



RE:BEACH Pilot Siting Analysis

→ Methodology and
Community Feedback



RE:BEACH

Meeting Agenda

6:00 PM Welcome and Agenda Review

6:05 PM Project Overview

6:15 PM Siting Analysis Criteria & Methodology

6:45 PM Q&A

7:00 PM Segment and Layout Considerations

7:35 PM Next Steps

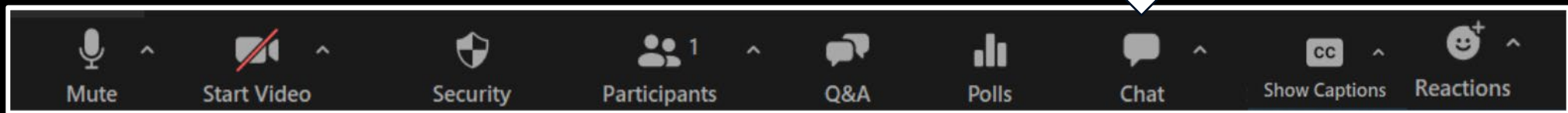
7:45 PM Q&A

8:00 PM Adjourn

Zoom Webinar Logistics

Chat

Use chat for
tech support



Q&A

Click here to submit a
written question



Captions

If you want live
close captioning,
click this feature



RE:BEACH BACKGROUND

Beach Sand Feasibility Study (2020 – 2021)

Preliminary Engineering Evaluation

- Identified ways to improve coastal management
- Determined conceptual ideas to lessen beach erosion

Recommendations

- High-quality sand source + beach nourishment program
- Piloting of a sand retention structure(s) should be considered along with the beach nourishment program

Sand Nourishment and Retention Pilot Project (2023-2026)

Community and Stakeholder Engagement

Baseline Monitoring Development

Engineering, Analysis and Design of a Pilot Project

- Preliminary design through a Design Competition (**RE:BEACH Oceanside**)
- Final design and engineering
- Plans and specifications

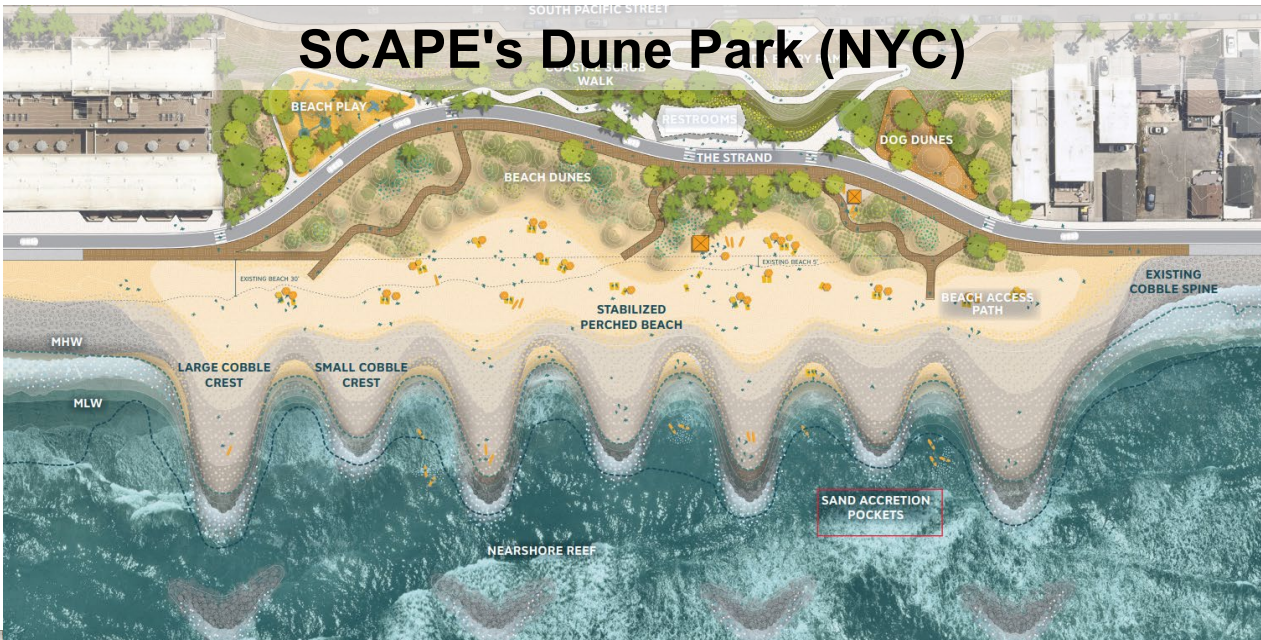
Environmental Compliance and Permitting



RE:BEACH OBJECTIVES

Pilot Project Goals

- Restore sandy beaches in Oceanside with an innovative, multi-benefit project
- Increase efficiency and extend the benefits of sand management efforts



Winning Design - ICM's Living Speed Bumps (Australia)



Deltares' Green Dream Peninsula (Netherlands)

REGIONAL OUTREACH

Coastal Cities Coordination

Carlsbad Beach Preservation Commission

- October 2023

Del Mar City Council

- November 2023

Solana Beach City Council

- November 2023

Encinitas City Council

- December 2023

Carlsbad Beach Preservation Commission

- April 2024

Targeted Stakeholder Meetings and Events

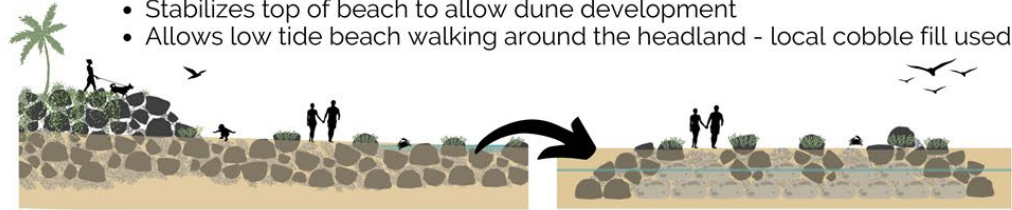
Save Oceanside Sand (SOS)	October 2022, May 2024
OCNA	March 2023
Oceanside Chamber of Commerce	March 2023, November 2023
SANDAG	September 2023, January 2024, March 2024, May 2024
League of CA, Coastal Cities	October 2023, January 2024
Visit Oceanside	November 2023
Smart Coast Cities Summit	May 2023
San Diego Regional Climate Collaborative	November 2023, June 2024
Headwaters to Ocean Conference	November 2023
Oceanside High School	December 2023
Beach Ecology Coalition	January 2024



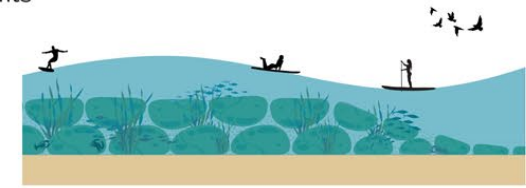
RE:BEACH Design Competition Winner

PROPOSED 'SPEED BUMPS' (TOP & BOTTOM OF BEACH) SCHEMATIC CONCEPTS

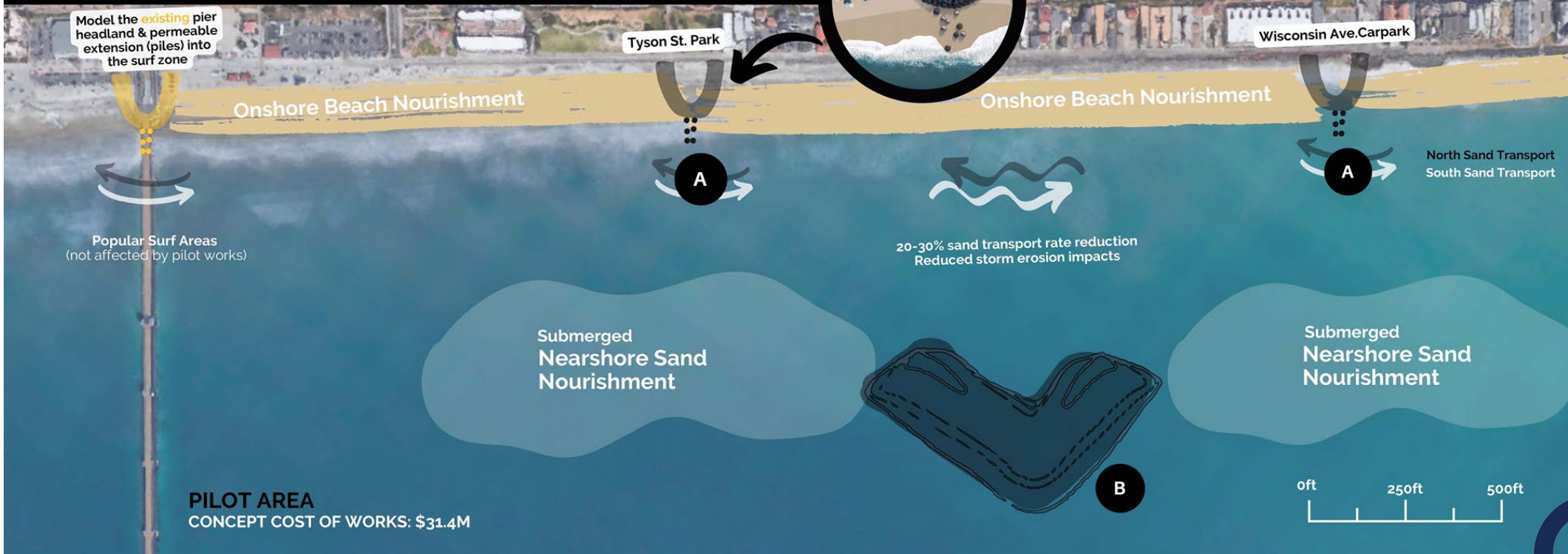
- A Living Headland & Low Permeable Berm**
- Based on existing pier headland scale & permeable extension into surf zone (piles)
 - Stabilizes top of beach to allow dune development
 - Allows low tide beach walking around the headland - local cobble fill used



