



# ocean beach

master plan

public workshop 3



draft recommendations

# ocean beach master plan draft recommendations



- ✓ analysis to 2100 horizon
- ✓ recommendations to 2050
- ✓ non-regulatory guidance document
- ✓ ongoing monitoring + adaptive management
- ✓ re-evaluation in 2030



## six (6) key moves

### SOUTH REACH

**KEY MOVE 1 :** Reroute Great Highway behind the Zoo via Sloat and Skyline

**KEY MOVE 2 :** Introduce a multi-purpose coastal protection/restoration/access system

### MIDDLE REACH

**KEY MOVE 3 :** Reduce width of Great Highway to provide Amenities / Managed Retreat

**KEY MOVE 4 :** Middle Reach Native Dune Restoration

### NORTH REACH

**KEY MOVE 5 :** Better Connection between Golden Gate Park and Beach

**KEY MOVE 6 :** Bicycle + pedestrian improvements north of Balboa

**ocean beach master plan  
draft recommendations**



**SOUTH REACH**

# ocean beach master plan draft recommendations

## KEY MOVE 1

reroute great highway behind the  
zoo via sloat and skyline





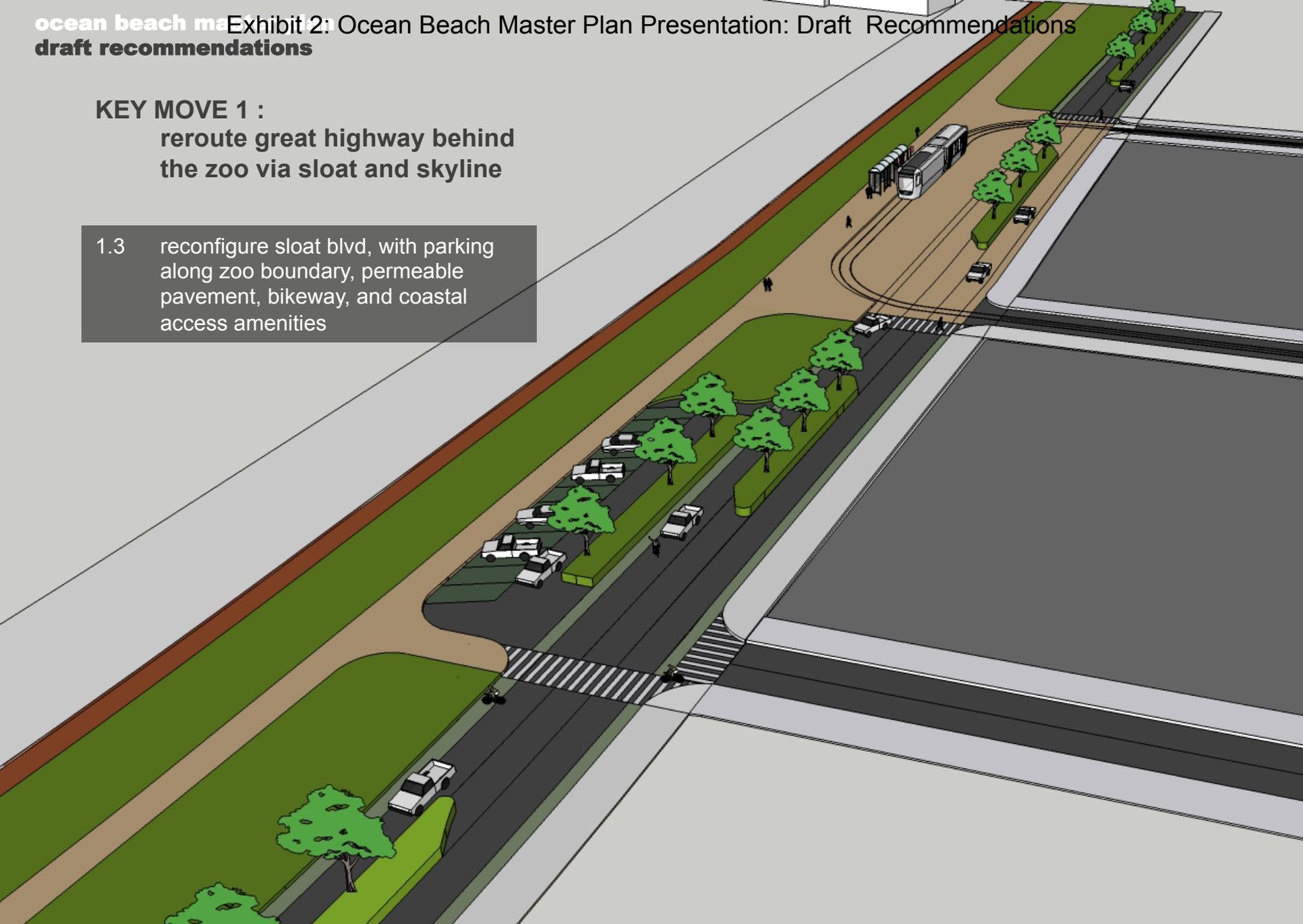
