ITEM NO. 1

STAFF REPORT CITY OF OCEANSIDE

DATE: January 31, 2024

TO: Honorable Mayor and City Councilmembers

FROM: City Manager's Office

SUBJECT: **RE:BEACH OCEANSIDE WINNING DESIGN WORKSHOP**

SYNOPSIS

Staff recommends that the City Council take the following actions for the RE:BEACH Oceanside Coastal Resilience Competition:

1. Receive the conceptual alternatives and concur with the following staff recommended options:
    a. Approve the staff and jury recommended selection of International Coastal Management as the winning design team, with its Living Speed Bumps concept
    b. Approve the staff and jury recommended modifications to the selected design concept
2. Authorize staff to proceed with final design, engineering and environmental compliance tasks of the Phase 2 Sand Nourishment and Retention Pilot Project

BACKGROUND

Project History

Since construction of the Camp Pendleton Boat Basin and City's Small Craft Harbor (Harbor Complex), over 21 million cubic yards (cy) of sand have been artificially placed on City beaches from either dredging activity to build the two harbors, the removal of sediment from the San Luis Rey River, the U.S. Army Corps of Engineers annual navigation dredging program or one-off, local or regional beach nourishment events. Despite all these efforts, coastal areas south of Harbor Beach (i.e., south of South Jetty) have been largely unable to sustain a dry sand beach for recreational, ecological and coastal storm damage protection purposes.

In 2020, the City conducted a year-long preliminary engineering evaluation and Feasibility Study to identify deficiencies in current coastal management actions as well as to determine a suite of solutions to lessen long-term beach erosion and mitigate the effects of the Harbor Complex. The Feasibility Study (Phase 1) concluded that 1) a high-quality source of sand, coupled with a beach nourishment program, should be

identified to provide more efficient and consistent beach nourishment opportunities, and 2) retention structure(s) are desirable as a means of retaining placed sand, since historical surveys and anecdotal data have shown that placed sand does not persist on most of Oceanside's beaches.

At an August 2021 public workshop, the City Council provided staff direction to pursue the recommendations given in Phase 1. Specifically, staff was directed to move forward with the environmental analysis, design, and permitting of a Phase 2 pilot project that would provide both beach nourishment and sand retention options. At that time, consideration was given to a pilot project that incorporated a series of groins. However, Council's direction also provided for flexibility when it came to determining the final design to be pursued.

In May 2022, the City hired its first full-time Coastal Zone Administrator who brought an enhanced level of technical expertise in support of the City's efforts while also providing an opportunity to further explore best practices in the area of coastal management.

On January 25, 2023, the City Council approved a contract with GHD Inc. (GHD) for the Phase 2 Sand Nourishment and Retention Pilot Project. The main tasks outlined in the Phase 2 scope included:

- Community and Stakeholder Engagement
- Baseline Monitoring Development
- Engineering, Analysis and Design
    - Preliminary Design through a Design Competition (RE:BEACH)
    - Final Design and Engineering
    - Plans and Specifications
- Environmental Compliance and Permitting

Since approval of the Phase 2 contract, development of a preliminary design for a sand retention concept has been underway through the execution of a public design competition, called RE:BEACH Oceanside Coastal Resilience Competition. The RE:BEACH competition process was developed by the Project Team, comprised of the City's Coastal Zone Administrator, GHD and Resilient Cities Catalyst, with ongoing support from a City Team comprised of City staff representatives from the Development Services, Public Works, Lifeguard and City Manager departments.

Design Criteria and Jury Selection

To guide the competing design teams through the competition and aid in the selection of a winning sand retention concept, a jury (Jury) was created early in the RE:BEACH process by the Project Team and City Team and announced in May 2023. To determine the suitability of concepts and to judge and inform the development of a sand retention design competition, community members and regional experts from distinct categories of coastal management were asked to submit an application to be part of the Jury. The composition of the Jury was intended to appropriately reflect the various interests in implementation of a project of this type and advise the City staff on a final

recommended pilot project. Jurors were also expected to be receptive to the concept of artificial sand retention as the City Council's prior direction was to pursue a sand replenishment and retention program. The distinct jury categories to be represented included the following: coastal management, Oceanside community representation, environmental compliance/permitting viability, surf resource preservation, nearshore marine resources, regional/coastal city representation, project funding, and state and federal regulatory agency representation. The Jury applicants were then reviewed and ranked by the Project and City Teams, and a list of voting and non-voting members was subsequently generated and confirmed. The Jury included Dr. Lesley Ewing, former Coastal Engineer for the California Coastal Commission, Bob Ashton, President/CEO of Save Oceanside Sand, Chris Abad, President of the Oceanside Boardrider's Club, officials from down coast cities, and Mitch Silverstein, San Diego Policy Coordinator for Surfrider Foundation. A comprehensive list of the Jury is available in Attachment 1 and 3.

Throughout the three design rounds of the RE:BEACH competition, jurors were invited to participate in the Public Workshops, were regularly briefed by the Project Team on the designs as they evolved with public input, and provided opportunities to discuss and review public input, including input received during the final public workshop on December 13, 2023.

The development of the Jury early on in the competition was intentional, as they were an integral part of creating the Design Criteria (Attachment 1) by which the design concepts would be guided and ultimately judged against. To guide the criteria development, RE:BEACH established a mission: to construct an innovative, multi-benefit, sand retention project on the City of Oceanside's beaches that serves both local and regional benefits, with all designs required to meet the bare minimum objectives:

- Align with the community character and history of place within the City of Oceanside
- Leverage previous analysis and feasibility studies completed to-date
- Maintain a forward-thinking design that incorporates adaptive capacity of solutions to future coastal conditions while addressing chronic erosion issues
- Be technically feasible, financially viable, and environmentally and socially acceptable

The Design Criteria were meant to fulfill two core objectives: (1) provide a boundary of the scope of design for the proposed solutions and (2) generate a set of objectives that Design Teams, and their solutions could be measured against.

With both the mission and objectives in mind, the Design Criteria addressed parameters involving physical performance, financial confines, environmental considerations, social implications and regional benefits and established the backbone of the initial design proposal solicitation.

Solicitation of Design Competitors

The Project Team invited a select number of firms to respond to the RE:BEACH proposal solicitation, based on a firms' past project experience and expertise. Due to the multi-faceted aspects of the Design Competition, firms were encouraged to form collaborative teams comprised of multiple firms that encompassed experienced professionals in a range of disciplines. Approximately 36 targeted firms were sent the solicitation, with 6 teams forming and ultimately proposing to be part of the competition. Using broad, consistent evaluation criteria, the submitted applications were narrowed down to three competing teams, based on experience, proposed approach and track record of delivering innovative solutions. The three selected Design Teams were:

- SCAPE Landscape Architecture with Environmental Science Associates (ESA) and the Dredge Research Collaborative. SCAPE is a New York City based landscape architecture and urban design firm with offices in New Orleans and San Francisco. The team works to create well-designed, ecologically restorative and socially engaged landscapes through diverse forms of design. ESA is an environmental consulting firm, specializing in design, permitting and implementation across the West Coast, bringing regional environmental science and engineering expertise to SCAPE's concept. Dredge Research Collaborative is an independent non-profit that provides leadership on sediment use and transport across the United States, and an in-depth understanding of sediment transport.
- Deltares with Deltares USA with MVRDV: Deltares is a nonprofit, solution-driven Dutch firm which boasts a robust knowledge of major societal issues and realizes the urgency behind finding equitable, sustainable solutions along coastlines. Deltares' mission revolves around working passionately to find answers to some of life's biggest environmental questions. MVRDV is a global architecture and urban design firm that focuses on contemporary issues, especially resilience, in regions across the world.
- International Coastal Management (ICM): ICM is an Australia-based firm that was founded in 1989. ICM's mission is to provide the best sustainable and innovative solutions in coastal engineering, while protecting and enhancing marine environments worldwide. From the Gold Coast in Australia to Europe and the Caribbean, the team of coastal engineers has experience with various technical coastal designs, having completed projects for SeaWorld, the Gold Coast Waterways Authority, the Nature Conservancy, and more.

Design Round Charettes and Public Workshops

Three Design Rounds or Charettes were planned between June to December 2023 to support the Design Teams in the development of their final sand retention concept. Design Teams participated in a Charette in the sixth week of each of the three Design Rounds where the Project Team, City Team and/or Jury provided feedback and comments on the progress made on pilot project concepts. Each Design Round

culminated with a presentation to the public at an in-person Public Workshop that was recorded with digital versions of the presentations available for subsequent viewing.

Charrette One was focused on an introduction to conceptual ideas and getting input from the City Team and Project Team on coastal processes and high-level visioning for Oceanside and the regions' coastal areas. At Charette Two, Design Teams were asked to share preliminary concepts and approaches, with ample opportunity for Design Teams to ask questions of the Project Team and gain insight on how to improve designs. At Charette Two, Design Teams also focused on how their concepts were successfully achieving the established Design Criteria. At Charrette Three, Design Teams were asked to enhance approaches and concepts, focusing on financial evaluations and technical refinement with input from the Project Team, City Team and Jury.

Each Public Workshop supported a similar program, with the Design Teams presenting their latest concepts and the public being given the opportunity at each workshop to provide direct comment and/or input via questionnaire to assist in refining the approaches. The Design Teams were required to develop figures, graphics, maps, and visual resources for use during each of the Public Workshops.

Public Workshop One aimed to gather broad community input on the Design Teams' initial design approaches, giving each team an opportunity to further gain perspective on community stakeholder goals and desires for the coast, and collect directional feedback to inform the designs going forward. Public Workshop Two depicted refined designs, with the technical aspects of sand retention more developed and elements visualized with opportunities for additional feedback. Public Workshop Three featured the final designs. The Design Teams were able to clearly show how stakeholder input shaped their designs, and why they arrived at their final solutions.

All Public Workshops were open to the public and were available virtually via a recording of the presentations with accompanying digital versions of materials. Each Public Workshop was heavily noticed via press releases, on the City's webpage, and on social media platforms, as well as via pop-up events. The workshops were very well-attended with approximately 150-220 persons participating at each workshop. Aggregated comments from all three Public Workshops are provided in the Community Input Summary (Attachment 2).

Given the regional interest and potential effect of the implemented project at various scales, the Project Team shared updates with regional stakeholders at each of the downcoast cities within the Oceanside Littoral Cell. Upon each jurisdictions' request, informational presentations summarizing the RE:BEACH competition, followed by a question and answer period, were made from October to December 2023 at the following cities:

- October 2023, Carlsbad Beach Preservation Commission
- November 2023, Del Mar City Council
- November 2023, Solana Beach City Council

- December 2023, Encinitas City Council

Additional local and regional outreach of the project occurred during the design competition:

- March 2023, Oceanside Coastal Neighborhood Association
- March 2023, Oceanside Chamber of Commerce
- May 2023, Smart Coast Cities Summit
- September 2023, SANDAG Sediment Management Technical Task Force
- October 2023, C7 Coastal Cities Meeting
- November 2023, Oceanside Chamber of Commerce
- November 2023, San Diego Regional Climate Collaborative
- November 2023, Headwaters to Ocean Conference
- December 2023, Oceanside High School

Prior to the initiation of RE:BEACH, leading up to the City Council decision to approve the Phase 2 contract, the following public outreach efforts were made:

- May 2022, Encinitas Environmental Commission
- June 2022, SANDAG Shoreline Preservation Working Group
- October 2022, Carlsbad Beach Preservation Commission
- October 2022, Save Oceanside Sand (SOS) Member Meeting
- November 2022, SANDAG Shoreline Preservation Working Group

Jury Deliberation

The Jury, comprised of voting and non-voting members, designated a winning design concept during the final Jury Deliberation held on December 14, 2023. The Jury utilized the distinct parameters outlined in the Design Criteria to evaluate the designs throughout the competition, leading to critical analysis of the designs at the final Jury Deliberation. This recommended winning design aligns with the City staffs' recommendation for a sand retention conceptual design that, upon City Council direction, can be moved into the final engineering and environmental compliance tasks under the approved Phase 2 Project contract. The Jury's collective comments and feedback assisted City staff in the development of recommendations to support the winning design. The winning design and associated Jury and City staff recommendations are described in detail in the Analysis section below. A detailed summary of the Jury Deliberation, including the Jury roster and their specific recommendations, is found in Attachment 3.

ANALYSIS

Staff and the jury recommend that the City Council approve the preferred alternative: International Coastal Management's "Living Speed Bumps" concept. The Living Speed Bumps concept proposes to construct one multi-purpose offshore artificial reef and two headlands, supported by nearshore and on beach nourishment, (Figure 1; Attachment 4), in a location that shall be determined in the next phase of the Project.

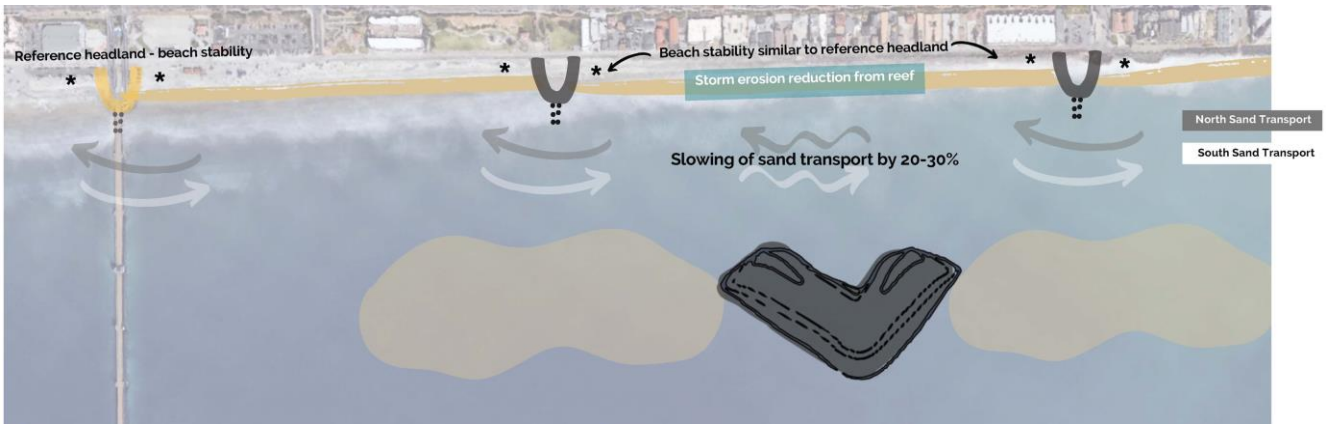


Figure 1. Conceptual diagram of Living Speed Bumps design (final location TBD)

The conceptual reef design that ICM developed included two options for reef materials (i.e., quarry rock or geotextile bags) and included two different reef shapes and sizes. These design elements were based on ICM's prior project experience on the Gold Coast of Australia. As proposed, the reef shall be placed at a depth of approximately 40', which is estimated to be 900' offshore. Two artificial headlands would be positioned on the shore both north and south of the reef. Conceptually, ICM suggested the headlands extend roughly 150' seaward and be 150' long. The headlands would consist of rock outcrops that would assist with beach stabilization, creating more opportunities for intertidal habitat, and mimicking natural and artificial headland formations in southern California.

