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Appendix C
Information Regarding July 2022 Meeting

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Meeting 3 Attendee List

Organization	Name	Email
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	Leslea Meyerhoff	lealea.meyerhoff@att.net
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City of San Clemente	Kiel Koger	kogerk@san-clemente.org
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OC Public Works	Ashley Tarroja	ashley.tarroja@ocpq.com
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South Coast Water District	Rick Erkeneff	--
	Denise Erkeneff	--
State Parks	Riley Pratt	rileypratt@parks.ca.gov
University of California, Irvine	Brett Sanders	bsanders@uci.edu

Notes:

Caltrans: California Department of Transportation

OC: Orange County

OCTA: Orange County Transportation Authority

South Orange County Regional Coastal Resilience Strategic Plan

Presented by:

David Cannon, PE

Principal Engineer, Anchor QEA

Adam Gale

Senior Manager, Anchor QEA

July 6, 2022



Schedule and Next Steps



Meeting Objectives



- Comply with grant conditions
- Review stakeholder priorities
- Summarize coastal processes
- Obtain stakeholder input
 - Projects & Programs
 - Governance Methods
 - Funding Strategies

Grant Overview

- **Executed:** May 4, 2021
- **Goal:** develop a regional, collaborative strategic plan to facilitate implementation of regional shoreline management activities to address chronically eroding shorelines in the southern portion of Orange County
- **Main Objective:** assess, prioritize, and advance resilience opportunities to reduce the risk to residents and increase the viability of south Orange County beaches

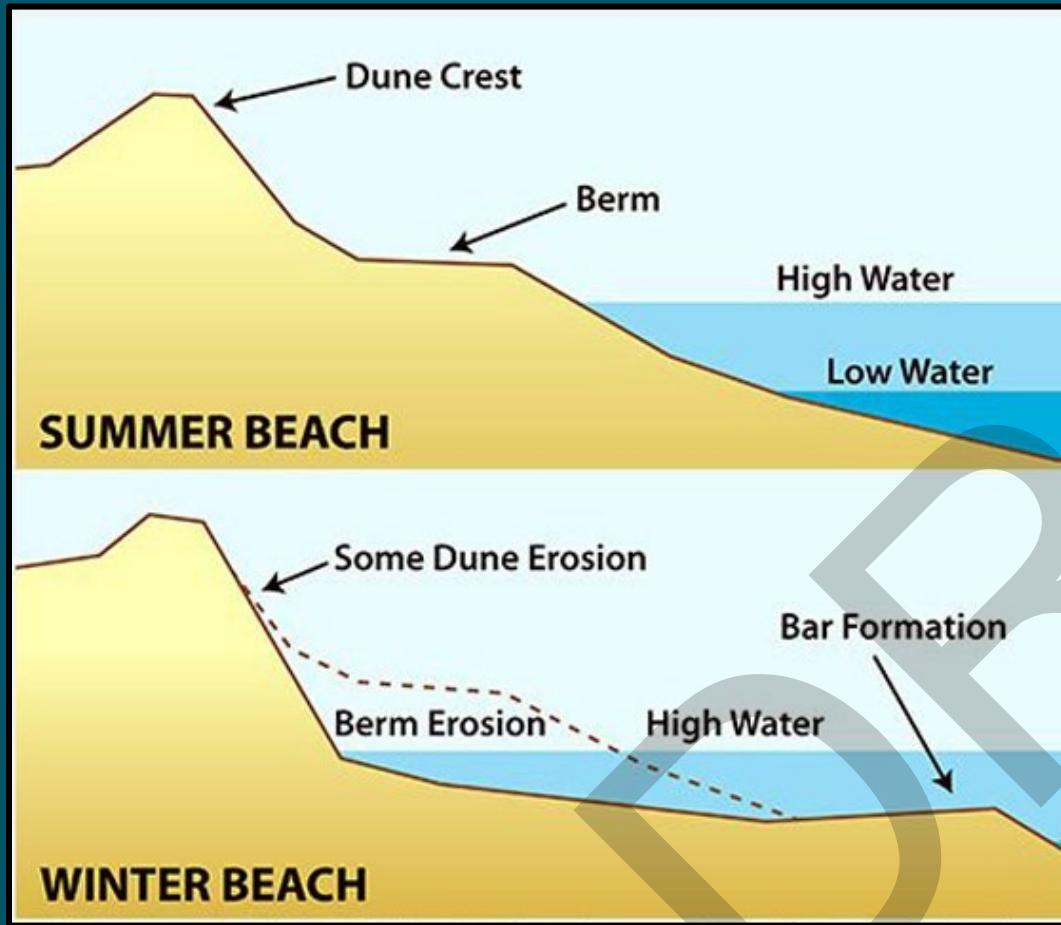




Beach Morphology

- River flow changes impact sediment flow to beaches
- Wave climate changes impact sediment movement along beaches

Cross-shore Transport

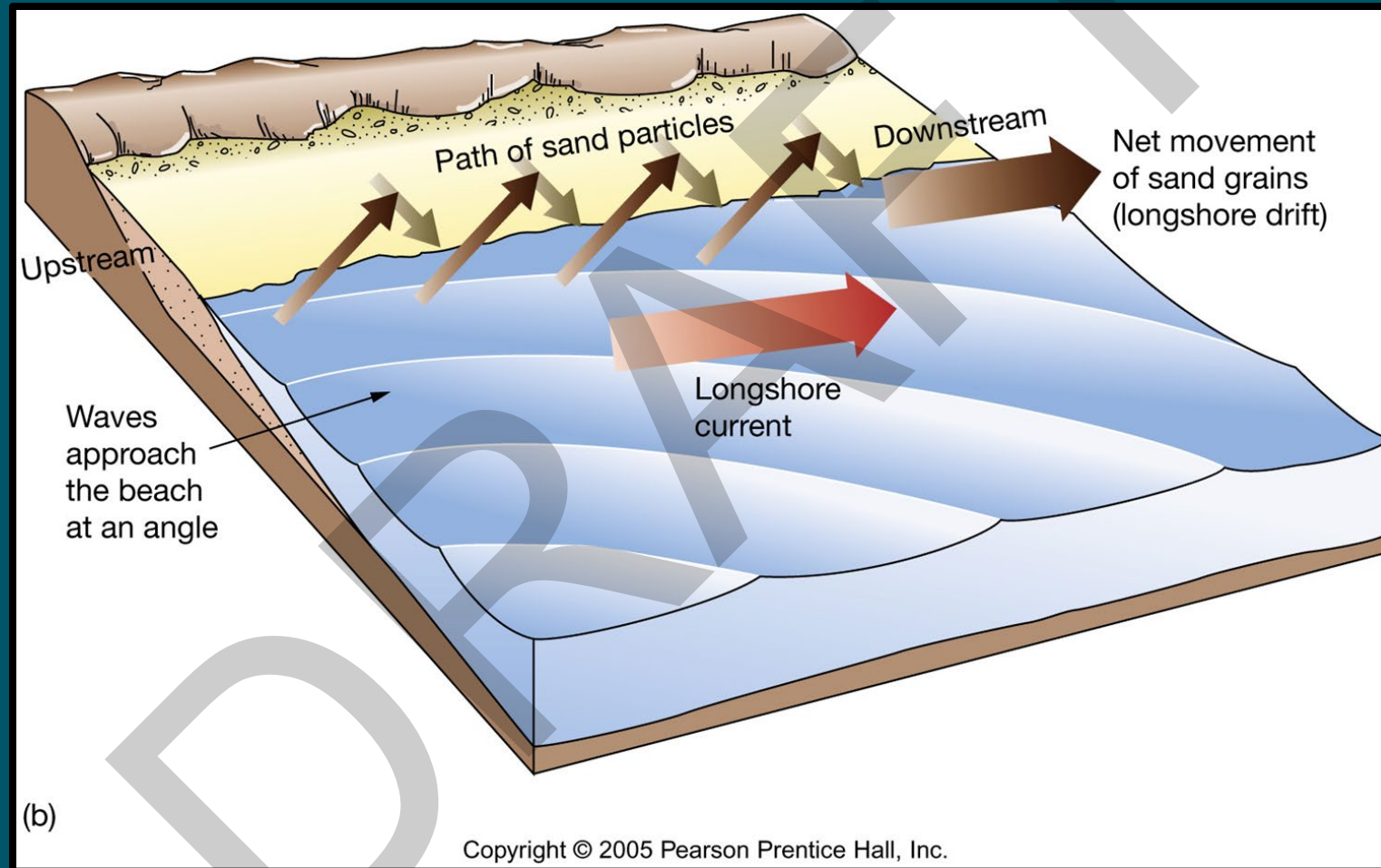


Larger winter waves move sediment offshore narrowing beaches

Sediment pushed offshore forms a sandbar, moving the breaker line farther offshore

The sandbar dissipates wave energy

Longshore Transport



ADAPTATION STRATEGIES



AVOID
Restricting construction in at-risk areas



ACCOMMODATION
Upgrading existing property

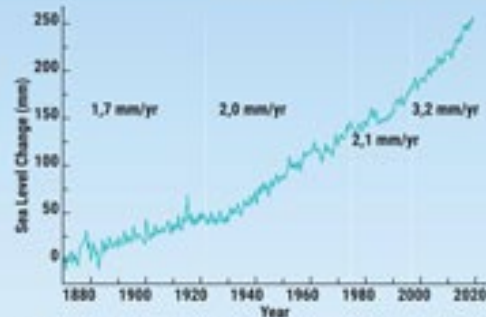


PROTECTION
Improving flood defenses

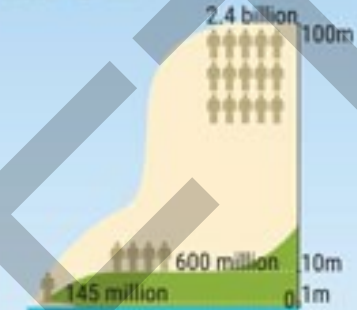


RETREAT
Preparing for planned relocations

SEA LEVEL RISE



Globally averaged sea level has risen by about 25 cm since the 1800s. The annual rate increased to 3.3 millimeters per year



Nearly 145/600 million/2.4 billion people live within 1m/10m/100m of the coast

CONSEQUENCES



The disappearance of some low-lying islands



Submergence and increases flooding of coastal land

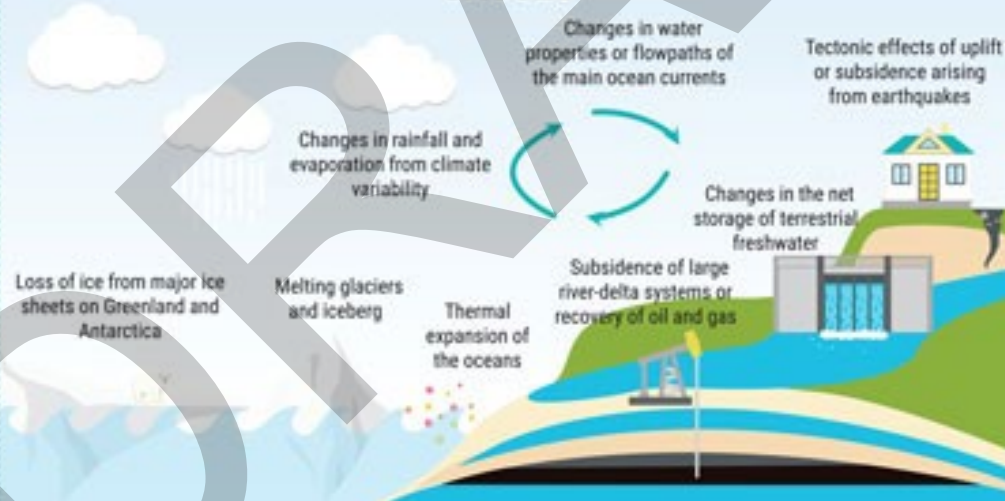


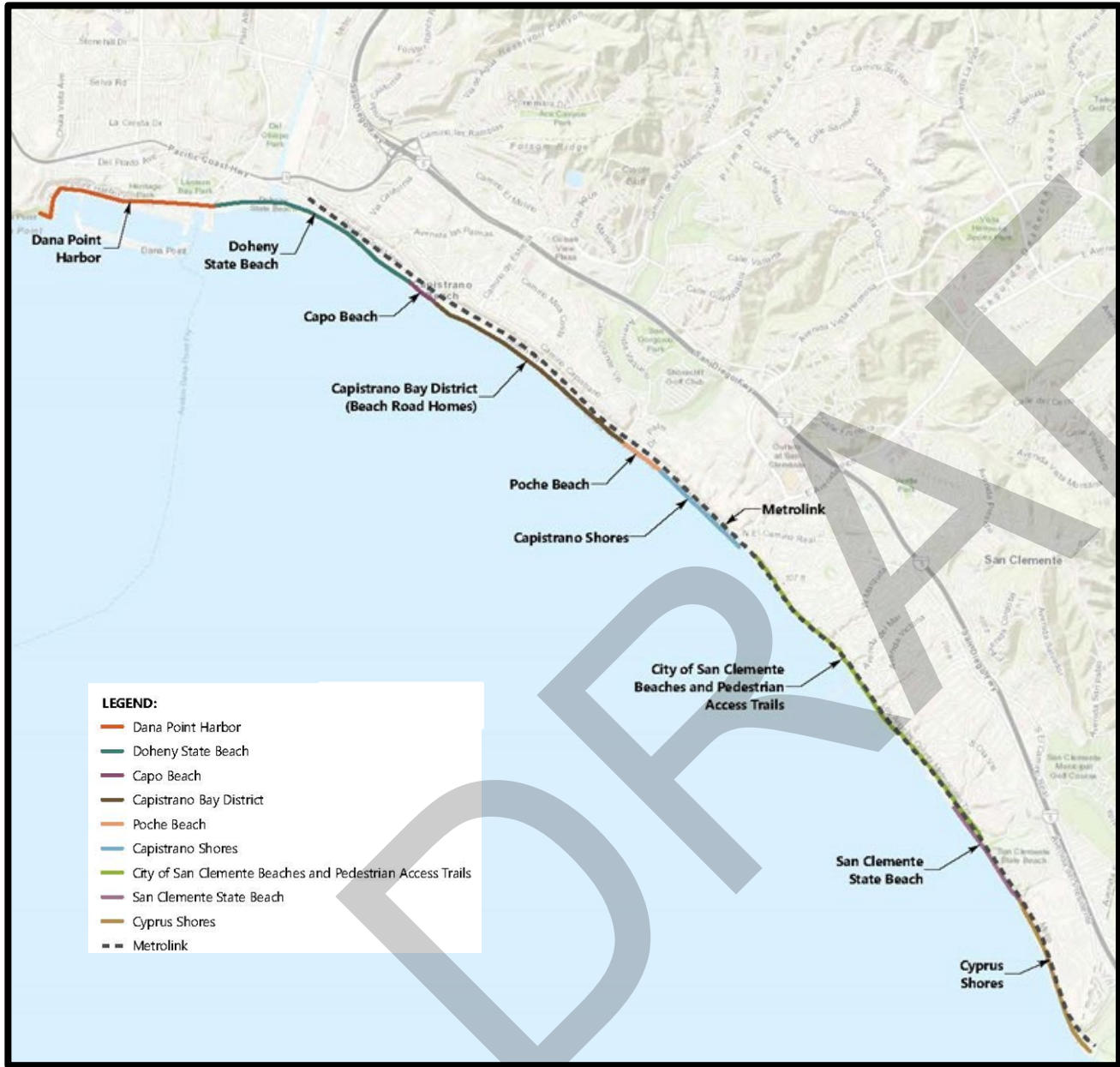
Increased erosion, and habitat destruction in coastal areas



Saltwater intrusion of surface and subsurface waters

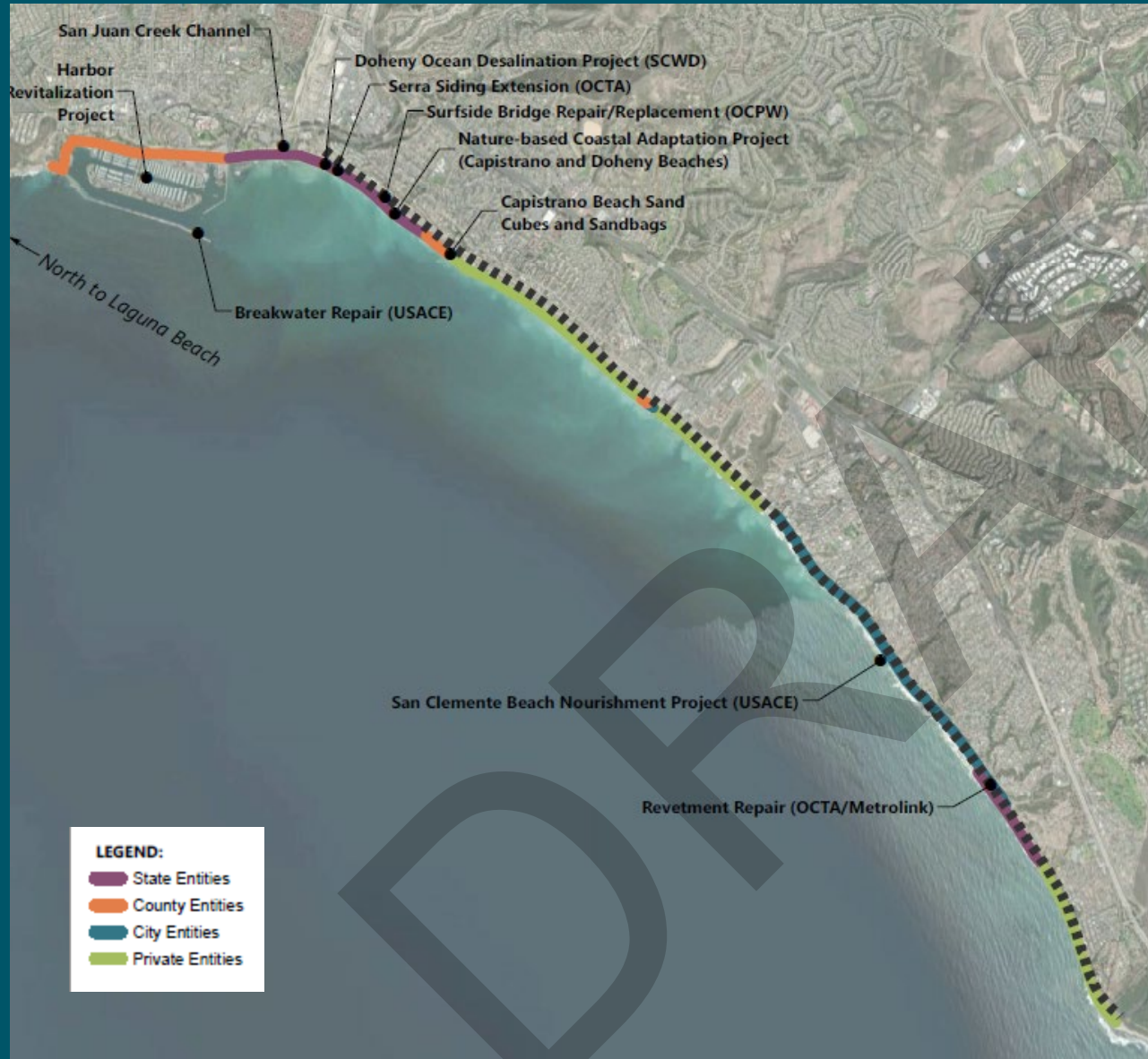
CAUSES





Beach Erosion & Shoreline Retreat Problem Areas





Related Existing and Planned Projects



Projects & Programs



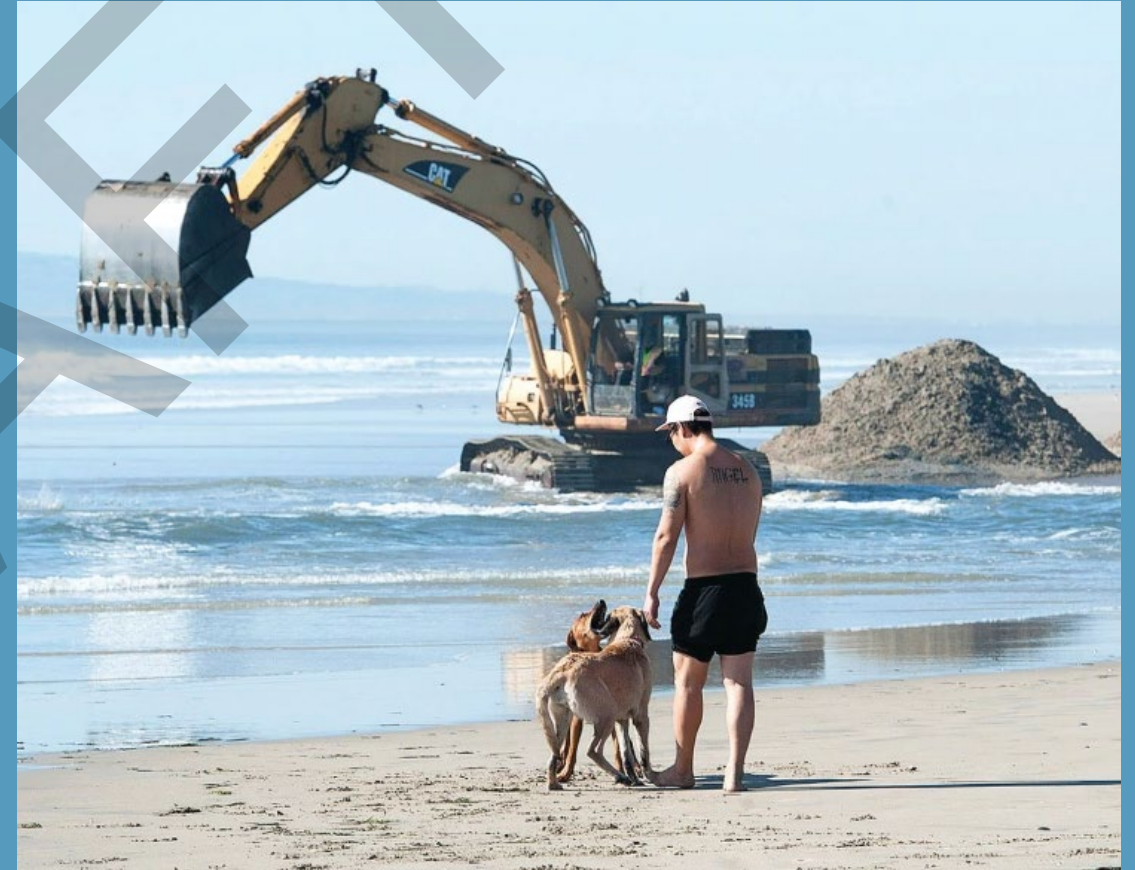
Coastal Armoring

- Coastal armoring includes seawalls, rip-rap, and revetments
- Implementation not covered in Plan because:
 - Don't want to impact armoring efforts underway
 - The plan is regional and armoring is site specific
 - Will be owner's responsibility
 - Would delay implementation of regional efforts