**KEY MOVE 1 :**

**reroute great highway behind the zoo via sloat and skyline**

- 1.1 reconfigure sloat/great highway and sloat/skyline intersections
- 1.2 maintain 1-lane out southbound from oceanside treatment plant (OTP) for trucks
- 1.3 reconfigure sloat blvd, with parking along zoo boundary, permeable pavement, bikeway, and coastal access amenities
- 1.4 pull L-taraval south across sloat, terminus at zoo gate
- 1.5 introduce coastal trail to ft funston
- 1.6 connect N-S to california coastal trail, linking lake merced all the way to marin
- 1.7 replace beach/zoo parking along armory road and using OTP roof
- 1.8 reopen armory road: skyline to zoo lot

**KEY MOVE 1 :**  
reroute great highway behind  
the zoo via sloat and skyline

1.3 reconfigure sloat blvd, with parking  
along zoo boundary, permeable  
pavement, bikeway, and coastal  
access amenities



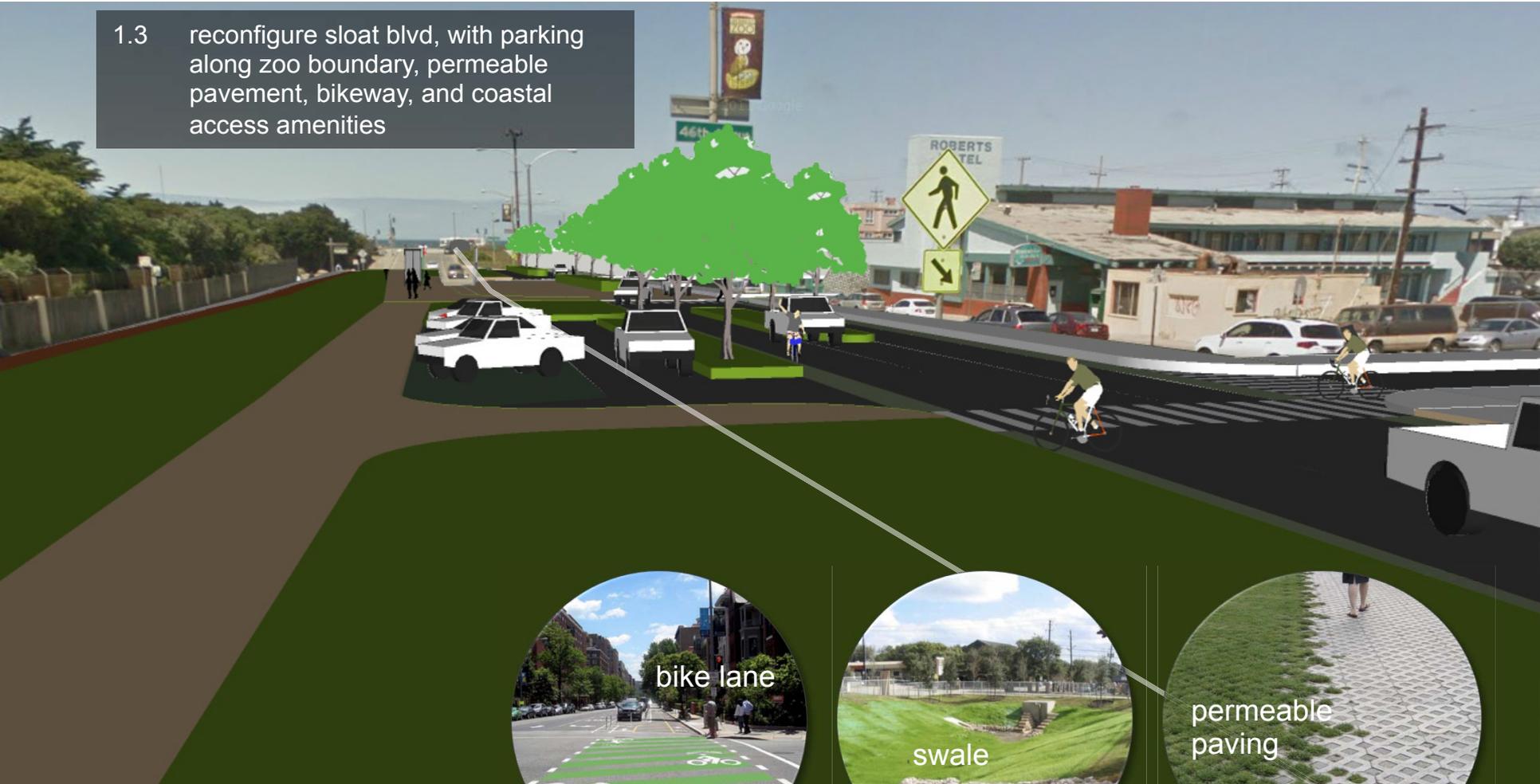
**KEY MOVE 1 :**  
reroute great highway behind  
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**BEFORE**