The offshore reef's design intent would be to dissipate wave energy through wave breaking, which would in turn stabilize the beach in its lee (i.e., shoreward of the reef). The crest of the reef (i.e., how shallow the reef is) can be optimized to maintain longshore sediment transport around the reef. The reef would be designed to primarily stabilize the beach but improvements to surfing would also be a goal.

The diffraction of breaking waves by the reef utilizes wave energy to contribute to slowing the rate of longshore transport along the beach, and the formation of a salient to build beach volume, mimicking natural offshore reef structures local to the Californian coast. Similar natural reef structures that provide salient formed beaches include Crystal Cove, Aliso Creek and Salt Creek beaches in Orange County. The headland features would complement this salient formation and increase the performance of beach development.

It is important to note that the specific shape and size of both the reef and headlands will be determined in the next phase of engineering design where numerical modeling, leveraged from Phase 1, will be used to optimize the design to achieve the various project objectives. Other important design elements, such as a strategy for on beach and nearshore nourishment placement, will also be further developed in this phase. Back beach dunes will also be considered in the phasing plan for the project and can be deployed once the beach is stabilized.

Through the design competition, rough order of magnitude construction cost estimates were developed using standard material and labor rates to provide a consistent means to compare costs across Design Teams. These cost estimates are preliminary and will be refined in the next phase of design. A rough order of magnitude construction cost estimate of the Living Speed Bumps design is $31-$41M, depending on the specific shape and size of the features as well as the selection of the reef materials (i.e. sand filled geotextile bags or quarry rock). Annual maintenance costs of the beach sand and headlands were roughly estimated at $500k.

Design Criteria Considerations

Overall, the winning ICM concept exceeds Design Criteria in many facets. The artificial reef, headlands and nearshore nourishment components allow for the continuation of natural coastal processes in Oceanside and beyond, as much as possible, while delivering on the retention of sandy beaches. Coupled with beach and nearshore nourishment, stabilization of the back beach is expected to begin within 3 years following completion of construction of the structural components. The need for ongoing maintenance is expected to be minimal once properly designed and constructed. Environmental conditions are expected to improve with construction, as beach habitat is expected to be restored and attract local and migratory shorebirds that once concentrated along the coastline. Socially, the concept adds safe access paths to the ocean through the headlands and increases park space and ocean viewing opportunities. Surf resources were a prioritized element in the design and will continue to be a focus as the design is refined. Regionally, the design supports the continuation of on-going longshore transport and natural coastal processes, maintaining natural function of the littoral cell and minimizing the potential for negative downdrift impacts.

Public Feedback

The ICM Living Speed Bumps concept overwhelmingly received positive input from the public for its professed ability to retain sand on the beach and provide other recreational benefits. ICM received an abundance of written comments from the public, stating their concept was their “favorite” or “best” option. Scalability potential was high with the ICM design according to public feedback, with application in additional areas of Oceanside’s coastline seemingly most feasible with this design. Similar to Jury feedback, recommendations from the public included a need to consider influences of the artificial reefs on sand bars to improve and/or maintain surf resources. Recommendations from the public also suggested that the design team conduct careful analysis of the structures placed and how they may impact the safety of surfers and swimmers. The public expressed a desire to see more natural elements in the design of the headland. A summary of public feedback provided throughout RE:BEACH is included in Attachment 2.

Suggested Modifications

The Jury provided valuable feedback and recommended modifications in its evaluation of the preferred design concept (Attachment 3). Notably, the Jury agreed that the ICM proposal seemed to be the most effective at beach stabilization, while taking into consideration local needs, such as adding naturalized park spaces in the headlands and preserving ecological and surf resources through their design. Additionally, the Jury recognized that the design had already been tested by ICM along similar coastlines in Australia, and therefore maintained confidence in the ability of ICM to deliver a successful pilot project with the greatest opportunity to be scaled up and applied in other areas of the Oceanside coastline once the success of the pilot project was proven to work locally.

The Jury and City staff recommend several key modifications to the design: (1) refinement of the headlands to use a more environmentally and/or aesthetically pleasing composition that blends better with natural coastal formations, (2) utilization of rock instead of geotextile bags for construction of the artificial nearshore reef, and (3) development a robust monitoring program that captures both ecosystem benefits and surf resource improvements/changes that the artificial reef may afford, which would be applicable to environmental permitting discussions with the resource/regulatory agencies.

- Refinement of the design of the artificial headlands and a thoughtful proposal for programming on top of the headlands. Several jurors requested the use of more natural materials and a headland design that better fits Oceanside's character. The finalization of the headland designs needs to consider the opportunity for creating multiple-benefits.
- Strong consideration of the use of natural materials (i.e. rock instead of geotextile bags) for the artificial reef. Most jurors raised concerns or objections to the geotextile materials proposed by ICM for three reasons: increased maintenance cost to replace or repair geotextile bags, the introduction of non-natural and/or plastics into the water, and related public perception and permitting issues. ICM responded to jury questions about the geotextile bag option, stating that the use of the geotextile bags versus rock allows the City to pilot the viability of an artificial reef to influence beach sand retention at a cheaper cost. Past projects in California that have relied on geotextile bags have experienced issues due to structural degradation with UV exposure and complications during removal that resulted in debris issues and logistical challenges. While material technologies have improved, and costs for using rock are much higher than geotextile bags, the Jury and Project team recommend going forward with a design that utilizes rock while still learning from ICM's experience with other materials.
- As the reef advances in design, the City should go further in exploring potential ecosystem and surf benefits that the reef could provide. The City should also be prepared to provide mitigation for habitat conversions (i.e. conversion from sandy subtidal habitat to rocky subtidal) that may be required by the Coastal Commission.

Design Competition – Non-preferred Alternative Concepts

Below is a description of the two non-preferred alternatives considered by the Jury for the RE:BEACH Oceanside Competition. A summary of all three design concepts is also available in the table below.

- SCAPE Landscape Architecture with ESA and the Dredge Research Collaborative
    - Dunepark/Hybrid Beach
      As proposed, this team's design could extend the existing 5-30 feet of usable beach area to 40-100 feet by elevating and retreating the Strand eastward and transforming an existing playground and lawn at Tyson St. Park into a dune area, called Dunepark. These on-land components would be supported by cobble crests in the intertidal zone and nearshore reefs in the subtidal zone, which proposed to encourage modest accretion of sand on the foreshore called the Hybrid Beach. A walking path through the dune area as well as dedicated sandy walking paths to the shore through the cobble crests was also proposed.
    - Jury Feedback
        - The Hybrid Beach concept was perceived to provide the least amount of sand retention and accretion, which brought into question the structural integrity and user experience of cobble-based design elements.
        - While the Hybrid Beach design was innovative and interesting, it was untested and had the potential to require more frequent and costly maintenance.
        - Dunepark was lauded as an exceptional concept that could be explored at a later date beyond RE:BEACH by the City of Oceanside, as an improvement to the existing shoreline park at Tyson St.
    - Public Feedback
        - Dunepark proposed to create a more usable and appropriate Tyson Street Park, but retreat of the Strand seems arduous.
        - Overall, the public expressed a general concern around the Hybrid Beach concept feasibility and ability to perform, as it had not been tested or tried in any other location.
        - Cobble is challenging and difficult to walk on, making the usable beach space potentially less accessible and the design less lauded by the public.

- Deltares with Deltares USA with MVRDV
    - Green Dream Peninsula
      This Green Dream Peninsula would mimic a natural peninsula structure, constructed out from publicly-owned beach front spaces, utilizing existing rock and imported quarry rock. The designed peninsula would jut out approximately 360 feet in length from the back beach, and 500 feet in

descending width. The concept was proposed to occur westward from any publicly owned beach access area, but grounded at Buccaneer Beach where the design would extend Loma Alta Creek to facilitate creek flows out to the ocean. The Peninsula space would allow for increased recreation opportunities, improved beach access and environmental enhancement.

- Jury Feedback
  - While the nature-based design elements of this concept were highly regarded, including the proposed naturally shaped headland, there were several concerns identified by Jurors, which included uncertainty of sand accretion on north and south sides of the headland, concern over water quality if located at Loma Alta Creek, and potential flanking impacts north and south of the structure into private revetments.
  - While innovative, the design was perceived to exaggerate the overall public benefit coming from only one proposed headland.
- Public Feedback
  - The public expressed concerns over the placement of the feature at Buccaneer Beach and the potential impacts to surf resources.
  - The public had difficulty understanding the potential scalability of this concept, as headlands may need to take on different shapes at different location to retain sand and the overall size seems marginal for the desired objective of maintaining a sandy beach.
  - The public articulated some concerns over safety of beach goers in the accessing ocean-facing salt water pools and sustaining water quality with an urban creek flowing out adjacent to the pool.

	SCAPE	Deltares + MVRDV	ICM (WINNING DESIGN)
Overview of Concept	Dunepark shifts the Strand inland, and reconfigures existing space into dunes which connect to the Hybrid Beach, a perched sandy beach atop a cobble berm comprised of existing and imported cobble stabilized by 3 small cobble crests (50ft x100ft), 4 large cobble crests (65ft x 130 ft) and 4 nearshore reefs (70ft x 90ft).	One peninsula/headland (500ft x 360 ft) comprised of rock allows for sand nourishment activities to be stabilized and help restore usable beach area on both the north and south side of the peninsula	One submerged offshore reef (made of either rock 330ft x 610ft or geotextile bags 490ft x 900ft) and two 'living headlands' (150ft x 150ft) made of rock, cobble, and sand that are designed to mimic natural processes can improve sand retention and beach resilience.
Reasonable expectations for the concept to restore sandy beaches	Initially creates 30-100ft wide sandy, stabilized perched beach with a cobble berm. Most of the new beach area comes from the construction of the Hybrid Beach with partial sandy beach from Dunepark.	Initially creates 50-100 ft wide sandy beach directly north of the peninsula. The effective beach width decreases to about 40 feet in the first 0.5 mile north of the peninsula. Sand nourishment and accretion would also be anticipated south of the peninsula.	Initially creates 100ft wide sandy beach, with a nominal 1:25 slope to seaward. Our 'speed bump' approach is targeting a slowing of longshore transport by about 20% to 30% of existing conditions.
Concept integration with sediment managemen t activities	The concept may require replenishing sand atop portions of the perched beach and/or atop and between the cobble crests after storms. The concept could be completely covered with a larger beach nourishment along the shore.	The design can make regular beach nourishment activities more effective by slowing down transport. Specific sediment management placement patterns north and south of the structure would be developed once final design and modeling is completed.	The design can assist regular nourishment activities by slowing longshore transport to retain and stabilize a sandy beach, and support a strategy of more cost-effective nearshore nourishment protocol.
Options for concept to be adapted and modified should undesirable effects be observed	The cobble berm will use some similar sized rounded rock to existing material so much of it could be left in place. If the larger rocks placed on the crests and reefs are displaced or deemed problematic, they may be re-distributed, removed or repurposed into the backshore cobble berm.	The sand retention effect can be adapted by seaward extension of underwater portion of the tip of the peninsula. Depending on desired bypassing/connectivity this can be altered even after construction. Removal of parts of the peninsula is not likely required, although it can be done from the land.	The reef, whether comprised of sand-filled geotextile containers or boulder rock, can easily be adapted to improve performance outcomes, or removed if necessary. The porosity and crest height of the low-crested berm can be easily adapted to increase/decrease sand bypassing by removing/adding re-usable rock-bags or returning cobble fill to the beach.
Largest risk or uncertainty around concept	There is a high degree of certainty around the stability of the upland Dunepark portion of the proposal. The Hybrid Beach applies novel concepts that hold uncertainty around the level of sand accretion and level of structural integrity.	The performance of the concept will depend on the quality and volume of sand nourishment activities over time will be determined by the state of the beaches. Some uncertainty of rip current formation but not different than for other coastal interventions.	Confidence that concept will result in a significant degree of slowing of longshore transport. Uncertainty around the exact degree to which sand is slowed and retained at the beach. The expectation of a 'surfing reef' should be properly managed as the reef's primary objective is sand retention and storm protection.
Rough Order of Magnitude cost estimates	Project Construction Total: $19. 8M (Hybrid Beach: $6.2 M and Dunepark: $13.6 M) Annual Operation and Maintenance: Typical winter - $100k Large storm (i.e. 20+ year event) - $780k Removal Costs: $2.9M	Project Construction Total: $11.1M Annual Operation and Maintenance: $1.8M Removal Costs: $3.9M	Project Construction Total: $31.4M (geotextile reef), $40.6M (rock reef) Annual Operation and Maintenance: $500k Removal Costs: $4.7M

Next Steps

The RE:BEACH Oceanside Coastal Resilience Design Competition is the conceptual design component under the Engineering, Analysis and Design task of the Phase 2 Sand Nourishment and Retention Pilot Project. To reiterate, the main tasks outlined in the Phase 2 scope include:

- Community and Stakeholder Engagement
- Baseline Monitoring Program
- Engineering, Analysis and Design
- Environmental Compliance and Permitting

GHD will continue to serve as the prime consultant and will contract with ICM, the approved winning design team, to prepare final engineering plans, siting for the proposed concept and construction specifications. As the prime consultant, GHD is responsible for preparing major deliverables, coordinating the work of subconsultants, managing the project schedule and budget, providing project status updates, and working with City staff to ensure that all components of the project are consistent with and complementary to one another.

Community and Stakeholder Engagement occurred throughout RE:BEACH and shall continue to occur throughout Phase 2. Community engagement will take the form of formal and informal public meetings, social media posts and surveys, and informational pop-ups.

The Baseline Monitoring Program has been ongoing since the kickoff of Phase 1. Baseline assessments will continue in Phase 2, providing a robust dataset for the engineering analysis, siting and design tasks. Baseline assessments incorporate current surveys conducted by Scripps Institution of Oceanography and citizen science-led efforts by Save Oceanside Sand into a coastal database. Once a design concept is selected, further details on additional monitoring components can be compiled that reflect specific metrics to focus on.

The Engineering, Analysis and Design task incorporates the findings from the RE:BEACH process, including input from community and stakeholder engagements and the ongoing baseline monitoring program. This phase is also complemented by the investigation into a reliable sand nourishment source and development of a sampling and analysis plan and report. Additionally, siting of the proposed project will occur through this task.

Public and stakeholder comments submitted throughout the design competition highlighted the need for solutions for all of Oceanside's coastline, in particular South Oceanside. A siting analysis will be performed that objectively evaluates potential locations for the pilot project to aide in the City decision making process. This analysis will evaluate three (3) potential locations for the pilot project south of the Oceanside Pier, where erosion impacts are the greatest. Sites to be evaluated are anticipated to

include: 1) the South Strand (Seagaze to Wisconsin), 2) Wisconsin to Buccaneer Beach, and 3) a selected location between Buccaneer Beach and Buena Vista Lagoon.