- B Eco-Engineered Reef (Submerged)**
- Based on proven Gold Coast examples (20 years+ in similar conditions)
 - Improves sandbar retention & reduces beach erosion
 - Ecological and surf benefits



PILOT PLAN SCHEMATIC CONCEPT LAYOUT



Siting Analysis – Evaluate 3 Segments

- Potential pilot site layouts considered across the 3 segments

 Segment 1 – Seagaze Drive to Wisconsin Avenue

 Segment 2 – Wisconsin Avenue to N Buccaneer Beach

 Segment 3 – S Buccaneer Beach to Buena Vista Lagoon



Pilot Project

- The pilot project concept can be optimized for any segment to meet the performance goals.
- Benefits of the project will extend beyond directly between the headlands and behind the reef.
- Implementation of the pilot project concept is viewed as feasible in all segments.
- The ease of implementation across segments and the trade-offs between benefits and challenges vary across different segments.
- The overarching intent is to implement one pilot project concept (two headlands and one reef with beach nourishment), monitor and learn from it, and develop future projects for the rest of Oceanside's shoreline. These future phases may not be a direct copy/paste of the pilot project concept.

Siting Analysis Goals & Objectives



Goal

Evaluate potential locations for the pilot project concept.



Objectives

Determine appropriate criteria for analysis.
Identify recommended layout in each segment.
Assess recommended layout against selected criteria.



Community Feedback

Is the methodology clear?
Are the criteria we selected appropriate?
Are there any criteria missing?
Are possible locations and layouts fairly considered?

Siting Analysis Assumptions



- Headlands should connect with existing public accessways and facilitate both public and emergency service/lifeguard access.
- ICM's design concept dimensions should be applied "as-is" uniformly across all segments
- Qualitative evaluations are appropriate where quantitative metrics are unavailable.
- Some individual criteria require additional assumptions.

Analysis Methodology



Divide the project area into three segments



Determine appropriate criteria for analysis



Evaluate potential layouts in each segment using key siting criteria



Screen to identify recommended layout for each segment



Conduct Multi-Criteria Analysis (MCA) for 3 recommended layouts - Forthcoming

Multi-Criteria Analysis (MCA) Overview

12 criteria:

- Creation/Restoration of Beach over Design Life
- Sediment Supply to Adjacent Beaches
- Coastal Access and Amenities
- Property Risk Assessment
- Private/Public Property Entitlements
- Constructability
- Construction Costs
- Adaptive Management
- Biological Resources – Marine Subtidal
- Biological Resources – Intertidal/Beach
- Surf Resources
- Public/Marine Safety

Creation/Restoration of Beach Over Design Life

Overall performance of the system, where performance goals are defined as the creation of an initial 100 ft wide beach and the maintenance of a stable, dry beach over the pilot's 20-year lifespan.

The pilot concept is assumed to be able to meet performance goals in each segment, irrespective of costs and other limitations.



Sediment Supply to Adjacent Beaches

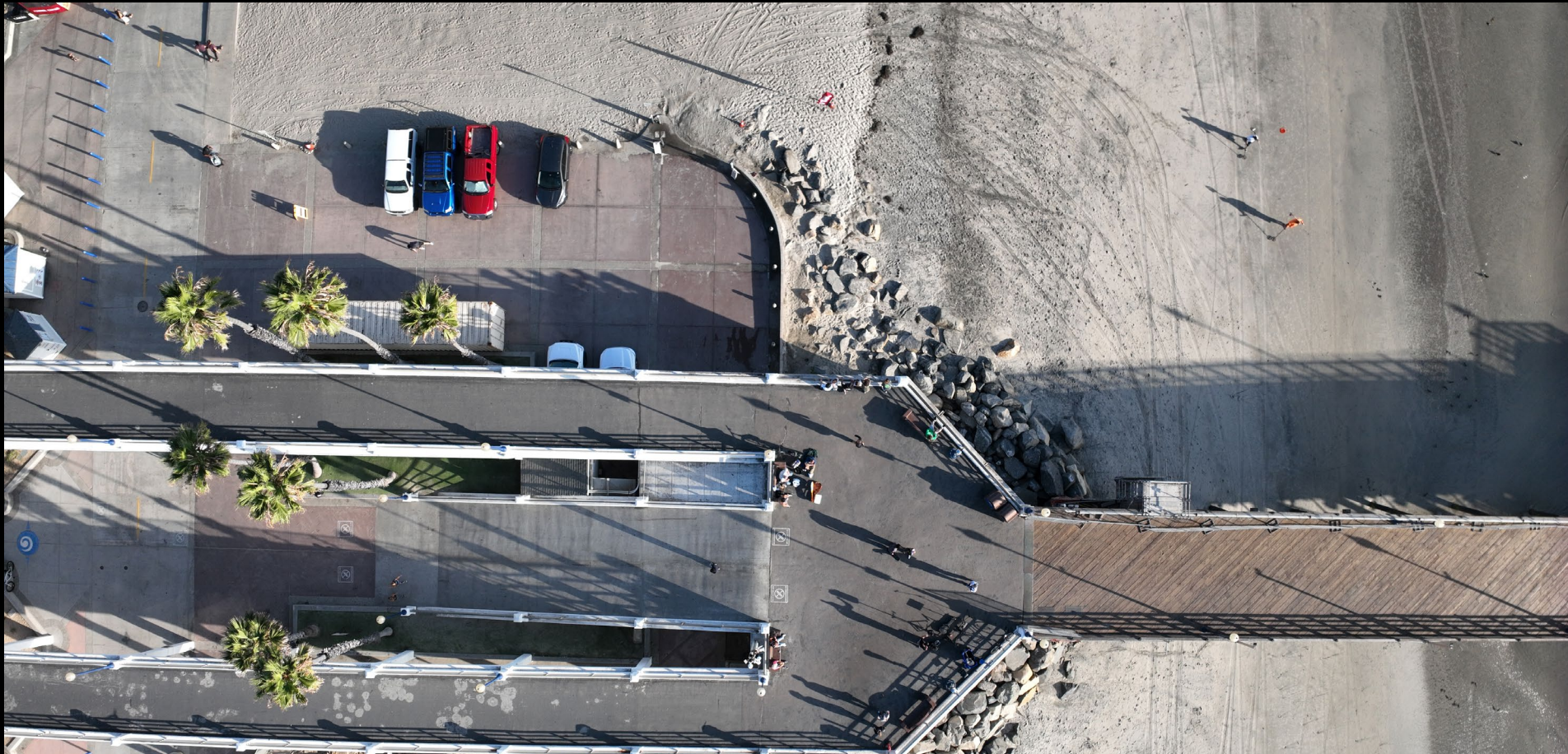
This criteria assesses the anticipated long term sediment supply response (i.e., increase/decrease) of the project outside of the immediate pilot project extent including nourishment management strategies.

Based on the anticipated monitoring and nourishment management strategies, an increase of sediment supply is expected along adjacent beaches, regardless of the specific pilot project location.



Coastal Access and Amenities

This criteria assesses the ability to enhance and leverage existing public features and amenities. These include existing public accessways, parking lots, lifeguard facilities, parks/open space, restrooms and showers.



Property Risk Assessment

This criteria is intended to account for risks and uncertainties associated with the pilot negatively affecting shoreline assets, both public and private property.



Private/Public Property Entitlements

This criteria assesses the surrounding connections (i.e., entitlements) between private and public property boundaries and uncertainties on how adjacent private and public connections could be managed long term.