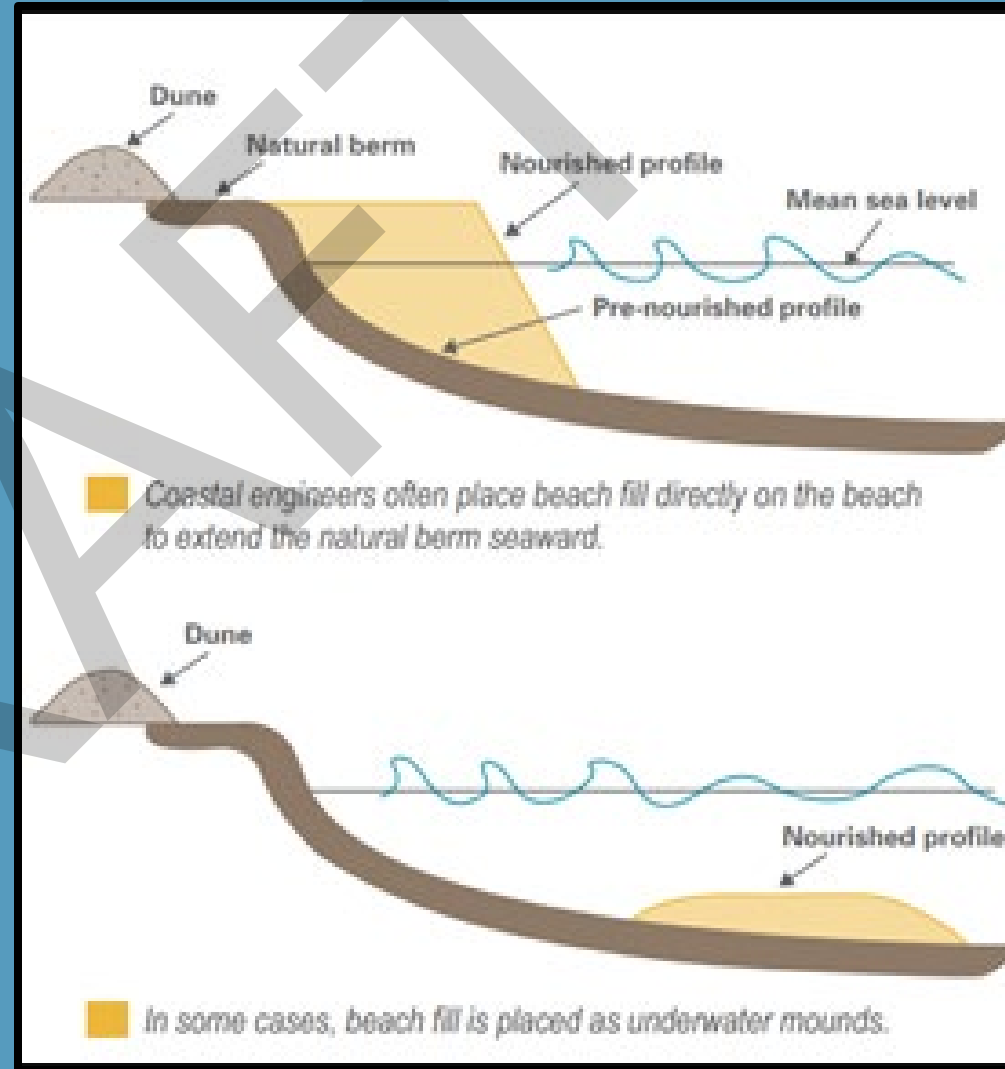
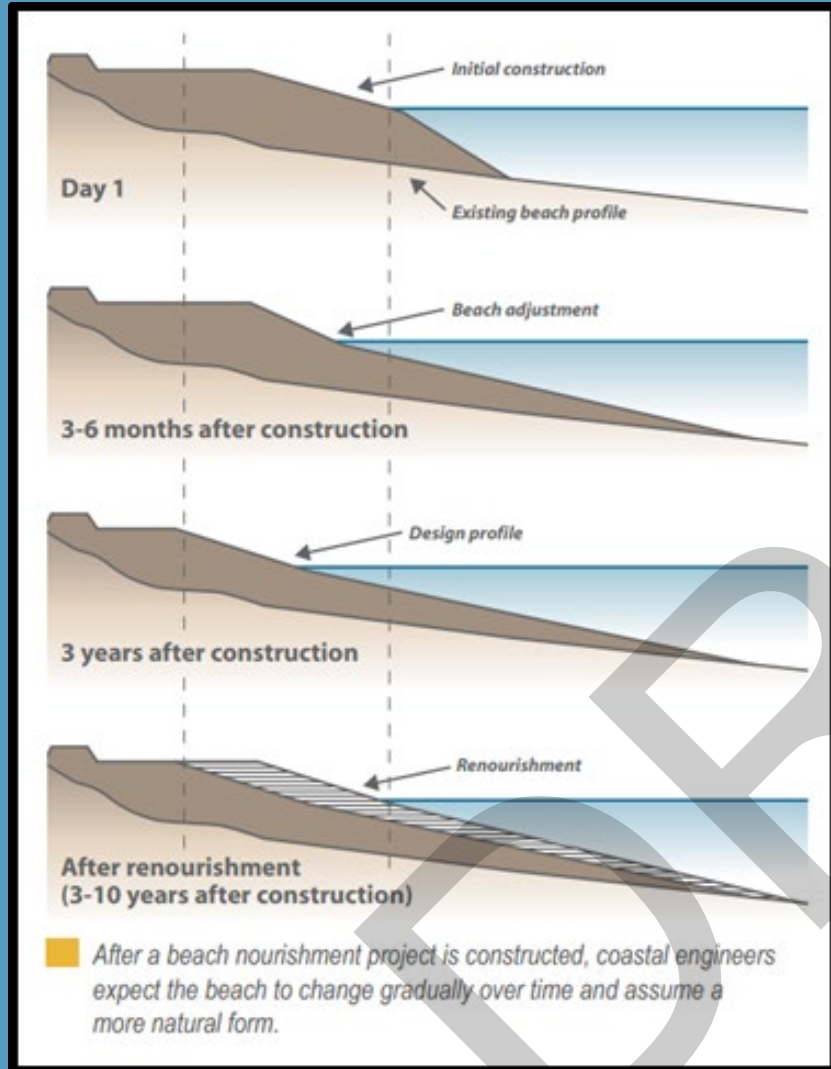


Beach Nourishment

The placement of sandy sediment from outside the littoral cell onto beaches to mitigate erosion via beach width increases



Beach Nourishment - A Primer



Beach Nourishment

Pros

- Beneficial reuse of sediment from rivers, bays, nearshore waters, & inland areas
- “Soft” solution
- Provides wildlife habitat (living shoreline)
- Allows recreational beach use

Cons

- Difficult to find long-term sand source
- May require supplemental protective measures
- Expensive due to recurring costs
- Could impact nearshore habitats



Beach Nourishment with Retention Structures

Beach nourishment coupled with structures that minimize the loss of beach sand

Pros

- Improved protective performance
- Increased average beach width
- Decreased recurring costs

Cons

- Increased capital costs due to structures
- New technology with unknown performance
- Difficult & time-consuming to permit
- Ideal location for retention structure may span multiple jurisdictions



Retention Structures: Groins

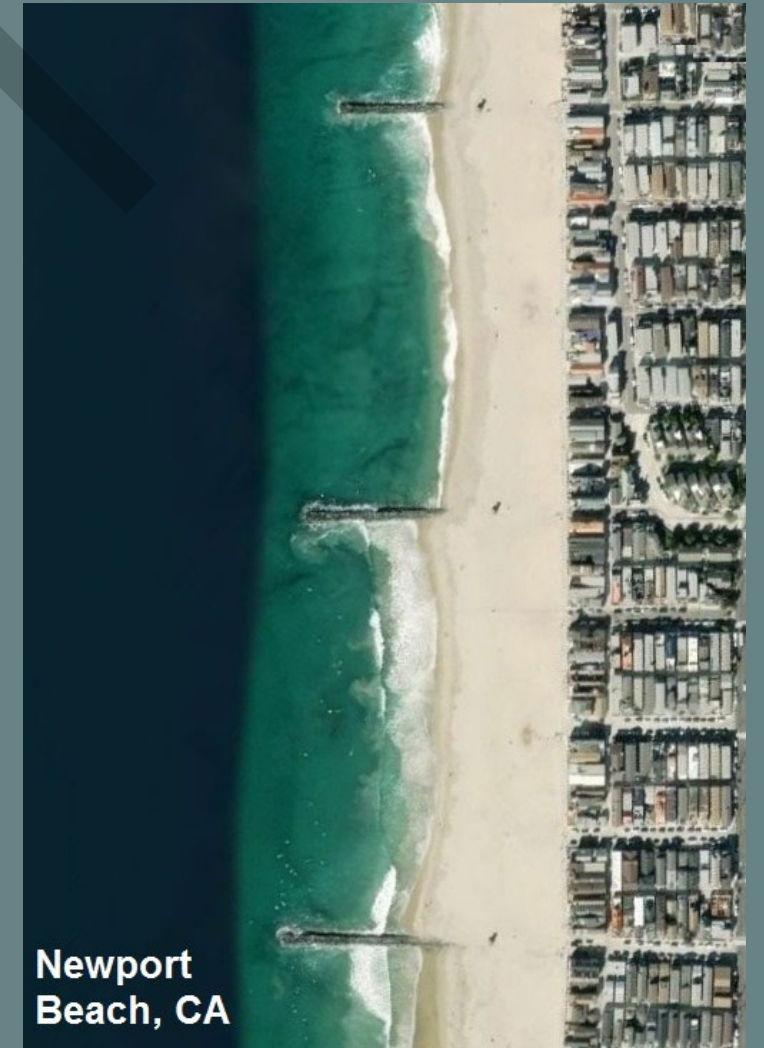
Shore-perpendicular structure that can be made of concrete, steel, boulders, or wood

Pros

- Stabilizes beach location
- Represents “soft” shoreline protection solution
- Provides wide beach for human and/or wildlife use

Cons

- Difficult to permit due to potential impacts to adjacent beaches
- Can produce hazardous rip currents
- Can divert beach sand to offshore sand bars



Retention Structures: Nearshore Breakwaters

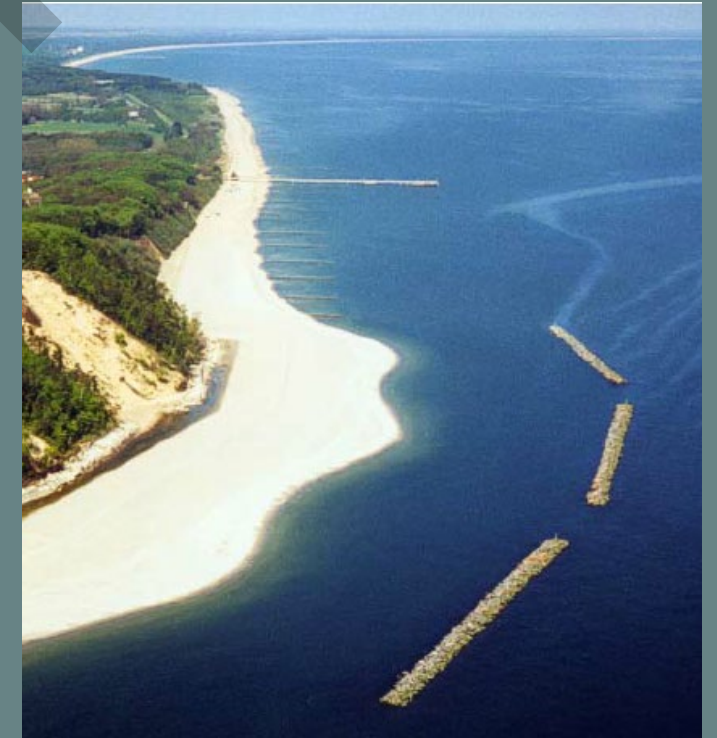
Shore-parallel rock and/or concrete structures that provide shore protection by blocking incoming waves resulting in sand accumulation behind the structure

Pros

- Reduces wave heights behind the structure
- Accumulates sand behind the structure resulting in wider beach
- Can reduce hazardous rip currents

Cons

- Increases beach nourishment maintenance costs
- Difficult to permit due to potential impacts to adjacent beaches
- Could impact sensitive nearshore habitats and recreation (e.g., surfing)



Retention Structures: Multipurpose Reef

Offshore, underwater structure designed to provide shore protection, marine habitat, and recreation

Pros

- Reduces wave energy behind structure
- Accumulates sediment behind structure
- Provides habitat for marine wildlife
- Provides recreational benefits (e.g., surfing, diving, fishing)

Cons

- Unproven technology with higher uncertainty of benefits
- Potentially high unquantified mitigation costs
- Difficult to permit due to potential impacts



Dunes (Living Shoreline)

Raised sand depositional feature along back of beaches that provides habitat for wildlife and protects areas behind the feature from wave action

Pros

- Natural, “soft” solution to beach erosion
- Relatively easy to permit
- Provides habitat and recreation as well as protection

Cons

- Can have high maintenance costs
- May require supplemental protective measures
- Difficult to find long-term sand source
- Could impact nearshore habitats



Cobble Beach

A beach constructed from cobbles instead of sand

Pros

- “Soft” solution so easier to permit
- Minimal impacts to nearshore habitats
- Requires less material to provide similar protection
- Provides wildlife habitat (living shoreline)

Cons

- Limited research on design and performance
- Could support nonnative wildlife
- Public acceptance could be low for recreation
- May require supplemental protective measures



Hybrid Options: Sand & Cobble Beach

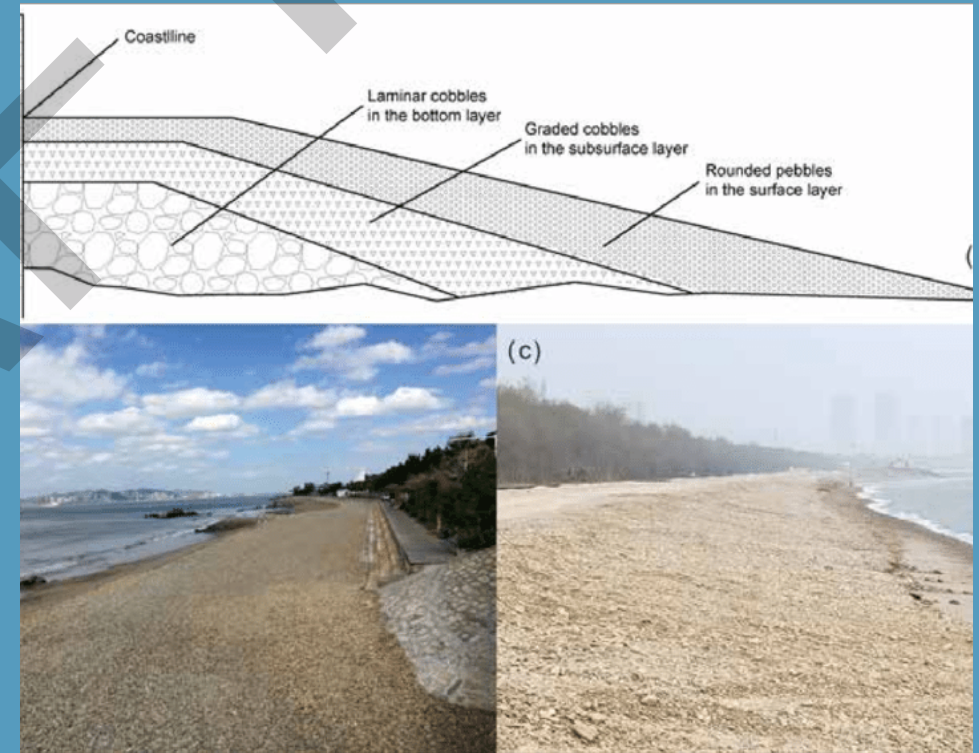
A cobble beach base with sand placement on top

Pros

- Cobble could decrease recurring costs by reducing maintenance sand volumes
- Sand cover would facilitate recreation
- Sand cover would support “appropriate” wildlife

Cons

- Limited research on design and performance
- Cobbles could support nonnative wildlife
- Public acceptance could be low for recreation
- May require supplemental protective measures



Projects & Programs Activity



Open Forum



Preferred Projects
& Programs

Governance Methods



Joint Powers Authority (JPA)

- Entity permitted under California State Code Section 6500
- There are two kinds of JPA arrangements
 1. Two or more public agencies contract to jointly exercise powers common to all members.
 2. Two or more public agencies to form a separate legal entity. This new entity has independent legal rights, including the ability to enter contracts, and hold property. Forming a separate entity can be beneficial because the debts, liabilities and obligations of the JPA belong to that entity and not the member agencies.



Joint Powers Authority (JPA)

Pros

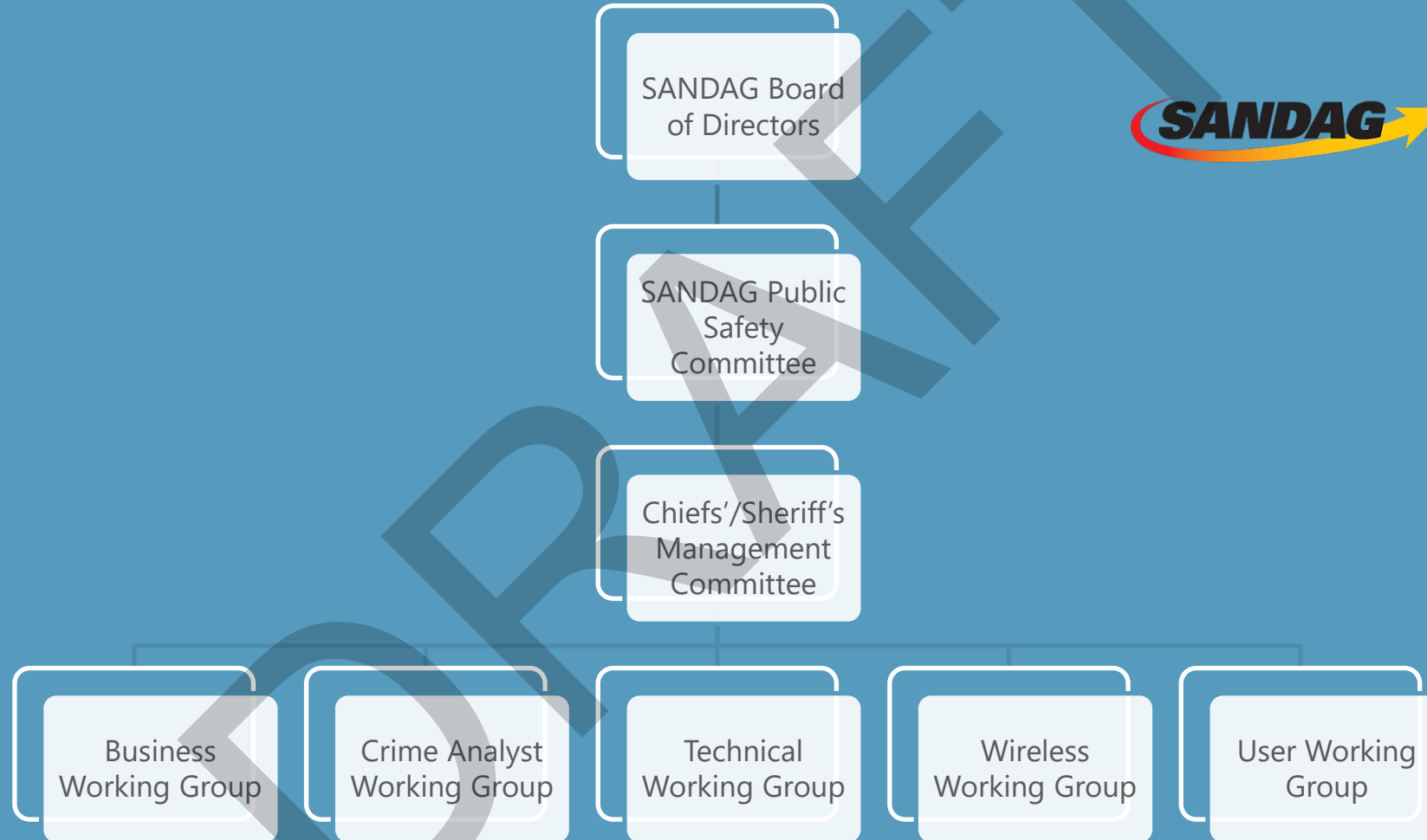
- Facilitates regional approaches
- Can be tailored to specific issues
- Can enter contracts
- Can hire dedicated staff
- Can be renewed continuously

Cons

- All members must approve formation
- Can be difficult to fund
- Capabilities limited to union of member agencies
- Typically requires majority vote



Example JPA Structure (SANDAG)



Council of Governments

- Voluntary association of local governments
- Can be situated in either a metropolitan or rural area
- Designed to promote discussion and intergovernmental cooperation among its members concerning common and regional problems, and to engage in planning on a multijurisdictional basis