The siting analysis will focus on factors related to the successful implementation and performance of the pilot project at achieving its established goals and objectives. The study will incorporate various factors related to successful implementation, which include the following factors:

- Public amenities – benefits afforded by the project should maximize public benefits.
- Coastal access – proximity of the project to public beach access locations and parking.
- Land ownership – opportunities or constraints posed by land ownership boundaries at each location.
- Lifeguard operations – opportunities or constraints to lifeguard services at each location based on feedback from City lifeguard staff.
- Biological resources – influence of project location on biological resources at Loma Alta Creek and Buena Vista Lagoon.
- Downcoast impacts – influence of project location on downcoast sediment supply.
- Sand management logistics – influence of project location on ability to manage sediment supply within and around the retention system.

A technical memorandum will be produced summarizing the findings of this siting analysis. The memo will also address how the pilot project could be scaled up or phased in the future to provide a broader benefit to the City's shoreline. It is assumed the findings from this analysis will be presented at one community or stakeholder meeting, likely occurring in summer 2024.

While the conceptual level design that ICM provided will be further developed to specify the shape and size of both the reef and headlands through numerical modeling, physical modeling the reef and headland components could provide insight on shape, size, and orientation design elements related to physical wave processes, such as wave breaking and rip current formation. Physically modeling a reef may also provide greater confidence in the design, as physical modeling could assist will calibrating and support numerical modeling efforts.

Deliverables from this Engineering, Analysis, and Design task include final plans and specifications that will be utilized in the final task of Phase 2, the Environmental Compliance and Permitting task.

The Environmental Compliance and Permitting tasks will entail the development of a combined Environmental Impact Report and Environmental Assessment (EIR/EA), addressing both CEQA and NEPA requirements as needed, as well as the development of permit application materials and permit acquisition from the following state and federal regulatory/resource agencies:

- California Coastal Commission
- Regional Water Quality Control Board
- U.S. Army Corps of Engineers
- California State Lands Commission

Ongoing Coastal Monitoring and Management

While it is recognized that RE:BEACH is a pilot project for a specific geographic location, the intent of the pilot is to determine the viability of the proposed novel sand retention concept for use in additional areas throughout Oceanside's coastline. A robust monitoring program, to be established under the Phase 2 Project contract, will inform our knowledge about the performance and scalability of the winning RE:BEACH design. As monitoring commences, continual attention to coastal erosion will be undertaken through the City's broader Coastal Management Program. Ongoing coastal management efforts that extend beyond RE:BEACH include, but are not limited to:

- Utilization of SCOUP permits and placement of opportunistic sand as suitable beach sand becomes available
- Development of dunes on the back beach in coastal areas where dry sand currently persists and that are subject to either sand management needs or intermittent flooding
- Participation in regional sand nourishment efforts through SANDAG
- Pursuit of funding and environmental compliance for execution of the Buena Vista Lagoon Enhancement Project

FISCAL IMPACT

Funding for the Phase 2 Sand Nourishment and Retention Pilot Project has already been allocated and is covered by the American Rescue Plan Act (ARPA) Sand Replenishment Account. Of the $2.59M authorized for the Phase 2 Project, $1.93M are left to accomplish the remaining tasks. The Sand Replenishment account 837134221271 currently has an available balance of $706,300.

INSURANCE REQUIREMENTS

The City's standard insurance requirements will be met.

COMMISSION OR COMMITTEE REPORT

Does not apply.

CITY ATTORNEY'S ANALYSIS

City Attorney analysis does not apply at this stage. Any future contracts and discretionary entitlements will require review by the City Attorney.

RECOMMENDATION

Staff recommends that the City Council take the following actions for the RE:BEACH Oceanside Coastal Resilience Competition:

1. Receive the conceptual alternatives and concur with the following staff recommended options:
    a. Approve the staff and jury recommended selection of International Coastal Management as the winning design team, with its Living Speed Bumps concept
    b. Approve the staff and jury recommended modifications to the selected design concept
2. Authorize staff to proceed with final design, engineering and environmental compliance tasks of the Phase 2 Sand Nourishment and Retention Pilot Project

PREPARED BY:

Jayme Timberlake
Coastal Zone Administrator

SUBMITTED BY:

Jonathan Borrego
City Manager

REVIEWED BY:

Hamid Bahadori, Public Works Director

ATTACHMENTS:

1. Design Criteria
2. Community Input Summary
3. Jury Deliberation Summary
4. Living Speedbumps Project Narrative

Design Criteria

The design criteria are meant to fulfill two core objectives: (1) provide a boundary of the scope of design for the proposed solution and (2) generate a set of goals that Design Teams, and their solutions can be measured against. To guide the criteria development, the Project is focused on a mission:

To construct an innovative, multi-benefit, sand retention project on the City of Oceanside's beaches that serves both local and regional benefits.

Any proposed solution should fulfill this mission, requiring all designs to meet the bare minimum objectives:

- Align with the community character and history of place within the City of Oceanside.
- Leverage previous analysis and feasibility studies completed to-date.
- Maintain a forward-thinking design that incorporates adaptive capacity of solutions to future coastal conditions while addressing chronic erosion issues.
- Be technically feasible, financially viable, and environmentally and socially acceptable.

With both the mission and objectives in mind, the design criteria are as follows:

Design Criteria One: Physical

- Designs should be in the coastal zone south of Oceanside Pier, focusing on the City's most highly eroded beaches.
- Designs should accommodate or be adaptive to up to 2-3 ft of sea level rise (that assumes 20-to-30-year design life), with minimal maintenance. The ability to accommodate or have adaptive capacity to greater amounts of sea level rise would be scored favorably.
- Identify a clear pathway for scaling of the pilot if it succeeds in its intention.
- Reference known design parameters from sand retention alternatives studied through the Phase One report .
- Designs should be structured with the ability to perform sand retention and retain structural integrity under impacts from existing and projected future coastal conditions, including:
    1. Extreme waves (100 yr. return interval – from northern and southern hemispheres), tides and winds (see companion documents, including Phase One report).
    2. Extreme temperatures.
    3. Public use, trampling & vandalism.
    4. Performance goals of a particular design should be articulated. For example:
        (a) Retain a particular average annual beach width within a particular reach
        (b) Prevent overtopping beyond the beach at particular thresholds, such as 100-year total water level (TWL) and sea level rise scenario
    5. For any performance goals, teams should define the anticipated time-scale during which the project would be able to perform as designed.
- Designs should include natural and nature-based features, where feasible, which may

include onsite or imported materials, and/ or innovative materials designed for ocean compatibility.

Design Criteria Two: Financial

- Construction estimates for the designs should be presented for initial construction costs, annual operation and maintenance costs, and removal costs. Creative use or reuse of materials is encouraged to lower costs.
- Designs should articulate the maintenance activities and cost for design to maintain key functions such as retaining sand, providing recreational benefits, and/or minimizing impacts to downdrift sand supply.
- Creative solutions to finance the project are encouraged that fully value the proposed project's range of benefits (social, regional, economic, ecological). Especially if construction costs for designs exceed $50M.

Design Criteria Three: Environmental

- Designs should encourage the rehabilitation of sandy beach habitat.
- Designs should minimize impacts to sandy beach ecosystems and nearshore marine ecology.
- Designs should be sensitive to where and which habitats may be converted as part of the design, what enhancements to ecology may occur, and where restoration of historic ecosystems may occur.
- All design references to ecological benefits should be qualified with detailed information on habitat classifications, quality, change over time, and uncertainties clearly explained.

Design Criteria Four: Social

- A successful sand retention project should increase usable beach space supporting coastal access and multiple opportunities for recreation.
- Designs should prioritize preserving or enhancing surfing resources and minimizing impacts to existing surf resources.
- Designs should seek to increase or maintain the existing aesthetic of the beach.
- Designs prioritize public safety and low-cost recreational user experiences.
- Designs should maximize public benefit.

Design Criteria Five: Regional

- Designs should provide a regional and statewide opportunity to pilot, test, and evaluate novel sand retention solutions.
- Designs should strive to positively impact the region both directly (i.e., by increasing sediment in the littoral cell) and indirectly (i.e., by providing knowledge beneficial to how to best design and implement retention strategies).
- Designs should be particularly sensitive to the potential for sand retention strategies to impact the flow of sediment through littoral systems and be designed to eliminate, minimize, or mitigate potential negative impacts to downdrift sand supply.

Project Assumptions:

- Pilot project designs will represent reasonable proof-of-concept sand retention strategies that can be piloted, scaled up, and/or repeated if appropriate.
- The objective is to create more time and space for the City to develop a comprehensive adaptation strategy for coastal resources.
- Project designs will assume that 300,000 cy of beach nourishment sand will be available initially within the project area and then for every five years for ongoing sediment management within the project area. The design teams can utilize this sand within their designs and propose various sand placement types within their concepts.
- Project designs will communicate uncertainty of their design's success.
- As pilots, project designs should be able to be adapted or removed if the project does not provide its intended multiple benefits over time.
- Project designs should be implementable, and should reflect an understanding of an ultimate need to be permitted and reviewed based on their adherence to existing laws, including the California Coastal Act. Throughout the competition, teams will be given guidance from experts to help ensure this outcome.

RE:BEACH

COMMUNITY INPUT SUMMARY

RE:BEACH
COMMUNITY INPUT SUMMARY

OVERVIEW

RE:BEACH is Oceanside's coastal resilience competition that brought together three design teams from all over the world: International Coastal Management (ICM) from Australia, Deltares and MVRDV based in the Netherlands, and SCAPE Landscape Architecture who have offices in New York and San Francisco alongside their California based partners, ESA and Dredge Research Collaborative. The teams herein will be referred to as ICM, Deltares and MVRDV, and SCAPE. The entire design competition lasted eight months and included three public workshops, on August 29, October 17 and December 13, 2023.

RE:BEACH is supported by a Jury, comprised of regional and local experts and regulatory agency members. The voting members of the Jury, with support from several non-voting members on the Advisory Panel, will ultimately select a winning design concept. Public input gathered through the RE:BEACH process has directly informed the design and the programming of the concept, bringing the project into alignment with the community of Oceanside's goals and desired uses of space.

THE SUMMARY

The Community Input Summary is an overview of the feedback provided by the public throughout the RE:BEACH process. Input was collected through three online surveys, corresponding with each public workshop. Every survey was open to the public for 30-days and results were provided to the Design Teams live, from the moment the online forms became available to the public through their closure. This enabled the Design Teams to stay up to date with public input and directly utilize it in their concept refinement. The survey questions were designed to help advance the Design Teams work and varied from one workshop to another.

The third and final workshop, on December 13, also included an audience question and answer session. The questions from the public are included in this summary, as supplemental to the online survey responses.

Learn more about RE:BEACH Visit www.REBEACH.org

watch design team presentations

review design team slides and concept designs

provide feedback, by filling out online feedback form

Public Workshop Goals. The goal of each public workshop is to:

raise awareness about RE:BEACH

share design concepts with the community throughout the process

gain input, feedback and direction from the public

PROJECT GOALS & OBJECTIVES

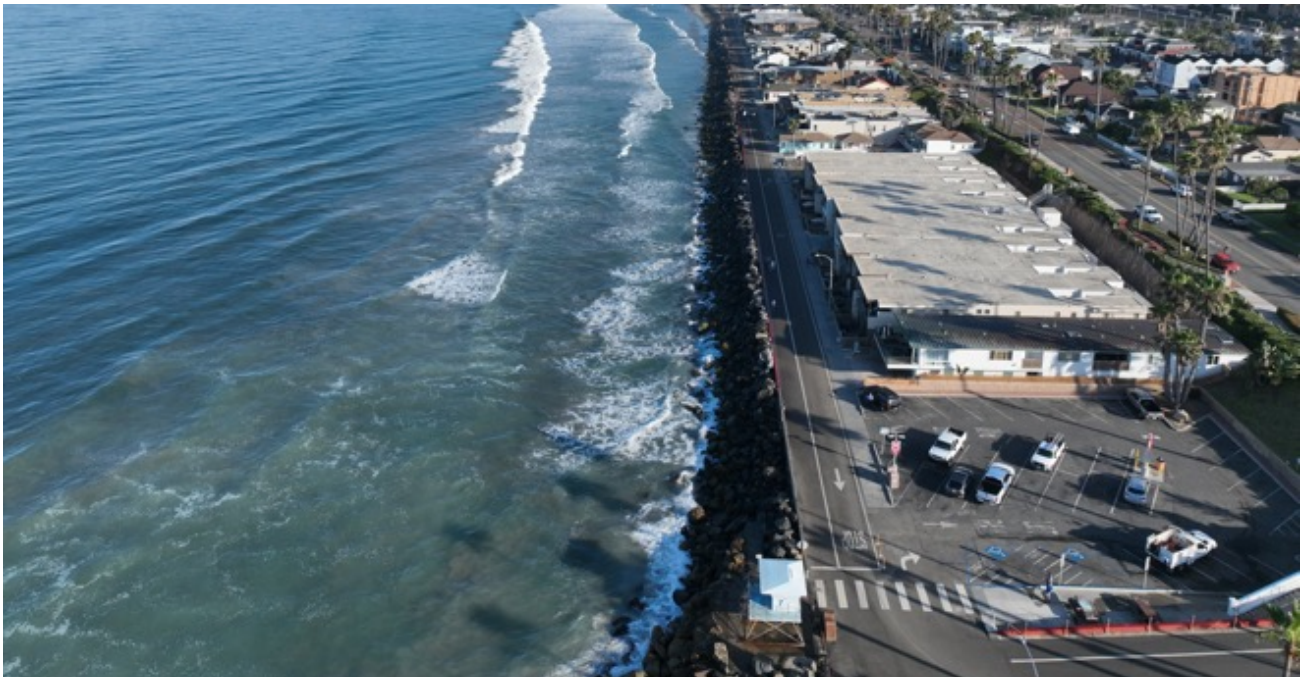
The three design teams are each tasked with presenting a sand retention pilot project that is feasible and permittable in Oceanside. Teams were guided by a set of four problem statements and a robust list of design criteria, that together define the projects goals and objectives.

Read here:
Design Brief

The overarching goal of the RE:BEACH competition is to design and construct an innovative, multi-benefit, sand retention pilot project in the City that provides both local and regional benefits. More design competition guidance was provided to the teams and can be found in the Design Brief.

Problem Statements:

1. How might we design a sand retention pilot project that succeeds in the near (3 years) to short term (20-30 years) at retaining sand while simultaneously providing ecological and flood resilience benefits, limiting negative downdrift impacts and impacts to surfing resources, and it removable if necessary?
2. How might a sand retention pilot project open pathways for Oceanside to explore longer term coastal adaptation?
3. How might we successfully build and monitor a pilot sand retention project that informs future regional coastal adaptation approaches?
4. How might a pilot sand retention project be scaled to benefit a greater reach of the City shoreline?



