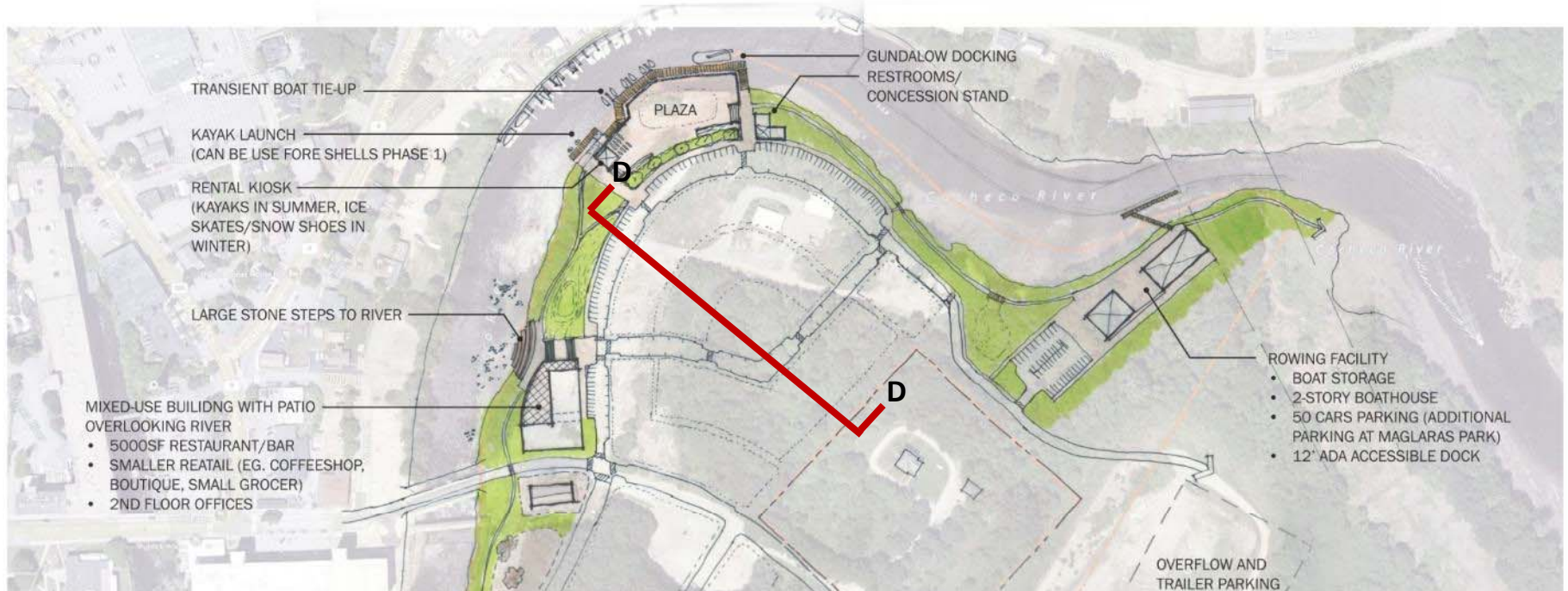
GRADING APPROACHES

COCHECHO WATERFRONT



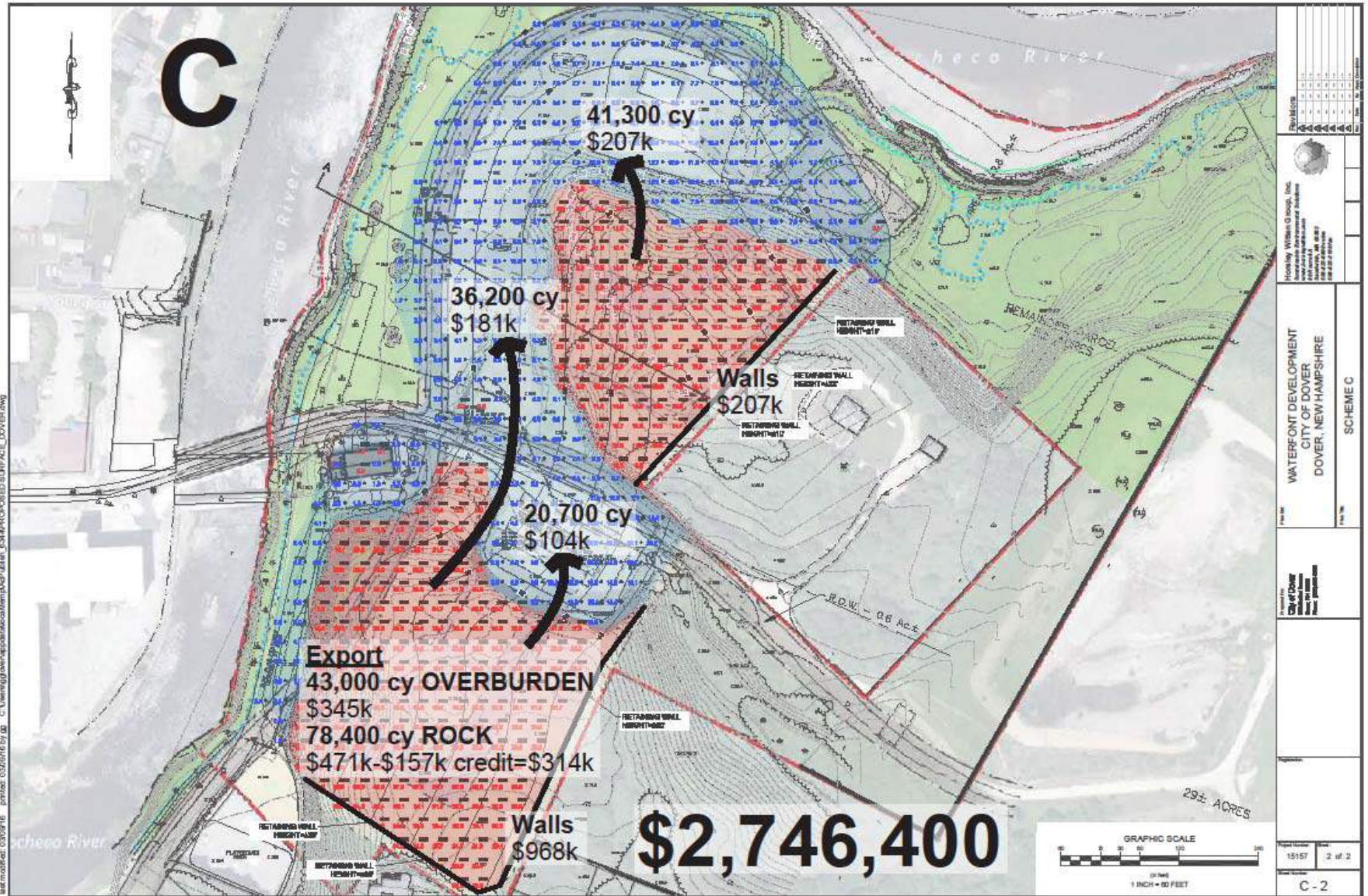
GRADING APPROACHES

COCHECHO WATERFRONT



GRADING APPROACHES