Council of Governments

Pros

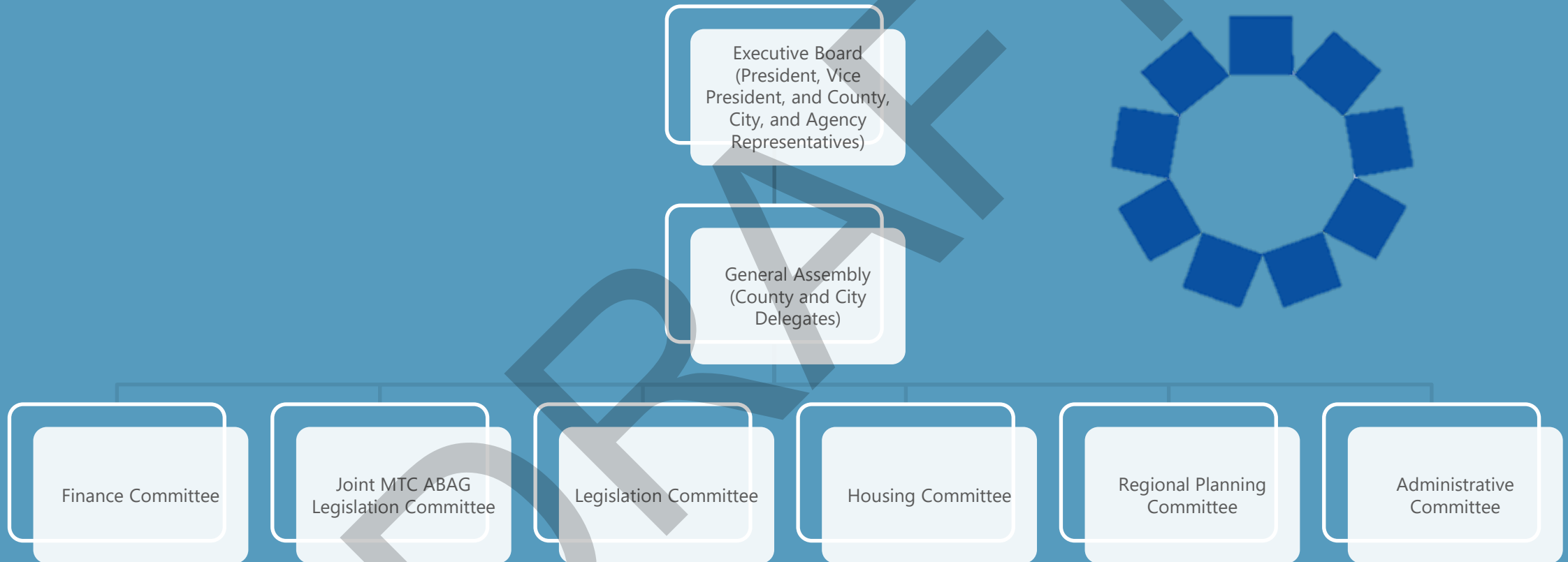
- Provides an arena where elected officials can meet and discuss regional issues
- Facilitates horizontal cooperation on regional issues
- Facilitates vertical cooperation with local, state, and federal government

Cons

- Organizational need to operate on membership consensus can be difficult to reach decisions
- Low level of community reach results in low engagement across groups with differing interests



Example Council of Governments Structure (Association of Bay Area Governments)



Memorandum of Understanding/Agreement

- Voluntary cooperative arrangements
- Applicable to multiple government agencies of different levels
- Can be used by government agencies & private entities



MOUs and MOAs

Pros

- Long term history of use
- Relatively easy to implement
- Can be done administratively
- Can be duration limited

Cons

- Contracts run by MOU/MOA parties
- Funding via MOU/MOA parties
- Staffed by MOU/MOA parties
- Flexibility limited by MOU/MOA



Example MOU/MOA (Bolsa Chica Lowlands Restoration Project)



Geologic Hazards Abatement Districts (GHAD)

- Enables property owners to collectively mitigate geological hazards which pose a threat to their properties (California Public Resources Code 26500-26601)
- Designed to handle long-term abatement and maintenance of real property potentially threatened by earth movement



Geologic Hazards Abatement Districts (GHAD)

Pros

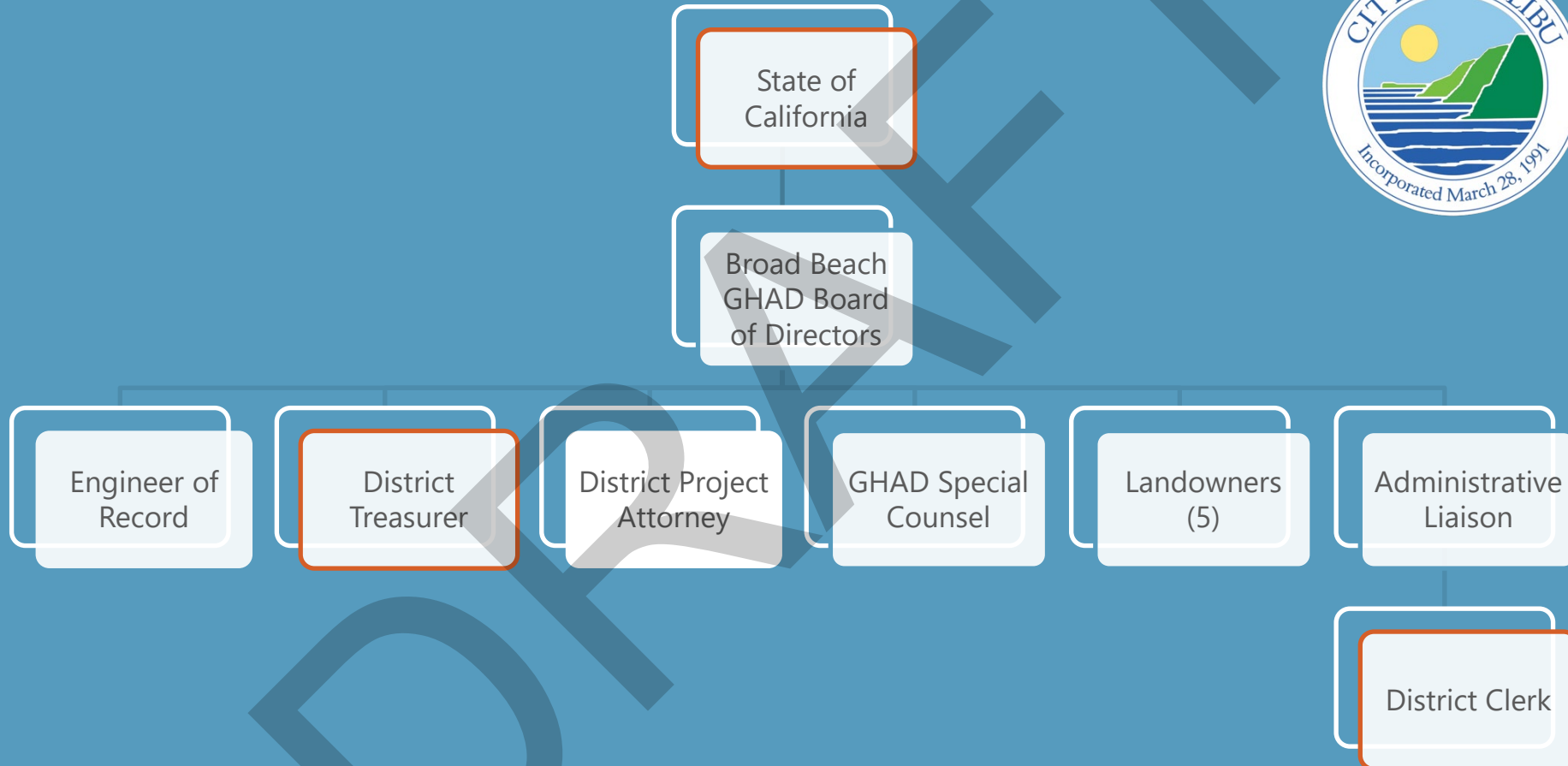
- Facilitates local approaches
- Can be tailored to specific issues
- Can enter contracts
- Can issue bonds
- May obtain funding
- Can levy & collect assessments
- May condemn/acquire property
- Can construct improvements
- Can maintain improvements

Cons

- Not easy to dissolve
- Only need majority vote to expand
- Financed via supplemental tax assessments
- Can levy & collect assessments
- May condemn/acquire property



Example GHAD Structure (Broad Beach GHAD)



 Required by law



Ad Hoc Committee

- Temporary committee established by a board of directors to address a specific issue



Ad Hoc Committee

Pros

- Facilitates focused approach
- Easy to organize
- Can facilitate standing committee formation
- Carteret County, NC used it to organize four towns to secure federal, state, & county funding

Cons

- Temporary so not suited for addressing recurring issues
- Single committee focus
- Limited by committee mission, funding, & staff



Governance Methods Activity



Open Forum



Preferred Governance
Methods

Funding Strategies



Existing Funding Sources

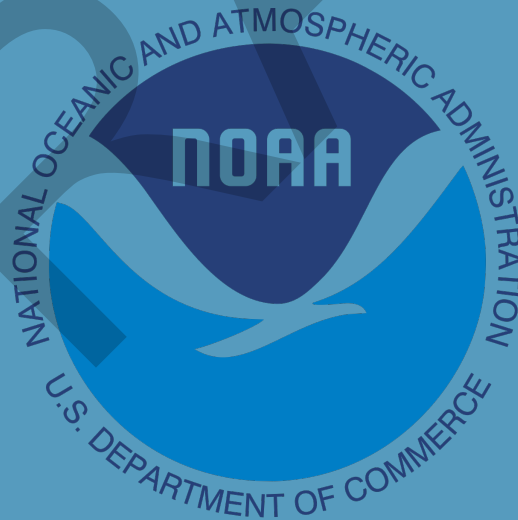
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Federal Sources



**US Army Corps
of Engineers**



FEMA



U.S. Army Corps of Engineers (USACE)

Hurricane Storm Reduction Damage-Section 103 allows protection of public infrastructure against erosion and damages caused by natural storm driven waves and currents.

Pros

- If there is federal interest, USACE will fund majority of project costs.
- Feasibility study is funded by USACE up to \$100,000.
- USACE funds 65% of design and construction.
- Easier to permit projects using federal-led process instead of state-led process.

Cons

- High study, planning, and design costs due to USACE requirements.
- Local sponsor responsible for operational and maintenance costs once project completed.
- Entire process can take years to decades.
- Most projects do not obtain federal authorization.
- Implementation funding tied to appropriations so difficult to obtain and inconsistent.



**US Army Corps
of Engineers**

Infrastructure Investment and Jobs Act (IIJA)

Bipartisan legislation that provides \$1.2 trillion in infrastructure enhancement with \$492+ billion dedicated to supporting coastal resilience

Pros

- Provides funding for coastal resiliency
- Existing source of funding
- Reestablishes One Federal Decision, decreasing permitting

Cons

- Coastal resiliency not a top funding priority
- Funding is dispersed annually so might take a long time to get project funding
- Funds allocated through formula apportionments or competitive grants



National Oceanic and Atmospheric Administration (NOAA) & National Fish and Wildlife Foundation (NFWF)

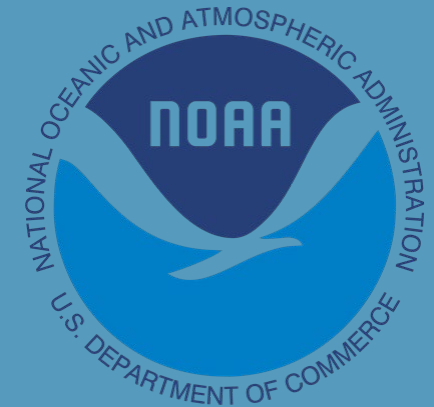
National Coastal Resilience Fund (NCRF) increases and strengthens natural infrastructure to protect coastal communities while also enhancing habitats for fish and wildlife.

Pros

- National program with a regional focus that addresses region specific coastal resilience needs
- Can usually be leveraged to obtain additional funding (but not with compensatory mitigation funds)

Cons

- 2021 grant slate did not include any beach nourishment projects
- Inconsistent funding source
- Might not cover complete project costs



Federal Emergency Management Authority

Building Resilient Infrastructure and Communities (BRIC) and Hazard Mitigation Grant Program (HMGP) are pre-disaster mitigation programs that will support states, local communities, tribes and territories as they undertake hazard mitigation projects, reducing the risks they face from disasters and natural hazards.

Pros

- Existing and established source of funding
- Has supported projects that protect against sea level rise-related risks
- Cost-share for the program is 75% federal and 25% non-federal

Cons

- Has not funded any beach nourishment projects in 2020 or 2021
- Homeowners and businesses cannot apply
- Focus on flood control and relocation may not be applicable to the goals of these stakeholders



FEMA



State Sources



Coastal
Conservancy



State Coastal Conservancy



Ongoing funding opportunities

- Requires cooperation with regional manager

Coastal Stories Program

Pros

- Normally funds projects in concert with restoration efforts
 - Habitat, recreational, and economic benefits included in any project that they fund
- Can usually be leveraged to obtain additional funding (but not with compensatory mitigation funds)

Cons

- Not general fund money
- Not a consistent or reliable source of money - depends on money they have access to distribute



Ocean Protection Council

Coastal Resilience Solicitation's funding possible by Prop 68, Ch 10

- Goal to build resilience on the coast to assist coastal communities in preparing for and adapting to the impacts of sea-level rise



Pros

- Priority issue is currently coastal resiliency and nature-based adaptation strategies to sea-level rise impacts, aligns with stakeholder goals
- Has partially funded BEACON's SLR Adaptation Pilot Program which included beach nourishment

Cons

- Not a dedicated or guaranteed source of money
- OPC provides funds on a reimbursement basis, and withholds 10% of the funds, to be disbursed upon project completion.



Division of Boating and Waterways

Shoreline Erosion Control Program & Beach Restoration Program



Pros

- Existing and established source of funding
- Acknowledges the benefits of beach nourishment as a source of erosion control
 - Partially funded San Clemente's beach restoration project

Cons

- Boaters are protective of the fund and want the money allocated to boating
- Limits on funding related to land ownership
- Cannot fund beach projects aimed at protecting private property



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New Funding Sources



Fees

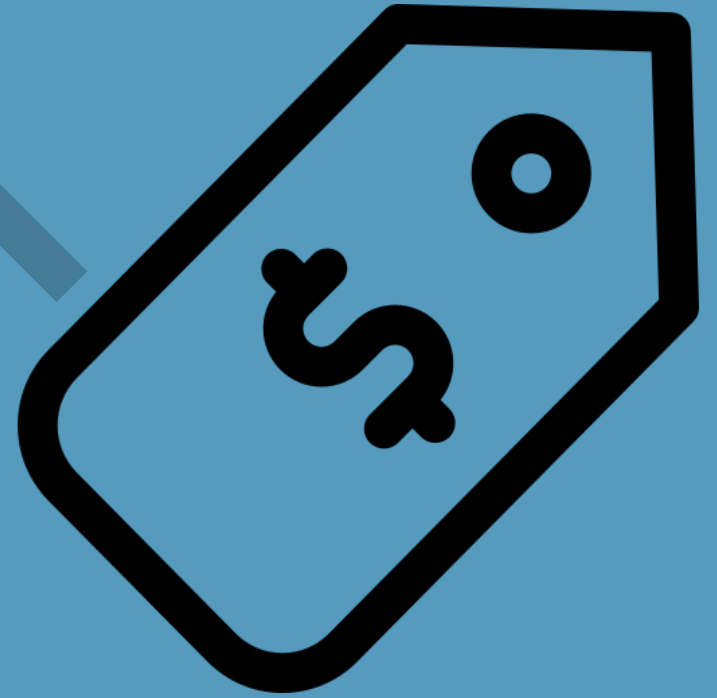
Funds raised by charging fees for services, permits, or in-lieu fees (e.g., mitigation for impacts to sand flow).

Pros

- An established process for funding other activities
- Provides a consistent funding source
- Funds can be dedicated to the intended purpose

Cons

- Requires administrative network to manage
- Funds can be highly variable because some actions (e.g., development) are cyclical or one-time in nature
- Can be difficult to obtain public support



Public-Private Partnership

A cooperation between public-sector agencies and private-sector entities that allow government and private entities to work together to provide a community benefit.

Pros

- Reduces government costs.
- Provides dedicated funding source
- Improves “buy-in” between owners and public agencies

Cons

- Can result in a loss of public control
- Requires strong leadership and good relationships



Financing Opportunities

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Loans

Money borrowed from bank or government (state or federal) for a specific purpose



Pros

- Effective way to bridge funding sources & needs
- Can provide advance funds to “lead” revenue sources
- Can be leveraged to accelerate implementation

Cons

- Requires full repayment with interest
- Typically, provides a one-time source of funds
- Federal loan programs require authorization from Congress
- State loan programs require authorization from Legislature

State Revolving Funds

Federal funds allocated annually to state governments to be granted as loans

Pros

- Often dedicated to specific issues, such as water and infrastructure programs
- Can be used by private parties if connected to an eligible public project

Cons

- Application process can be difficult & time consuming
- Longevity is contingent upon repayment of loans



Municipal Bonds

Issued by local governments to finance capital projects in the form of either revenue bonds secured by future project revenue or general obligation bonds secured by future tax revenue

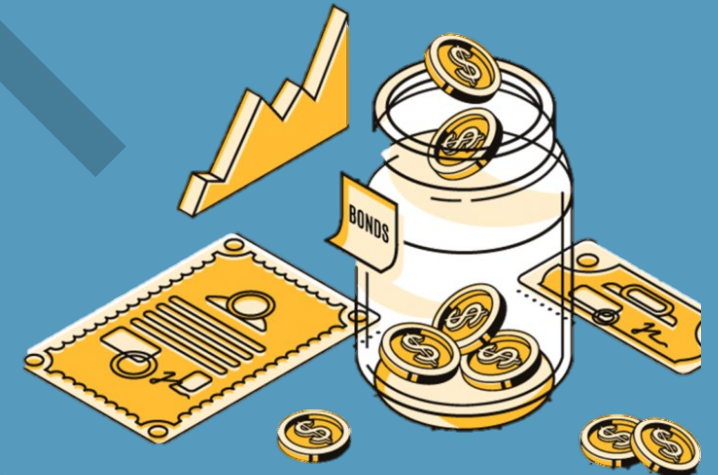
- Some special purpose entities (e.g., ports, utilities) can issue bonds so possible application for a special purpose entity covering beach erosion

Pros

- Relatively low-cost mechanism to borrow money for capital projects
- Issuer can be either municipal or private entity (e.g., private-public partnerships)
- Relatively low interest rate for payoff

Cons

- Might require a majority or super majority for approval
- Bonds for beach erosion purposes not likely to generate revenue so tax revenue payoff required
- Maintenance “nature” of beach nourishment might limit applicability



Environmental Impact Bonds

Innovative tool that uses a pay-for-success method where investors are paid back at rates that depend upon satisfactory achievement of a specified environmental outcome, such as a predetermined amount of avoided land (beach) erosion



Pros

- Attractive to investors interested in social and environmental benefits of projects
- Provides a concrete way to measure outcomes
- Spreads financial risk across both public and private sectors

Cons

- Can require a lot of time and effort to find an investment group with aligned interests
- Need to identify a repayment revenue source that could be difficult for beach erosion work
- Innovative nature means little prior experience to build from

Resilience Bonds

Bond designed to expand financial protections in the event of a disaster by linking insurance coverage with capital investments in resilient projects that will decrease risk



Pros

- Can link insurance premiums and resilience projects to monetize avoided loss
- Avoided loss can provide funding for projects that reduce risk
- Expands financial protections to vulnerable communities

Cons

- Extensive coordination with local and state government, insurers, and transportation/utility operators
- Designed for catastrophic events, not chronic stress like water scarcity or beach erosion
- There have been no municipal-level resilience bonds issued yet (e.g., new and innovative)
- Requires strong link of beach nourishment to protection instead of recreation and habitat

Funding Activity



Open Forum



Preferred Funding
Methods

Schedule and Next Steps



Memorandum

August 25, 2022

To: Susan M. Brodeur, PE, and Natalia Gaerlan; OC Parks

From: David Cannon, PE, Adam Gale, and Delaney Inman; Anchor QEA, LLC

**Re: South Orange County Regional Coastal Resilience Strategic Plan – July 6, 2022,
Meeting Summary**

Introduction

The purpose of this memorandum is to summarize the South Orange County Regional Coastal Resilience Strategic Plan's stakeholder input received during the July 6, 2022, Stakeholder Meeting at OC Sailing and Events Center. This meeting's objective was to comply with the grant requirement to develop a regional, collaborative strategic plan to facilitate implementation of regional shoreline management activities to address chronically eroding shorelines in the southern portion of Orange County. To achieve this goal, Orange County Parks (OC Parks) and Anchor QEA, LLC, solicited stakeholder input on projects and programs, governance methods, and funding mechanisms that could potentially be included in the final plan.

Meeting Structure and Activity

For the activities designed for this meeting, the stakeholders were divided into the following three groups:

1. Property Owners and Representative
2. Non-Governmental Organizations (NGOs)
3. Resource and Regulatory Agencies (Agencies)

Upon arrival, stakeholders were instructed to sit in the section of room that best describes their relationship to the plan.

In the presentation, included as Attachment A, stakeholders were provided with information on potential projects and programs, governance methods, and funding strategies being considered the framework final plan. The stakeholders were then instructed to indicate their support, neutrality, opposition, and endorsement of the various proposed elements. Anchor QEA collected this information and analyzed the results.

The stakeholder meeting attendee list is included as Attachment B.

Projects and Programs

Across all groups, the most supported plan projects and programs are multipurpose reef, sand and cobble beach, and dunes “living shoreline” (Figure A). However, all the indications of support for multipurpose reefs came from the property owners and representatives (Figure B), and the sand and cobble beach and dunes have support from NGOs as well (Figure C). The most opposed projects and programs are groins, nearshore breakwaters, and cobble beaches (Figure A). All of the indications of opposition came from the property owners (Figure B); groins and nearshore breakwaters were opposed by all groups (Figures B through D). Additionally, property owners and representatives most heavily endorsed beach nourishment without retention structures, with ten endorsements, and multipurpose reefs, with four endorsements.