DESIGN CRITERIA:

PHYSICAL

- Designs should be in the coastal zone south of Oceanside Pier, focusing on the City's most highly eroded beaches.
- Designs should accommodate or be adaptive to up to 2-3 ft of sea level rise (that assumes 20-to-30-year design life), with minimal maintenance. The ability to accommodate or have adaptive capacity to greater amounts of sea level rise would be scored favorably.
- Identify a clear pathway for scaling of the pilot if it succeeds in its intention.
- Reference known design parameters from sand retention alternatives studied through the Phase One report.
- Designs should be structured with the ability to perform sand retention and retain structural integrity under impacts from existing and projected future coastal conditions, including: (1) Extreme waves (100 yr. return interval – from northern and southern hemispheres), tides and winds (see companion documents, including Phase One report). (2) Extreme temperatures. (3) Public use, trampling & vandalism. (4) Performance goals of a particular design should be articulated. For example: (a) Retain a particular average annual beach width within a particular reach (b) Prevent overtopping beyond the beach at particular thresholds, such as 100-year total water level (TWL) and sea level rise scenario (5) For any performance goals, teams should define the anticipated time- scale during which the project would be able to perform as designed.
- Designs should include natural and nature-based features, where feasible, which may include onsite or imported materials, and/ or innovative materials designed for ocean compatibility.

FINANCIAL

- Construction estimates for the designs should be presented for initial construction costs, annual operation and maintenance costs, and removal costs. Creative use or reuse of materials is encouraged to lower costs.
- Designs should articulate the maintenance activities and cost for design to maintain key functions such as retaining sand, providing recreational benefits, and/or minimizing impacts to downdrift sand supply.
- Creative solutions to finance the project are encouraged that fully value the proposed project's range of benefits (social, regional, economic, ecological). Especially if construction costs for designs exceed $50M.

ENVIRONMENTAL

- Designs should encourage the rehabilitation of sandy beach habitat.
- Designs should minimize impacts to sandy beach ecosystems and nearshore marine ecology.
- Designs should be sensitive to where and which habitats may be converted as part of the design, what enhancements to ecology may occur, and where restoration of historic ecosystems may occur.
- All design references to ecological benefits should be qualified with detailed information on habitat classifications, quality, change over time, and uncertainties clearly explained.

SOCIAL

- A successful sand retention project should increase usable beach space supporting coastal access and multiple opportunities for recreation.
- Designs should prioritize preserving or enhancing surfing resources and minimizing impacts to existing surf resources.
- Designs should seek to increase or maintain the existing aesthetic of the beach.
- Designs prioritize public safety and low-cost recreational user experiences.
- Designs should maximize public benefit.

REGIONAL

- Designs should provide a regional and statewide opportunity to pilot, test, and evaluate novel sand retention solutions.
- Designs should strive to positively impact the region both directly (i.e., by increasing sediment in the littoral cell) and indirectly (i.e., by providing knowledge beneficial to how to best design and implement retention strategies).
- Designs should be particularly sensitive to the potential for sand retention strategies to impact the flow of sediment through littoral systems and be designed to eliminate, minimize, or mitigate potential negative impacts to downdrift sand supply.

PROJECT ASSUMPTIONS

- Pilot project designs will represent reasonable proof-of-concept sand retention strategies that can be piloted, scaled up, and/or repeated if appropriate.
- The objective is to create more time and space for the City to develop a comprehensive adaptation strategy for coastal resources.
- Project designs will assume that 300,000 cy of beach nourishment sand will be available initially within the project area and then for every five years for ongoing sediment management within the project area. The design teams can utilize this sand within their designs and propose various sand placement types within their concepts.
- Project designs will communicate uncertainty of their design's success.
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- Project designs should be implementable, and should reflect an understanding of an ultimate need to be permitted and reviewed based on their adherence to existing laws, including the California Coastal Act. Throughout the competition, teams will be given guidance from experts to help ensure this outcome.

PILOT PROJECT LOCATION

- The Design Teams may have indicated a conceptual location to help ground their concepts in Oceanside. However, these locations are not indicative of where the pilot will ultimately occur.
- The next phase of the project includes additional analysis, such as numerical modeling, to help determine the location that provides the most benefits to the broader coastline. This step also includes assessing the specifics of permitting, funding potential, and scalability of the selected concept.

RECOMMENDED PILOT PROJECT DESIGN

- The three public workshops built upon one another, each further developing and refining the Design Teams' concepts, incorporating the City Staff, Project Team, Jury, and public input. On December 14, 2023, the RE:BEACH Jury convened to deliberate, review and select a winning design team and concept. Public comments to-date were included in the Jury's deliberation. The RE:BEACH Jury unanimously recommended International Coastal Management (ICM), the team from Australia, to move forward into the next phase of work (final engineering, design and permitting).
- On January 31, 2024, Oceanside Staff will bring the recommended design and pre-identified modifications, to City Council in a workshop. The purpose of the workshop is to provide more space and time for the City Council to engage with and advise staff on the work.
- The comments gathered from the third workshop are being included in the final design recommendation, being presented at the City Council Workshop on January 31st, and are included herein.

KEY THEMES

Across the three public workshops conducted to-date, the following key themes emerged:

A Dry Sandy Beach: Overwhelmingly, respondents reported the desire to recreate on a wide, dry-sandy beach. Not only did we hear vivid memories and sentimentality for Oceanside's beaches and surf breaks of the past, but also the desire to create coastal resilience for the future. There is a desire to offer future generations the opportunity to share similar experiences and create new memories—walk along the beach, watch the sunset, surf, play with their pets and dogs, and gather with friends and family. The ability to simply be at a beach, with sand, is a core theme heard across the competition.

Accessibility & Safety: Across all engagement, in-person comments and online feedback forms, respondents used the words 'access' and 'safety' as important components to any pilot solution. The term 'access' was used to refer to ease of enjoyment by elderly, children and the disabled, parking, and the ability to walk along the beach. Similarly, the term 'safety' was used to refer to mitigating risks, like rip currents, confidence of access the ocean, and feeling safe along and on any feature implemented through RE:BEACH. Amenities like clean bathrooms, ample parking, showers, educational and historical signage, playgrounds and recognition of native history were each mentioned as ways to improve accessibility and safety in a sand retention pilot project.

Healthy Coastal Ecosystems & Natural Elements: Through the design competition process, the public has been exposed to various amenities and programming that can be incorporated into a sand retention pilot project. In the juxtaposition between more nature-based elements and those that are more built, respondents asked for the inclusion of natural elements. Whether as a core component of the design feature or highlighting the ability to provide habitat opportunities, Oceanside residents and regional attendees leaned towards more natural landscapes and spaces for recreating and enjoying a wider beach.

Surf Resources: Many respondents and attendees of both public workshops identified surf resources as core to Oceanside's identity. While it is impossible to choose one form of recreating along the coast as core to Oceanside, there is little doubt, based on responses collected, that surfing and surf resources are critically important to the local and regional community. In each instance, feedback focused on the need to design strategies with surfing in mind, limit any negative impacts to surf resources, and seek alternatives that have the potential to enhance surfing amenities.

Space for Various Activities: Feedback indicated the desire for enough beach to provide space for a myriad of interests such as various sports, activities, hobbies, and a dog park.

Each of the RE:BEACH public workshops provides multiple ways for the community to engage.

In-Person

AUG 29, 2023 | OCT 17, 2023 | DEC 13, 2023

View playback online

Workshop 1 & Workshop 2 videos are available to view on the City of Oceanside's YouTube channel and the RE:BEACH website (rebeach.org).

Submit digital feedback form

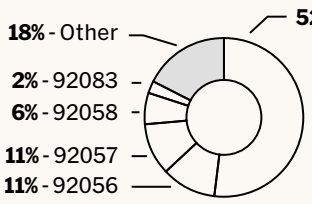
Workshop 1	Workshop 2	**Workshop 3**
August 29 to September 30, 2023	October 17to November 30, 2023	December 13 to January 13, 2024

PUBLIC WORKSHOP ONE SUMMARY

Review:
Team Slides

Attendance
more than 200 attendees

Duration
4-7pm PT, 3 hours



Demographics
Amount of Responses: 336 + zip codes

The first public workshop was held on Tuesday, August 29, 2023 at the City of Oceanside, Council Chambers. Attendees had the opportunity to meet, speak with, and view posters from each of the three design teams in an open house format. Following the open house, the RE:BEACH project team presented the design competition process followed by three short presentations, by the design teams, about their initial ideas and concepts. The workshop was open to the public from 4—7pm PT. Video recordings of the presentations and slides are available on the City of Oceanside's YouTube channel and the RE:BEACH website (rebeach.org). An online public feedback form was made available at the start of the workshop and remained open for 30-days. Design teams were given immediate access to results, so as to quickly and iteratively integrate input directly into their designs for the second public workshop.

The first public workshop was a moment to learn about, (1) the RE:BEACH process, (2) the design teams and (3) the early concepts each team was bringing forward for consideration.

Feedback questions from the first public workshop were focused on determining conceptual preferences and strengthening the design teams' understanding of the community and people of Oceanside. Given the origins of the design teams, feedback from the first public workshop provided insight into the major characteristics of the City and broader community.

This summary is representative of all survey questions and responses from workshop one. All public feedback and input was reviewed and incorporated into the next round of design. Answers to long-form questions and open comment fields were condensed in this summary into broader themes that emerged. While not every question or answer is included, this summary represents the key themes across all feedback received.

Deltares + MVRDV

Deltares & MVRDV presented three distinct approaches: an artificial headland/peninsula feature, a recreation focused offshore breakwater, and a multi-purpose archipelago system. The community was presented with a spectrum of options for programming these concepts that could be refined based on the desired use and aesthetic.

SURVEY QUESTIONS

What are the strongest elements you wish to have incorporated into the final design?

- Sandy Beach
- Tidal Pools
- Backshore Vegetation

Which one of these descriptions represents Oceanside stability best for you?

75% - Oceanside beach as a place for human leisure, maximum space for activities, surfing, lifeguards, swimming and restaurants.

14% - Oceanside coast becomes a productive landscape, with areas that focus on food and energy production, restoring circular systems and re-imagining relationship to the coast.

11% - Oceanside beach as a restoration zone, maximum slopes for intertidal wetlands and pools, limited access for humans, submerged reefs and floating habitats.

COMMUNITY QUOTES

"The focus should be on multiple benefits - habitat restoration, human activity, tourism, water sports, education and address the evolving nature of the shoreline - seasonally and over the years. This option focuses too much on programmed elements - which could come later. But the top priority is stabilization, seasonal variation and long term stability. I want to know what the option determines the impacts are to the communities down shore and their sand retention."

"Love how creative these ideas are. All concepts appeal to both humans and nature."

SCAPE

SCAPE focused on leveraging natural materials such as cobble in different forms, dunes, and nearshore reefs. They framed each element as a part of a toolkit that can be integrated to fit the desires of Oceanside.

SURVEY QUESTIONS

In this initial phase, SCAPE gathered reactions to each of their designs. Their concepts included the redesign of a waterfront park with increased accessibility, called Dunepark. The SCAPE team also presented components of their concept using stabilized cobble features, called Cobble Crests, along existing beach materials, called a Cobble Spine. All three of their concepts scored similarly.

COMMUNITY QUOTES

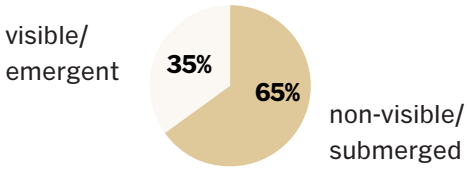
"I enjoyed the way team acknowledged that it is a changing coastline and the design would be flexible, have potential funding sources, and focused on sand retention. I would remind the team to keep Oceanside's surfing identity when refining their design."

ICM

ICM used their experience on Australia's Gold Coast in their three-pronged approach of sediment supply, near-shore retention, and top of beach improvements. They presented two paths: a more natural looking concept with artificial headlands and an offshore reef, and a novel structure (such as a tombolo) being a more prominent feature added to the coast.

SURVEY QUESTIONS

Do you prefer a larger/emergent structure (visible off-shore at lower tides) in the sea or a series of non-visible (below the surface) offshore structures?



COMMUNITY QUOTES

"... I liked the approach of starting small and seeing how it works"

General Survey Questions

Is there anything in particular you would like to see at upcoming Public Workshops that would help you contribute to the RE:BEACH competition process?

- Examples of where these types of ideas and concepts have been done on the West Coast.
- Timeline & cost analysis
- Potential siting and locations of pilot projects
- Understanding of how feasible the ideas presented are in construction, cost and timing
- Consideration for impacts to neighboring communities and coastal cities

Are there elements missing from the designs or concepts presented that you would like the teams to consider?

- Habitat restoration and impacts to natural ecosystems
- Impacts to neighboring cities
- Amenities that include space for pets and dogs
- Protect existing and potential to enhance surf resources
- Include an understanding of sand bypass systems and persistent beach nourishment

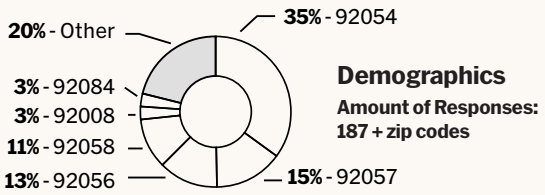
What three words best describe Oceanside's coast to you?

PUBLIC WORKSHOP TWO SUMMARY

Review:
Team Slides

Attendance
more than 220 attendees

Duration
4-7pm PT, 3 hours



Demographics
Amount of Responses: 187 + zip codes

The second public workshop, held on Tuesday, October 17, 2023, convened more than 220 members of the public at the Oceanside Museum of Art (OMA) for a round-robin format workshop. Each participant had the opportunity to rotate through all three-design teams' proposed pilot projects and hear from the project team on the monitoring and adaptive management components that would complement implementing a design as well as an overview of the latest science on sediment transport in the region. The workshop was open to the public from 4pm—7pm PT and culminated in a brief report out from representatives of each design team discussing what they heard from their interactions with the public that day. Following the workshop, pre-recorded presentations and slides by each design team, and the project team were made available on the City of Oceanside's YouTube Channel and on the RE:BEACH website. A public feedback form was accessible during the workshop through November 30, 2023, to collect input directly from participants and the broader community. The feedback form was focused around user experience and perceptions of each pilot project.

Each of the three-designs teams' concepts were considered for their amenities, design, and use. The purpose of these more tailored questions was to encourage the public to provide input on the user experience of each design, how it might impact their time spent on a beach and Oceanside's coast and provide tangible programming feedback to the Design Teams, City of Oceanside and Jury around perceived community benefits.

Similar to the first public workshop, this summary is a synopsis of all feedback of public responses received from Workshop 2 as of November 17, 2023. While not every question or answer is included, the major themes and topics are representative of the feedback.

Deltares + MVRDV

Community feedback helped focus Deltares & MVRDV's approach on an artificial headland/peninsula. Using this one main feature, two concepts were presented that illustrated the opportunities to have more natural elements on the peninsula or to provide more visitor serving amenities programmed onto the structures.

SURVEY QUESTIONS

What elements in the Deltares & MVRDV designs do you want to see emphasized in a refined concept?

