



Carpinteria Living Shoreline Dune and Shoreline Management Plan

Beach Erosion Authority for Clean Oceans and Nourishment
May 21, 2021

Planning for Shoreline Protection

- City Winter Storm Berm Program
- City Sea Level Rise Vulnerability Assessment and Adaptation Plan
- City General Plan/ Local Coastal Plan Update
- **City Dune and Shoreline Management Plan**
- Santa Barbara Climate Collaborative Sea Level Rise Subcommittee
 - Sediment management, short and long term SLR collaboration



Sea Level Rise (SLR) in Carpinteria

- Projections range - reasonable worst case in the City is **5 feet by 2100**
- Increases coastal flooding in low-lying areas and coastal erosion
- Impacts:
 - Property
 - Transportation
 - Coastal Access
 - Recreation
 - Economic



Coastal erosion and damage during historically large El Niño of 1982-83.

Key SLR Vulnerabilities in Carpinteria

- Downtown commercial corridor
- Beach Neighborhood and shorefront properties
- Regional and local infrastructure, including roads, rail, parks, utility lines, and storm drains
- Unprotected low-lying coastline is where the most vulnerable and some of the most valuable assets are
 - 41 affordable housing units
 - 213 campsites within Carpinteria State Park
- Combination of fluvial and coastal flood hazards



Existing Shoreline Protection



Rock revetment upcoast on County property



Vegetated dunes downcoast on State Parks property

City Beach Shoreline

- Low-lying area currently unprotected majority of the year
- Blockage of natural sediment flow and movement of sediment upland is contributor to narrow beach width
- Recent major sediment disposal activities



Source: Coastal View News 2020

Goals and Key Drivers of the Project

- Protect vulnerable areas and resources of the City
- Achieve important co-benefits to public health and recreation, the local economy, and natural ecosystems along Carpinteria coast
- Involve a variety of stakeholders to meet shared interests
- Identify possible funding sources for ongoing maintenance



Dune and Shoreline Management Plan

- Analyze living shoreline alternatives to build resiliency to coastal hazards
- Investigate constraints and feasibility of different living shoreline designs
- Perform cost-benefit analysis of design and maintenance tradeoffs
- Develop a conceptual living shoreline design with a longer-term plan for regional management



Project Area

Legend
— 5 ft Contour (NAVD88)



- REACH 1 - Inlet to Ash Ave
- REACH 2 - Ash Ave to Linden Ave
- REACH 3 - Linden Ave to Carpinteria Creek
- REACH 4 - Carpinteria Creek to Tarpits

Constraints and Feasibility Analysis

Purposes:

- Analyze potential opportunities and site constraints for living shoreline design
- Determine factors involved in living shoreline implementation
- Inform preliminary conceptual design alternatives



Example of vegetated dunes downcoast on State Parks property



Opportunities in Carpinteria



Opportunities – Potential Components

- Beach Nourishment
 - *Sediment Sources*
 - *Sediment Placement*
- Cobble Nourishment
- Dune Habitat Restoration
- Sand Retention Strategies