In addition to indicating their level of support for each project and program element, property owners and representatives emphasized the importance of individual approaches to different problems. For example, a stakeholder from Beach Road made it clear that he is only opposed to a living shoreline at Beach Road because the narrow shoreline would prevent this from being a viable solution. The stakeholder did support a living shoreline and other locations with a wider beach. This group also supported a cobble in some but not all locations; they recognized the importance of protecting the shoreline, but they did not want to sacrifice sandy beaches and their recreational benefits and favored natural or natural-looking solutions. This group was very opposed to armoring for this reason. Additionally, the group suggested looking upstream for sand outside of the watershed to supply sand for beach nourishment projects. One stakeholder emphasized their desire to investigate habitat restoration opportunities as part of this plan.

Like the property owners and representative, NGOs spoke to a need to apply a contextual approach, and to apply different solutions for different beaches with different conditions. The group suggested that we look into implementing a transport and sand bypass project in the plan. NGOs also emphasized the importance of minimal impact to habitat and “letting the waves do the work” by allowing the littoral cell to move sand through the system naturally.

Resource and regulatory agencies highlighted the importance of considering phased retreat and “upzoning,” which includes changing the zoning of a property to allow for more dense housing. They suggested that if phased retreat is implemented that roads could be transformed into sandy beaches or bike lanes. Agencies highlighted that phased retreat would be an opportunity to improve infrastructure in the region and that any phased retreat plan would be based on region-specific triggers and thresholds.

They also brought up the importance to the U.S. Army Corps of Engineers that the proposed action is the Least Environmentally Damaging Practicable Alternative and that we analyze the site-specific geologic and biological impacts of each project and program element.

Figure A
Plans and Projects – All Groups

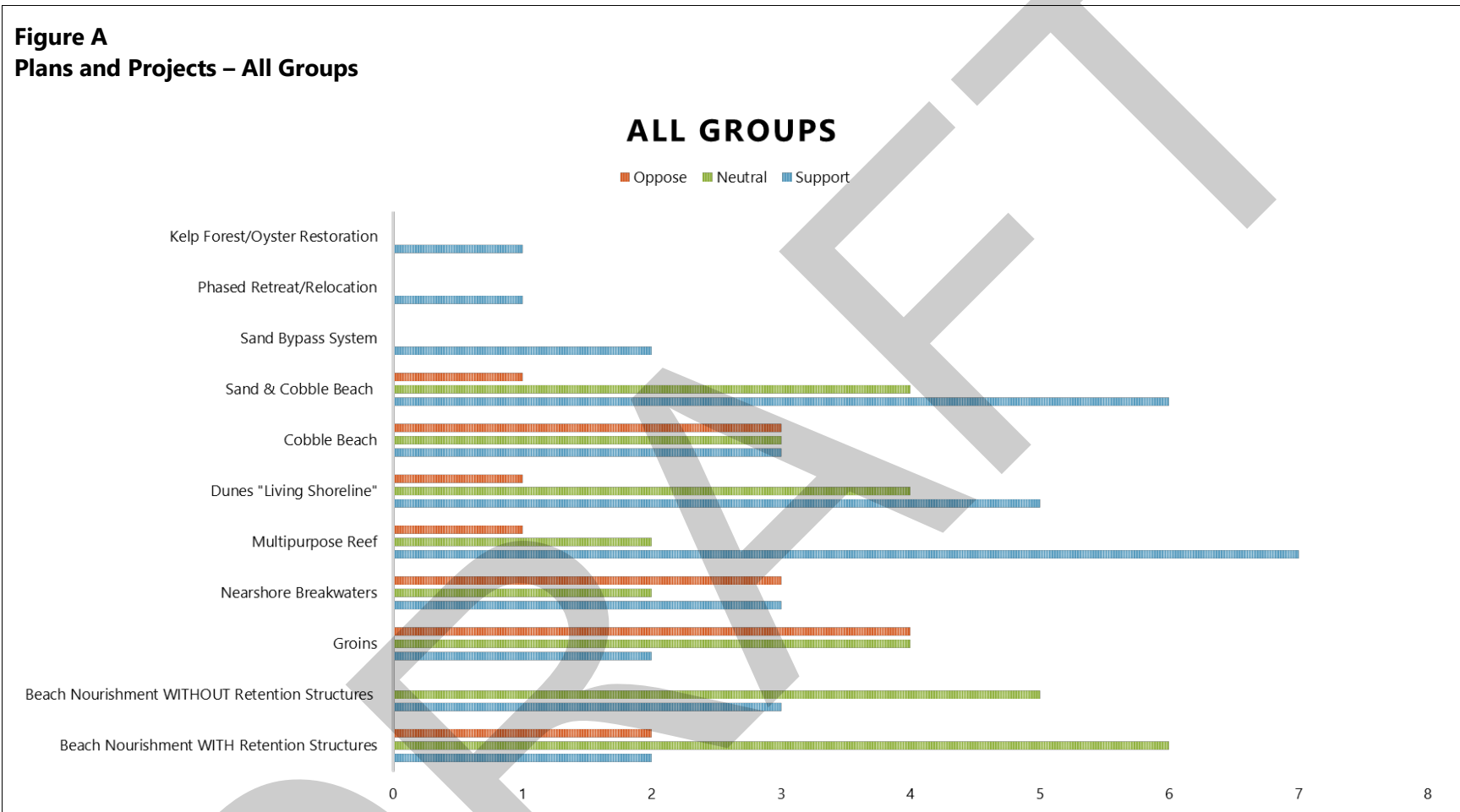


Figure B
Plans and Projects – Property Owners and Representatives



Figure C
Plans and Project – Non-Governmental Organizations



Figure D
Plans and Projects – Resource and Regulatory Agencies

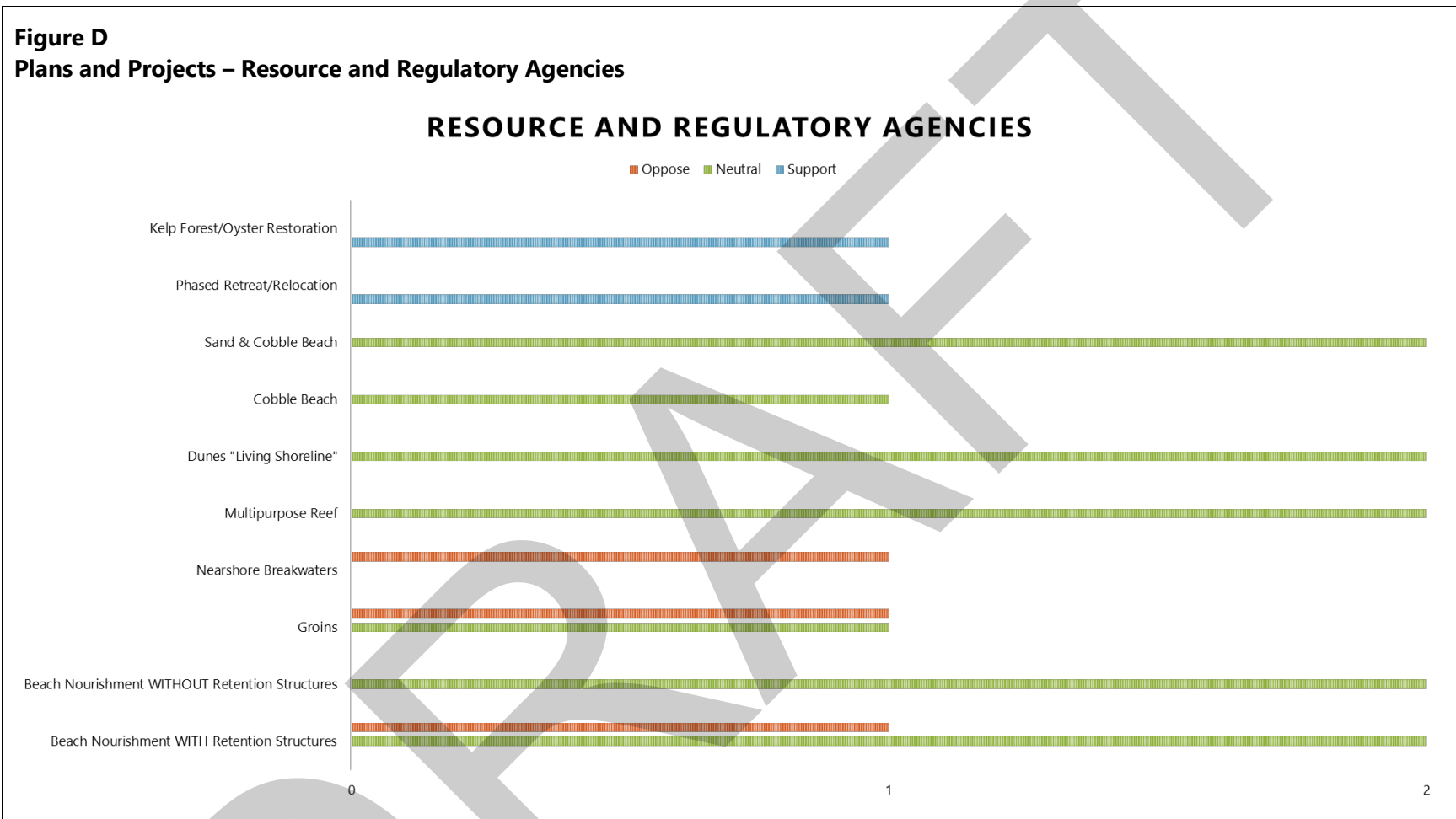
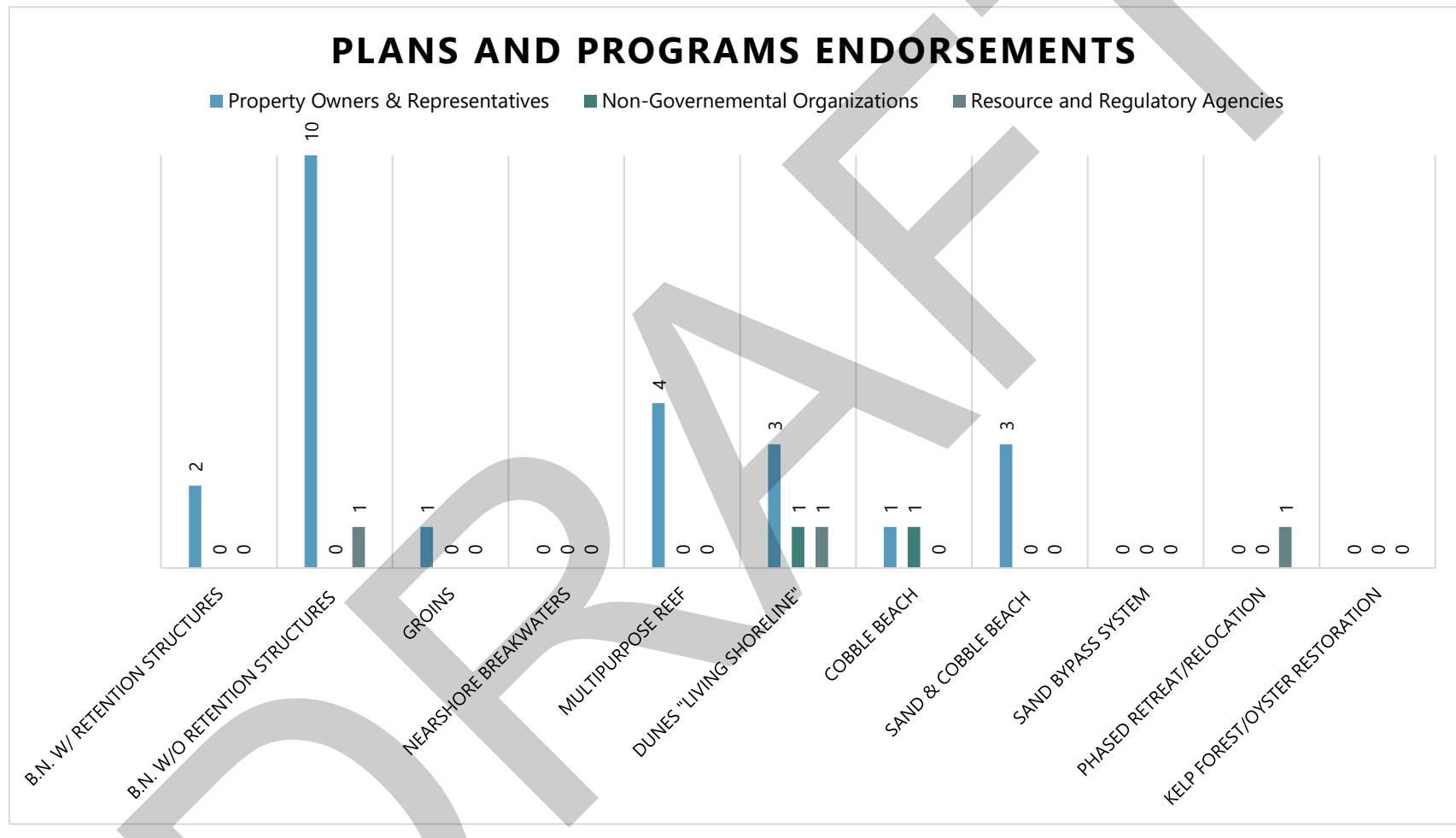


Figure E
Plans and Projects – Endorsements



Notes:
B.N.: beach nourishment
W/: with
W/O: without

Governance Methods

Across all groups, the most supported governance methods are Joint Powers Authority (JPA) and interagency meetings (Figure F). However, all the indications of support for interagency meetings came from the agencies, who also proposed the governance methods (Figure I), and the JPAs have support from NGOs as well (Figures G through I). The most opposed Governance Methods are Geologic Hazard Abatement District (GHAD; Figure F). GHADs were opposed by all stakeholder groups (Figures G through I). Additionally, property owners and representatives most heavily endorsed special districts, a governance method that they proposed, with four endorsements, and JPAs, with two endorsements (Figure J).

One property owner and representative suggested the formation of a special district. The proposed governance method would be based on Ventura County's Watershed Protection District that was founded out of the county's Flood Control District and was instrumental in identifying sand sources similar to what this group may face during subsequent design and implementation phases. The group did concede that this approach may be difficult to apply across multiple districts. The group, particularly one well-engaged stakeholder, was vehemently against a GHAD. They were concerned about the GHAD being led by one engineer and not multiple stakeholders collaborating to make decision for the region. They also were concerned about the perceived failure of Broad Beach's GHAD and did not want a similar thing to happen in this region.

Like the other stakeholder groups, agencies emphasized challenges with this plan's need to address multiple entities with different goals. They were against the implementation of a GHAD and highlighted that this method would place an undue burden on property owners in the region. Stakeholders in this group liked the idea of a Memorandum of Understanding/Memorandum of Agreement (MOU/MOA) and suggested that this group look into the San Juan Creek Watershed MOU/MOA as a good example. They were concerned about who would be the permittee for region-wide projects. They also underscored the importance of including tribal consultation during the development of the plan.