Constructability

This criteria assesses the feasibility of the initial construction of the pilot, including the headlands, and reef.



Construction Costs

This criteria assesses the expected initial construction cost of the pilot project including accounting for the staging area distance from the work site, proximity of land-based access points for equipment, and the additional placement of material to allow for construction operations to occur.



Adaptive Management

This criteria assesses the anticipated ability and cost of adaptive management including modifying features as necessary based off observed performance. Anticipated adaptive management considerations include long-term access for equipment on the beach, public right of way, and a readily accessible area regardless of beach conditions.



Biological Resources – Marine Subtidal

This criteria assesses the potential risk of negative impacts from burying existing subtidal habitat and habitat conversion potential.



Photo: NOAA

Biological Resources – Intertidal/Beach

This criteria assesses the potential impacts to existing biological resources by the intertidal and back beach pilot project components.



Photo: CDFW

Surfing Resources

This criteria assesses the potential impacts to existing surf resources by the pilot project components. This includes the number of surfers typically observed in the area and the discernable quality of the surf.



Public/Marine Safety

This criteria assesses the potential alterations to public and marine safety through the potential effects on lifeguard operations. Maintaining existing marine safety levels is based on leveraging existing lifeguard vehicle access points and proximity to the lifeguard headquarters.



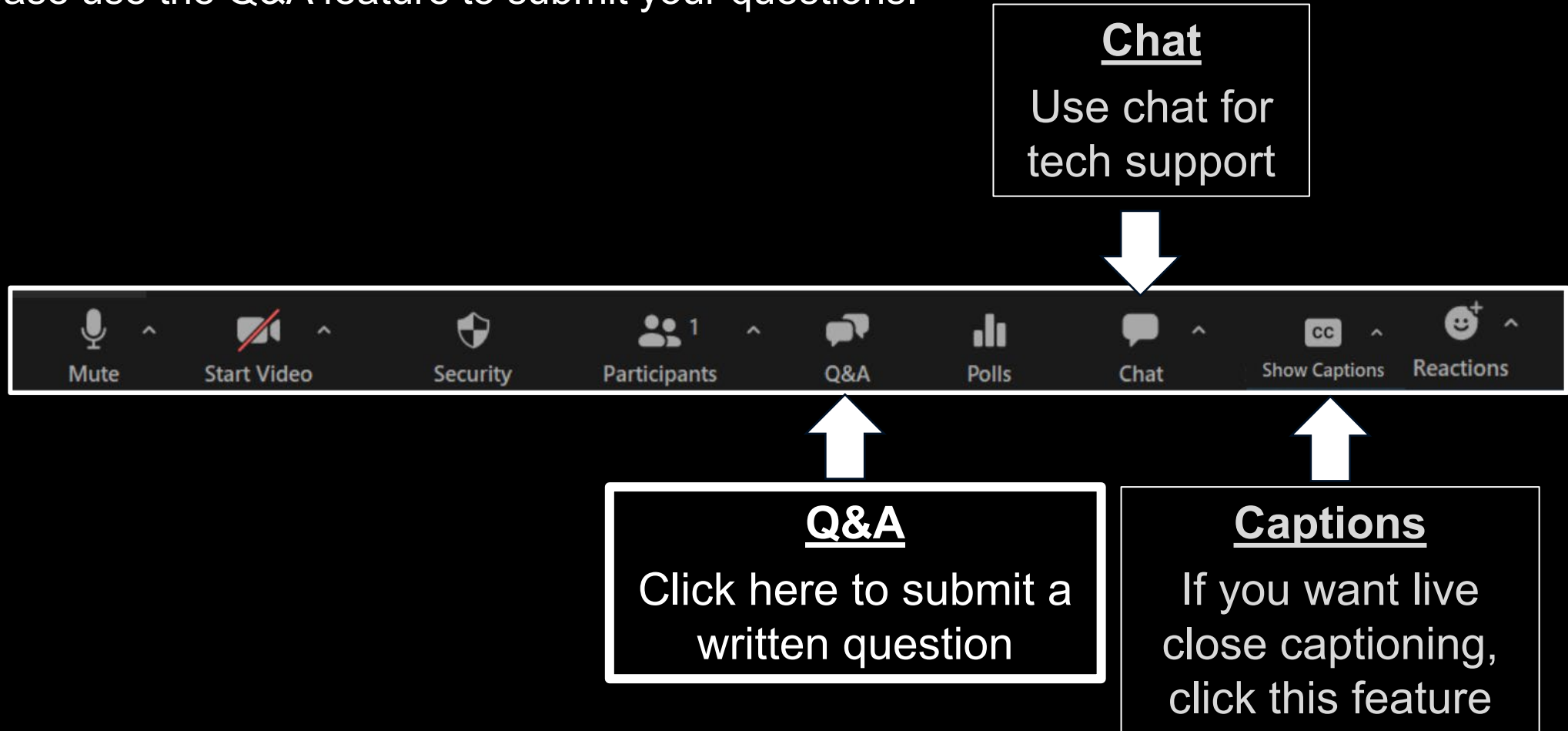
Multi-Criteria Analysis (MCA) Overview

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Q&A

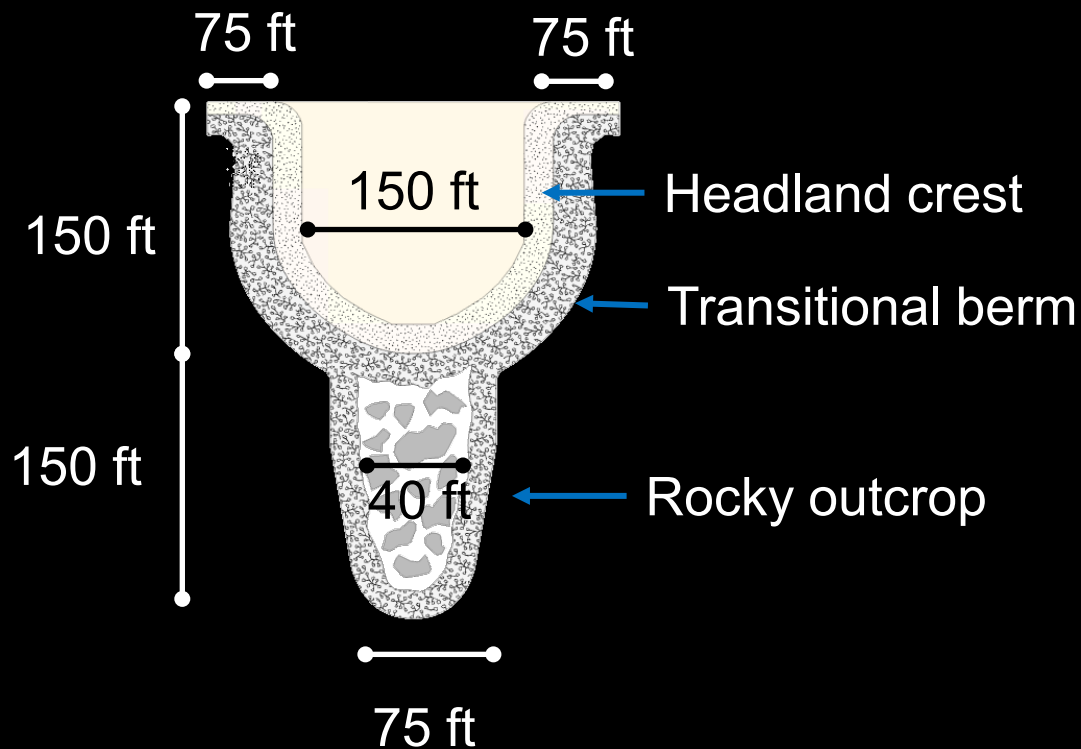
Please use the Q&A feature to submit your questions.