- Natural habitat restoration, including input from local biologists and experts, natural features like plants for shade along walkways, and inter-tidal habitat benefits
- Increased beach width, including sandy beach area
- Space for both people and dogs to access the ocean
- Safety and access, including safe swimming areas for elderly and children, and parking
- Emphasis on surf resources
- Sand, including a clearer understanding of how much sand will be retained, how wide of a beach will be achieved if successful and how the beach will interact with other natural features of the artificial headland

What elements are missing from the Deltares & MVRDV designs that you want to see added in a refined concept?

- More open space, including a greater emphasis on the beach
- Surf opportunities
- Visuals and descriptions of what the artificial headland will look like from the water's edge
- Adaptability and maintenance of the concept, including long-term solutions to sand nourishment and bypass
- Scalability of the concept over time
- Understanding of potential impacts to adjacent beaches
- Demonstrate how the concept and its programming will increase accessibility, including parking
- The use of natural elements for play and education signs, native plant species to help educate the community about the coastal ecosystems in San Diego
- Adequate space for multiple uses including bikes, walking paths, dog use areas, and various sports

COMMUNITY QUOTES

" Please make this space intentionally beneficial for the environment. Plant butterfly habitats and native plants. Have educational signs that explain what is planted and why. Have the native people represented and honored."

SCAPE

SCAPE continued to pursue a layered approach that leveraged existing cobble resources and provided better details on ways the design could provide stabilization to the cobble crests and cusps. Additionally, SCAPE highlighted the opportunity to realign aspects of existing park and strand space to provide a more connected dunepark feature.

SURVEY QUESTIONS

What elements of the SCAPE design do you want to see emphasized in a refined concept?

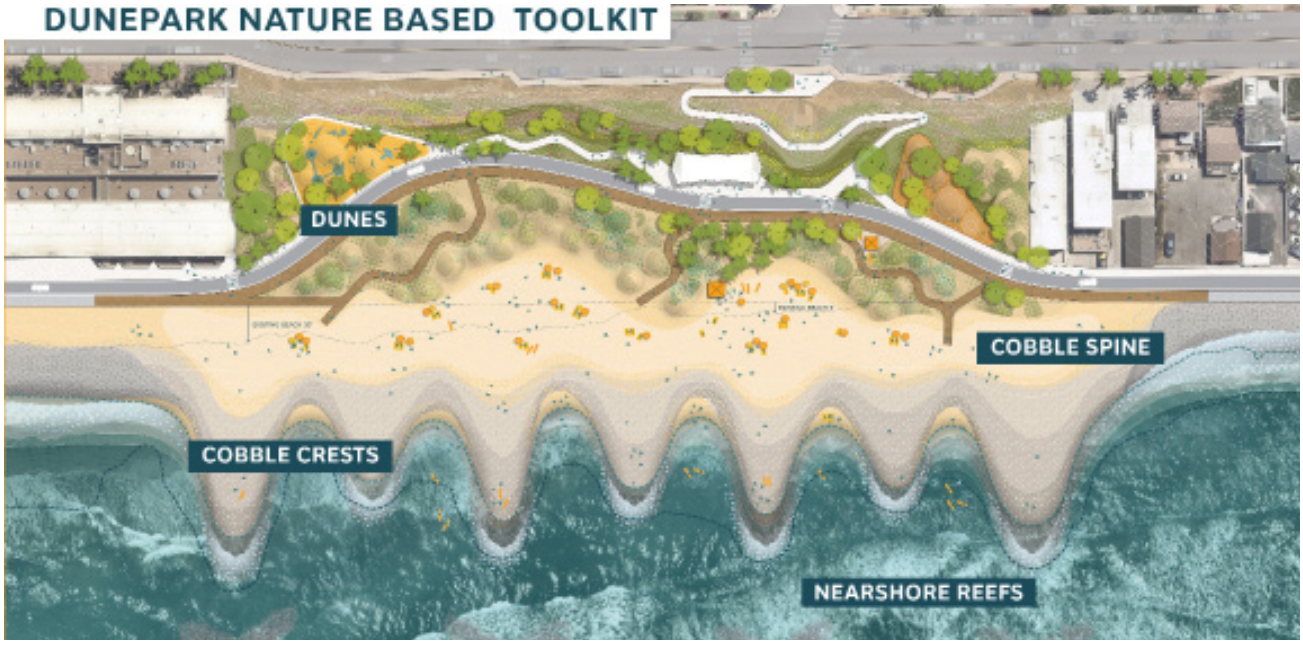
- Consideration for impacts to ecology and surf resources
- Expectations around cobble crests sand retention and expansion of beach area
- Reference projects and sites demonstrating success of concept
- Better understanding of how the cobble will hold up against large surf and El Niño conditions
- Incorporating greater accessibility and safety for all beach goers, including elderly, children, bikers and pets
- More space for desired activities such as volleyball, jogging, dog park, etc

What elements are missing in the SCAPE design that you want to see added in a refined concept?

- Resilient and adaptivity to sea level rise
- Scalability to other parts of Oceanside, particularly more eroded areas in South Oceanside
- Understanding of how cobbles might move and shift over time
- Potential impacts to surf resources
- Anticipated sand rentention and beach width
- Explanation of the experience users will have getting in and out of the water across and over a cobble spine
- Explanation of other potential amenities, including increased accessibility, parking, showers for surfers, and benches for sunset
- Overall cost and timeline for this concept

COMMUNITY QUOTES

" The design seems to have a decent balance between the natural and built environment. Often designers try to push as many amenities or "trophies" into a design as possible, but a beach should just be so: a beach. I appreciate the attempt to keep it as such. Please work with regional biologists to consult on the project."



ICM

ICM incorporated the feedback from the first round of design by refining their concept towards a more natural looking submerged artificial reef with two headlands. This approach provides a 'speed bump' for sand allowing it to accumulate between the features and assist in restoring sandy beach area.

SURVEY QUESTIONS

What elements in the ICM design do you want to see emphasized in a refined concept?

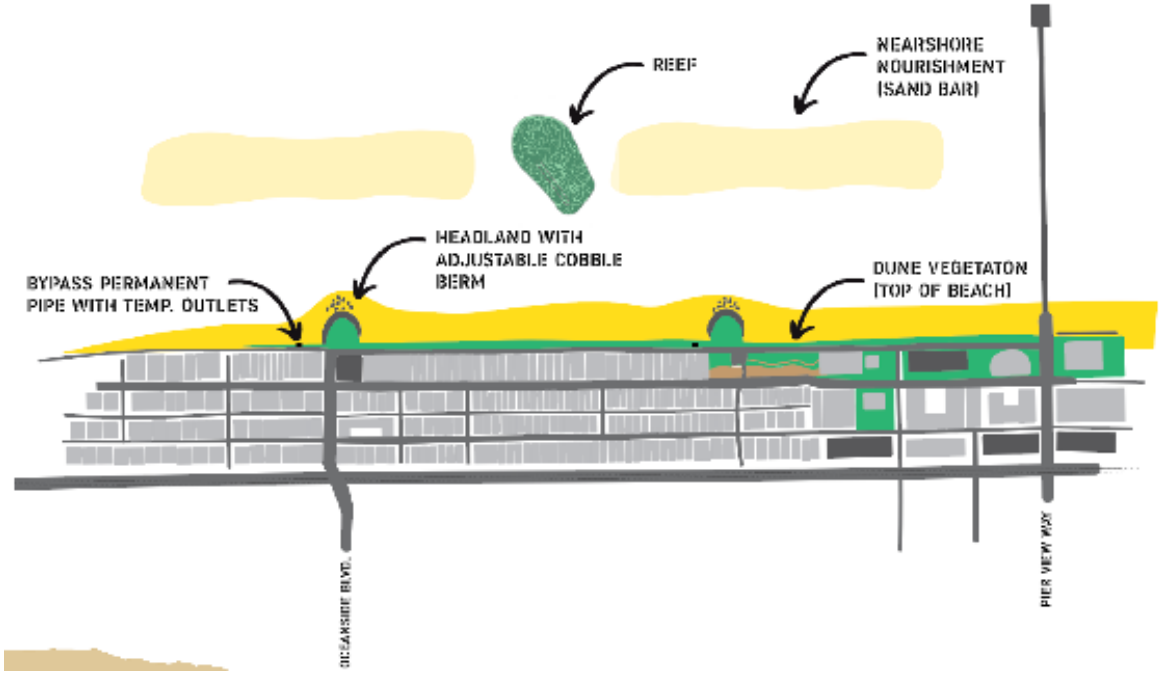
- Potential impacts to surf resources
- Better description of access improvements including parking
- Amount of beach width improvements and available space for recreational activities
- Reference projects and sites highlighting where this concept has been successful
- Explanation of how the pilot could be scaled throughout Oceanside
- Cost estimates of design and construction of pilot project
- Ecological benefits and amenities associated with this pilot concept
- Details on proposed materials and how they may create potential habitat
- Design strategies to mitigate any potential negative impacts

What elements are missing in the ICM design that you want to see addressed in a refined concept?

- Sand retention expectations with and without regular nourishment
- Impact of structures on beachgoers and surfers, including the potential for rip currents, swimming hazards, diving, fishing and surfing impacts
- Details on the shape of the artificial reef and how that intersects with sand retention and surf resources
- Articulation of recreational and ecological benefits of this design, including room to walk, space for dogs, and a park

COMMUNITY QUOTES

"Thank you for sharing proven solutions to Oceanside and to helping the community understand that there are concepts out in the world that are already working to retain sand on our shore for beach goers to use and enjoy for generations to come."



General Survey Questions

Respondents were asked to select up to 3 beach amenities from a list of options that could be provided by the proposed design. The top 3 amenities desired by the public were the same across all teams, demonstrating a consistent desire from the Oceanside community. In no particular order, the top 3 responses are provided below.

- Beach Day
- Surfing
- Walking

Respondents were asked if there is anything in particular you would like to see at upcoming Public Workshops that would help you contribute to the RE:BEACH competition process?

- Financing, including cost comparison
- Overall project timeline
- Impacts, including on marine ecosystems
- Inclusivity, including diversity of representation and ease of hearing presentations / design teams
- Public Q+A with the Project Team
- Proof of concept
- Consistent replenishment of our beaches throughout the region, not just in Oceanside
- Hear from the Jury, including their deliberation around each concept and a chosen 'winner'
- Scalability of each concept

Respondents were asked what do you most look for with access to a wider, dry-sand, beach?

- Nature and ecosystems, including native plant species, clear paths for walking, and healthy habitats
- A wide beach, including space to spread out and lessen crowds, room to walk, and dry-sand
- Surf resources
- Safe spaces and access, including bathrooms with showers, parking, room to walk and recreate
- Recreation, including walking, sunbathing, playing in sand, and other beach activities
- Resilience and protection, including from impacts of sea level rise
- History, educational signage and interactive learning, including acknowledgment of native peoples

GENERAL QUOTES

"I mostly look for a place to lay down my beach gear for the day, that also has decent waves in front so I can enjoy a sandy spot to play with my kids and somewhere that I can paddle out and catch a few waves with my husband."

"Beach access (sand) at existing beach access points. More sand means that I can walk to more waves or take a long beach walk. More sand on the beach likely means better sand bars for surfing."

"An old fashioned day at the beach walking, swimming, surfing with access by car not too far away and free."

"Sufficient trash bins, native plant species and educational signage, and native people being honored."

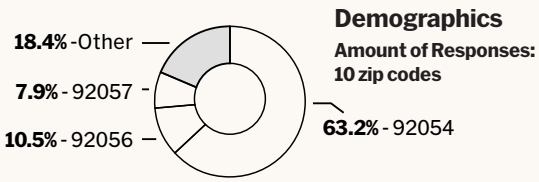
"The ability to lay out on the beach and have a nice beach day. Also emphasis on some area where dogs can play off leash."

PUBLIC WORKSHOP THREE SUMMARY

Review:
Team Slides

Attendance
more than 150 attendees

Duration
4-7pm PT, 3 hours



Demographics
Amount of Responses: 10 zip codes

The third public workshop was held on Wednesday, December 13, 2023 at the Junior Seau Beach Community Center. Attendees saw presentations from each of the three Design Teams, detailing their final pilot project concepts. Following team presentations, the public was able to ask questions to teams in the form of a live question and answer panel. The workshop was open to the public from 4—7pm PT. A video recording of the presentations and slides are available on the City of Oceanside's YouTube channel and the RE:BEACH website (rebeach.org). An online public feedback form was made available at the start of the workshop and remained open for 30-days.

The final public workshop was an opportunity to (1) learn about each Design Teams' proposed pilot project concepts, (2) ask questions directly to the Teams and (3) gain insight into the RE:BEACH process; including how Teams incorporated previous public comments into their designs.

The online feedback form for the final workshop was focused on what the public wanted to see in expanded on for each design in the next phase of the project. Additionally, the feedback form included questions on the RE:BEACH process overall, asking respondents to comment on ways they were or were not engaged with Oceanside's Coastal Resilience Competition. The responses were made available to City Staff, who worked alongside RE:BEACH Jury to bring forward a single recommended pilot project, to City Council on January 31, 2023.

The summary below includes information from the in-person question and answer panel, as well as, the online feedback form.

DELTARES + MVRDV

The Dutch team's "Green Dream Peninsula" design would pilot the use of a natural peninsula structure, constructed perpendicular from the existing coastline. A combination of existing materials and new boulders, this peninsula would extend out approximately 360 feet in length and 500 feet in descending width without obstructing ocean views. The boulders and other rocks would create a bulge in the shoreline to support sand retention while still allowing the flow of the creek. The space would create new space for increased recreation and opportunities for environmental enhancement.

SURVEY QUESTION

If Deltares & MVRDV's design moves forward, what aspects would you like to see refined in the final engineering design and environmental review phase?

From all responses, the following themes emerged:

- The public articulated some concerns over safety of beach goers in the accessing ocean-facing, saltwater pools and sustaining water quality with an urban creek flowing out adjacent to the pool.
- The public had difficulty understanding the potential scalability of this concept, as headlands may need to take on different shapes at different locations to retain sand and the overall size seems marginal for the desired objective of maintaining a sandy beach.
- The public expressed concerns over the placement of the feature at Buccaneer Beach and the potential impacts to surf resources.