**KEY MOVE 1 :**  
**reroute great highway behind**  
**the zoo via sloat and skyline**

1.3 reconfigure sloat blvd, with parking along zoo boundary, permeable pavement, bikeway, and coastal access amenities



bike lane



swale



permeable paving

**AFTER**

**KEY MOVE 1 :**

**reroute great highway behind  
the zoo via sloat and skyline**

## **benefits**

- ✓ spectacular new coastal trail, continuous pedestrian connection
- ✓ enables significant retreat from coastal erosion
- ✓ more flexible infrastructure protection
- ✓ major improvements to sloat blvd design, with green infrastructure elements

## **constraints**

- ✓ some traffic impacts, likely minor
- ✓ requires reconfiguring zoo access
- ✓ cost of roadway and intersection improvements

## **outstanding questions**

- ✓ nature of traffic impacts?
- ✓ configuration of sloat blvd?
- ✓ funding sources?

# **ocean beach master plan draft recommendations**

## **KEY MOVE 2**

**introduce a multi-purpose coastal  
protection / restoration / access  
system**





**KEY MOVE 2 :**  
**introduce a multi-purpose coastal protection / restoration / access system**

- 2.1 withdraw from bluff edge, incrementally demolish roadway, parking, restroom at sloat
- 2.2 reinforce the lake merced tunnel in place with a low profile structure or internal ballast, remove revetments and fill
- 2.3 sand nourishment via army corps, develop and pursue best practices for beach nourishment
- 2.4 cobble berm over 1m tunnel covered by sand (via army corps sand nourishment) serves as wave dissipation zone; overwash occurs during severe storm events
- 2.5 second cobble berm protects force mains, high ground at pump station, fleishacker bldg