Figure F
Governance Methods – All Groups

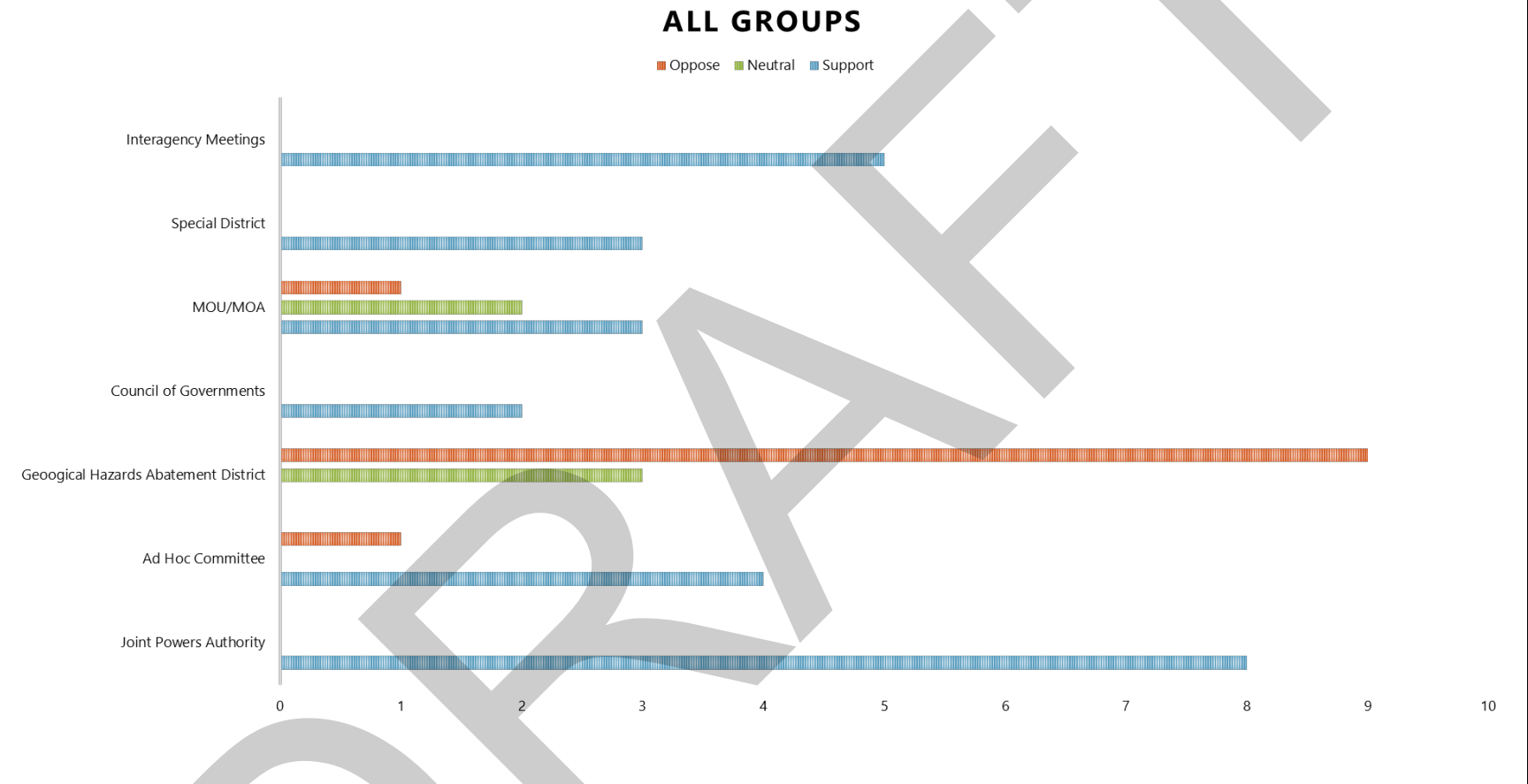


Figure G
Governance Methods – Property Owners and Representatives

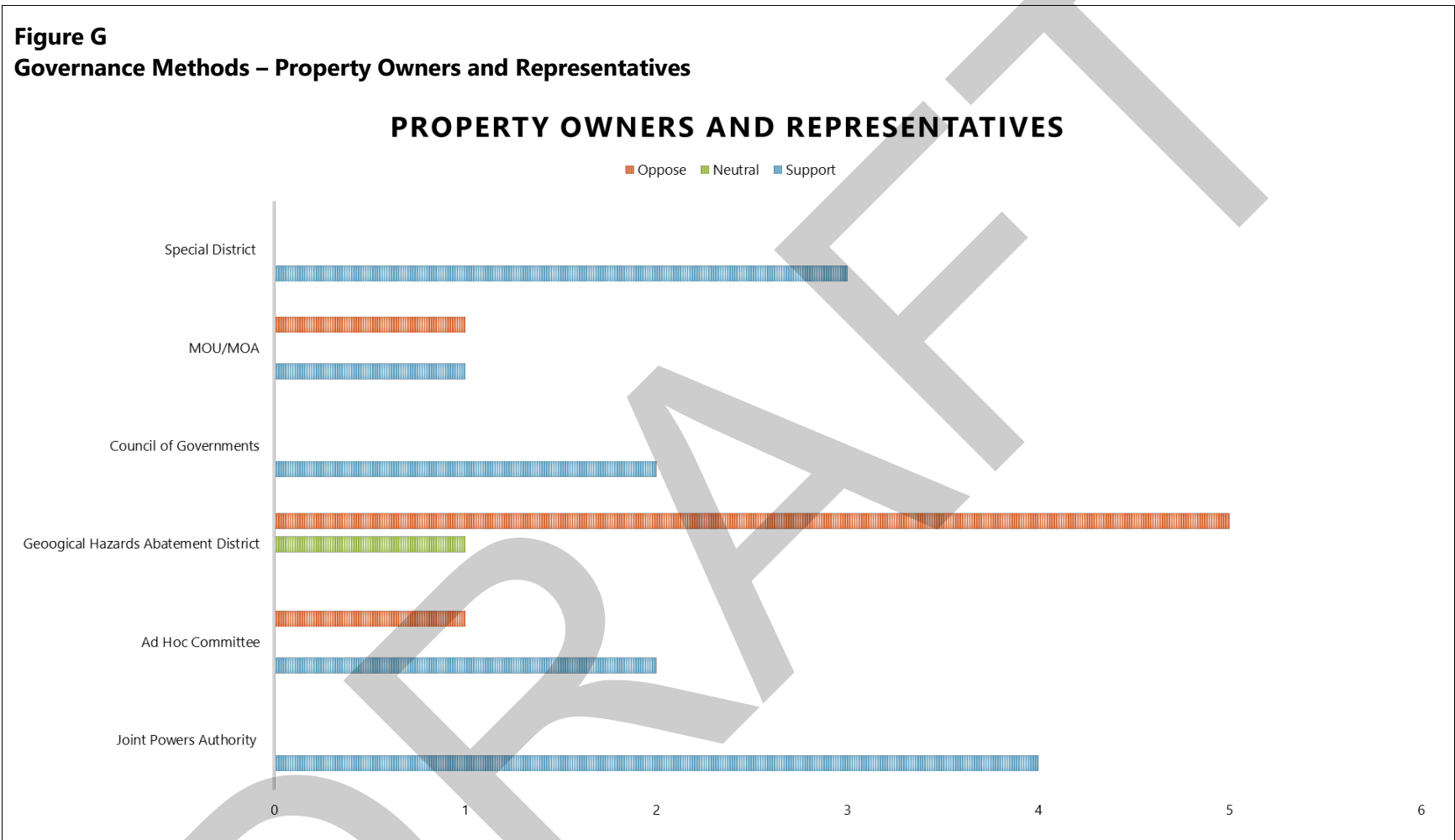


Figure H
Governance Methods – Non-Governmental Organizations

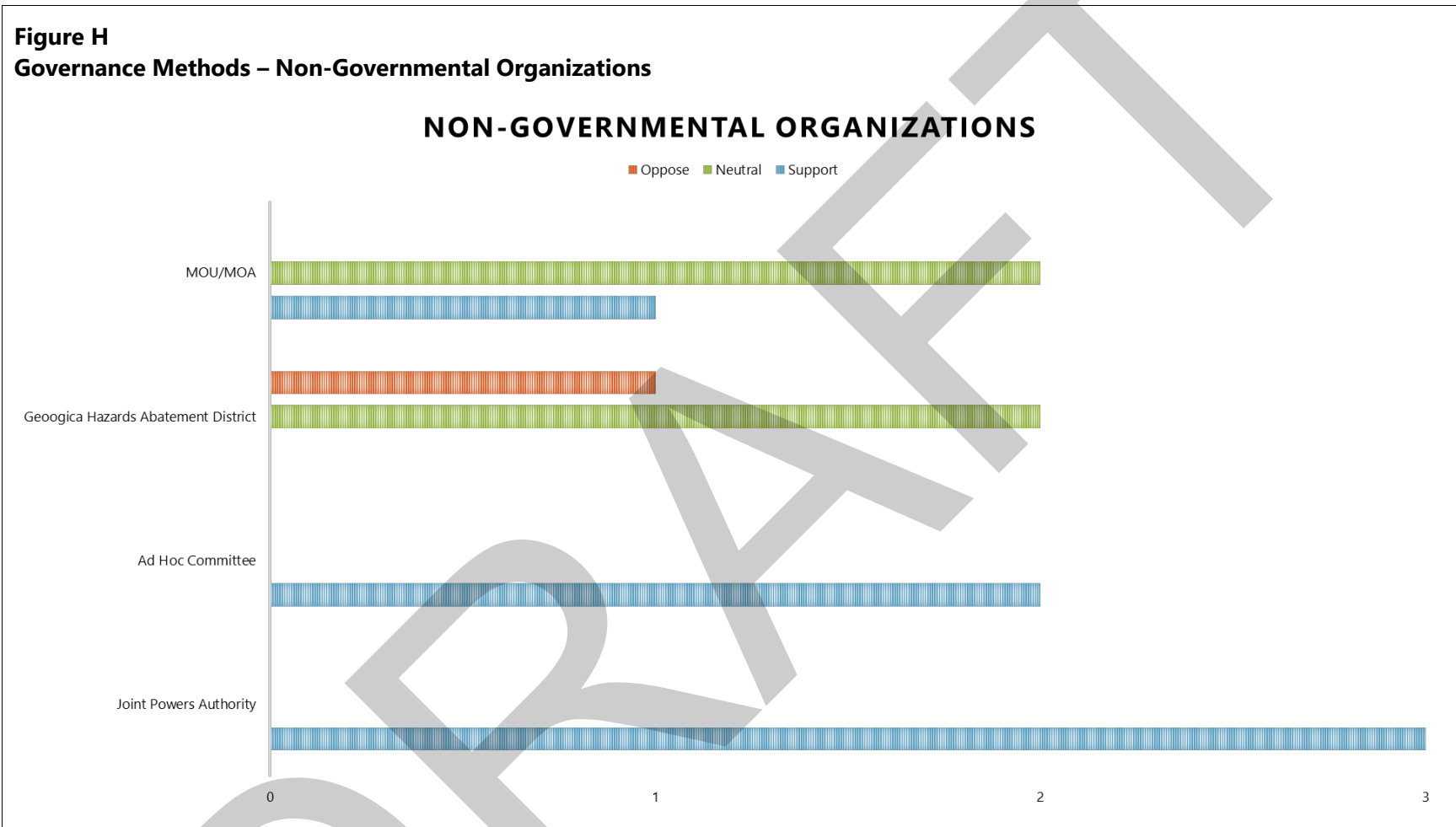


Figure I
Governance Methods – All Groups

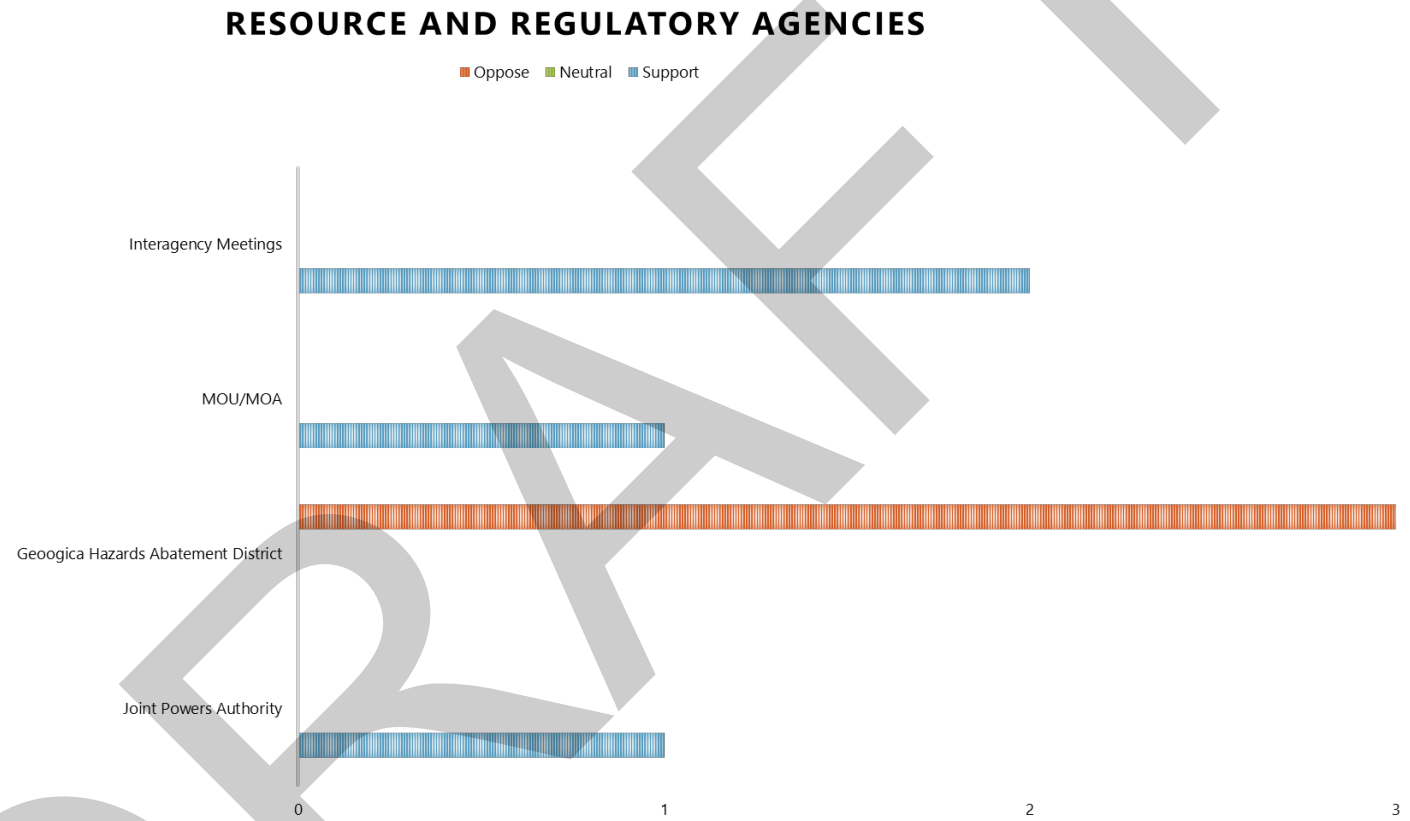
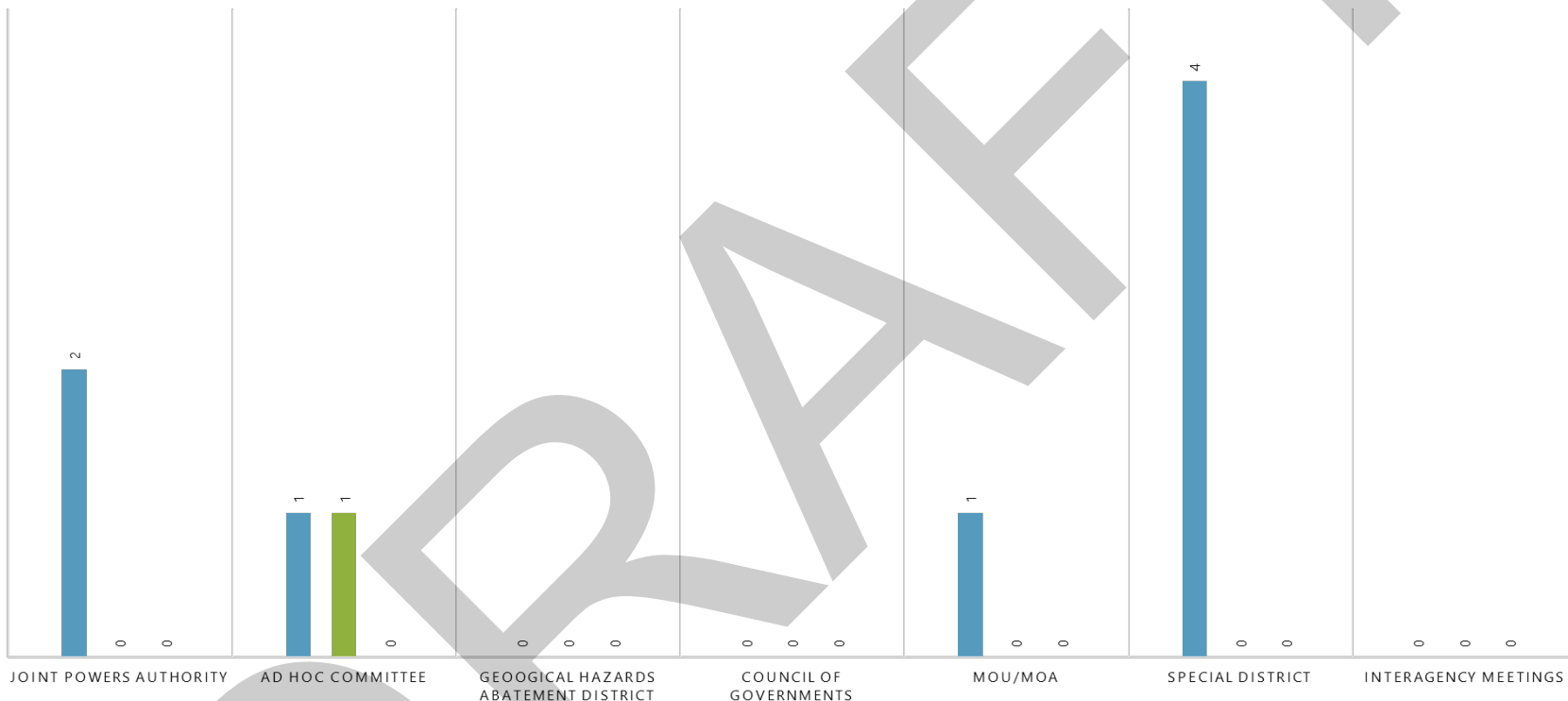


Figure J
Governance Methods – All Groups

GOVERNANCE METHODS ENDORSEMENTS

■ Property Owners & Representatives ■ Non-Governmental Organizations ■ Resource and Regulatory Agencies



Funding Mechanisms

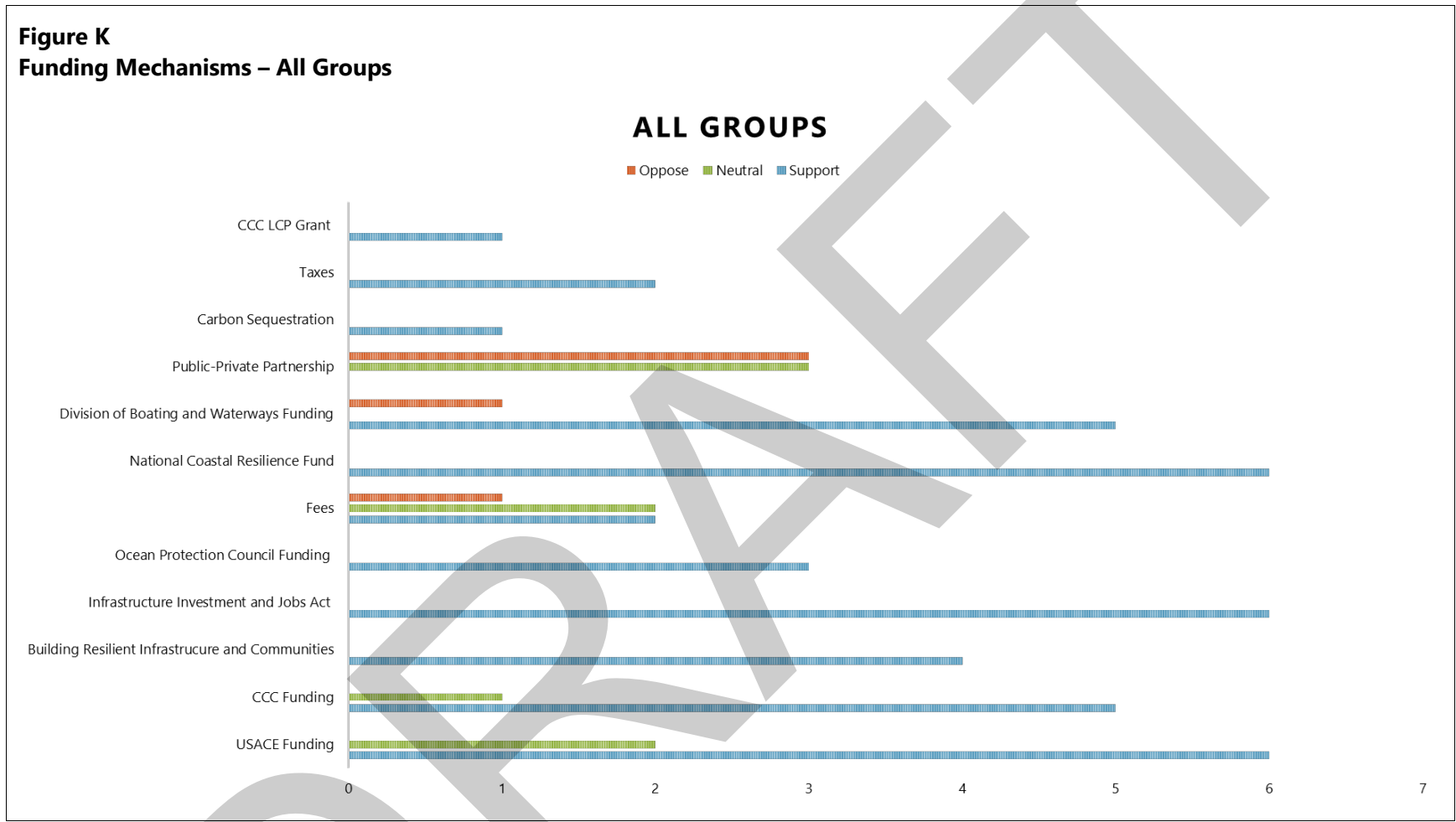
Across all groups, the most supported funding mechanism was U.S. Army Corps of Engineers funding, Infrastructure Investment and Jobs Act funding, and National Coastal Resilience Funding (Figure K). All three of these funding mechanisms are supported across all stakeholder groups (Figures L through N). The most opposed funding mechanism was public-private partnership (Figure K). Public-private partnerships were opposed by all stakeholder groups (Figures L through N). Additionally, there were endorsements for California Coastal Commission funding, Infrastructure Investment and Jobs Act funding, and Ocean Protection Council funding by property owners and representatives and NGOs. Agencies endorsed the California Coastal Commission's Local Coastal Programs Grant, a funding mechanism that they proposed (Figure O).

Property owners and representatives suggested that this group explore taxes and fees generated by others, such as development impact fees, hotel occupancy taxes, increasing bed taxes, and the Clean Ocean Utility Fee (this is a fee to property owners implemented under San Clemente's Urban Runoff Management Plan). This group suggested starting with grants but emphasized a need for a sustained funding source in the form of the aforementioned taxes and fees.

NGOs emphasized the importance of coastal access and recreation for the community and considering this no matter which funding mechanisms are used. They suggested researching the California Department of Transportation's Reconnecting Communities Pilot Program. This group also brought up mitigation funding and legal challenges to obtaining funding.

Agencies suggested using the railroad as the nexus for obtaining federal funding, specifically from the Infrastructure Investment and Jobs Act. They also highlighted the importance of nailing down project objective and the groups that will benefit from the work in order to drive the funding source. They advised looking at San Clemente's recent pilot program that was able to secure grant funding.

Figure K
Funding Mechanisms – All Groups



Notes:
CCC: California Coastal Commission
LCP: Local Coastal Programs
USACE: U.S. Army Corps of Engineers

Figure L
Funding Mechanisms – Property Owners and Representatives



Figure M
Funding Mechanisms – Non-Governmental Organizations

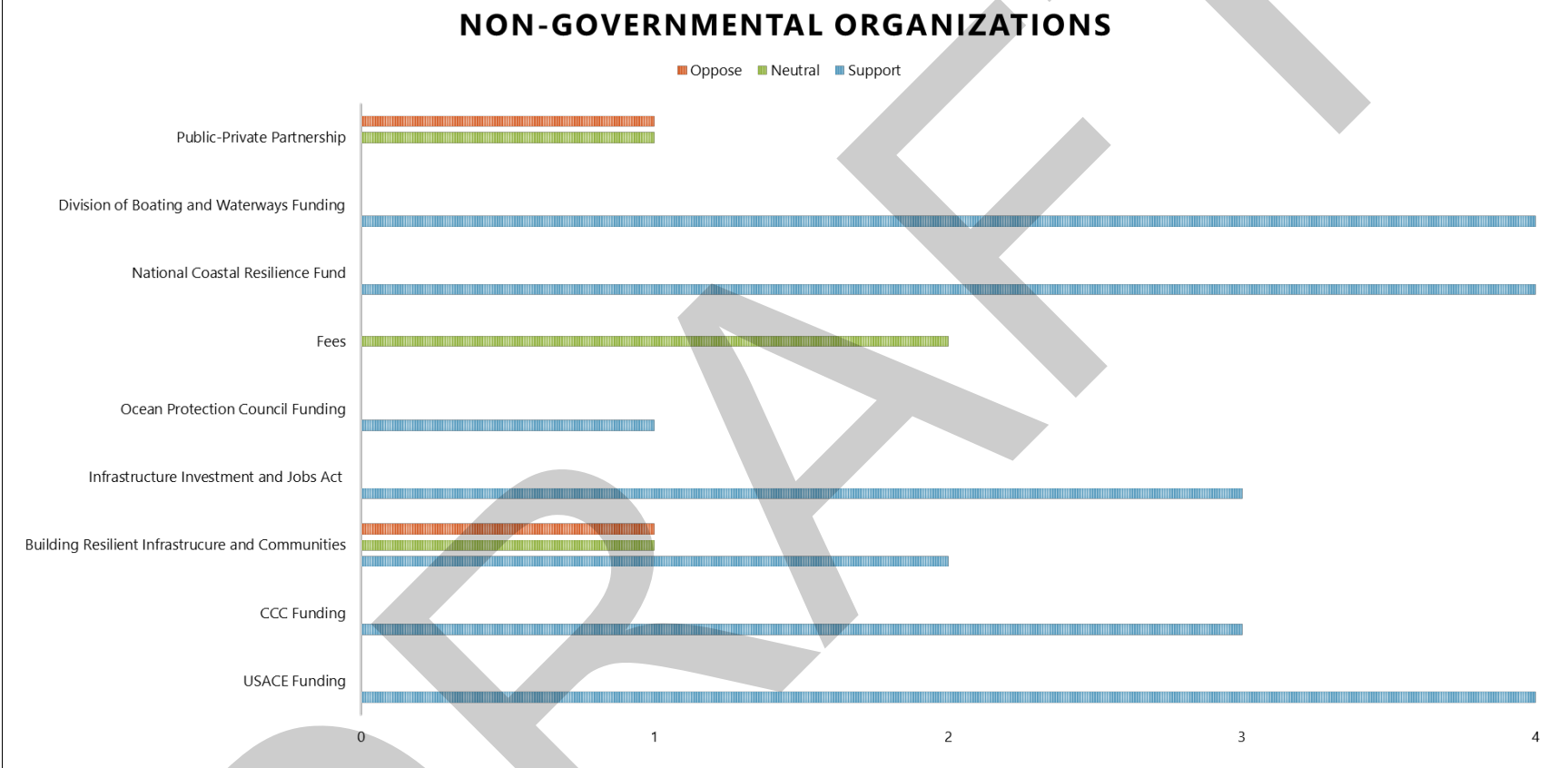
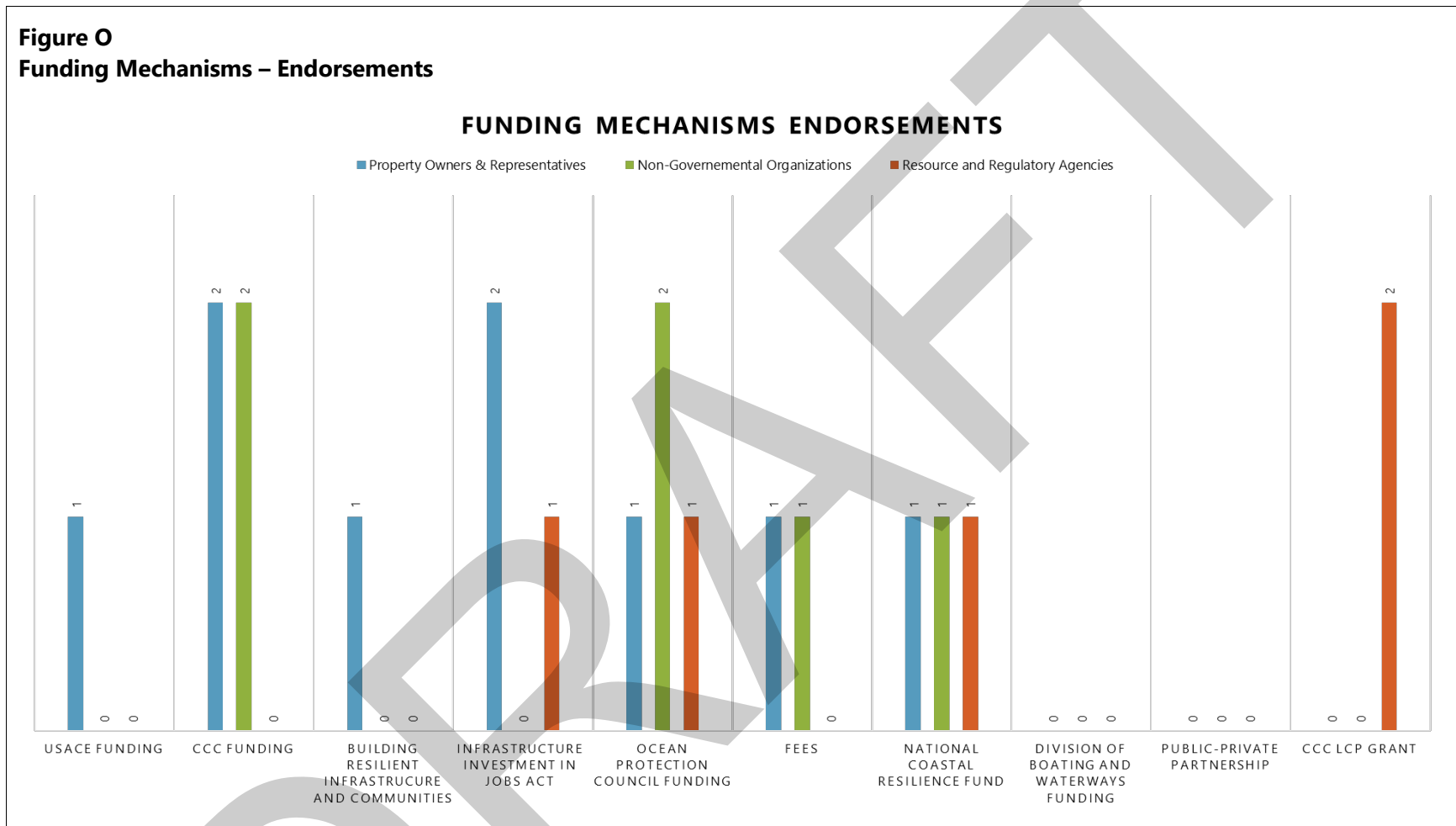


Figure N
Funding Mechanisms – Resource and Regulatory Agencies



Figure O
Funding Mechanisms – Endorsements



Conclusion

The tables and information outlined in this memorandum provide a high-level outline that identifies the stakeholder preferences for various elements of the South Orange County Regional Coastal Resilience Strategic Plan. The information presented in this memorandum does not indicate the commitment of this group to any of the elements presented; it serves as a way to organize and reference stakeholder priorities in the region.