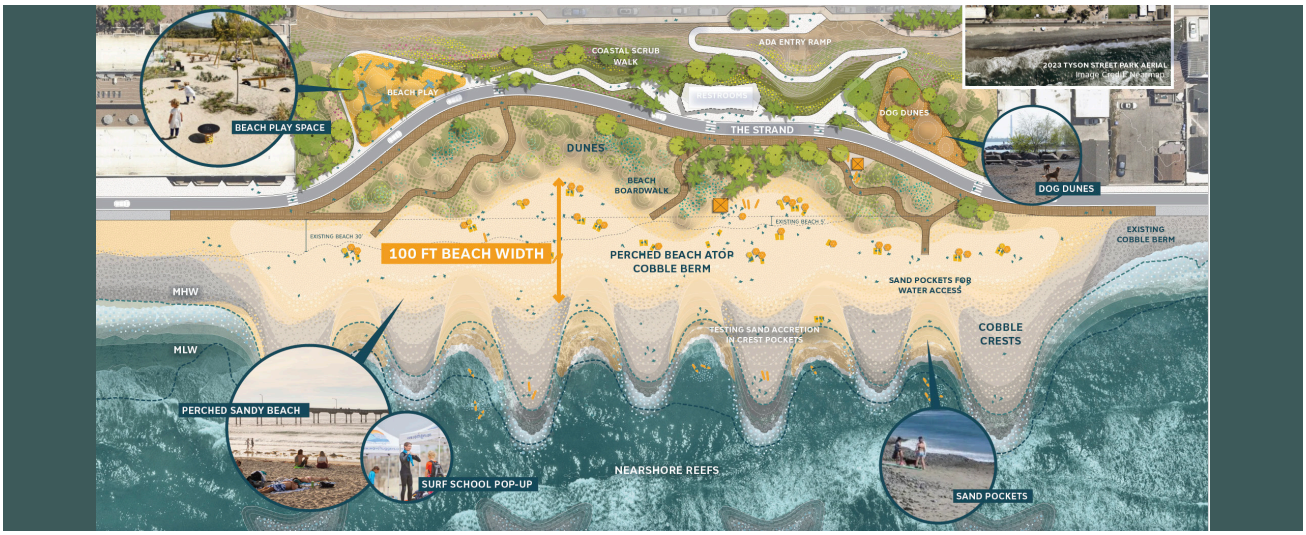
COMMUNITY QUOTES

"Love the headland design, but very large and too many design complexities that could be added after performance is verified. Simplify it! Why only one headland? Limits scope of beach restored."

"Further consideration of water quality at the outlet. Love the integration of the natural and built environment here."

SCAPE

The SCAPE Team's "Dunepark/Hybrid Beach" design proposed the construction of perched sandy beach fronted by a system of cobble features and boulders. The cobble berm would undulate with horns or crests that would extend seaward from the primary cobble berm. The design consists of 3 small cobble crests and 4 large cobble crests. The design also consists of 4 nearshore reefs placed seaward of the crest in the inter-tidal zone with the reefs being approximately 90ft long and 70ft wide. The shoreline concept could be combined with the repurposing of upland areas. DunePark is a concept that repurposes Tyson Street Park into a beach and dune area with various recreational amenities (restrooms, dog park, playground). This concept involves the landward realignment of the South Strand roadway.



SURVEY QUESTION

If SCAPE's design moves forward, what aspects would you like to see refined in the final engineering design and environmental review phase?

From all responses, the following themes emerged:

- Dunepark proposed to create a more usable and appropriate Tyson Street Park, but retreat of the Strand seems arduous.
- Overall, the public expressed a general concern around the Hybrid Beach concept feasibility and its ability to perform, as it had not been tested or tried in any other location.
- Cobble is challenging and difficult to walk on, making the usable beach space potentially less accessible.

COMMUNITY QUOTES

"My second favorite option. No examples of working in other areas, but theoretically makes sense. Looks like would be more limited in full scope for all of Oceanside beaches."

"Not interested in more cobble to combat beach loss. Seems like we will have continuous equipment redistributing cobble after every large tide or storm. Not proven. Like dune park, but that could be implemented by parks and recreation"

ICM

Taking their success on Australia's Gold Coast, ICM's "Living Speedbumps" approach proposes to construct one multi-purpose offshore reef (either of rock or geotextile bags) and two artificial headlands. The submerged, offshore reef could vary in size based on material selected and would be placed roughly 900' offshore at a depth of approximately 40'. The artificial headlands would extend seaward 150' and would be 150' long across 1,700 linear feet of shoreline. The headlands and reefs would slow down wave dynamics allowing sand to gather between the features.

SURVEY QUESTION

If ICM's design moves forward, what aspects would you like to see refined in the final engineering design and environmental review phase?

From all responses, the following themes emerged:

- The ICM Living Speed Bumps concept overwhelmingly received positive input for its professed ability to retain sand and provide other recreational benefits.
- ICM received an abundance of written comments from the public, stating their concept was their "favorite" or "best" option.
- The public viewed the potential to scale the ICM high, with a whole shoreline solution seemingly most feasible with this design.
- Recommendations included a need to consider influences of the reef and headlands on sand bar formation and function, and its influence on surf resources.
- There was suggestion that as the design progresses there should emphasis and consideration of how the structures they may impact the safety of surfers and swimmers.
- The public expressed a desire to see more natural design elements in the design of the headlands.

COMMUNITY QUOTES

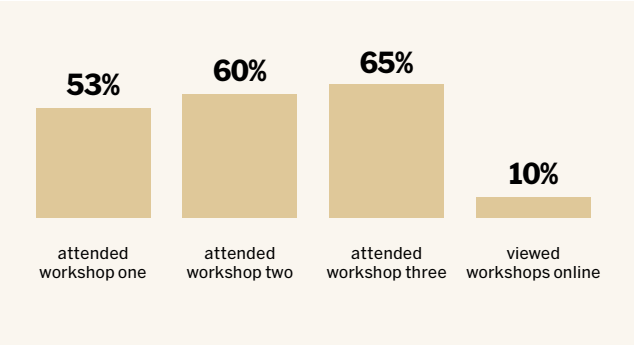
"Consider modifying the viewing platform design for a more natural look. I appreciate the close attention to surf potential and wide sandy beaches created for recreation under this design."

"I think that their experience on the Gold Coast shows they have refined the approach that has been proven to work. I wish the sand bypass was still a part of. Maybe a future consideration."

RE:BEACH Process & General Survey Questions

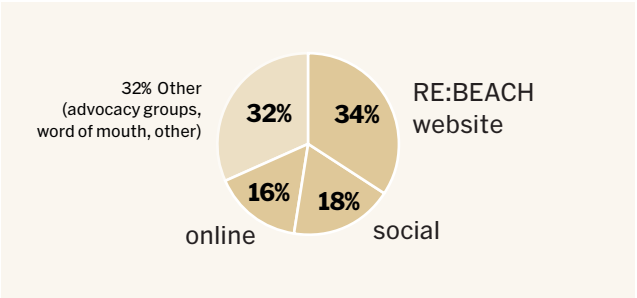
SURVEY QUESTIONS

Which public workshop did you attend? (select up to three)



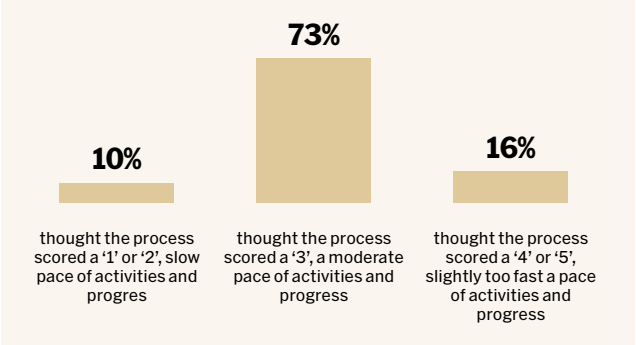
Did you follow RE:BEACH virtually on www.rebeach.org?

How did you get the majority of information about the RE:BEACH Oceanside effort?

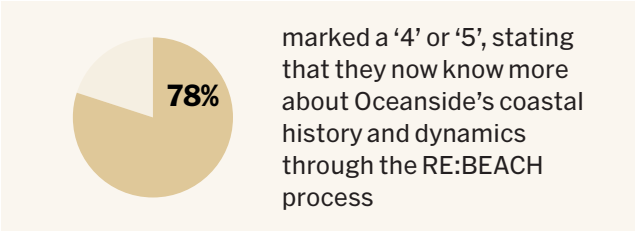


- The majority of respondents gained information online, through the RE:BEACH website, social media and generally online.
- However, there were many different types of responses that included 'advocacy groups', 'Save Oceanside Sand', and the 'City of Oceanside's Coastal Management Website'.

RE:BEACH was a 8-month long process, from selecting 3 Design Teams to determining one winning concept. While it was designed on purpose to be expedited based on the current condition of the Oceanside shoreline, we are seeking feedback on the length of this design competition. On a scale of 1 (too slow) to 5 (too fast) how would you rate Oceanside's Coastal Resilience Competition?

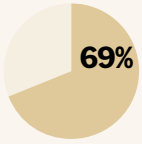


Through the RE:BEACH process, do you feel you know more (5), the same (3) or less (1) about Oceanside's coastal history and dynamics?



- 22% of respondents marked a '3', for moderate learning through the RE:BEACH process
- No respondents marked a '1' or '2' to designate they did not learn something through the process

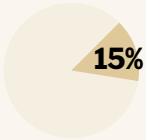
RE:BEACH aimed to prepare the City of Oceanside for adaptive coastal management of a pilot project for near-term resilience, while considering longer-term coastal management needs to ensure access to Oceanside's beloved beaches well into the future. Keeping this in-mind, do you feel the pilot projects address near-term solutions while considering longer-term management needs.



of respondents marked 'yes'

- 6% of respondents marked 'no'

If you feel one design in particular stands out as upholding this criteria, rate that proposed design.



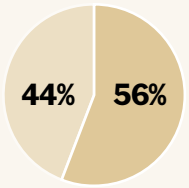
marked ICM's design as best meeting the criteria

- 3% marked SCAPE's design as best meeting the criteria
- 3% marked Deltares + MVRDV's design as best meeting the criteria

Through the RE:BEACH process, do you feel you know more (5), the same (3) or less (1) about Oceanside's sediment transport dynamics within the region?

marked '3'

for 'the same' amount of knowledge about Oceanside's sediment transport.



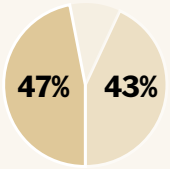
marked a '4' or '5'

to designate 'more' knowledge was gained about Oceanside's sediment transport through the RE:BEACH process.

The Design Teams demonstrate how each pilot might scale throughout Oceanside, how clearly do you understand the potential scalability of the pilot project?

marked a '2' or '3'

designating that they have some knowledge but need more to understand the scalability of the pilots.

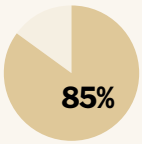


marked a '4' or '5'

designating that they somewhat clearly or clearly understand the scalability of the pilot.

- This is the response we would anticipate given the status of each of the Teams' designs and the work in the next phase to clearly define a site for the pilot and scalability.

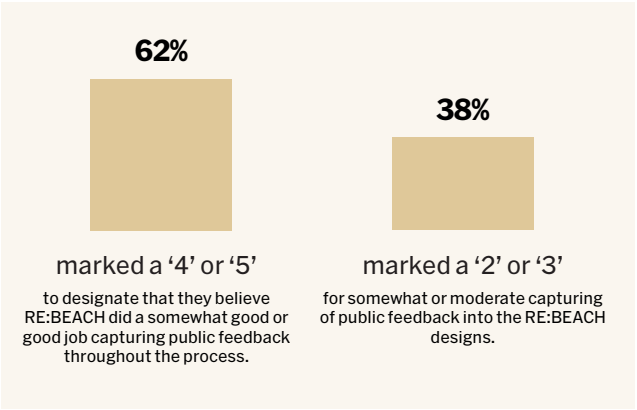
When considering the three Design Team concepts, has RE:BEACH resulted in novel and innovative sand retention pilot projects for Oceanside?



of respondents indicated that RE:BEACH resulted in novel and innovative solutions for Oceanside's coast

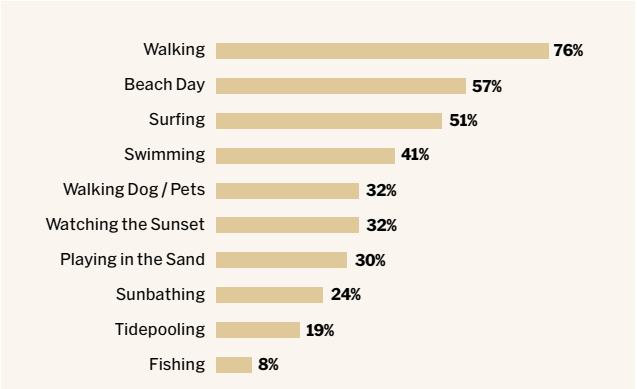
- Of the submitted responses, there was not a single respondent who marked 'no', rather several respondents marked with additional comments on the importance of innovation, novelty, and which team they preferred.

Each team was provided with opportunities to interact face-to-face with the public at workshops, all submitted public feedback, and had reviews with the City and Project Teams. How well did you feel teams incorporated public feedback into the updated designs?



- No participant marked a '1'or 'did not' capture public feedback.

We want your feedback to determine how you'll use the restored beach area. From the list of amenities below, which are most important to you? (select up to 3) Across all 3-surveys, we asked respondents to rank beach amenities most important to them. The results from the final survey are below and reflect what we have heard throughout the RE:BEACH Process.



Do you have any feedback for the City of Oceanside on the experience and overall process of RE:BEACH?

"Well done. Only issue not addressed was the source of funding and federal government commitment to resolve liability for harbor construction."

"Great job working through this entire process! I know it was a lot and it moved fast. We are very excited for the next steps."

"The City did an excellent job! I'm not sure how it could be done better. I hope that we can get the winning proposal permitted, funded and built!"

"Amazing process! Keep the communication open and flowing! Use the selected design to address our most devastated sections of beach...SOUTH!!!! Let's go with the pilot and a plan for the entire Oceanside coastline!!"

"Great concept to have multiple teams submit their designs. ICM has the best proven concept. It will actually allow a sandy beach with a natural look."

"Many thanks to Jayme! Also thanks to City Council members for helping to advance this crucial project and to keep the public engaged."

RE:BEACH

Jury Deliberation Summary Report

12/14/2023, Mission Pacific Hotel, 8am - 5pm

Participants

Jurors:

- Chris Abad—Surf Resource Preservation—Director, Oceanside Boardriders Club.
- Bob Ashton—Community Representative & Coastal Advocate—President/CEO, Save Oceanside Sand (SOS).
- Scott Ashton—Community Representative—Chief Executive Officer, Oceanside Chamber of Commerce.
- Dr. Curt Busk—Community Representative & Coastal Advocate—President, Buena Vista Audubon.*
- Megan Cooper—Coastal Grant Funding Expert—Deputy Regional Manager, California State Coastal Conservancy.*
- Dr. Lesley Ewing PE—Coastal Management Expert—Former Sr. Coastal Engineer, California Coastal Commission.
- Karen Green—Nearshore Marine Expert—Division Manager, Marine and Aquatic Ecosystem Resources, Tierra Data, Inc.
- Councilmember Joy Lyndes—Coastal City Representative—Encinitas City Council.
- Dr. Dan Pondella—Nearshore Marine Expert —Professor, Biology; Director, Vantuna Research Group, Occidental College.
- Ernie Prieto III—Community Representative—Local Business Owner (Ocean Sea Charter), Boat Captain and sitting member of City of Oceanside's Harbor and Beaches Committee.
- Mitch Silverstein—Coastal Advocate—Surfrider Foundation San Diego Chapter.*
- Councilmember Dwight Worden—Coastal City Representative—Del Mar City Council, Chair of SANDAG Shoreline Preservation Working Group.