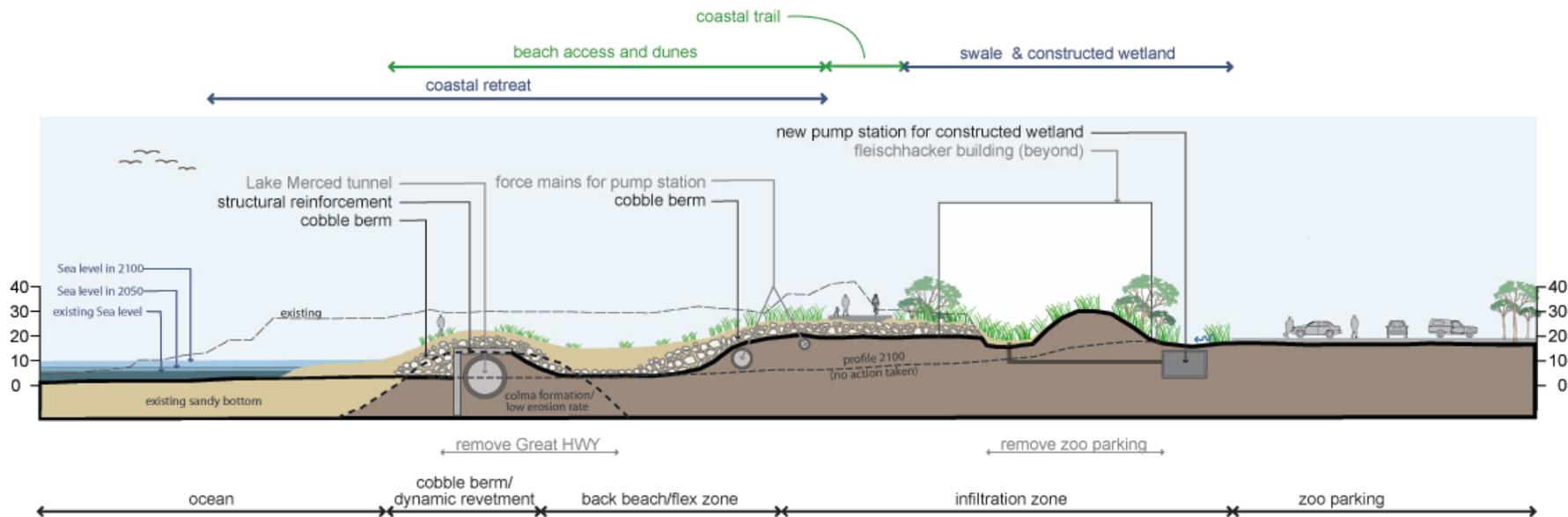


**KEY MOVE 2 (cont) :**  
**introduce a multi-purpose coastal protection / restoration / access system**

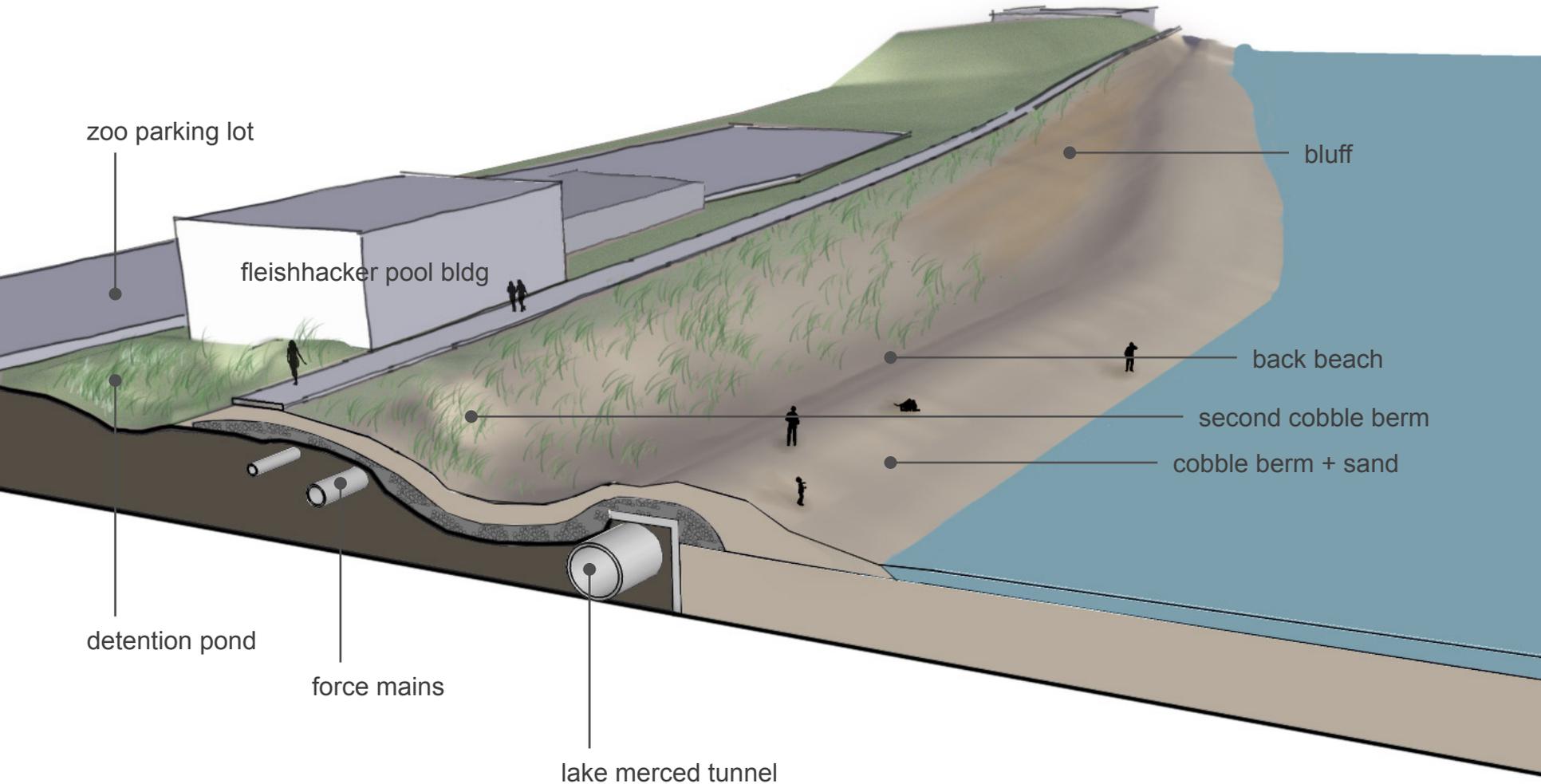
- 2.6 terraced, vegetated seawall with cobble toe along oceanside treatment plant, incorporating tunnel structure, coastal trail, erodible bluff (banks swallow habitat), and plant driveway
- 2.7 create detention swale (through zoo) and constructed wetland to passively clean and infiltrate stormwater from sloat blvd and adjacent parking
- 2.8 fleishacker bldg renovated as warming hut and interpretive center
- 2.9 pump station, force mains remain; interpretive elements explain the system to visitors. beautify pump station and reconfigure to maximize adjacent coastal access
- 2.10 conduct near-term pilot studies of dynamic coastal protection