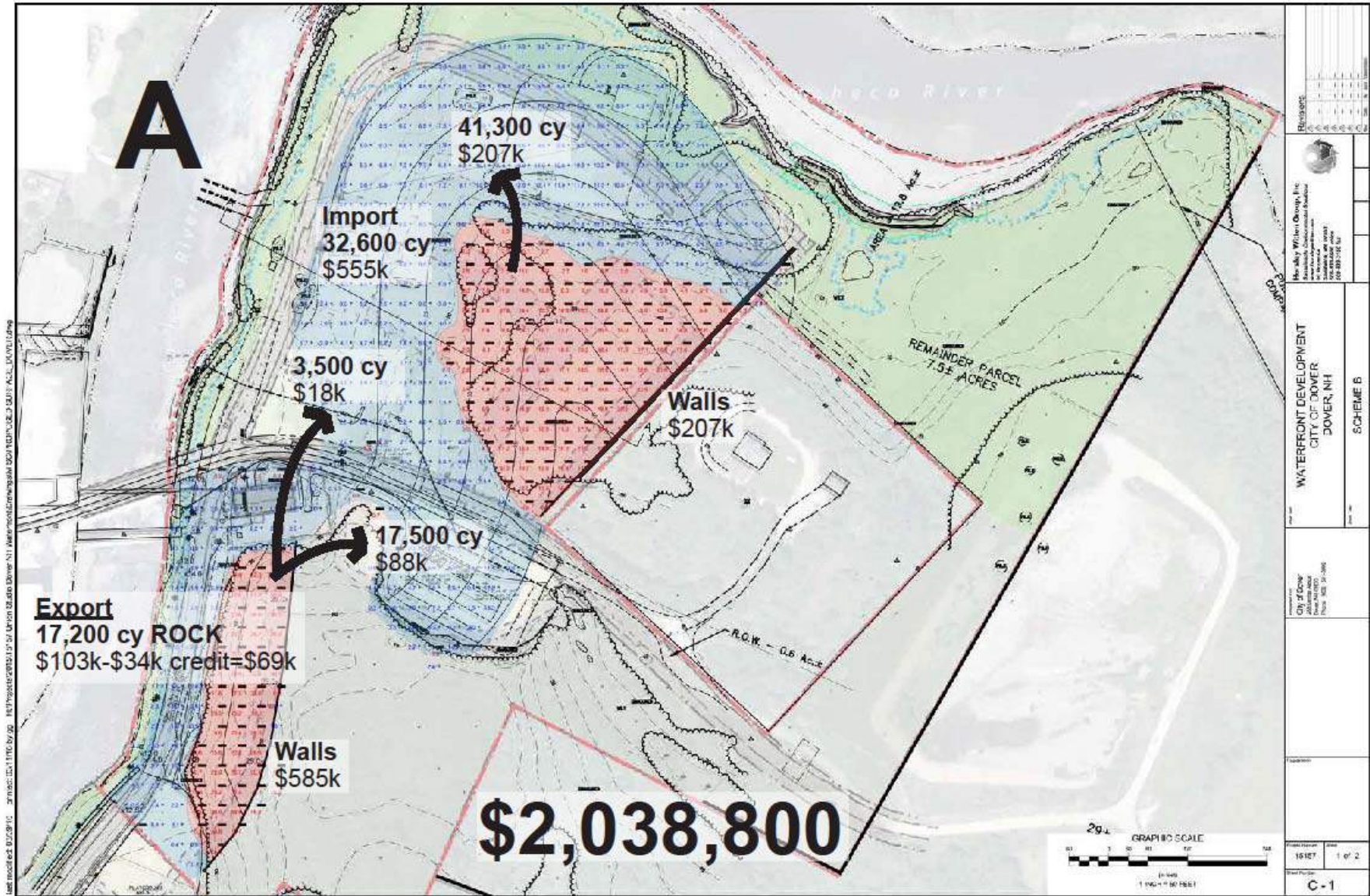
COCHECHO WATERFRONT



NOTE: Preliminary quantities and costs are based on schematic development frameworks and preliminary grading/earthwork approaches. Costs should be used for preliminary planning purposes only. Additional design development and negotiation with regulatory authorities is needed to refine design and cost.