Opportunities - Examples

Cardiff Beach Living Shoreline
Encinitas, CA



Surfer's Point Living Shoreline
Ventura, CA



Cape Lookout
Oregon



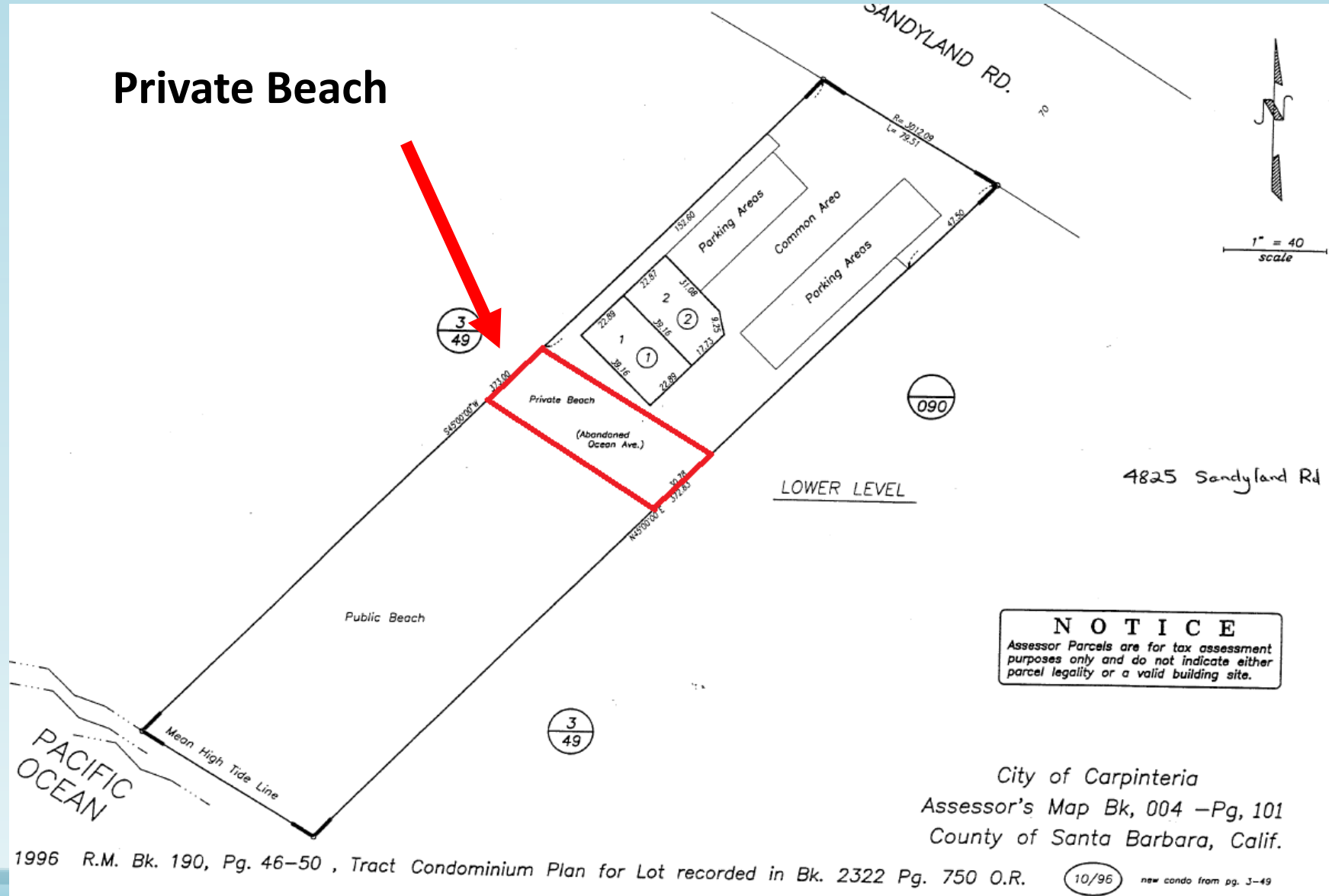
Site Constraints

- Topography/Bathymetry
- Biological Resources
- Project Footprint Ownership Agreements
- Maintaining Public Access
- Minimizing Viewshed Impacts
- Construction/Maintenance Noise and Disruption



Site Constraints

Private Beach



NOTICE
Assessor Parcels are for tax assessment purposes only and do not indicate either parcel legality or a valid building site.

City of Carpinteria
Assessor's Map Bk, 004 -Pg, 101
County of Santa Barbara, Calif.

1996 R.M. Bk. 190, Pg. 46-50 , Tract Condominium Plan for Lot recorded in Bk. 2322 Pg. 750 O.R. (10/96) new condo from pg. 3-49

Different Types of Shoreline Protection

Soft/Natural Structures

- Living shorelines, dunes, berms, beach nourishment
- Can provide shoreline habitat
- Not always best-suited for high-energy environments
- More aesthetically pleasing than hard structures



Vegetated dunes and winter berm in Carpinteria

Different Types of Shoreline Protection

Hard Structures

- Seawalls, revetments, groins
- Can alter natural shoreline processes
- Can increase erosion on adjacent properties
- Do not provide habitat



*Top left: Revetment in Carpinteria.
Right: Revetment at Goleta Beach.
Bottom left: Seawall in Summerland
(Source: UCSB The Current 2017).*

Project Design Strategies



Dune Restoration



Beach Nourishment

Combination Option



Groin



Cobble



Artificial Reef / Breakwater

Date: 9/5/2020
Document Path: C:\Users\colsthum\Documents\Conor_Obstun\M&N_General\City of Carpinteria Living Shoreline\Reaches.mxd

-  = Beach Nourishment
-  = Dune Restoration
-  = Dune Enhancement
-  = Groin (sand retention structure)