Proposed Pilot Project Key Components

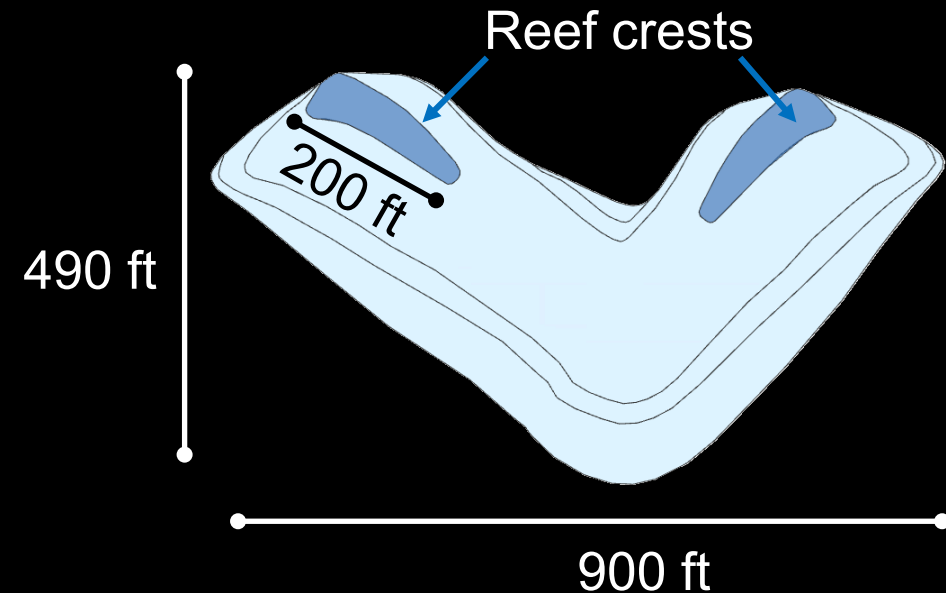
Two Headlands

150' wide, 150' long with 150' long outcrop
~1,950 ft apart (center to center)



Reef

490' by 900', chevron configuration
-20-40ft (MLLW) depth,
~900 ft offshore



Proposed Pilot Project Key Components

Initial Nourishment

~400k cy, onshore, adjacent to both headlands

~500k cy, nearshore, north and south of reef

Operation/Maintenance Nourishment

250k – 300k cy, annual harbor dredged material

~300k cy of nearshore and onshore nourishment every 5 years

Continuing to assess feasibility of sand distribution system

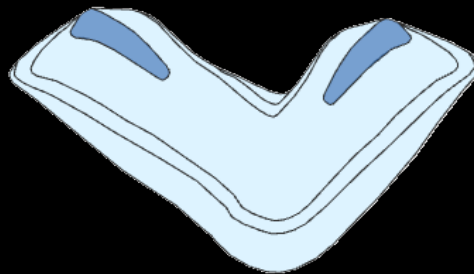


Pilot Project Concept

Headland

Nourishment

Headland



Reef

Siting Analysis – Evaluate 3 Segments

- Potential pilot site layouts considered across the 3 segments

 Segment 1 – Seagaze Drive to Wisconsin Avenue

 Segment 2 – Wisconsin Avenue to N Buccaneer Beach

 Segment 3 – S Buccaneer Beach to Buena Vista Lagoon



Segment 1 – Backshore Siting Evaluation

Backshore

- Entirely along public street with many pedestrian access points
- Public amenities: multiple formal coastal accessways, restrooms, showers, parking lots and lifeguard services
- Behind public road: public parks and parking lots, private residences and driveways
- Consists of approximately 90% public property and 10% private property



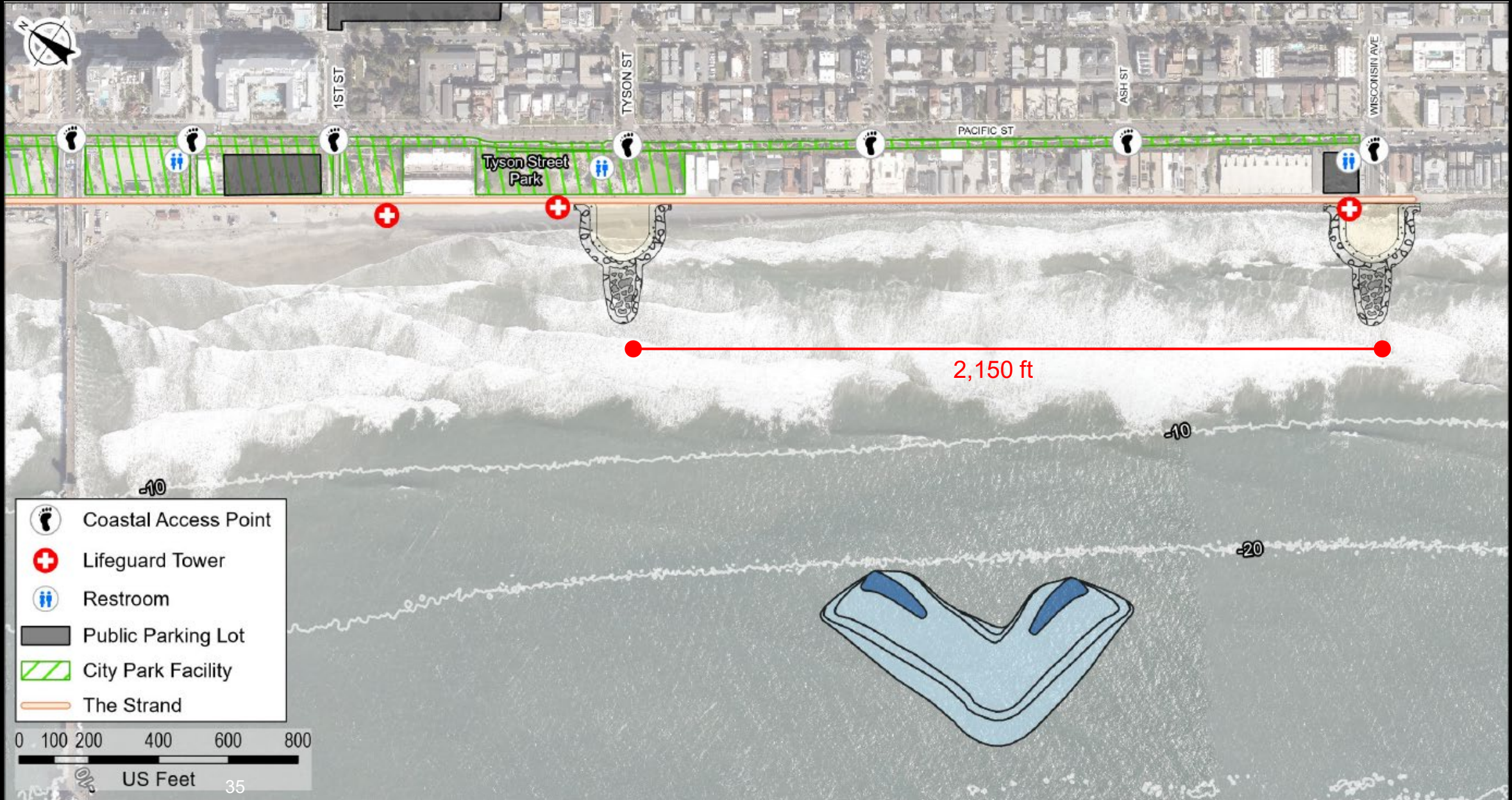
Segment 1 – Beach Siting Evaluation

Beach Conditions

- Narrow sandy beach which tapers to mostly cobble to the south
- Shoreline protection along the whole segment consists of rock revetment and shallow concrete seawall



Segment 1 – Recommended Layout



Segment 1 – Identifying the Recommended Layout

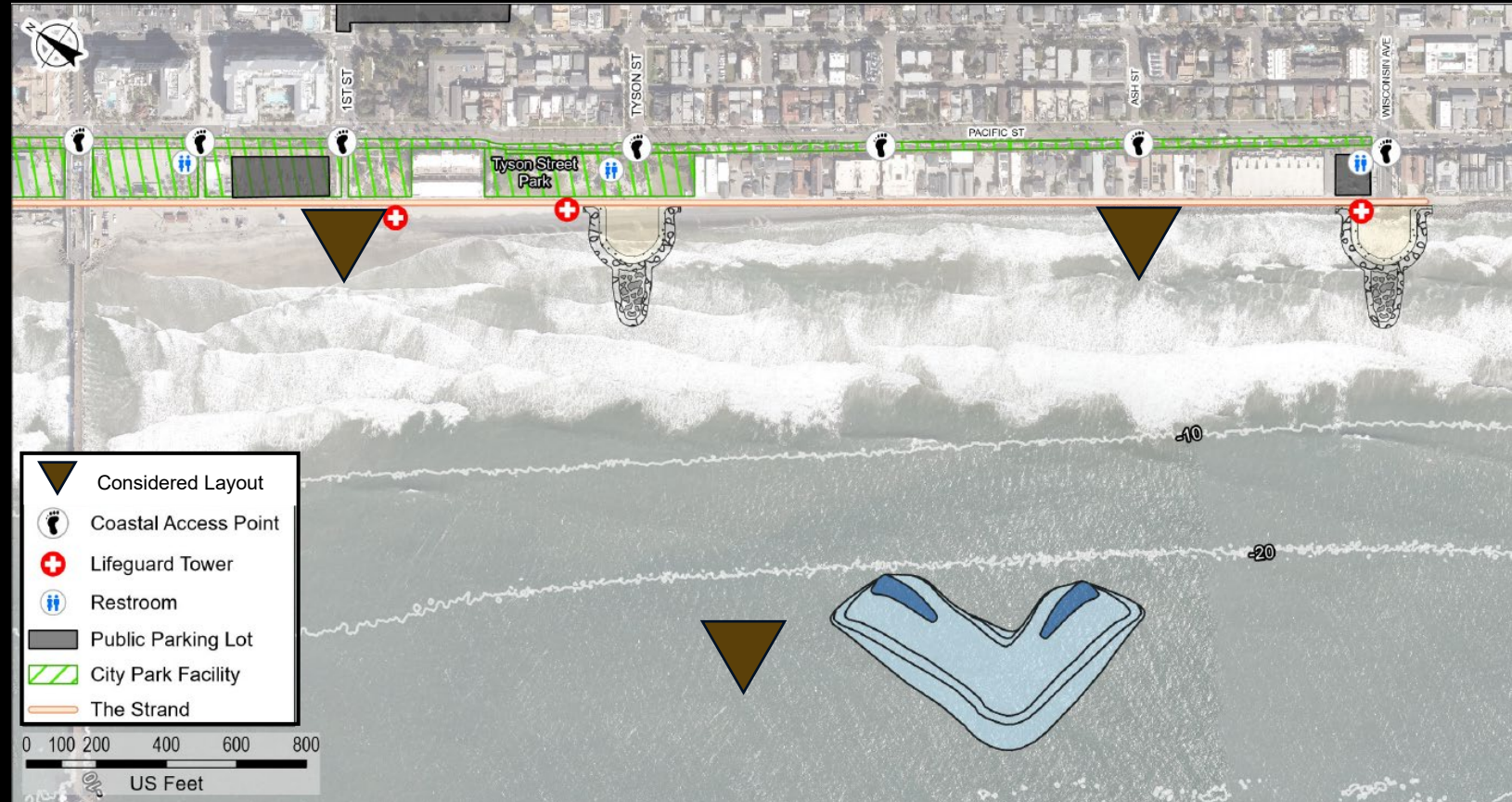
Recommended layout at Tyson Street and Wisconsin Avenue