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Attachment A

July 6, 2022, Stakeholder Meeting

Presentation

DRAFT

South Orange County Regional Coastal Resilience Strategic Plan

Presented by:

David Cannon, PE

Principal Engineer, Anchor QEA

Adam Gale

Senior Manager, Anchor QEA

July 6, 2022



Schedule and Next Steps



Meeting Objectives



- Comply with grant conditions
- Review stakeholder priorities
- Summarize coastal processes
- Obtain stakeholder input
 - Projects & Programs
 - Governance Methods
 - Funding Strategies

Grant Overview

- **Executed:** May 4, 2021
- **Goal:** develop a regional, collaborative strategic plan to facilitate implementation of regional shoreline management activities to address chronically eroding shorelines in the southern portion of Orange County
- **Main Objective:** assess, prioritize, and advance resilience opportunities to reduce the risk to residents and increase the viability of south Orange County beaches

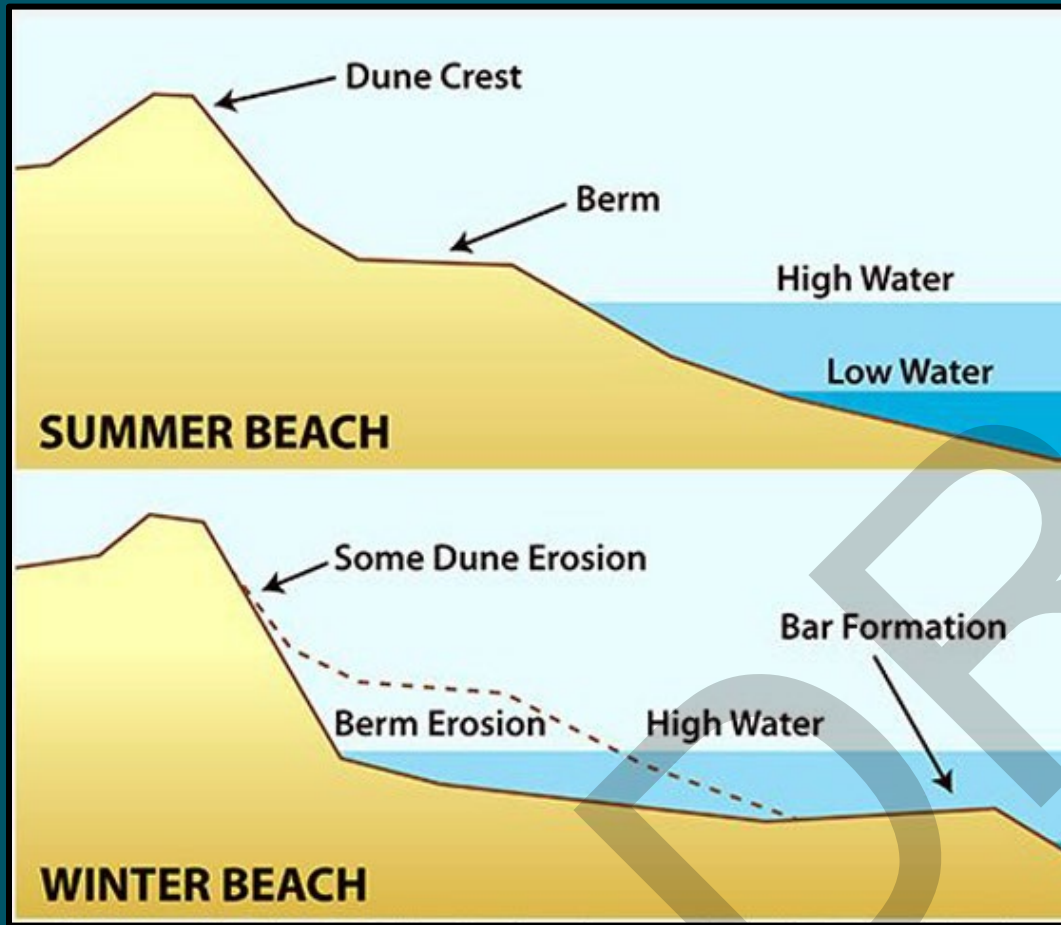




Beach Morphology

- River flow changes impact sediment flow to beaches
- Wave climate changes impact sediment movement along beaches

Cross-shore Transport

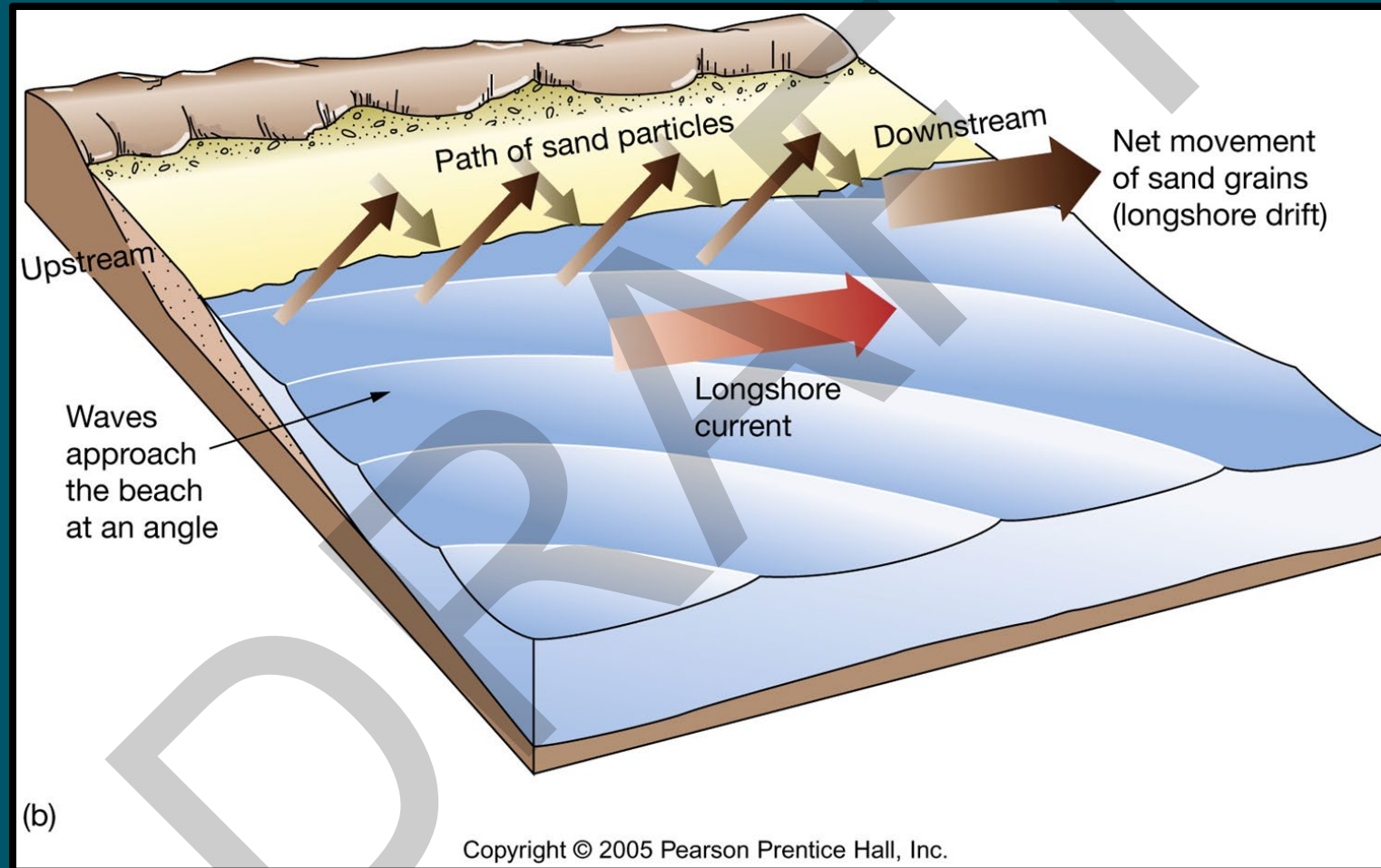


Larger winter waves move sediment offshore narrowing beaches

Sediment pushed offshore forms a sandbar, moving the breaker line farther offshore

The sandbar dissipates wave energy

Longshore Transport



ADAPTATION STRATEGIES



AVOID
Restricting construction in at-risk areas



ACCOMMODATION
Upgrading existing property

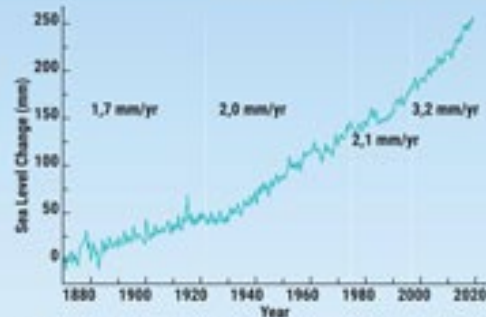


PROTECTION
Improving flood defenses

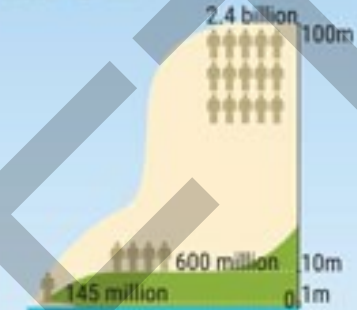


RETREAT
Preparing for planned relocations

SEA LEVEL RISE

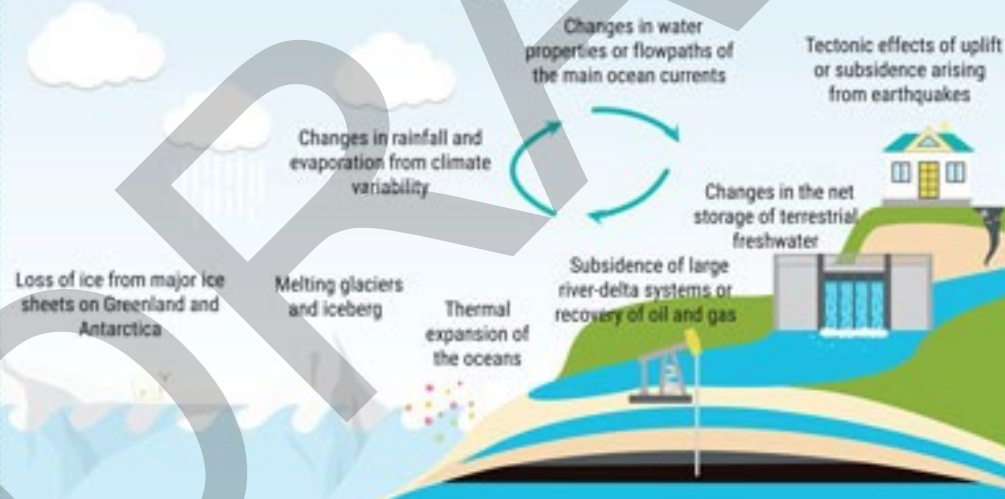


Globally averaged sea level has risen by about 25 cm since the 1800s. The annual rate increased to 3.3 millimeters per year



Nearly 145/600 million/2.4 billion people live within 1m/10m/100m of the coast

CAUSES



CONSEQUENCES



The disappearance of some low-lying islands



Submergence and increases flooding of coastal land



Increased erosion, and habitat destruction in coastal areas

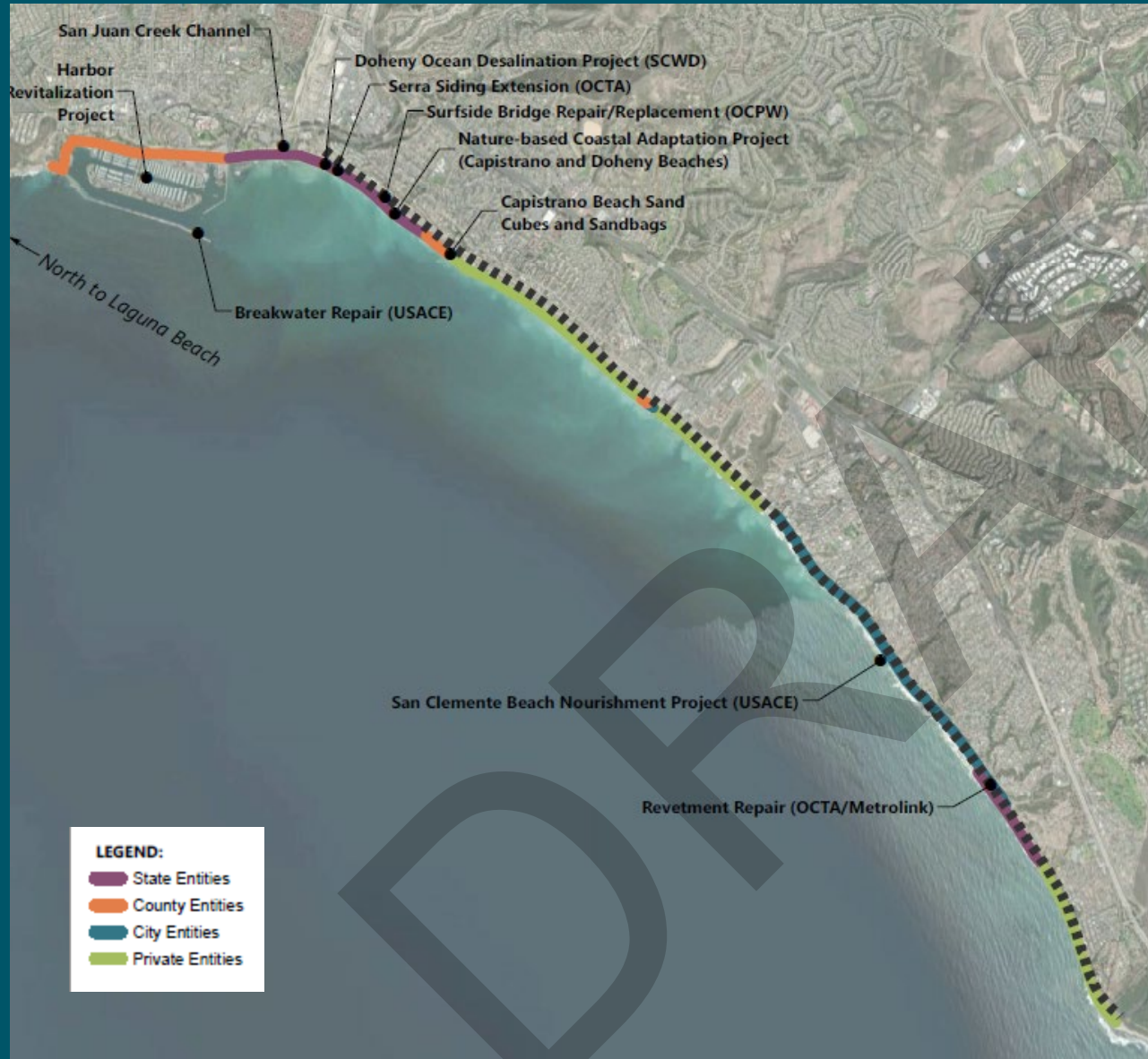


Saltwater intrusion of surface and subsurface waters



Beach Erosion & Shoreline Retreat Problem Areas





Related Existing and Planned Projects



Projects & Programs



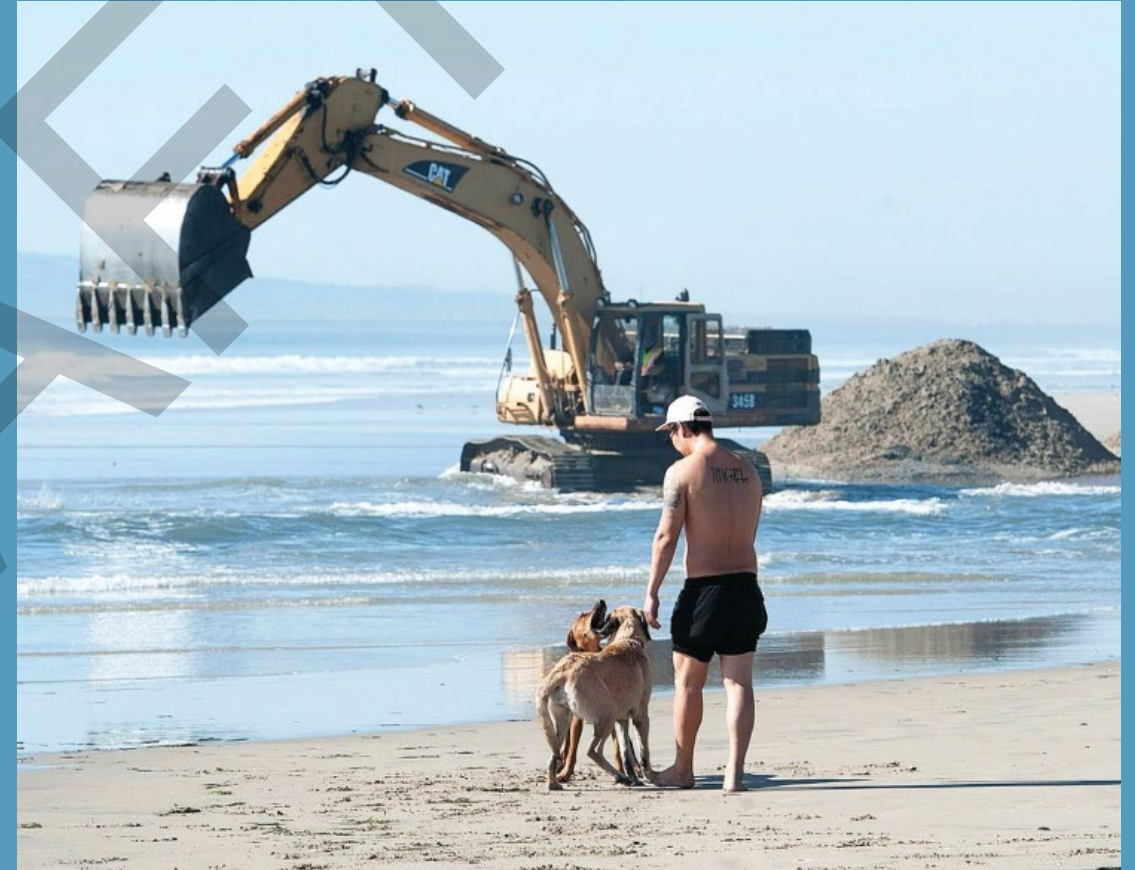
Coastal Armoring

- Coastal armoring includes seawalls, rip-rap, and revetments
- Implementation not covered in Plan because:
 - Don't want to impact armoring efforts underway
 - The plan is regional and armoring is site specific
 - Will be owner's responsibility
 - Would delay implementation of regional efforts