GRADING APPROACHES

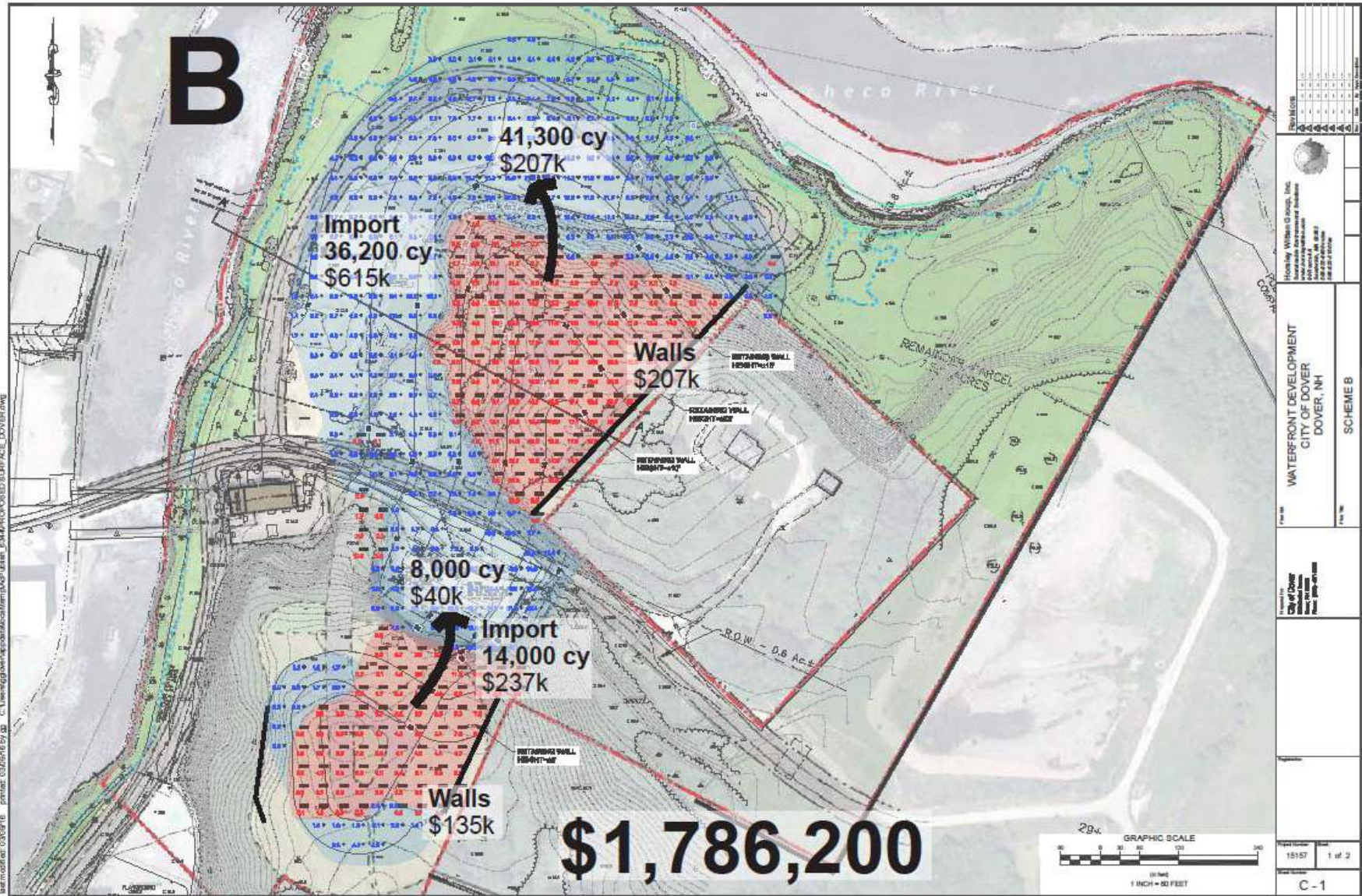
COCHECHO WATERFRONT



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GRADING APPROACHES

COCHECHO WATERFRONT



NOTE: Preliminary quantities and costs are based on schematic development frameworks and preliminary grading/earthwork approaches. Costs should be used for preliminary planning purposes only. Additional design development and negotiation with regulatory authorities is needed to refine design and cost.

GRADING APPROACHES

COCHECHO WATERFRONT

Summary (highest to lowest cost)

1. Scheme C: 121,400 cy export (overburden + rock) expensive walls south of Washington St.
2. Scheme A: 32,600 cy import, 17,200 cy rock export, reduced walls
3. Scheme B: 50,200 cy import, minimized walls

Conclusions

1. Meeting 2100 SLR elevation requires significant fill
2. All grading schemes are conservative
3. Access to south bluff development from extension of Washington Street (vs. River Street) will likely minimize site costs
4. Balanced site could add development area south of Washington Street and cut Scheme B cost by keeping material onsite

To Be Determined

1. South ledge quantities/assumptions & reuse potential onsite as fill
2. Properly maintaining ledge in place as an alternative to retaining walls may partially offset cost
3. Location of riverfront street & interior block/street layout
4. Detailed grading transition from riverfront street to water (approach varies across site)