**KEY MOVE 2 :**  
**introduce a multi-purpose coastal protection / restoration / access system**

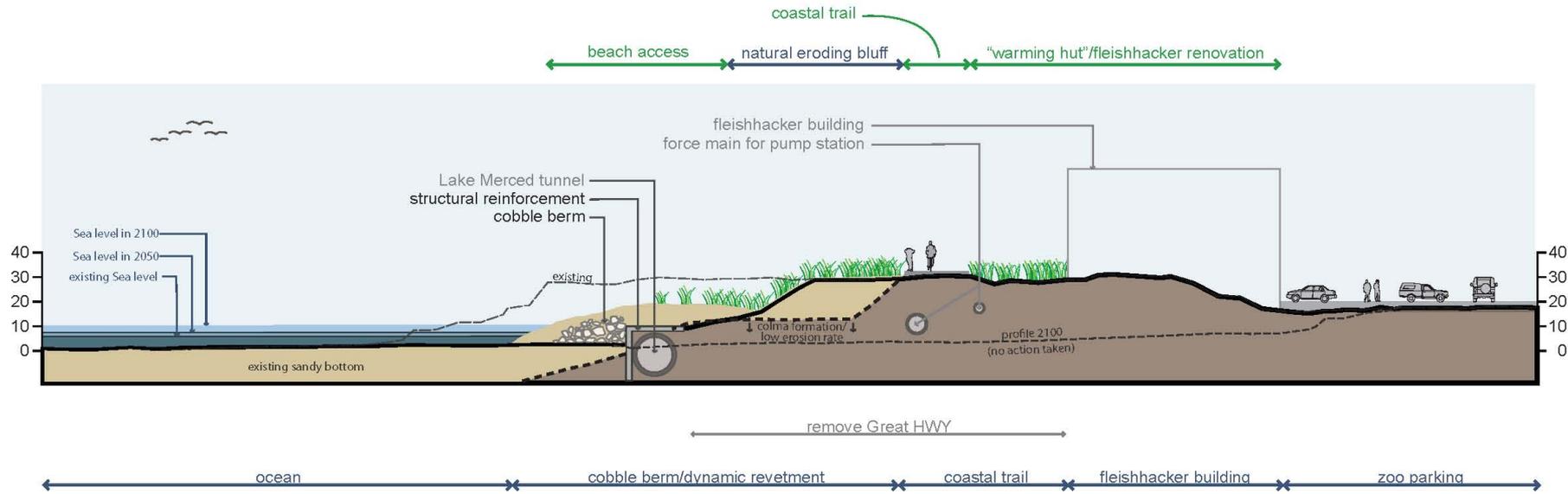
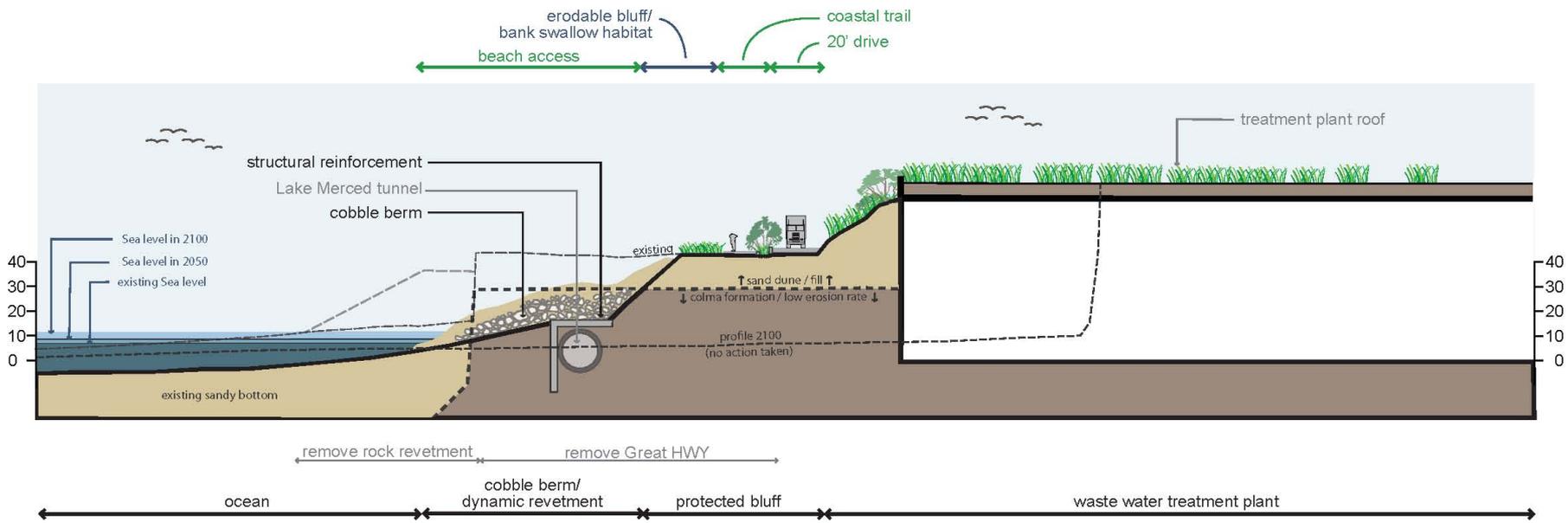