Absent jurors:

Note: Charles Lester and Jeremy Smith, while they were unable to fully participate, provided written comments in advance as an input into the deliberation process.

- Dr. Arye Janoff—Coastal Management Expert—Coastal Geomorphologist, Planner & Manager with a U.S. Federal Agency.*
- Dr. Charles Lester—Permitting Viability Expert—Director, Ocean and Coastal Policy Center, Marine Science Institute, UC Santa Barbara.
- Jeremy Smith PE —Coastal Management Expert—Coastal Engineer, California Coastal Commission.*

Project Team members in attendance: Jayme Timberlake (City of Oceanside), Brian Leslie (GHD), Nick Sadrpour (GHD), Sam Carter (RCC), Alex Klein (RCC), and Maranda Ngue (RCC)

Design Teams (present only during their time slot):
Deltares/MVRDV: Fokke Moerel, Maria Stamati, and Kees Nederhoff
SCAPE and ESA: Gena Morgis, Pippa Brashear, and James Jackson
ICM: Aaron Salyer and Sam King

**indicates jurors whose role is advisory and non-voting, their ideas, input and role is purely their own expertise and does not represent the opinion of the various organizations they represent professionally.*

Description of process

The Jury for the RE:BEACH Oceanside Coastal Resilience Competition was selected by the City of Oceanside and announced in May, 2023. The Jury represents a range of expertise, from local and community leaders, downcoast regional neighbors, Non-Governmental Organizations, regulatory and funding agencies, and scientific experts. Throughout the three design rounds of the RE:BEACH competition, jurors were invited to participate in the Public Workshops, were regularly briefed by the Project Team on the designs as they evolved with public input, and provided review of public input—including input received during the final public workshop on December 13, 2023.

On December 13, 2023, Design Teams made their final presentations during the third Public Workshop at Junior Seau Beach Community Center in Oceanside. The following day, the Jury met to hear directly from the teams and deliberate about their proposed concepts to the City. At this meeting, the morning was dedicated to one-hour interviews with each of the three Design Teams. In these sessions, Teams were able to present conceptual and technical information about their designs, and respond directly to Jury members' questions. The afternoon was dedicated to discussion between the Jurors, with assistance from the Project Team, about each design. Teams were available to remotely answer questions that emerged from the discussions. Every Juror was asked to comment on each design, and to make any recommendations on how the designs might be adapted or improved. Following over two hours of discussion as a full jury, the voting members of the jury held their first vote. Jurors could cast one of three voting options for each team: "Support," "Support with reservations," or "Do Not Support." Jurors could also provide comments on their ballot. This voting mechanism allowed jurors to support more than one project, and it captured the nuance of their different perspectives. Following the first vote, jurors then continued to deliberate and ultimately arrived on a final recommendation with unanimous support.

The Jury serves as a third-party reviewer for the City of Oceanside to guide its decision-making. The Project Team (including GHD, Inc. and Resilient Cities Catalyst) prepared this summary report for the City as a follow up to the jury deliberations to 1) document the spirit of jury discussion, 2) detail the recommendations offered by the jury members on each of the designs, 3) portray the winning design team and concept and the justification for that selection, and 4) showcase the recommendations provided by the jury to the City on a path forward with the winning design concept.

On January 31, 2024, City staff will present the winning design for the Oceanside City Council to adopt, allowing 1 pilot project to move into engineering design and permitting. In addition to the Jury's recommendation, City staff will consider Project and City Team recommendations on how to implement the proposed design recommendations, as well as, public feedback on the designs, collected through mid-January.

RE:BEACH Jury Final Recommendation

The Jury unanimously supports with some modifications the International Coastal Management (ICM) concept design, "The Living Speedbumps." This proposal includes the construction of two artificial headlands, as well as, the construction of an artificial reef, roughly 130,000-250,000 square feet, the exact size of the reef will be determined in the next phase of final engineering and permitting offshore between the two newly constructed headlands (). The headlands were designed to mirror the size of the existing headland functionality of the base of the Oceanside Pier. This new coastal infrastructure would be supported by initial onshore and nearshore (i.e. placement on the sandbar) nourishment and ongoing annual maintenance.

The core rationale for selecting the ICM proposal was the concept's ability to meet the project goals and design criteria set forth in the design brief. The overarching goal of RE:BEACH is to "construct

an innovative, multi-benefit, sand retention project on the City of Oceanside's beaches that serves both local and regional benefits." The ICM concept demonstrates a potential for positive impact in retaining sand. The ICM concept also demonstrates consideration for the five design criteria categories: Physical, Financial, Environmental, Social and Regional. Most notably, a clear consideration for potential neighboring-coast impacts (both North and South of Oceanside), the relevance of the ICM team's experience in the Gold Coast of Australia, the use of proven technologies in the design, the opportunity to design and deploy a reef with the intent to provide multiple benefits (e.g. ecological and recreational), and the leveraging of existing infrastructure to extend its effectiveness.

The two key modifications to the winning design proposed by the Jury are:

- Refinement of the design of the artificial headlands and a thoughtful proposal for programming on top of the headland. Several jurors requested the use of materials that better complemented the natural space and a headland design that better fits Oceanside's character. The finalization of the headland design needs to consider the opportunity for creating multiple-benefits. Walkability around the headlands at high tide may also be a concern during certain seasons or following large erosion (i.e. high wave) events.

- Strong consideration of the use of natural materials (i.e. quarry rock or another alternative to geotextile bags) for the artificial reef. Several jurors raised concerns and objections about the use of geotextile materials proposed by ICM for three reasons: increased maintenance cost to replace or repair geotextile bags, the introduction of non-natural and/or plastics into the water, and related public perception and permitting issues.
    - ICM responded to jury questions about the geotextile bag option, stating that the use of the geotextile bags versus rock allows the City to pilot the viability of an artificial reef to influence beach sand retention at a cheaper, up-front cost.
    - As the reef advances in design, the City should go further in exploring potential ecosystem and surf benefits that the reef could provide. The City should also be prepared to provide mitigation for habitat conversions (i.e. conversion from sandy subtidal habitat to artificial reef).

In addition, the Jury recommends that the City consider SCAPE's Dune Park concept separate from the RE:BEACH process. The Jury believed that a Dune Park could provide an improvement over the current Tyson St. Park space.

Overview of Juror Voting

- In the first round of voting, 100% of jurors did not support the SCAPE proposal for a "Hybrid Beach" (see comments below).
- However, there was consensus that the Dune Park concept should be considered as a project for the City, separate from RE:BEACH.
- After voting and discussion, 100% of voters either "supported" or "supported with reservations" both the ICM and Deltares/MVRDV proposals. However, a majority of jurors had significant reservations about the Deltares/MVRDV proposal, and a majority of jurors supported ICM without reservations.
- After further deliberation, jurors were asked to rank their preference for ICM and Deltares/MVRDV. ICM was the first choice of 6 jurors, while Deltares/MVRDV was the first choice of 3 jurors. The jury unanimously agreed that ICM was its recommended concept and team and outlined clear modifications to explore in the next phase of work.

RE:BEACH Jury Feedback on Designs

The following is a summary of the deliberations and discussions of the jury members at the meeting on December 14, 2023. While feedback is unattributed to specific jury members, all jurors had an opportunity to review this report for accuracy before delivery to the City.

ICM

- Unanimous support for implementation, with some modifications and reservations
- Overall, strong preference for a proposal that maximizes retained sand, usable beach, and is scaled appropriately for the current state of Oceanside's coastline
- Appreciated linking the local reference of the 'headland' at base of pier
- Scalability of the design was easy to understand and apply across Oceanside
- Rework design of headlands to entail a more natural integration along the coast, explore more nature-based strategies/materials, adjust the shape to mimic natural headlands found along the California coast, and fine tune expectations and approaches to backshore dune connectivity
- Confidence in the experience of ICM team and in their capacity to execute their proposal, with the success of the Gold Coast providing precedent. However, differences in wave climate between the Gold Coast and Oceanside raised potential concerns with suggestion for additional modeling to confirm design estimates relative to sand retention
- The creation of an artificial reef, focused on sand retention, provides an opportunity to pilot a new solution for California, which could be applicable to many communities
- Expectations around increased surf opportunities with the artificial reef need to be managed since improving surf resource is not a main objective of the artificial reef
- Project designed to slow, but not stop, sand movement through the littoral cell upcoast and downcoast gives recognition to regional needs
- Integrated onshore and offshore combination of elements designed to work together to restore natural conditions
- Post-construction modifications or adaptations to the reef will be difficult to implement so design options should be carefully modeled with this in mind

Deltares/MVRDV

- Unanimous support for implementation, with significant reservations
- Appreciation for nature-based connection to Loma Alta watershed and creation of aesthetic headland that mimics natural conditions. However, the design ultimately functions similar to traditional shore perpendicular coastal engineering structures
- Jury overall felt the performance estimated by the team was likely exaggerated and actual benefits of only one proposed peninsula would be too minor given the effort required to implement. Team could have proposed two peninsulas, as a part of a pilot program, to assist with meeting the scale of challenge that Oceanside currently faces, while still remaining within budget
- Concern about inlet stability and water quality if located at Loma Alta creek and refinement on hydrodynamics would be necessary to ensure proper flushing and connectivity
- Swimming tidal pool feature, while intriguing, was not supported by the Jury for cost/benefit and public health and safety concerns

- Uncertainty on where sand will accrete (north or south) of feature, and to what extent it will be able to retain sand, and a lack of confidence that sand retention will occur south of the feature
- Potential flanking impacts north or south of structure; there will be challenges with tying the structure into private revetment at base of feature

SCAPE

- Significant desire to see Dune Park component implemented through separate process, potentially led by City Parks and Recreation department
- Hybrid Beach concept was judged to be infeasible
- Uncertainty of sand accretion and structural integrity of system
- Likely would require more frequent and costly maintenance than anticipated by the team
- Was seen to provide the lowest potential for retention and accretion of sand
- Innovative and interesting design, and repurposing cobble could be beneficial for many locations, but ultimately as an untested solution using cobble stabilized by boulders was seen as too risky with too little potential positive impact, especially as a potential pilot at one of the City's most popular beaches
- Perception of adding cobble to shoreline can harm overall project objectives.
- Vertical access down cobble berm face and perched beach represents changed beach user experience (users are elevated above foreshore)
- Cobble sourcing and beach matching challenges
- Concern that the combination of cobble fingers and reefs could set up local rip currents

Overall Next Steps

- The winning concept is a major milestone for the overall project
- This selection of a winning design is part of a larger process that will continue to require active and transparent public participation amongst the local Oceanside community and greater San Diego coastal region. All opportunities pursued under RE:BEACH should leverage and intersect with ongoing efforts at the regional level, including potential inclusion as the pilot project identified as part of RBSP III that is currently in the early stages of planning
- With a concept selected, additional analysis on the ICM design, size/shape of reef and headlands, anticipated sediment transport mechanics, and integration of features with existing management practices is planned. GHD in concert with ICM shall work towards developing a robust monitoring and adaptive management program that identifies specific metrics and key strategies to reduce and mitigate any potential impacts.
- Further consideration for the location and site of the pilot is required to generate the greatest public benefit
- Mitigation will be required for any significant impacts to habitat and/or beach conditions.
- Transparency and public engagement, including neighboring cities, is important throughout the next steps.

RE:BEACH

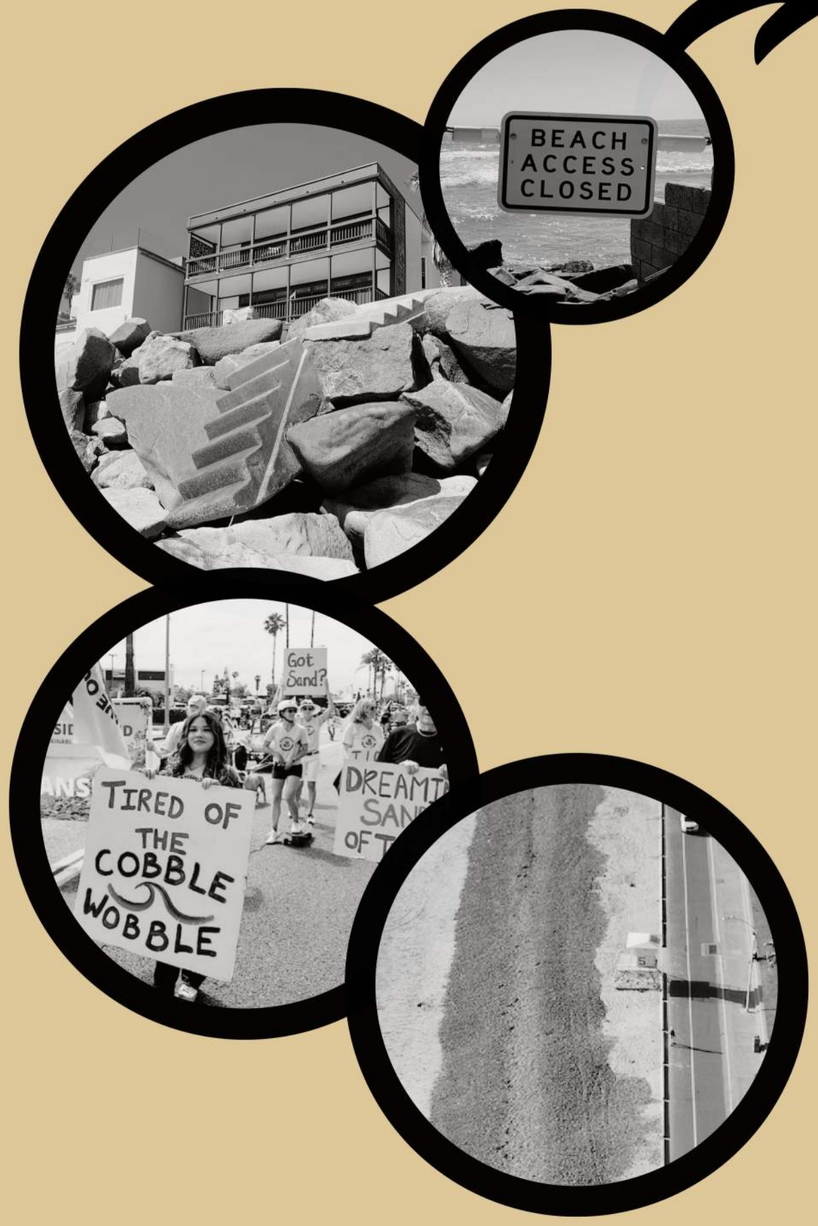
OCEANSIDE, CALIFORNIA

PROJECT NARRATIVE
"Living Speed Bumps"