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COCHECHO WATERFRONT

PRELIMINARY PUBLIC IMPROVEMENT COST ESTIMATES

	Scheme A			Scheme B			Scheme C		
	North	South	Combined	North	South	Combined	North	South	Combined
ADA ACCESSIBLE PADDLE BOAT DOCK	355,000		355,000	355,000		355,000	165,000		165,000
SHORT-TERM VISITOR BOAT DOCK	123,000		123,000	123,000		123,000	123,000		123,000
LARGE TOURISM BOAT TIE-UP	330,000		330,000	330,000		330,000	330,000		330,000
GATEWAY NODE AT RIVER STREET INTERSECTION	150,000		150,000	350,000		350,000	439,000		439,000
RIVERFRONT PARK	668,000	37,000	705,000	983,000	52,000	1,035,000	1,005,000	37,000	1,042,000
COCHECHO PLAZA	1,750,000		1,750,000	3,325,000		3,325,000	4,500,000		4,500,000
PASSIVE PARK AT LANDFILL	332,000		332,000	332,000		332,000	332,000		332,000
ADVENTURE PARK	-	-	-	-	-	-	-	92,000	92,000
SUBTOTAL PARK IMPROVEMENTS	3,708,000	37,000	3,745,000	5,798,000	52,000	5,850,000	6,894,000	129,000	7,023,000
Streets & Utilities	3,095,000	-	3,095,000	3,095,000	664,200	3,759,000	3,095,000	1,273,050	4,368,000
Shoreline Improvements	1,500,000	265,000	1,764,000	1,500,000	265,000	1,764,450	1,500,000	265,000	1,764,450
Earthwork & Walls	1,638,000	1,115,000	2,753,000	1,696,000	717,000	2,412,450	1,110,000	2,600,000	3,709,800
Addtl Remediation Costs to Excavate, Replace top 2 ft in Public Areas	246,000		246,000	246,000		246,000	246,000		246,000
Dredge Cell Closure	360,000	-	360,000	360,000	-	360,000	360,000	-	360,000
TOTAL PRELIMINARY EST. COST (rounded)	10,200,000	1,400,000	11,600,000	12,300,000	1,700,000	14,000,000	12,800,000	4,300,000	17,100,000
Private Acreage	7.0	2.2	9.2	6.8	3.5	10.3	7.0	5.3	12.3
Active Waterfront Park Area	3.7	0.4	4.1	4.0	0.6	4.6	3.8	1.0	4.8
Cost/Private Acre	1,463,000	625,000	1,260,000	1,817,000	482,000	1,359,000	1,839,000	805,000	1,390,000

Note: All estimates in \$2016

PRELIMINARY TIF ESTIMATES

	Scheme A	Scheme B	Scheme C
Private Acreage	9.2	10.3	12.3
Program			
Multi-Family Apartment Units	178	200	242
Town House Units	<u>56</u>	<u>62</u>	<u>76</u>
Total Residential Units	234	262	318
Commercial Square Feet	24,500	24,500	24,500
Build-Out Substantially Completed	2023 / 2024	2025	2025 / 2026
Public Improvement Costs (Inflated \$)	\$12,570,000	\$15,170,000	\$18,530,000
Required Transfer from General Fund	\$820,000	\$1,080,000	\$1,750,000
Annual TIF Revenues - Stabilized Year - 2027	\$1,430,000	\$1,599,000	\$1,935,000
Annual Debt Service (full)	<u>(\$925,000)</u>	<u>(\$1,116,000)</u>	<u>(\$1,363,000)</u>
Net Cash Flow (not Including Land Sale Revs) - 2027	\$505,000	\$483,000	\$572,000
Debt Coverage - 2027	1.55	1.43	1.42
Total Land Sale Revenues	\$800,000 - \$3,200,000	\$900,000 - \$3,600,000	\$1,300,000 - \$4,400,000