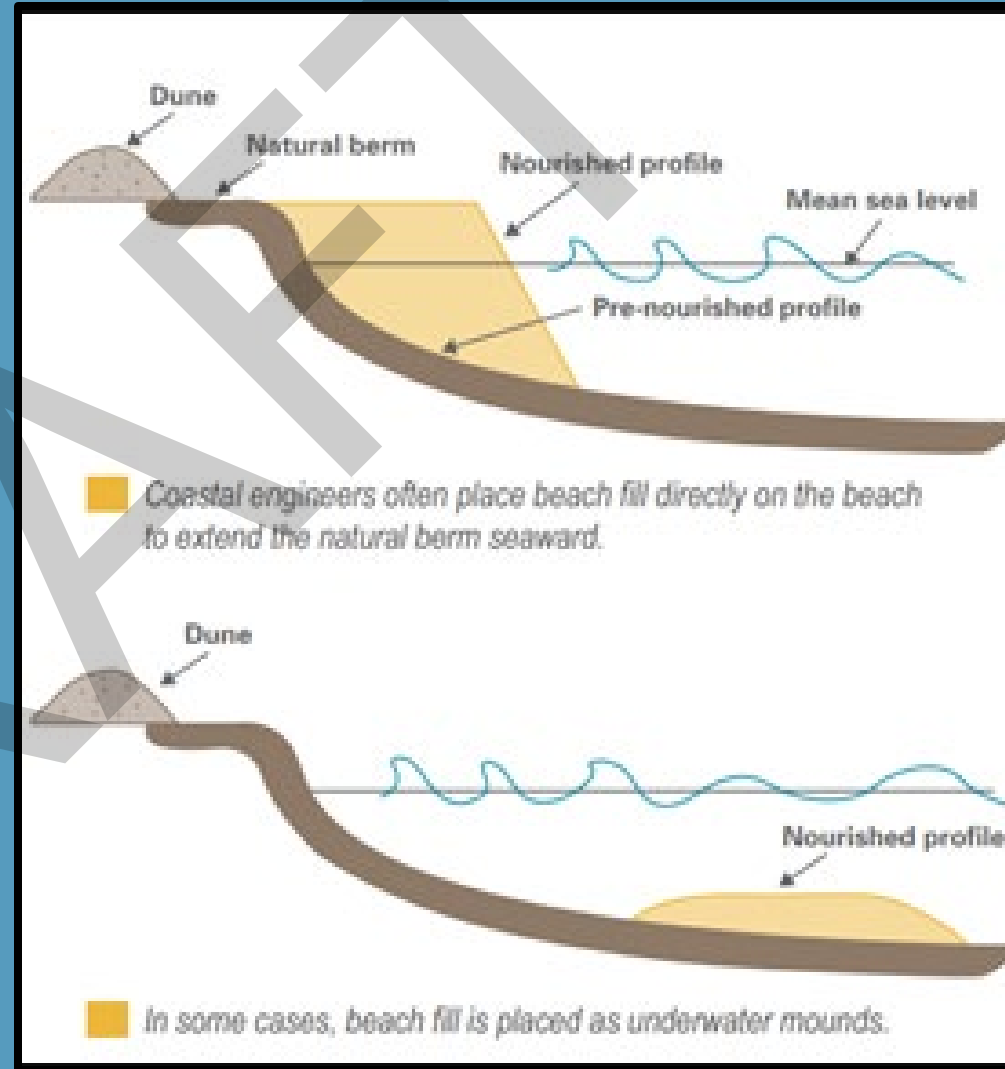
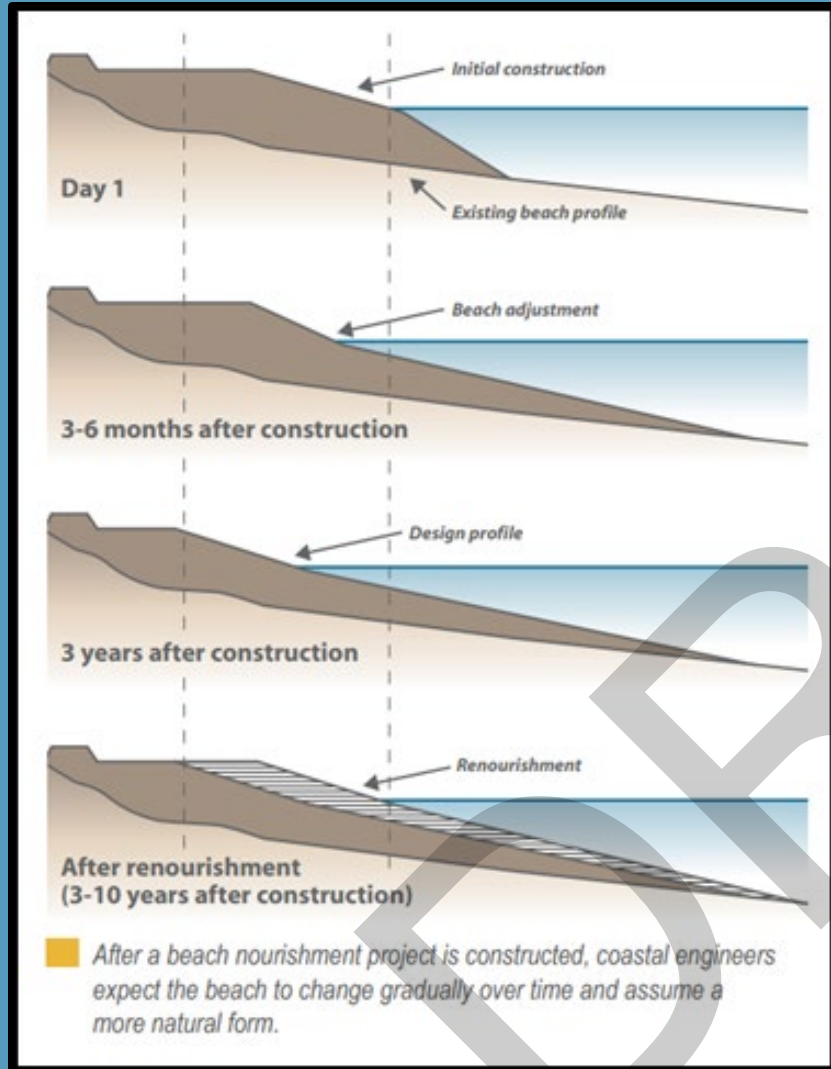


Beach Nourishment

The placement of sandy sediment from outside the littoral cell onto beaches to mitigate erosion via beach width increases



Beach Nourishment - A Primer



Beach Nourishment

Pros

- Beneficial reuse of sediment from rivers, bays, nearshore waters, & inland areas
- “Soft” solution
- Provides wildlife habitat (living shoreline)
- Allows recreational beach use

Cons

- Difficult to find long-term sand source
- May require supplemental protective measures
- Expensive due to recurring costs
- Could impact nearshore habitats



Beach Nourishment with Retention Structures

Beach nourishment coupled with structures that minimize the loss of beach sand

Pros

- Improved protective performance
- Increased average beach width
- Decreased recurring costs

Cons

- Increased capital costs due to structures
- New technology with unknown performance
- Difficult & time-consuming to permit
- Ideal location for retention structure may span multiple jurisdictions



Retention Structures: Groins

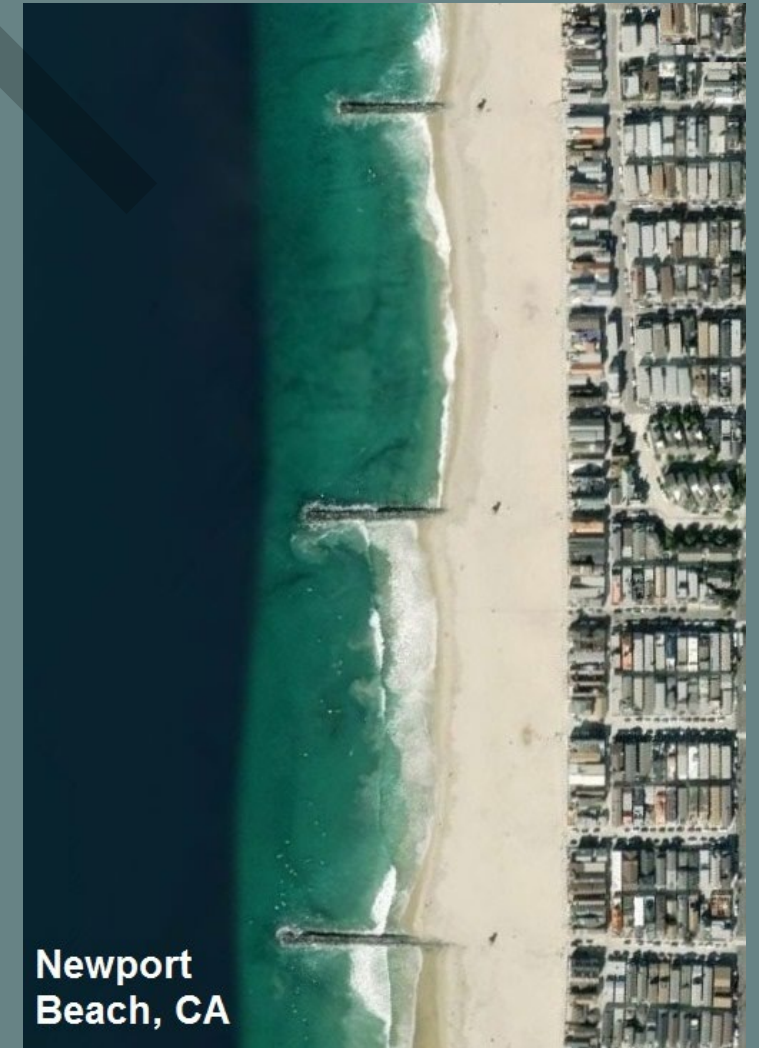
Shore-perpendicular structure that can be made of concrete, steel, boulders, or wood

Pros

- Stabilizes beach location
- Represents “soft” shoreline protection solution
- Provides wide beach for human and/or wildlife use

Cons

- Difficult to permit due to potential impacts to adjacent beaches
- Can produce hazardous rip currents
- Can divert beach sand to offshore sand bars



Retention Structures: Nearshore Breakwaters

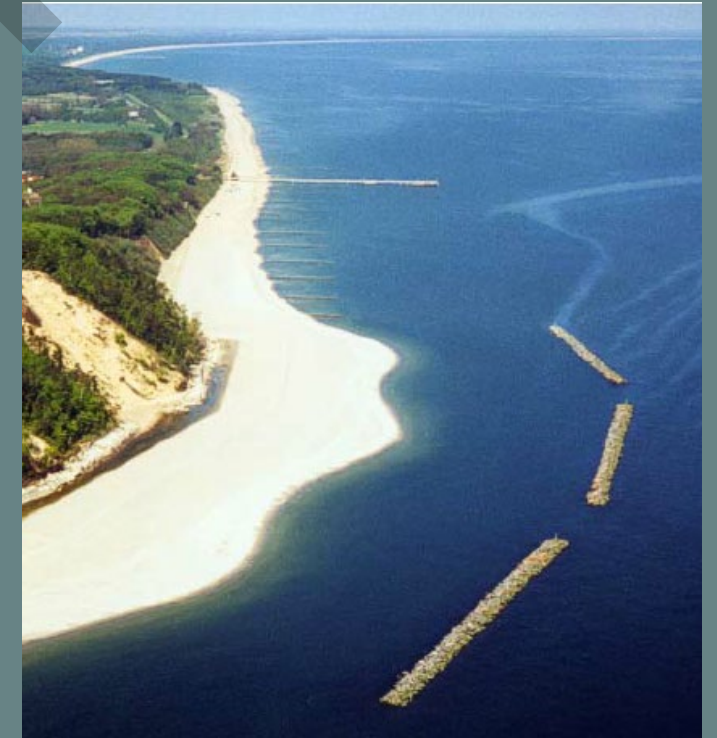
Shore-parallel rock and/or concrete structures that provide shore protection by blocking incoming waves resulting in sand accumulation behind the structure

Pros

- Reduces wave heights behind the structure
- Accumulates sand behind the structure resulting in wider beach
- Can reduce hazardous rip currents

Cons

- Increases beach nourishment maintenance costs
- Difficult to permit due to potential impacts to adjacent beaches
- Could impact sensitive nearshore habitats and recreation (e.g., surfing)



Retention Structures: Multipurpose Reef

Offshore, underwater structure designed to provide shore protection, marine habitat, and recreation

Pros

- Reduces wave energy behind structure
- Accumulates sediment behind structure
- Provides habitat for marine wildlife
- Provides recreational benefits (e.g., surfing, diving, fishing)

Cons

- Unproven technology with higher uncertainty of benefits
- Potentially high unquantified mitigation costs
- Difficult to permit due to potential impacts



Dunes (Living Shoreline)

Raised sand depositional feature along back of beaches that provides habitat for wildlife and protects areas behind the feature from wave action

Pros

- Natural, “soft” solution to beach erosion
- Relatively easy to permit
- Provides habitat and recreation as well as protection

Cons

- Can have high maintenance costs
- May require supplemental protective measures
- Difficult to find long-term sand source
- Could impact nearshore habitats



Cobble Beach

A beach constructed from cobbles instead of sand

Pros

- “Soft” solution so easier to permit
- Minimal impacts to nearshore habitats
- Requires less material to provide similar protection
- Provides wildlife habitat (living shoreline)

Cons

- Limited research on design and performance
- Could support nonnative wildlife
- Public acceptance could be low for recreation
- May require supplemental protective measures



Hybrid Options: Sand & Cobble Beach

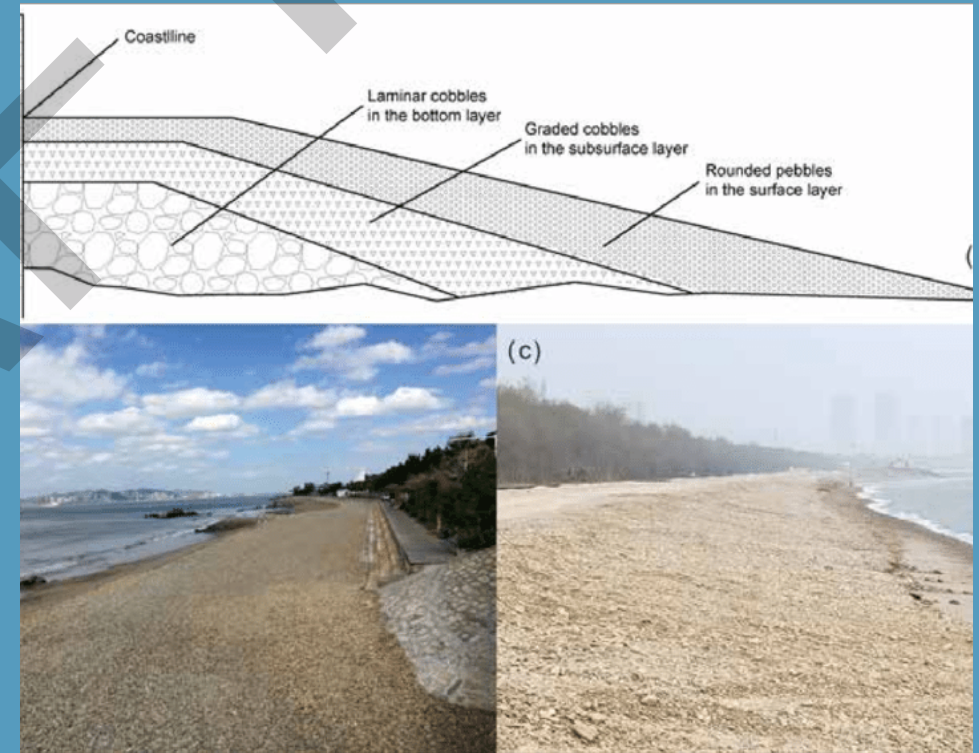
A cobble beach base with sand placement on top

Pros

- Cobble could decrease recurring costs by reducing maintenance sand volumes
- Sand cover would facilitate recreation
- Sand cover would support “appropriate” wildlife

Cons

- Limited research on design and performance
- Cobbles could support nonnative wildlife
- Public acceptance could be low for recreation
- May require supplemental protective measures



Projects & Programs Activity



Open Forum



Preferred Projects
& Programs

Governance Methods



Joint Powers Authority (JPA)

- Entity permitted under California State Code Section 6500
- There are two kinds of JPA arrangements
 1. Two or more public agencies contract to jointly exercise powers common to all members.
 2. Two or more public agencies to form a separate legal entity. This new entity has independent legal rights, including the ability to enter contracts, and hold property. Forming a separate entity can be beneficial because the debts, liabilities and obligations of the JPA belong to that entity and not the member agencies.



Joint Powers Authority (JPA)

Pros

- Facilitates regional approaches
- Can be tailored to specific issues
- Can enter contracts
- Can hire dedicated staff
- Can be renewed continuously

Cons

- All members must approve formation
- Can be difficult to fund
- Capabilities limited to union of member agencies
- Typically requires majority vote



Example JPA Structure (SANDAG)



Council of Governments

- Voluntary association of local governments
- Can be situated in either a metropolitan or rural area
- Designed to promote discussion and intergovernmental cooperation among its members concerning common and regional problems, and to engage in planning on a multijurisdictional basis



Council of Governments

Pros

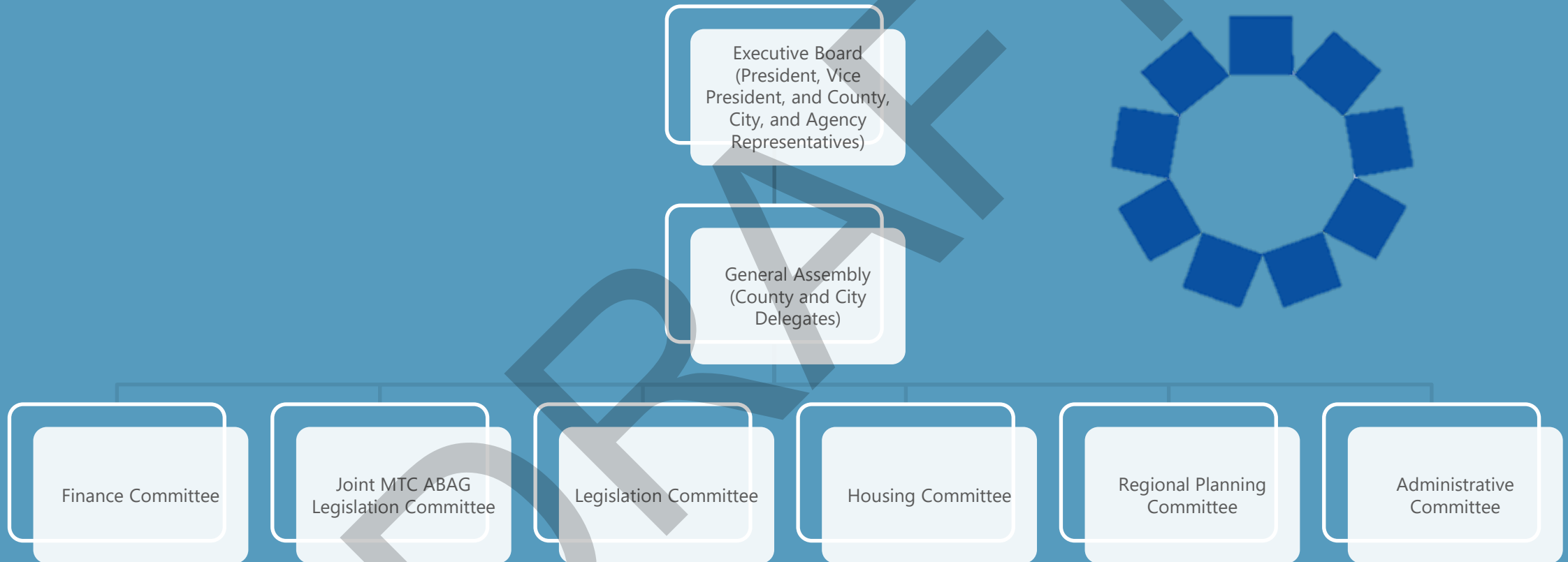
- Provides an arena where elected officials can meet and discuss regional issues
- Facilitates horizontal cooperation on regional issues
- Facilitates vertical cooperation with local, state, and federal government

Cons

- Organizational need to operate on membership consensus can be difficult to reach decisions
- Low level of community reach results in low engagement across groups with differing interests



Example Council of Governments Structure (Association of Bay Area Governments)



Memorandum of Understanding/Agreement

- Voluntary cooperative arrangements
- Applicable to multiple government agencies of different levels
- Can be used by government agencies & private entities



MOUs and MOAs

Pros

- Long term history of use
- Relatively easy to implement
- Can be done administratively
- Can be duration limited

Cons

- Contracts run by MOU/MOA parties
- Funding via MOU/MOA parties
- Staffed by MOU/MOA parties
- Flexibility limited by MOU/MOA



Example MOU/MOA (Bolsa Chica Lowlands Restoration Project)



Geologic Hazards Abatement Districts (GHAD)

- Enables property owners to collectively mitigate geological hazards which pose a threat to their properties (California Public Resources Code 26500-26601)
- Designed to handle long-term abatement and maintenance of real property potentially threatened by earth movement



Geologic Hazards Abatement Districts (GHAD)