CONCEPT DESIGN | DECEMBER 2023

International Coastal Management
EST. 1989 | QLD, AUSTRALIA

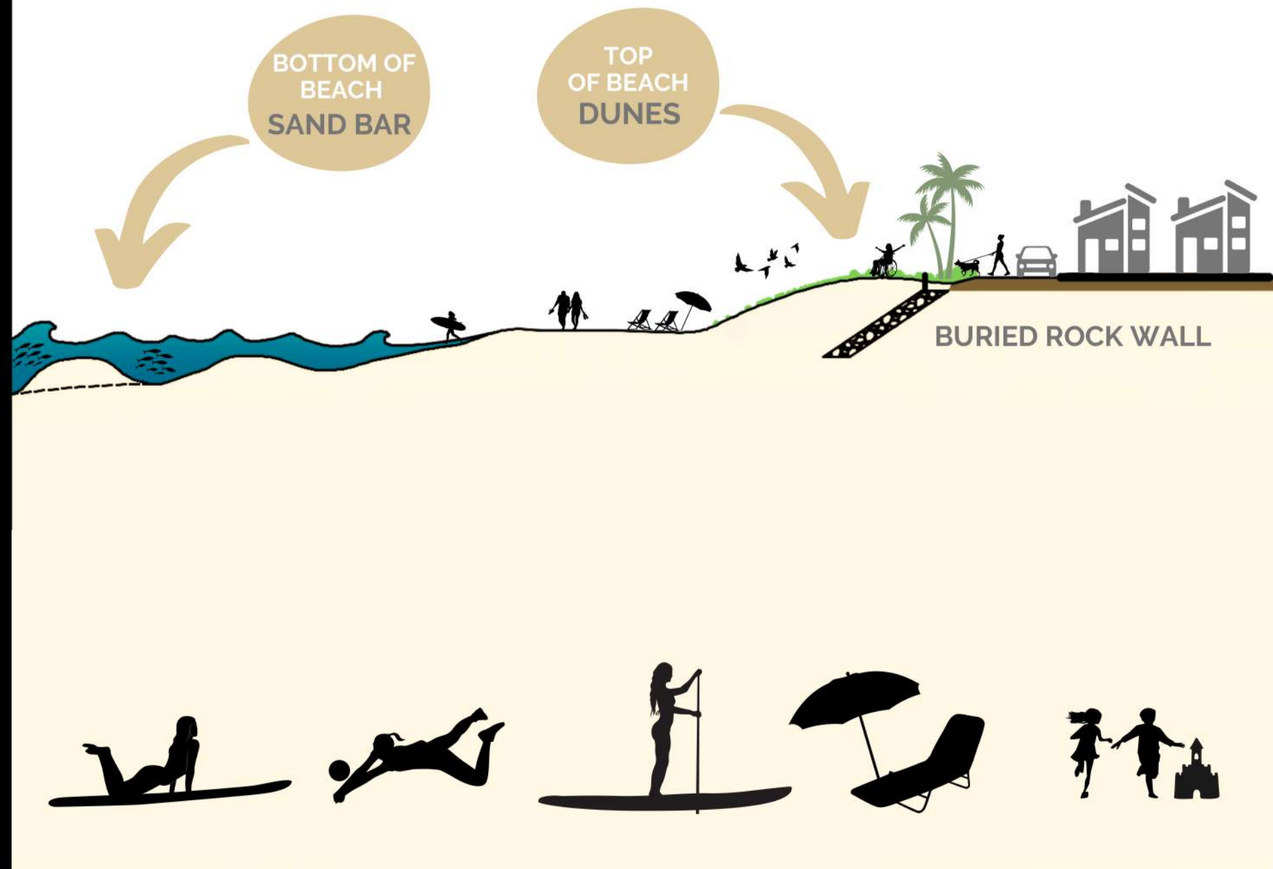
OCEANSIDE TODAY



Leverage & build on ICM's **RE BEACH** experience. Customize for local conditions.

OCEANSIDE FUTURE

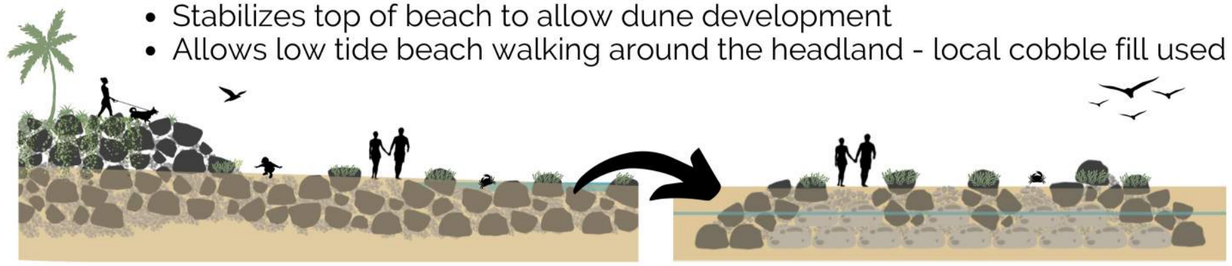
- ✓ **Create a Healthy Beach Profile** ("Living Shoreline")
- ✓ **Retain & Manage a Living Shoreline** (for an extended timeframe with living 'speed bumps')



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

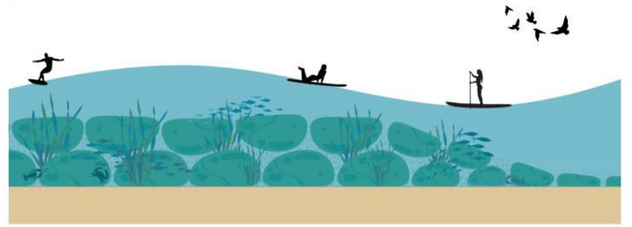
A Living Headland & Low Permeable Berm

- 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

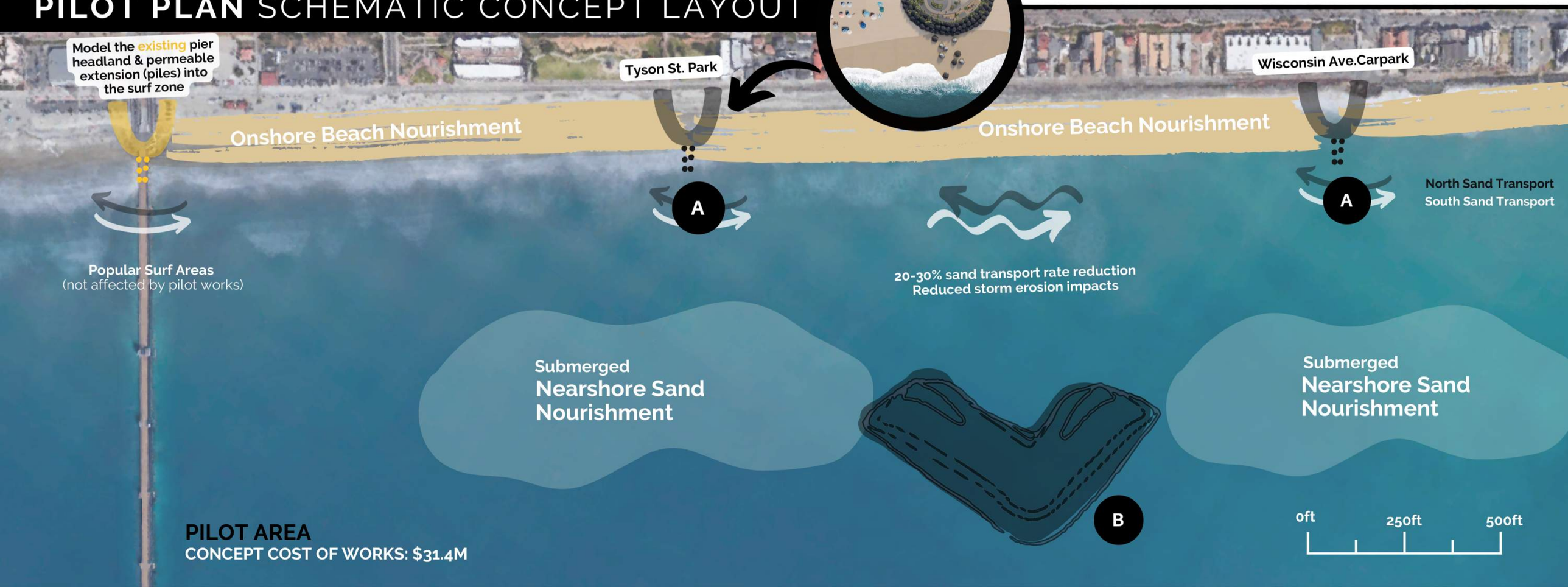


B Eco-Engineered Reef (Submerged)

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



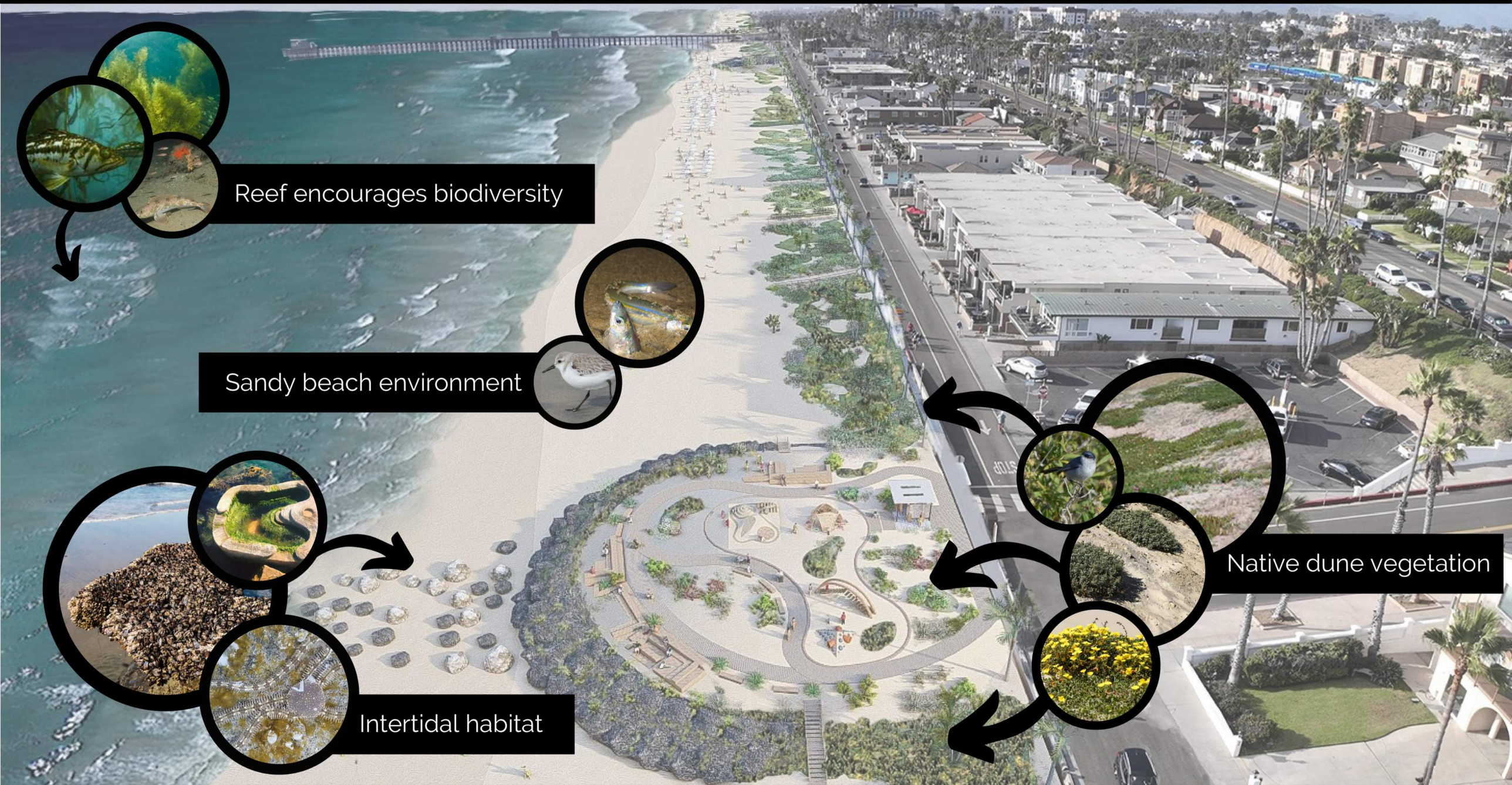
PILOT PLAN SCHEMATIC CONCEPT LAYOUT



BEACH USABILITY

SCHEMATIC CONCEPT LAYOUT

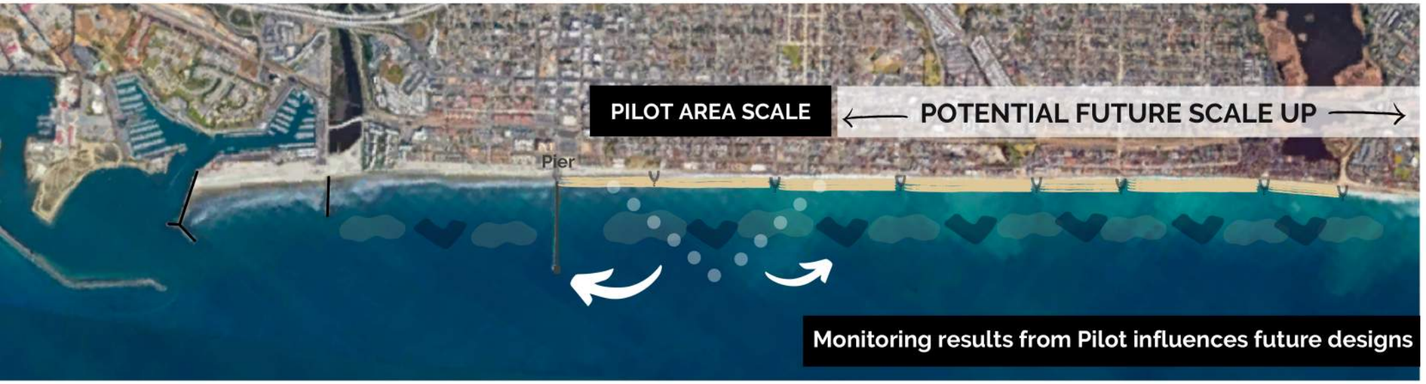
ENVIRONMENTAL BENEFITS



“LIVING SPEED BUMPS” & COASTAL RESILIENCE

Slow down natural processes to retain sand longer. Not ‘trap’ sand.

OCEANSIDE ‘REEF CITY’



Adaptability & Future Considerations

Top of beach - stabilize

- Headlands stabilize top of beach
- Allows dunes to develop
- Dunes retain sand for sea level rise buffer
- Headlands and dunes provide green corridors along beachfront for ecological stimulation

Bottom of beach - stabilize

- Reef stabilizes bottom of beach
- Helps to retain sandbars
- Sand bars and reef provide buffer from increasing sea level rise/climate change storms
- Reef increases offshore biodiversity (local and regional)

Improved sand retention across the whole beach profile (“living shoreline”) is easily scalable

Keep building on decades of real-world, coastal resilience development for a greener, sandier Oceanside into the future

CITY OF OCEANSIDE