PRELIMINARY TIF ESTIMATES
Plaza Cost for B, C = A

	Scheme A	Scheme B	Scheme C
Private Acreage	9.2	10.3	12.3
Program			
Multi-Family Apartment Units	178	200	242
Town House Units	<u>56</u>	<u>62</u>	<u>76</u>
Total Residential Units	234	262	318
Commercial Square Feet	24,500	24,500	24,500
Build-Out Substantially Completed	2023 / 2024	2025	2025 / 2026
Public Improvement Costs (Inflated \$)	\$12,570,000	\$13,540,000	\$15,610,000
Required Transfer from General Fund	\$820,000	\$900,000	\$1,150,000
Annual TIF Revenues - Stabilized Year - 2027	\$1,430,000	\$1,599,000	\$1,935,000
Annual Debt Service (full)	<u>(\$925,000)</u>	<u>(\$996,000)</u>	<u>(\$1,149,000)</u>
Net Cash Flow (not Including Land Sale Revs) - 2027	\$505,000	\$603,000	\$786,000
Debt Coverage - 2027	1.55	1.61	1.68
Total Land Sale Revenues	\$800,000 - \$3,200,000	\$900,000 - \$3,600,000	\$1,300,000 - \$4,400,000

Project Team Introductions

Project Process

Recap of Previous Session

Draft Concept Plans

Framework Plans

Preliminary Park Designs

Shoreline Approaches

Grading Approaches

Financial Analysis

Waste Remediation Approach

Preliminary Permit Input

Next Steps

AGENDA

COCHECHO WATERFRONT

Groundwater Management Zone – limited petroleum and arsenic/manganese impacts

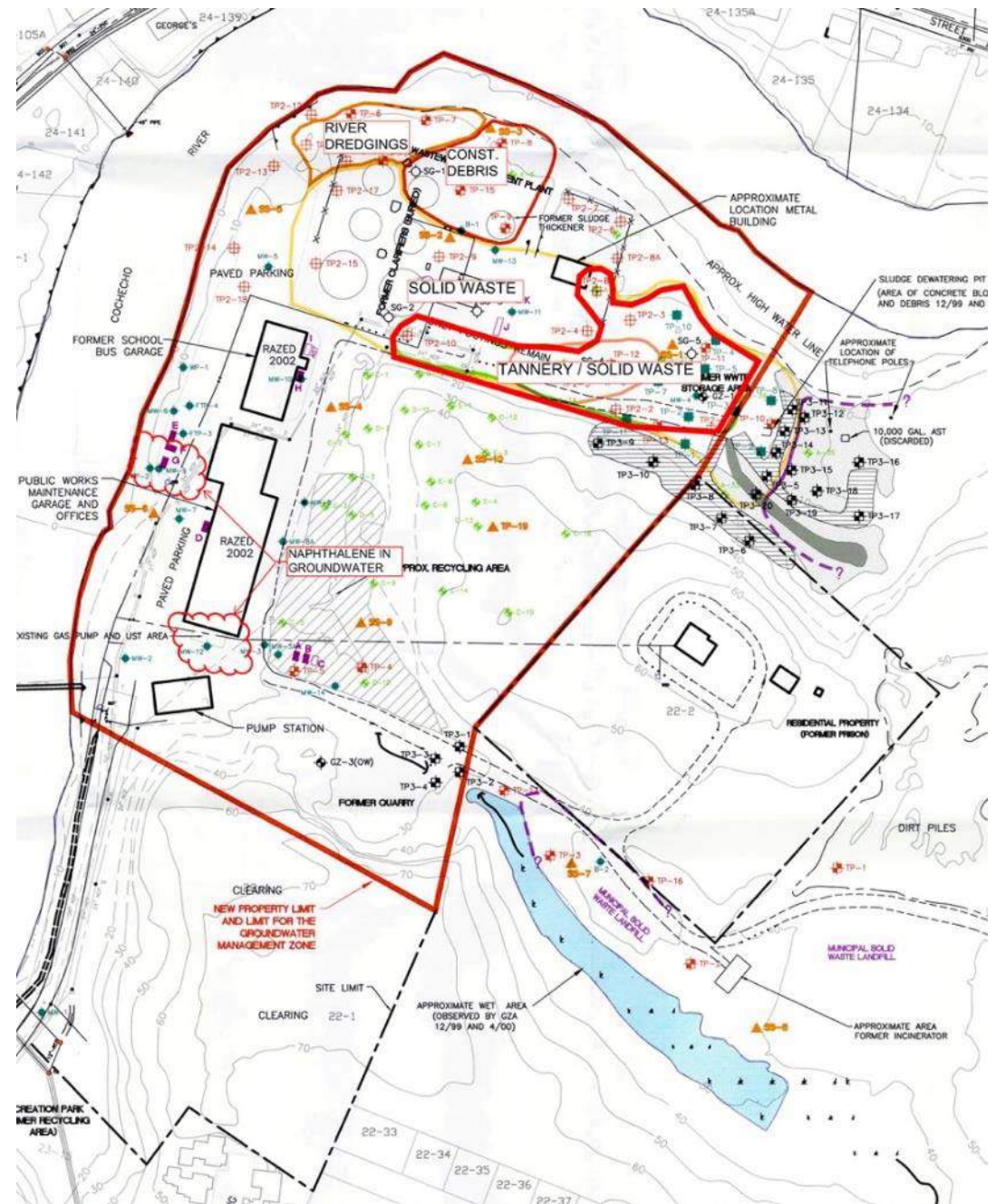
Soils at north end impacted by tannery wastes, solid waste, construction debris, river dredgings, elevated methane gas & VOCs – buildings may need vapor intrusion barriers