Pros

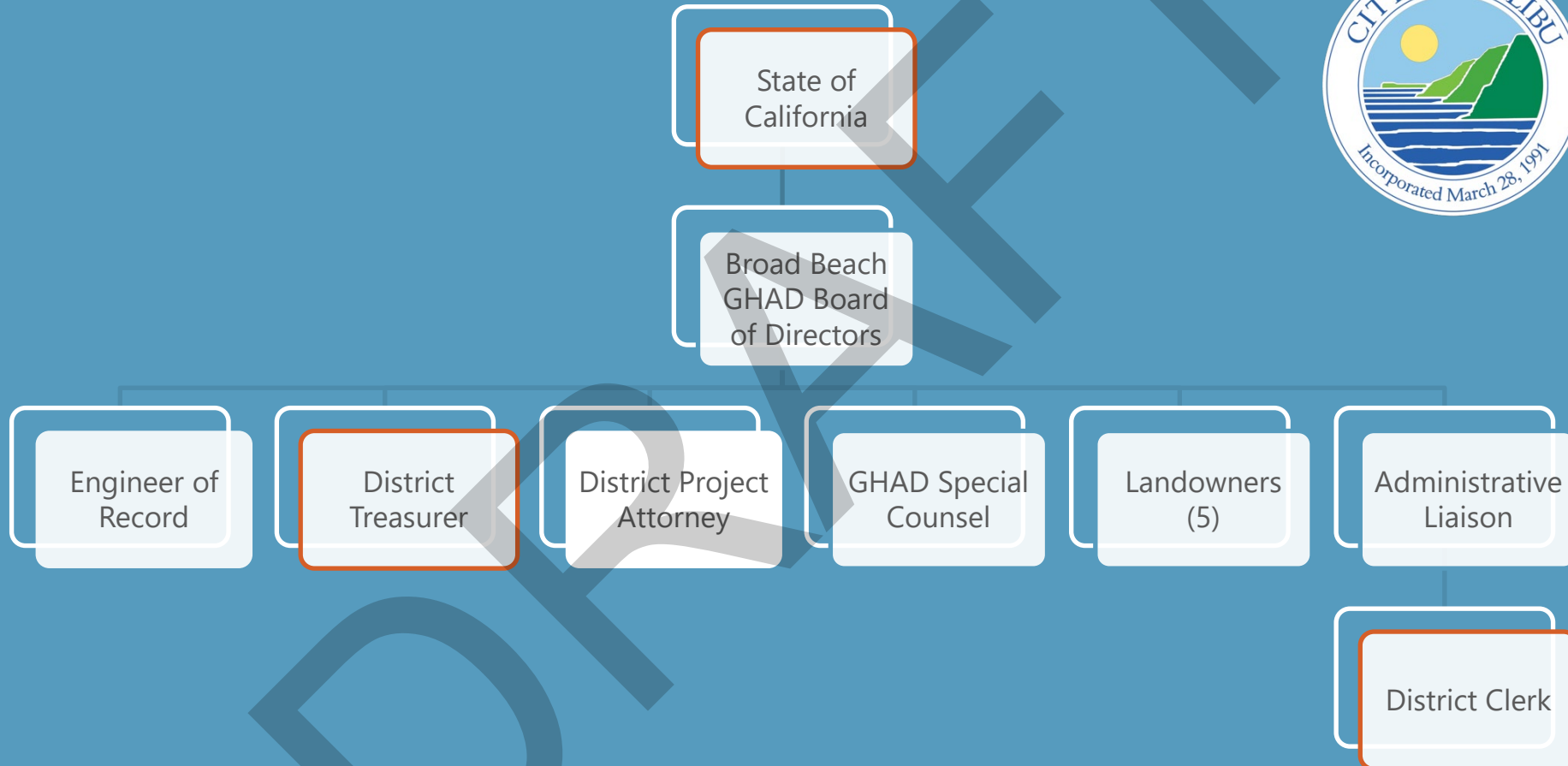
- Facilitates local approaches
- Can be tailored to specific issues
- Can enter contracts
- Can issue bonds
- May obtain funding
- Can levy & collect assessments
- May condemn/acquire property
- Can construct improvements
- Can maintain improvements

Cons

- Not easy to dissolve
- Only need majority vote to expand
- Financed via supplemental tax assessments
- Can levy & collect assessments
- May condemn/acquire property



Example GHAD Structure (Broad Beach GHAD)



 Required by law



Ad Hoc Committee

- Temporary committee established by a board of directors to address a specific issue



Ad Hoc Committee

Pros

- Facilitates focused approach
- Easy to organize
- Can facilitate standing committee formation
- Carteret County, NC used it to organize four towns to secure federal, state, & county funding

Cons

- Temporary so not suited for addressing recurring issues
- Single committee focus
- Limited by committee mission, funding, & staff



Governance Methods Activity



Open Forum



Preferred Governance
Methods

Funding Strategies



Existing Funding Sources

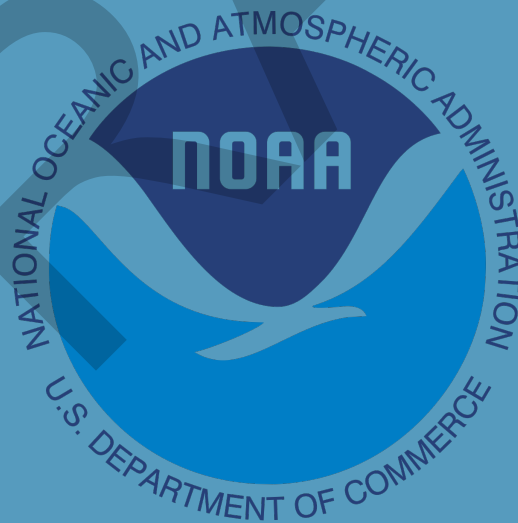
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Federal Sources



**US Army Corps
of Engineers**



FEMA



U.S. Army Corps of Engineers (USACE)

Hurricane Storm Reduction Damage-Section 103 allows protection of public infrastructure against erosion and damages caused by natural storm driven waves and currents.

Pros

- If there is federal interest, USACE will fund majority of project costs.
- Feasibility study is funded by USACE up to \$100,000.
- USACE funds 65% of design and construction.
- Easier to permit projects using federal-led process instead of state-led process.

Cons

- High study, planning, and design costs due to USACE requirements.
- Local sponsor responsible for operational and maintenance costs once project completed.
- Entire process can take years to decades.
- Most projects do not obtain federal authorization.
- Implementation funding tied to appropriations so difficult to obtain and inconsistent.



**US Army Corps
of Engineers**

Infrastructure Investment and Jobs Act (IIJA)

Bipartisan legislation that provides \$1.2 trillion in infrastructure enhancement with \$492+ billion dedicated to supporting coastal resilience

Pros

- Provides funding for coastal resiliency
- Existing source of funding
- Reestablishes One Federal Decision, decreasing permitting

Cons

- Coastal resiliency not a top funding priority
- Funding is dispersed annually so might take a long time to get project funding
- Funds allocated through formula apportionments or competitive grants



National Oceanic and Atmospheric Administration (NOAA) & National Fish and Wildlife Foundation (NFWF)

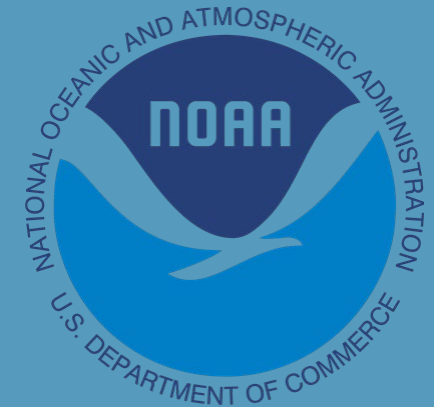
National Coastal Resilience Fund (NCRF) increases and strengthens natural infrastructure to protect coastal communities while also enhancing habitats for fish and wildlife.

Pros

- National program with a regional focus that addresses region specific coastal resilience needs
- Can usually be leveraged to obtain additional funding (but not with compensatory mitigation funds)

Cons

- 2021 grant slate did not include any beach nourishment projects
- Inconsistent funding source
- Might not cover complete project costs



Federal Emergency Management Authority

Building Resilient Infrastructure and Communities (BRIC) and Hazard Mitigation Grant Program (HMGP) are pre-disaster mitigation programs that will support states, local communities, tribes and territories as they undertake hazard mitigation projects, reducing the risks they face from disasters and natural hazards.

Pros

- Existing and established source of funding
- Has supported projects that protect against sea level rise-related risks
- Cost-share for the program is 75% federal and 25% non-federal

Cons

- Has not funded any beach nourishment projects in 2020 or 2021
- Homeowners and businesses cannot apply
- Focus on flood control and relocation may not be applicable to the goals of these stakeholders



FEMA



State Sources



Coastal
Conservancy



State Coastal Conservancy



Ongoing funding opportunities

- Requires cooperation with regional manager

Coastal Stories Program

Pros

- Normally funds projects in concert with restoration efforts
 - Habitat, recreational, and economic benefits included in any project that they fund
- Can usually be leveraged to obtain additional funding (but not with compensatory mitigation funds)

Cons

- Not general fund money
- Not a consistent or reliable source of money - depends on money they have access to distribute



Ocean Protection Council

Coastal Resilience Solicitation's funding possible by Prop 68, Ch 10

- Goal to build resilience on the coast to assist coastal communities in preparing for and adapting to the impacts of sea-level rise



Pros

- Priority issue is currently coastal resiliency and nature-based adaptation strategies to sea-level rise impacts, aligns with stakeholder goals
- Has partially funded BEACON's SLR Adaptation Pilot Program which included beach nourishment

Cons

- Not a dedicated or guaranteed source of money
- OPC provides funds on a reimbursement basis, and withholds 10% of the funds, to be disbursed upon project completion.



Division of Boating and Waterways

Shoreline Erosion Control Program & Beach Restoration Program



Pros

- Existing and established source of funding
- Acknowledges the benefits of beach nourishment as a source of erosion control
 - Partially funded San Clemente's beach restoration project

Cons

- Boaters are protective of the fund and want the money allocated to boating
- Limits on funding related to land ownership
- Cannot fund beach projects aimed at protecting private property



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New Funding Sources



Fees

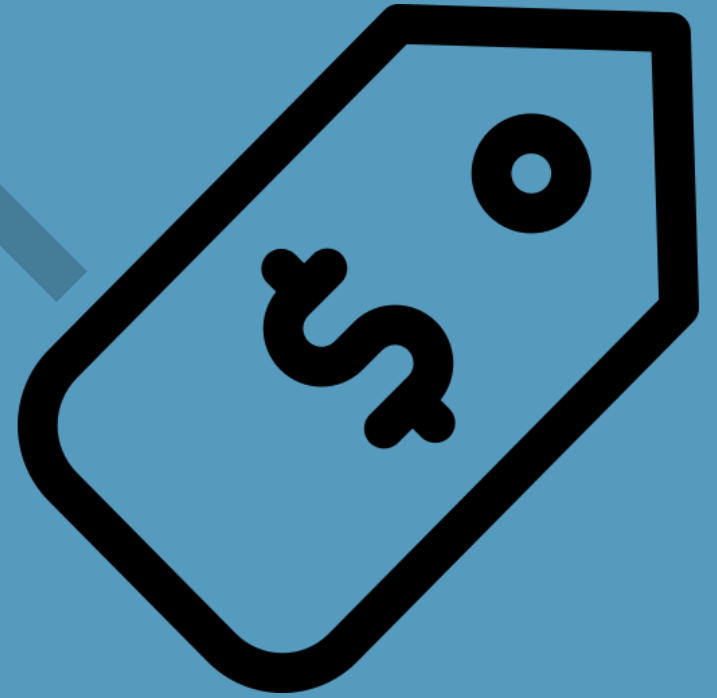
Funds raised by charging fees for services, permits, or in-lieu fees (e.g., mitigation for impacts to sand flow).

Pros

- An established process for funding other activities
- Provides a consistent funding source
- Funds can be dedicated to the intended purpose

Cons

- Requires administrative network to manage
- Funds can be highly variable because some actions (e.g., development) are cyclical or one-time in nature
- Can be difficult to obtain public support



Public-Private Partnership

A cooperation between public-sector agencies and private-sector entities that allow government and private entities to work together to provide a community benefit.

Pros

- Reduces government costs.
- Provides dedicated funding source
- Improves “buy-in” between owners and public agencies

Cons

- Can result in a loss of public control
- Requires strong leadership and good relationships



Financing Opportunities

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Loans

Money borrowed from bank or government (state or federal) for a specific purpose



Pros

- Effective way to bridge funding sources & needs
- Can provide advance funds to “lead” revenue sources
- Can be leveraged to accelerate implementation

Cons

- Requires full repayment with interest
- Typically, provides a one-time source of funds
- Federal loan programs require authorization from Congress
- State loan programs require authorization from Legislature

State Revolving Funds

Federal funds allocated annually to state governments to be granted as loans

Pros

- Often dedicated to specific issues, such as water and infrastructure programs
- Can be used by private parties if connected to an eligible public project

Cons

- Application process can be difficult & time consuming
- Longevity is contingent upon repayment of loans



Municipal Bonds

Issued by local governments to finance capital projects in the form of either revenue bonds secured by future project revenue or general obligation bonds secured by future tax revenue

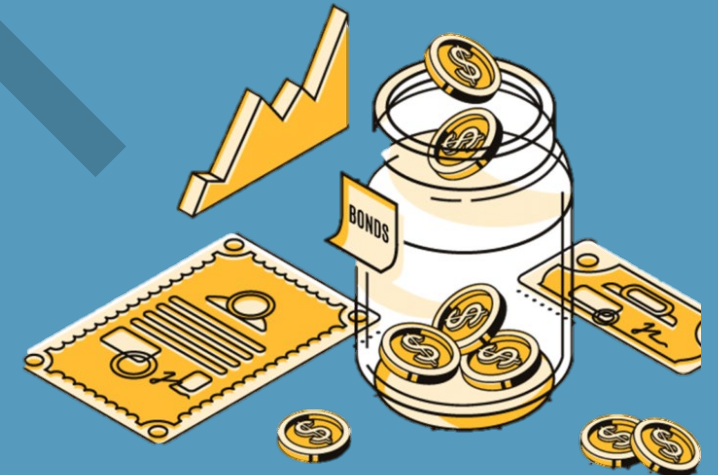
- Some special purpose entities (e.g., ports, utilities) can issue bonds so possible application for a special purpose entity covering beach erosion

Pros

- Relatively low-cost mechanism to borrow money for capital projects
- Issuer can be either municipal or private entity (e.g., private-public partnerships)
- Relatively low interest rate for payoff

Cons

- Might require a majority or super majority for approval
- Bonds for beach erosion purposes not likely to generate revenue so tax revenue payoff required
- Maintenance “nature” of beach nourishment might limit applicability



Environmental Impact Bonds

Innovative tool that uses a pay-for-success method where investors are paid back at rates that depend upon satisfactory achievement of a specified environmental outcome, such as a predetermined amount of avoided land (beach) erosion



Pros

- Attractive to investors interested in social and environmental benefits of projects
- Provides a concrete way to measure outcomes
- Spreads financial risk across both public and private sectors

Cons

- Can require a lot of time and effort to find an investment group with aligned interests
- Need to identify a repayment revenue source that could be difficult for beach erosion work
- Innovative nature means little prior experience to build from

Resilience Bonds

Bond designed to expand financial protections in the event of a disaster by linking insurance coverage with capital investments in resilient projects that will decrease risk



Pros

- Can link insurance premiums and resilience projects to monetize avoided loss
- Avoided loss can provide funding for projects that reduce risk
- Expands financial protections to vulnerable communities

Cons

- Extensive coordination with local and state government, insurers, and transportation/utility operators
- Designed for catastrophic events, not chronic stress like water scarcity or beach erosion
- There have been no municipal-level resilience bonds issued yet (e.g., new and innovative)
- Requires strong link of beach nourishment to protection instead of recreation and habitat

Funding Activity



Open Forum



Preferred Funding
Methods

Schedule and Next Steps



Attachment B

July 6, 2022, Stakeholder Meeting

Attendee List

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Coastal Resilience Working Group

July 6, 2022 9:00 - 12:30

	Organization	First Name	Last Name	Email
1	CITY OF SAN CLEMENTE	KIEL	KOBERE	Kogerke.clemate. ^{San-}
2	Coastal Commission	dani	ZIFF	deni.ziff@coastal.ca.gov
3	OC Parks	DAVE	HANSON	dave@jtrbrydes.com
4	Cyprus Cove HOA	SUZIE	White law	suzie.whitelaw@gmail.com
5	San Clemente	Annela	Weinstein	aweinstei40@gmail.com
6	Anchor O&A	ADAM	GALL	Agall@Anchoro&a.com
7	SOUTH WATER COAST GUARDIAN	TRICK	ERKENEFF	
8	CURE RIDER SOUTH COAST	DENISE	ERKENEFF	
9	OCPW	Ashley	Tarroja	ashley.tarroja@ocpw.com
10	City of SC	Jorine	Campopiano	campopianoj@san-clem.ca.gov aspen.jorine@msn.com
11	CCC	Brittney	Cozzolino	brittney.cozzolino@coastal.ca.gov
12	State Parks	Riley	Pratt	riley.pratt@parks.ca.gov
13	UCI	Brett	Sanders	bsanders@uci.edu
14	SC	Gene	JAMES	
15	City of San Juan Capistrano	Marc	Wron	Mwron@lsunickah.com
16	City of D.P.	Matthew	Kunk	mkunk@danapoint.org
17	City of San Clemente	Cecilia	Gallardo-Daly	gallardo-daly@san-clem.ca.gov
18	City of San Clemente	Samantha	Nylia	wyllies@san-clem.ca.gov
19	City of SC	Chris	Duncan	duncan@san-clem.ca.gov
20	OC Parks	Susan	Broleur	susan.broleur@ocparks.com
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22				
23				

Coastal Resilience Working Group

July 6, 2022 9:00 - 12:30

	Organization	First Name	Last Name	Email	
1	O.C. PARKS	STELLA	CEDEZVALL	STELLA.CEDEVALL@OC.PARKS.CO.CA	O.C. PARKS CO. CA
2	OCTA	Alison Army		aarmy@octa.net	FUR
3	OCTA	Laura	Sato	lsato@octa.net	DAN
4	Gabriellino Shoshone Tribal Council	Gabrielle	Crowe	gabrielle@ballona.org	PHU
5	Cabo Bay District	Lester	Meyerhoff	Lester.Meyerhoff@capobay.org	
6	ANILNOI YEA	Deanna	Brown	deanna@anilnoiyea.org	att.net
7	ANILNOI YEA	Makenzie	BROWN	mkbrown@anilnoiyea.org	700000
8	Caltrans D12	Scott	Shelley	scott.shelley@caltrans.ca.gov	DOT.CA.GOV
9	Cape San Lucas	ERIC	Anderson	eric@capo.org	Stevenson
10	DPHS	KEITH	JOHANNES	kjohannes1@cox.net	
11	Capistrano Bay CSD	Don	Russell	drussella@capobay.org	
12	Dana Point	Jimmy	Armenta	JArmenta@danapoint.org	
13	Sea Grant	Tim	Brown	tim@brown.org	
14	Cypress Cove	Michelle	Brooks	michelle@marinbrooks.com	Brooks
15	Seaside Center	Wendee	WELLS	wells@seasidecenter.org	WELLS
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DATE: March 6, 2024

TO: Ella McDougall, State of California Natural Resources Agency
Justine Kimball, State of California Natural Resources Agency

FROM: Susan Brodeur, Senior Coastal Engineer
Makana Nova, Coastal Planning Manager

SUBJECT: **South Orange County Coastal Resiliency Strategic Plan – Tribal Outreach Efforts**

This deliverable memorandum details the current efforts of Orange County Parks, to-date, to reach out to local tribal contacts for consultation on the South Orange County Coastal Resiliency Strategic Plan. The following list summarizes the outreach efforts, persons contacted, action taken, and responses received:

Correspondence To-Date

- 12-13-2021 Stakeholder Meeting 1
- 03-21-2022 Stakeholder Meeting 2, Gabrielle Crowe, representing the Gabrielino-Shoshone Tribal Council attended.
- 05-11-2022 Native American Heritage Commission (NAHC) request form sent
- 06-13-2022 NAHC Contact List provided
- 06-22-2022 Stakeholder Meeting 3
- 02-21-2023 Letters sent to NAHC contacts list (Refer to attached list with 19 contacts)
- 03-08-2023 Email acknowledging receipt of request letter received from Christina Conley for Gabrielino-Tongva Tribe. Comments were deferred to Acjachemen tribe.
- 04-12-2023 Email request sent to Michael Esgro at California Natural Resources Agency (CNRA)
- 04-17-2023 Email request sent to Michael Esgro at CNRA
- 05-03-2023 Email request sent to Tina at Sacred Places Institute – no response
- 06-15-2023 Email request sent to Michael Esgro at CNRA
- 06-16-2023 Michael Esgro connected to Calla Allisson for statewide MPA Collaborative Network, further coordination planned
- 06-22-2023 Meeting with Calla Allison, Aubrie Fowler, and Jamie Blatter of MPA Collaborative Network to discuss their experiences and potential contacts with tribal outreach

- 11-08-2023 Makana Nova attends “Cultivating Consciousness in Acjachemen & Tongva Homelands” lecture at UC Irvine.
- 12-05-2023 Email request sent to Heidi Lucero, Chairwoman of the Juañeno Band of Mission Indians – Acjachemen Nation
- 12-18-2023 Follow-up email request sent to Heidi Lucero, Chairwoman of the Juañeno Band of Mission Indians – Acjachemen Nation
- 01-09-2024 Virtual meeting with Angela Mooney D’Arcy of Sacred Places Institute.
- 02-09-2024 Virtual meeting with Ciara Belardes, liaison to Acjachemen tribal elders. Ms. Belardes confirms she can attend the upcoming stakeholder meeting on March 13, 2024, and mentions she intends to share this opportunity with several other tribal representatives.

We continue to reach out on a more personal level to the contacts provided for the Acjachemen tribe on the NAHC contact list, since correspondence received suggests, they would be the most knowledgeable of the geographic area south of Dana Point. At this point, we have established a great point of contact with Ms. Ciara Belardes and look forward to continuing to work with her and other tribal elders for the Acjachemen tribe to review the Strategic Plan and identify input opportunities.

As we embark on the final outreach process with the draft Strategic Plan, we remain open to further opportunities to consult with the Native American community prior to release of the final Plan. We also intend to send invitations to the contacts on the NAHC contact list for our upcoming Stakeholder meeting where we will present the draft plan.

Please feel free to reach out to Susan Brodeur, Senior Coastal Engineer, at 949-585-6448 or susan.brodeur@ocparks.com, or Makana Nova, Coastal Planning Manager, at 949-585-6441 or makana.nova@ocparks.com if you have any questions or comments along the way.

Regards,



Coastal Planning Manager

Attachments:

- Correspondence to Date
- Stakeholder 1 Meeting Minutes 12-13-2021
- Stakeholder 2 Meeting Minutes 03-21-2022
- Stakeholder 3 Meeting Minutes 06-22-2022

CC:

- Jeaniene Casiello, Planning & Design Division Manager
- Sheila Cedervall, Senior Landscape Architect
- Marisa O’Neil, Grants Manager