- Fully supported by all shoreline amenities
 - Lifeguard towers
 - Restrooms
 - Parking lots
 - Park space
 - Formal coastal accessways
- Both potential layouts anticipated to have equal considerations for headland connections
- Southern end of segment avoids potential impact on existing sandy beach habitat and surf resources focused around the pier

Segment 1 – Considered Layout

Seagaze Dr and Ash Street

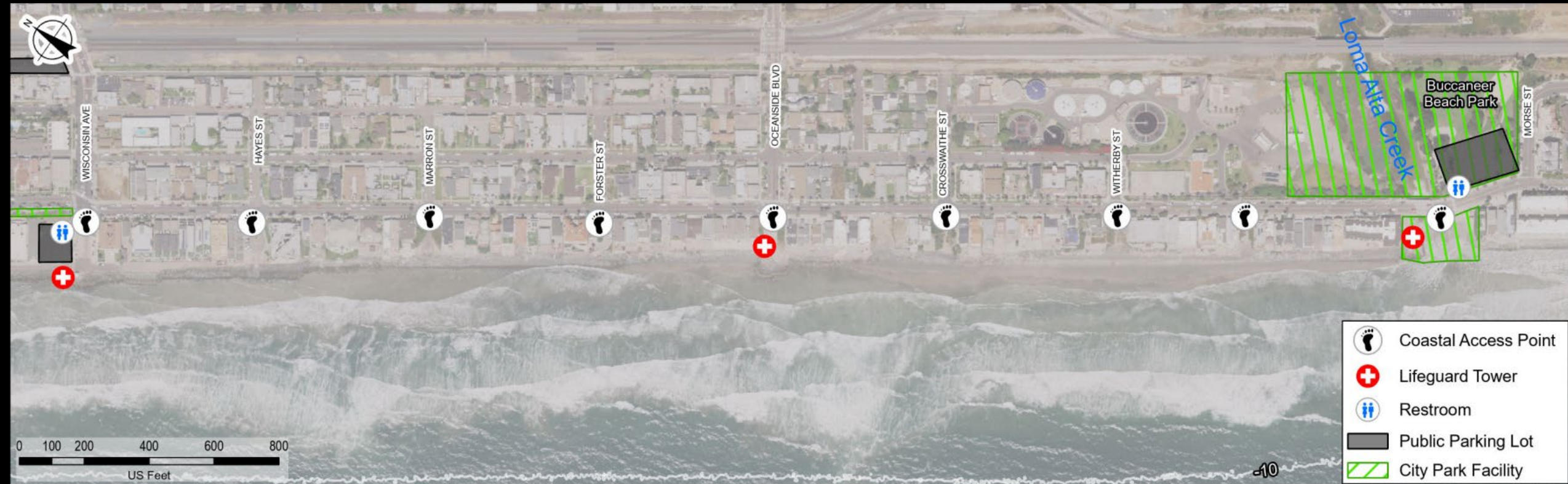
- Footprint encroaches on existing dry beach
- Higher risk of potential impact on existing sandy beach habitat and surf resources focused around the pier
- Ash Street is a less robust coastal access point compared to Wisconsin Ave



Segment 2 – Backshore Siting Evaluation

- **Backshore**

- Primarily along private property interspersed with 9 public street ends and pedestrian coastal access points
- Public amenities: 2 restrooms, 2 parking lots, 1 park and 3 lifeguard towers
- Consists of approximately 30% public property and 70% private property



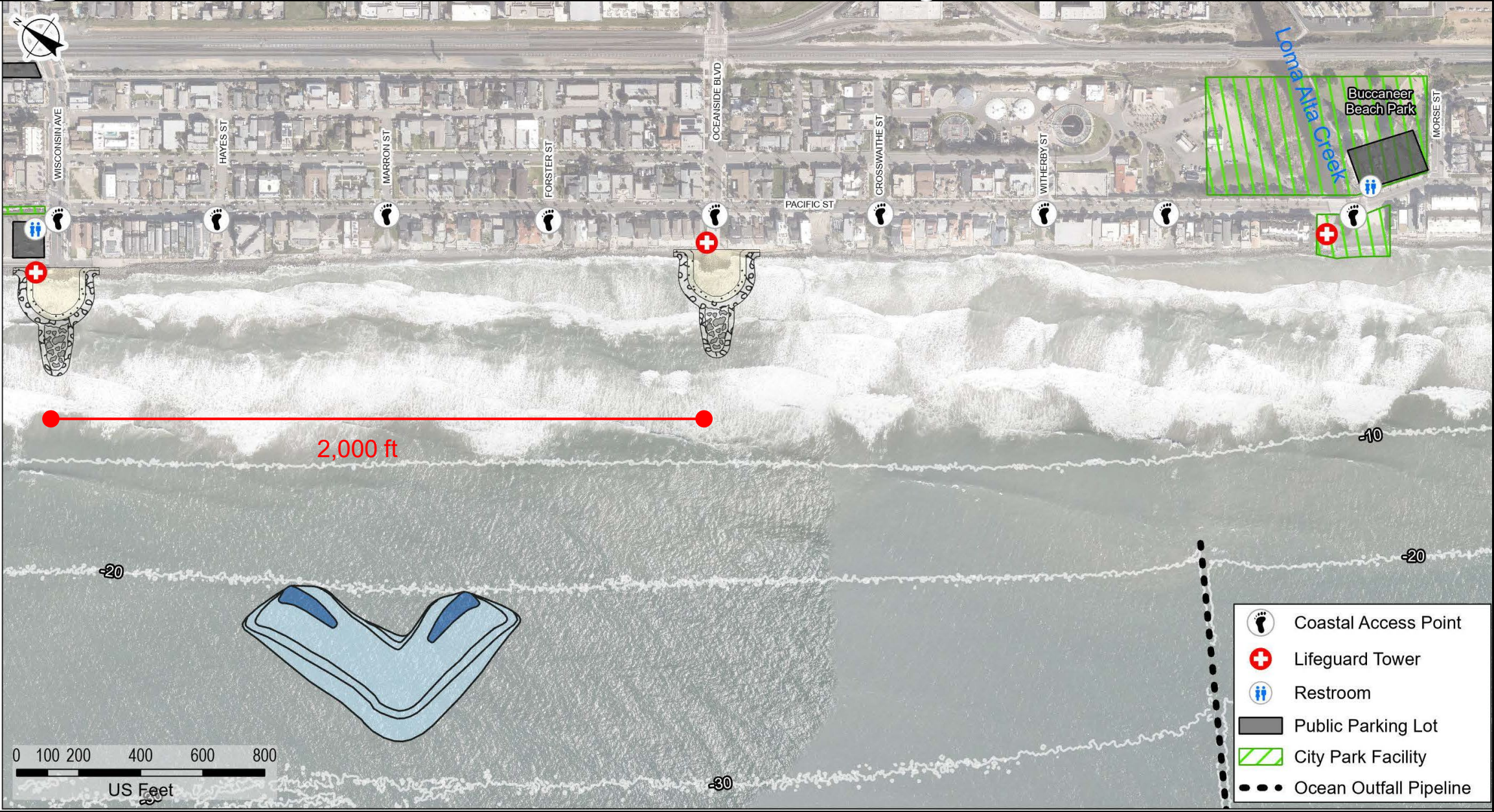
Segment 2 – Beach Siting Evaluation

Beach Conditions

- Little to no dry sandy beach available and primarily consisting of cobble
- Rip rap fronting the entire segment with access points at Hayes St. stairwell, Oceanside Blvd vehicle ramp, Pacific St. Ped Path, and Buccaneer Beach
- Ocean Outfall lies directly offshore of the Pacific St. Ped Path