NHDES requiring an updated Remedial Action Plan (RAP):

- Possible additional soil sampling
- Updated soil gas survey
- Plan for waste removal
- Capping of waste to remain
- Activity and Use Restriction
- Restrict excavation in impacted areas
- Soil and groundwater management plan

RAP can be developed once Preferred Concept is approved and site grades have been established (Phase 2?)

Once a Preferred Concept has been identified, remedial strategy is to present proposed “Remedial Approach” for the site to obtain permitting agency concurrence prior to RAP development for submission to NHDES for approval.



REMEDIAL APPROACH

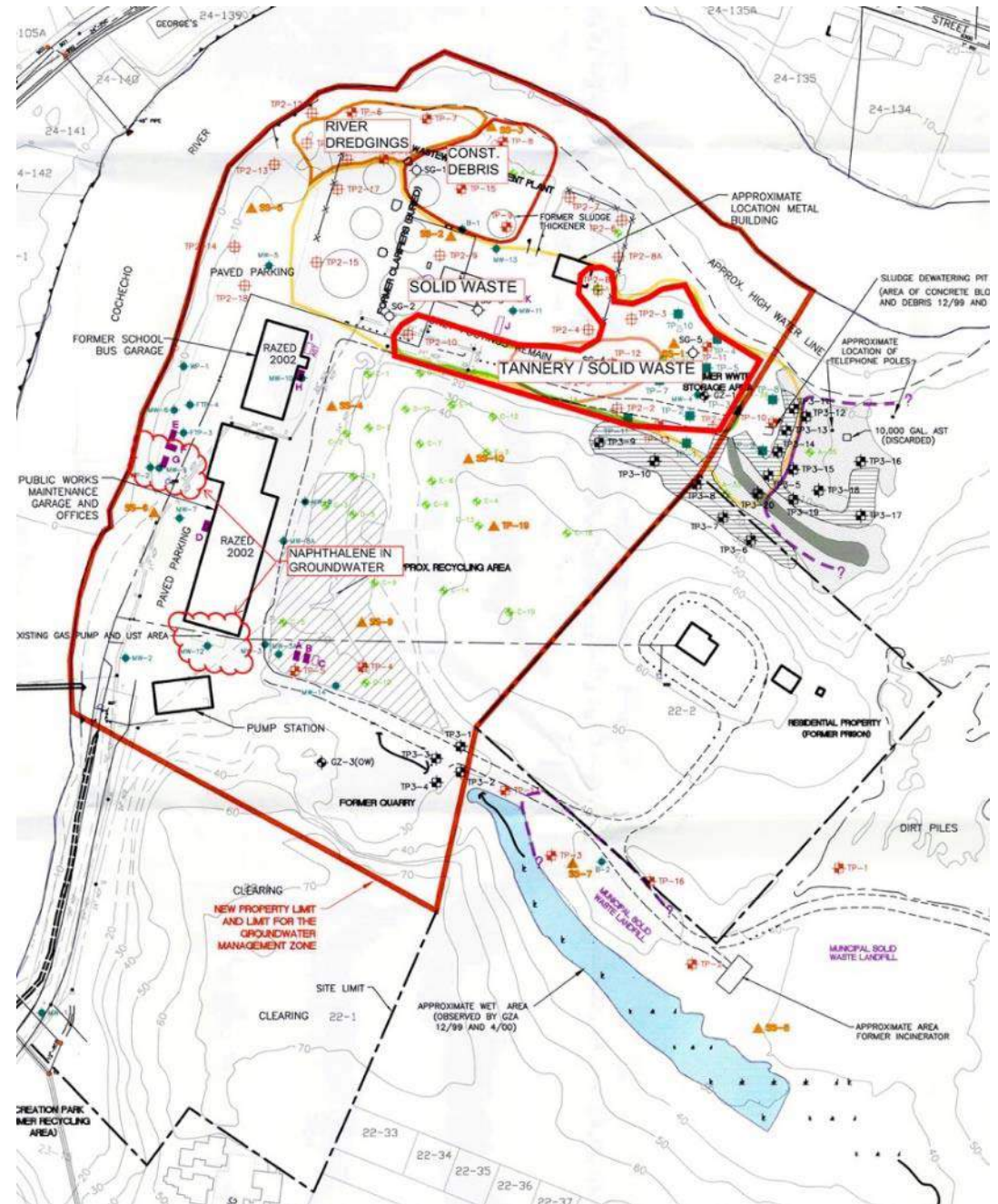
COACHECHO WATERFRONT

Proposed Remedial Approach:

- In public areas, excavate top 2 feet of soil below final grades, place Hi-Vis barrier fabric and replace with clean soils from cut area of site (hill below former prison) to protect human health and safety from exposure to existing site soil contamination
- (Prior to excavation – hand probes and analytical testing to confirm waste acceptable in dredge cell)
- Excavated soils placed in dredge landfill
(GZA considered screening and segregating soils from public area cuts but would be more expensive than hauling to dredge cell directly due to analytical costs and double handling)
- Remaining flat area of site at ~El. 10 capped with Hi-Vis barrier fabric
- Fabric covered with clean soils from hill to raise grade for site

Include in Remedial Approach submission:

- Typical waterfront sections/details
- Grading Plan
- Typical cross sections across site



REMEDIAL APPROACH

COACHECHO WATERFRONT

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COCHECHO WATERFRONT

Pre-Permitting Meeting Held on 2/4/16

Attended by EPA, Army Corps, NHDES (AOT, water, wetlands, air, solid waste, petroleum)

Determined that will separate the following items for permitting