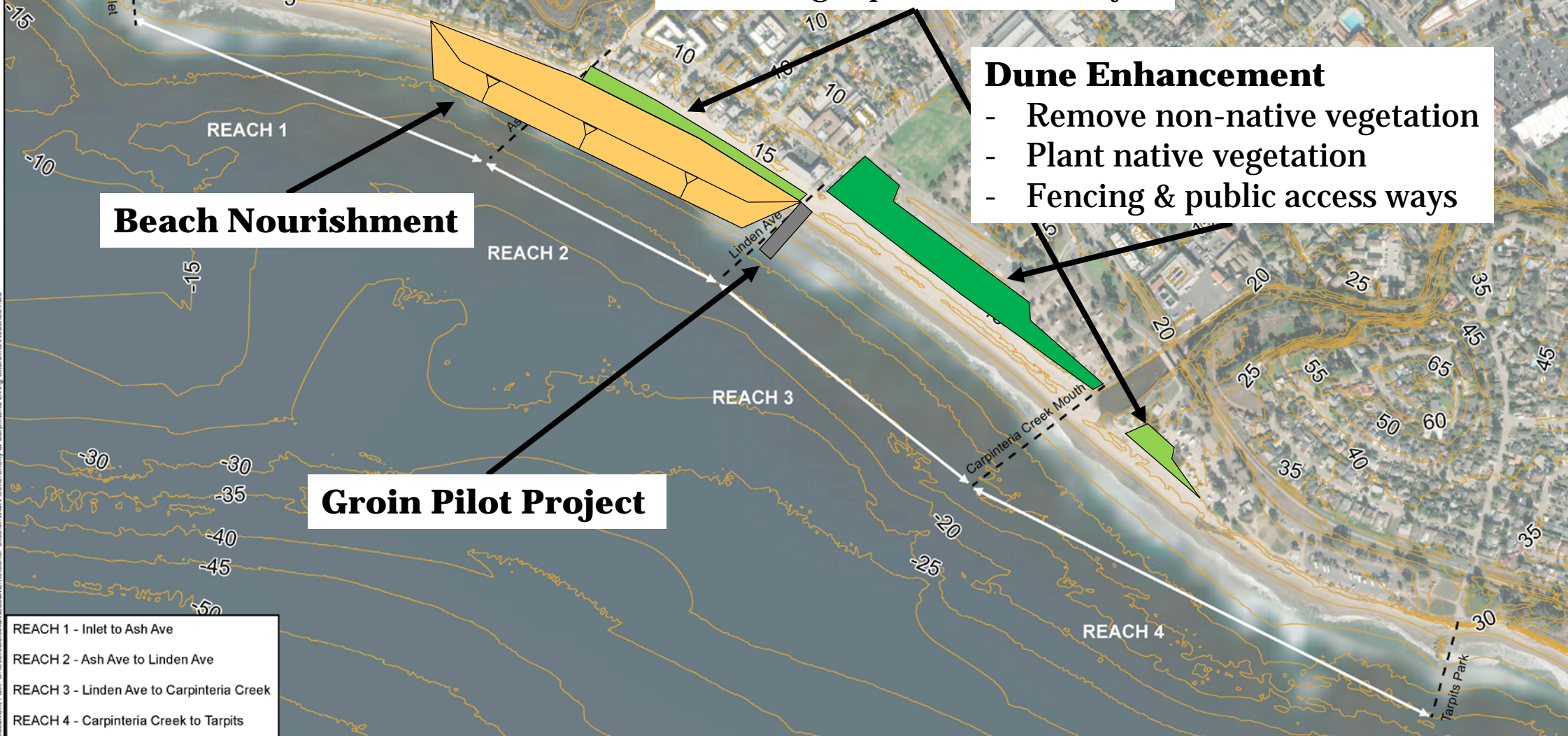
- ### Dune Restoration
- Build dunes w/cobble core
 - Plant native vegetation
 - Fencing & public access ways

- ### Dune Enhancement
- Remove non-native vegetation
 - Plant native vegetation
 - Fencing & public access ways

Beach Nourishment

Groin Pilot Project

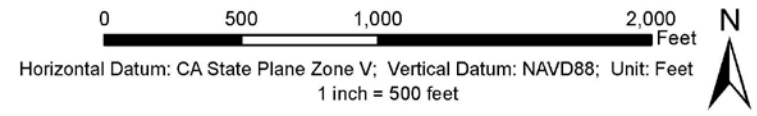
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CITY OF CARPINTERIA
Dune and Shoreline Management Plan
Basemap



Project Timeline

Public
Outreach and
Agency
Coordination

Coastal
Hazards
Modeling

Constraints
and
Feasibility
Analysis

Conceptual
Living
Shoreline
Design

Dune and
Shoreline
Management
Plan

Questions?



Thank You!

Questions, comments, concerns:

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