Segment 2 – Recommended Layout



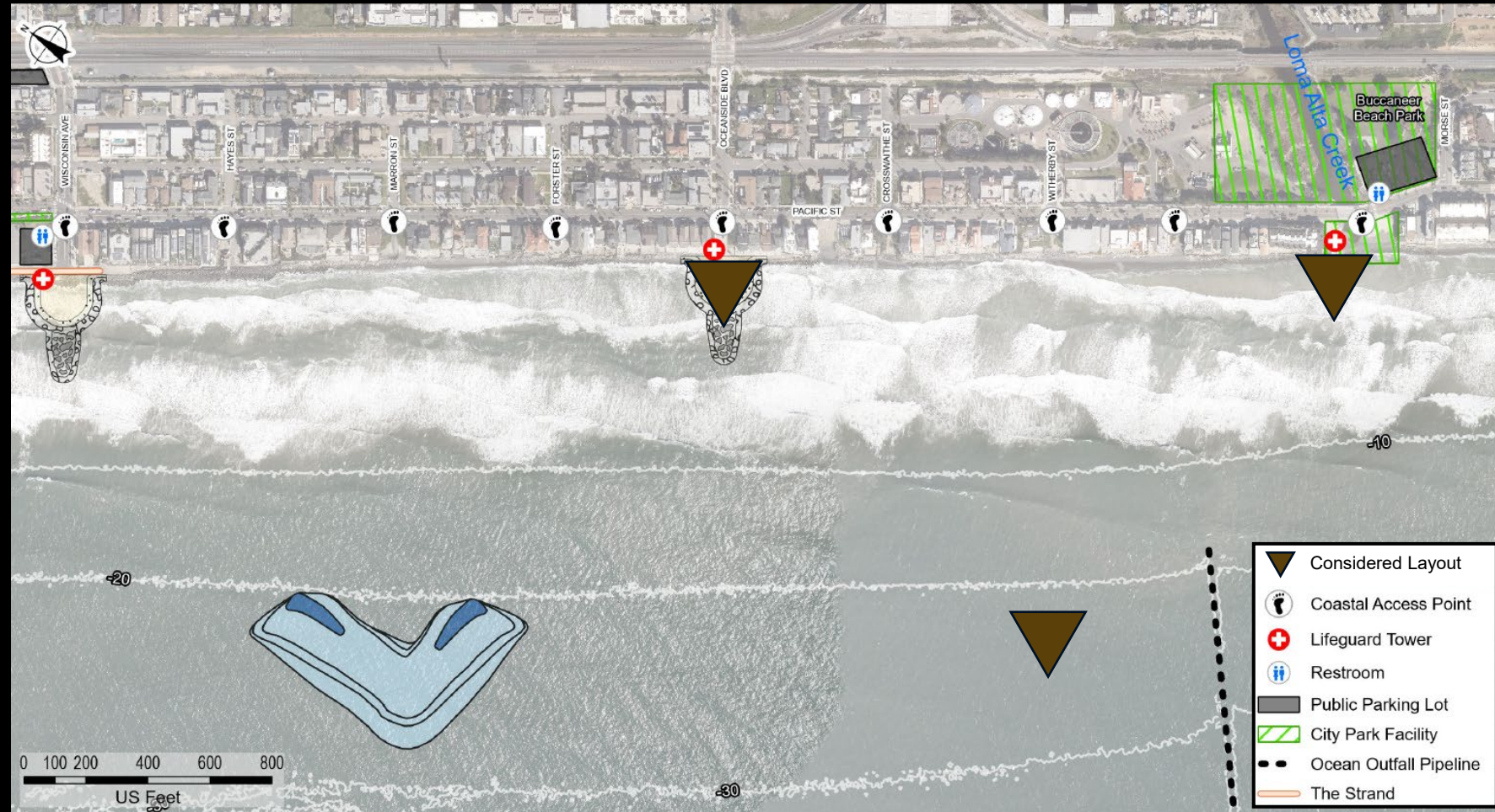
Segment 2 – Identifying the Recommended Layout

- Recommended Layout at Wisconsin Avenue and Oceanside Boulevard
 - Supported by all shoreline amenities
 - Headland has more connectivity to public property and connectivity to The Strand
 - Leverage coastal accessways between headlands
 - Considered to have slightly lower potential risk to private property
 - Leverages existing shoreline amenities
 - Lifeguard towers
 - Restrooms
 - Parking lots
 - Park space

Segment 2 - Considered Layout

Oceanside Boulevard and N. Buccaneer

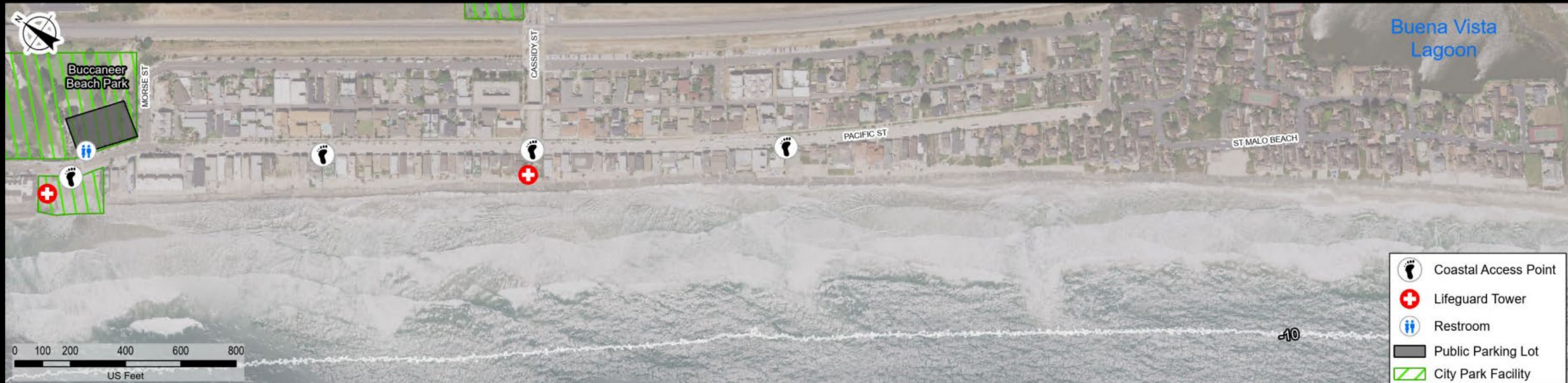
- Less public space for headland connection
- Offshore Outfall constrains reef location
- Accessways between headlands are more limited



Segment 3 – Backshore Siting Evaluation

Backshore

- Primarily along private properties with 4 public pedestrian coastal access points
- Public amenities: restroom, parking lot, park space, and 2 lifeguard towers
- 2 private beach accessways located in St. Malo Community
- Consists of approximately 13% public property and 87% private property



Segment 3 – Beach Siting Evaluation

Beach Conditions

- Narrow sandy beach and primarily made up of cobble
- Rip rap fronting the private property along the entirety of the segment with access points at Buccaneer Beach, Whaley St Pedestrian Path, Cassidy St, and South O Pedestrian Path



Segment 3 – Recommended Layout



Segment 3 – Identifying the Recommended Layout

- Recommended Layout at Buccaneer Beach and Cassidy Street
 - Proximity to Buccaneer park and recreational amenities (bathroom, playground, etc.) and parking lot
 - Considered to have lower potential impact with private property
 - Provides greater potential for integrating programming with existing coastal access points
 - Leverages existing shoreline amenities
 - Lifeguard towers
 - Restrooms
 - Parking lot
 - Park space
 - Concession

Segment 3 - Considered Layout

Whaley Street Pedestrian Path and South Oceanside Pedestrian Path ▼

Limited nearby shoreline amenities (lifeguard, restroom, parking lot)