1. Remedial Action Plan, dredge cell closure (Year 1-2)
2. Dock design and permitting for crew (Year 1)
3. Riverside park and site development (Year 1-2)

Identified the Following Priorities

1. Human health risk with respect to solid waste is #1 priority
2. Wetlands, shoreland, floodplain, all of secondary concerns

Wetlands

1. Current wetlands of low quality and heavily impacted
2. Supportive of dredge/fill in exchange for mitigation/ restoration/ protection of high quality wetlands elsewhere
3. Mitigation value TBD by EPA/ACOE

Floodplain

1. ***“Remove More, Fill Less”*** is the recommendation from ACOE if possible with respect to human health
2. If fill and subsequent loss of floodplain storage is needed for soil remediation they would be supportive of additional compensatory dredge/cut within wetlands
3. To be determined if any floodplain storage loss is expected
4. FEMA will not be engaged so long as there is a balance of flood storage in which case a flood study would be required.

Sea Level Rise

1. Agencies supportive of SLR concerns
2. 2100 Mean High Water & 100-YR floodplain + 6.3'

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AGENDA

COCHECHO WATERFRONT

Conceptual Design

Task 1: Pre-Design

Task 2: Preliminary Site Concepts

Task 3: Draft Concept Plans

Fast-Tracked Engineering

Task 4: Soil Remediation Plans and Permitting

Task 5: Dock Design and Permitting

Future Tasks (Phase 2)

Soil Remediation Oversight

Dock Construction Oversight

Concept Refinement

Detailed Site Planning/Engineering

Developer RFP Assistance

NEXT STEPS

COCHECHO WATERFRONT



Scheme A North, Scheme A South



Scheme B North, Scheme B South



Scheme A North, Scheme C South



Scheme B North, Scheme A South



Scheme B North, Scheme B South



Scheme B North, Scheme C South



Scheme C North, Scheme A South



Scheme C North, Scheme B South



Scheme C North, Scheme C South

DISCUSSION

COCHECHO WATERFRONT