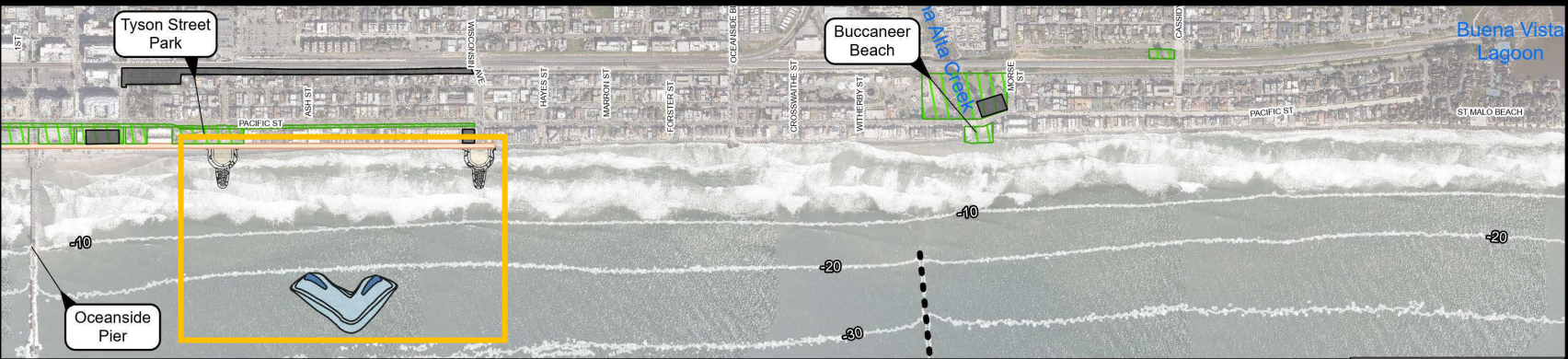
- Narrow coastal access points limit programming available on headlands
- Increased potential impacts with private property (e.g., entitlements, easements, views)



Recommended Layouts

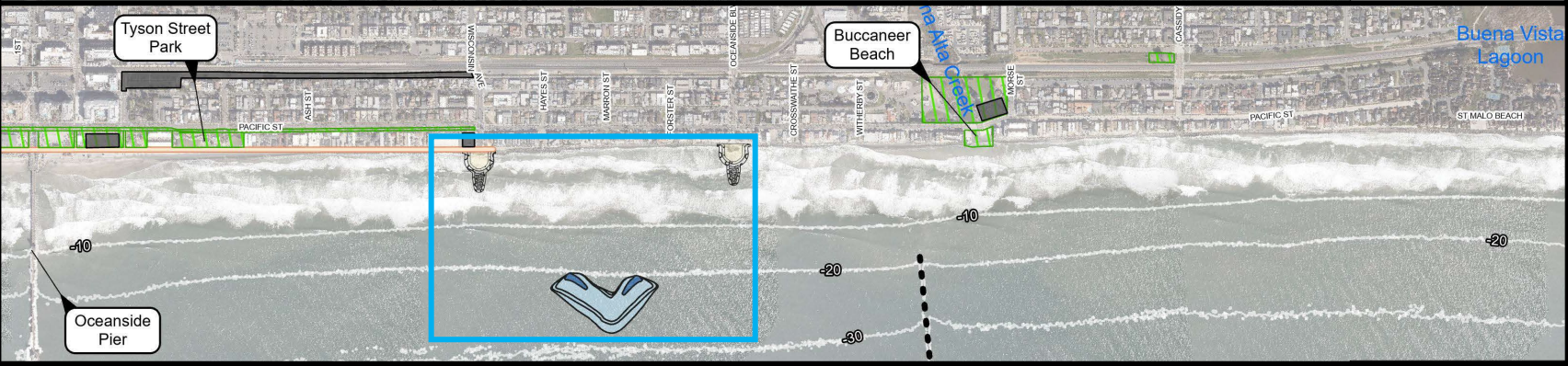
Segment 1

Tyson St
and Wisconsin Ave



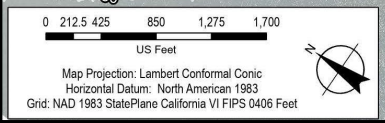
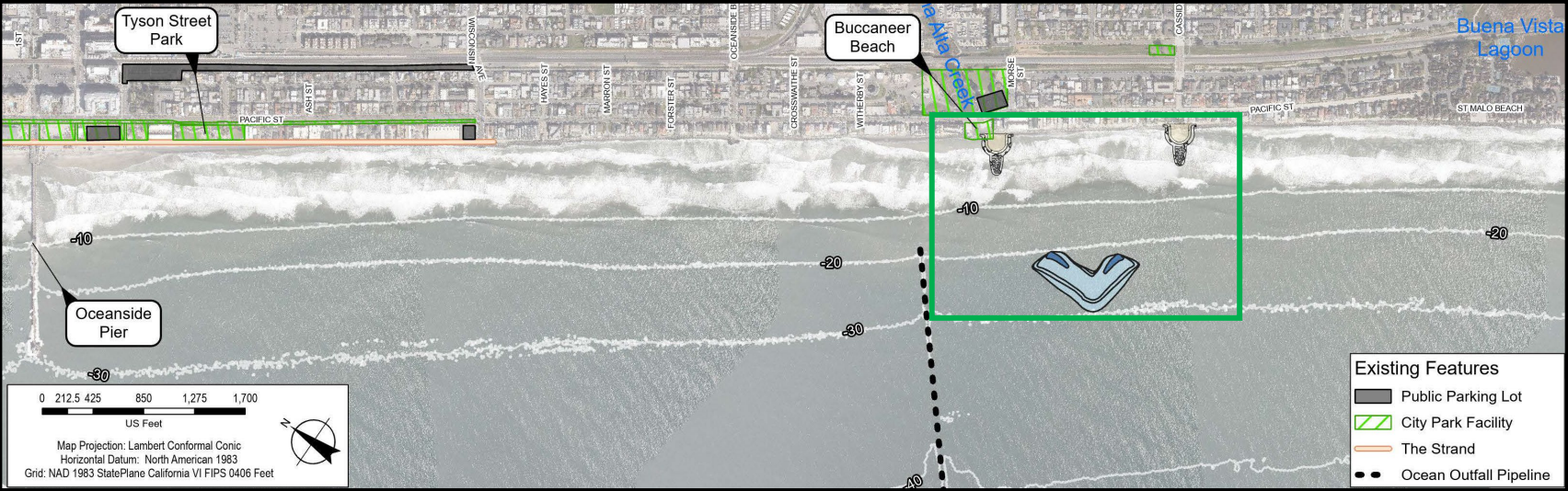
Segment 2

Wisconsin Ave
and Oceanside Blvd



Segment 3

S. Buccaneer
and Cassidy St



Existing Features	
	Public Parking Lot
	City Park Facility
	The Strand
	Ocean Outfall Pipeline

Next Steps

Siting Analysis

- Two public webinars July 16 and 18, recording and slides available online at rebeach.org
- Survey available online after webinars to provide feedback and public comment
- City holding various pop-up tabling events over summer to gather additional input
- Conduct Multi-Criteria Analysis (MCA) for 3 recommended layouts incorporating public input
- Anticipate presenting results to City Council in fall

Sediment Investigation

- Offshore sediment investigation initiated with analysis occurring over summer

Modeling

- Initiation of preliminary numerical modeling. Anticipate physical modeling in the future to further refine design details

Monitoring

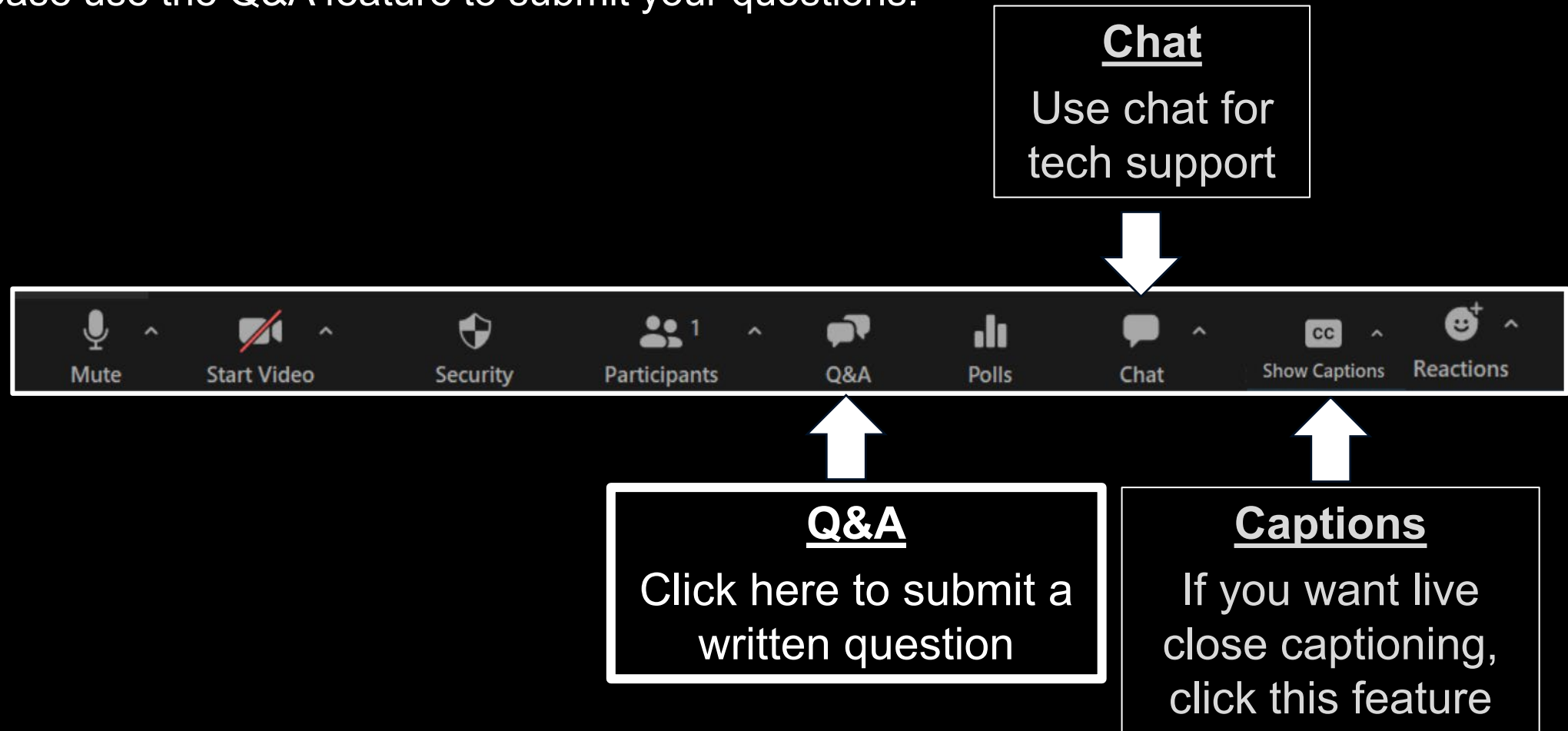
- Continued physical monitoring and exploring surf monitoring components

Economics Study

- Evaluation of funding mechanisms for implementation and ongoing coastal management in Oceanside

Q&A

Please use the Q&A feature to submit your questions.



Thank you!

Webinar recording and the presentation will be posted on www.rebeach.org



RE=BEACH

extra

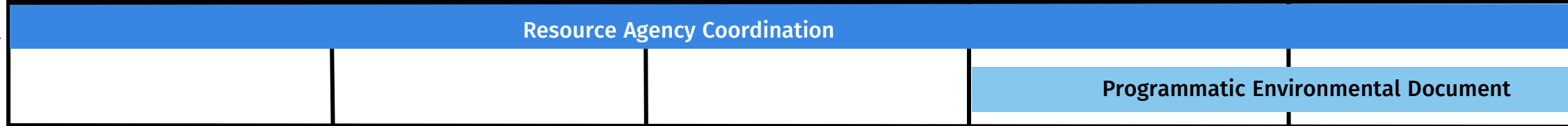
Project Timeline



**Engineering,
Analysis &
Design**



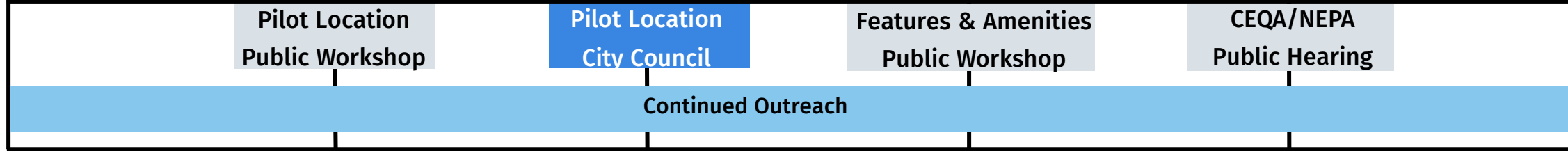
**Environmental
Compliance &
Permitting**



Monitoring

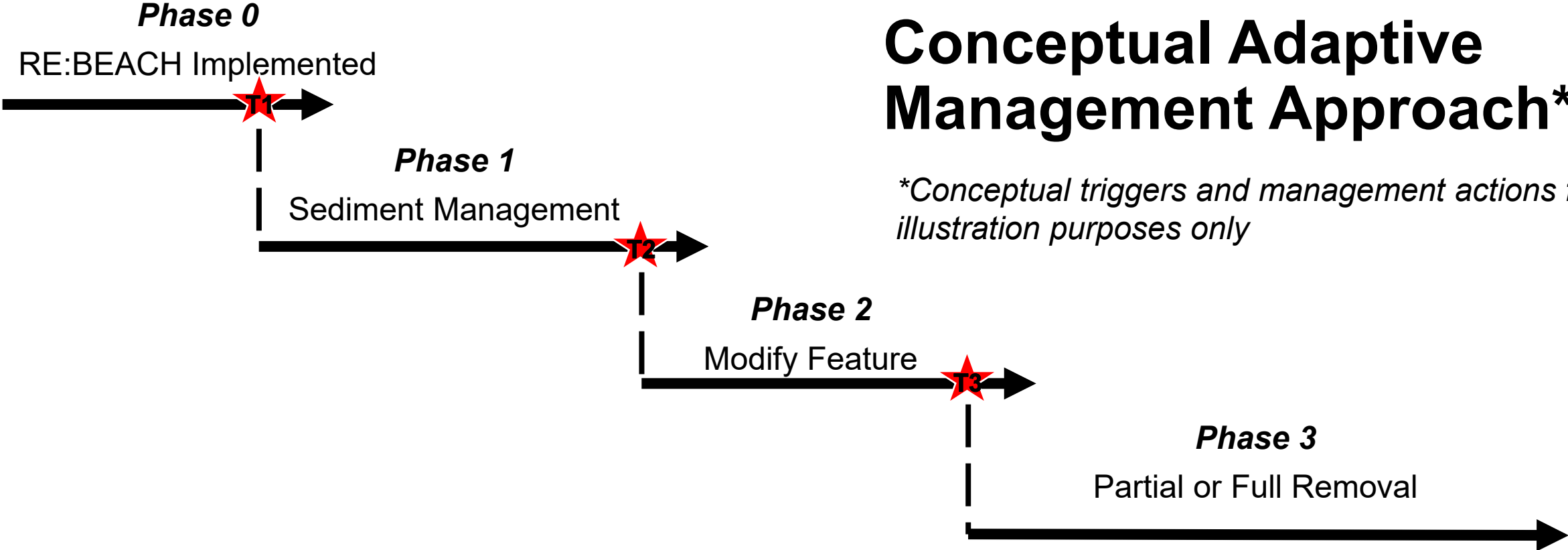


**Community
& Stakeholder
Engagement**



Conceptual Adaptive Management Approach*

**Conceptual triggers and management actions for illustration purposes only*



	Trigger	Action
T1	Measured reduction of beach width >Xft (over X years)	Add sediment at appropriate location; Analyze shorezone volume changes
T2	Shorezone volume significantly decreased beyond natural variability	Shrink, enlarge, change angle/orientation of feature, consider adding sediment downcoast once or programmatically
T2	Measured increase of beach width >Xft (over X years)	
T3	Persistent erosion (over X years) exceeds standard deviation from natural variability	Removal of some or all of fixed aspects of feature
T3	Accretion and retention exceeds Xft of beach width (over X years)	Consider partial removal, fixed bypass system, and other modifications

Scaling and Phasing

- The overarching intent is to implement one pilot project concept (two headlands and one reef with beach nourishment), monitor and learn from it, and develop future projects for the rest of Oceanside's shoreline.
 - These future phases may not be a direct copy/paste of the pilot project design.
- Benefits of the project will extend beyond directly between the headlands and behind the reef.
- Monitoring will be critical to track the project performance, potential impacts, and inform adaptive management.

Key Considerations

- Headland located at or near **existing coastal access, recreation, and safety amenities:**
 - Formal coastal access points
 - Lifeguard facilities
 - Parking lots
 - Restrooms
 - Parks/open space
- Meets recommended **design sizing and spacing of Pilot Project**
 - Based on ICM winning design concept
- Considerations of **entitlements and potential risk** with adjacent private properties
 - Prioritize connections to public parcels and infrastructure

**Screening process identified highest scoring layout in each segment,
which will become the recommended layout used in the Multi-criteria Analysis (MCA)**