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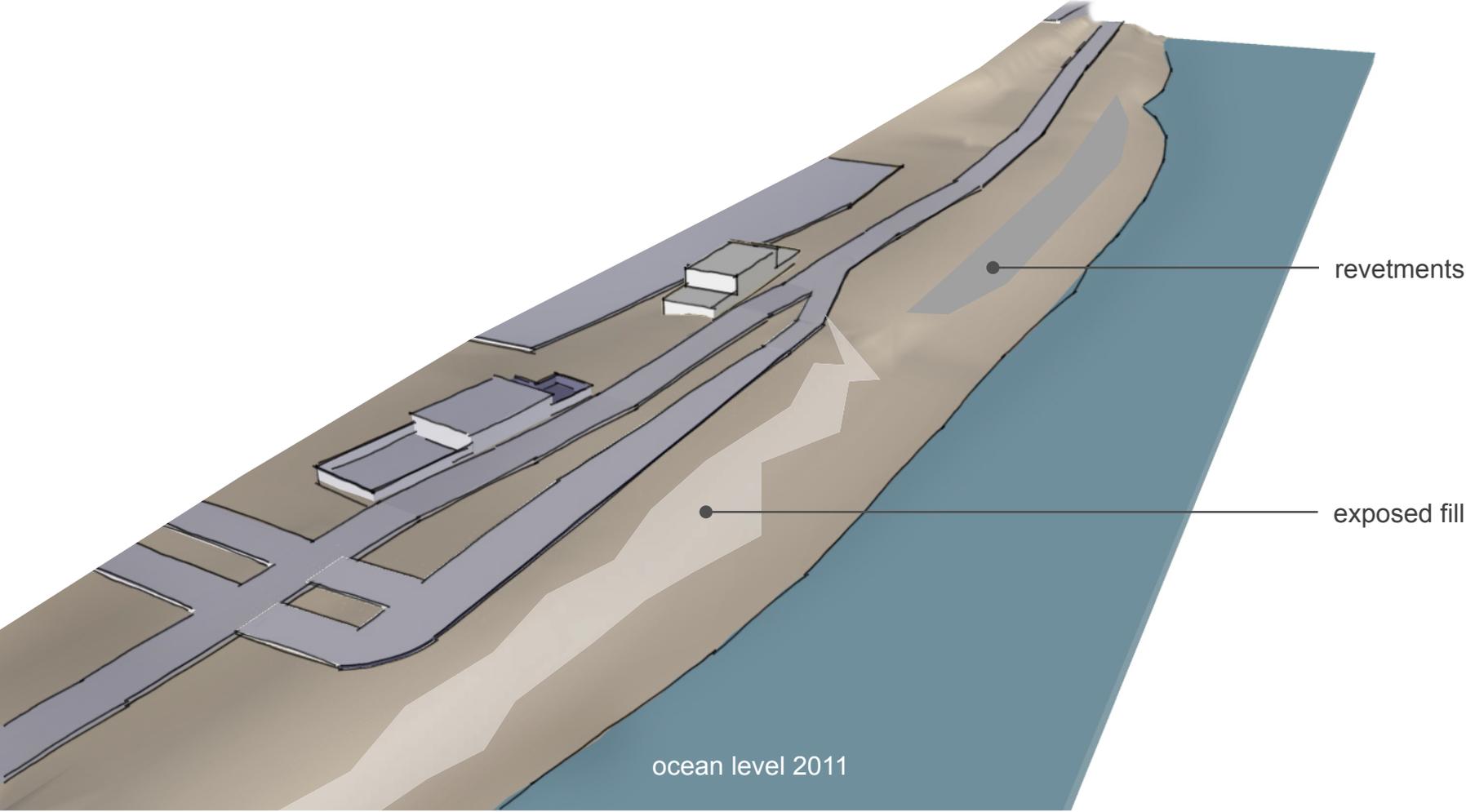


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**introduce a multi-purpose coastal**  
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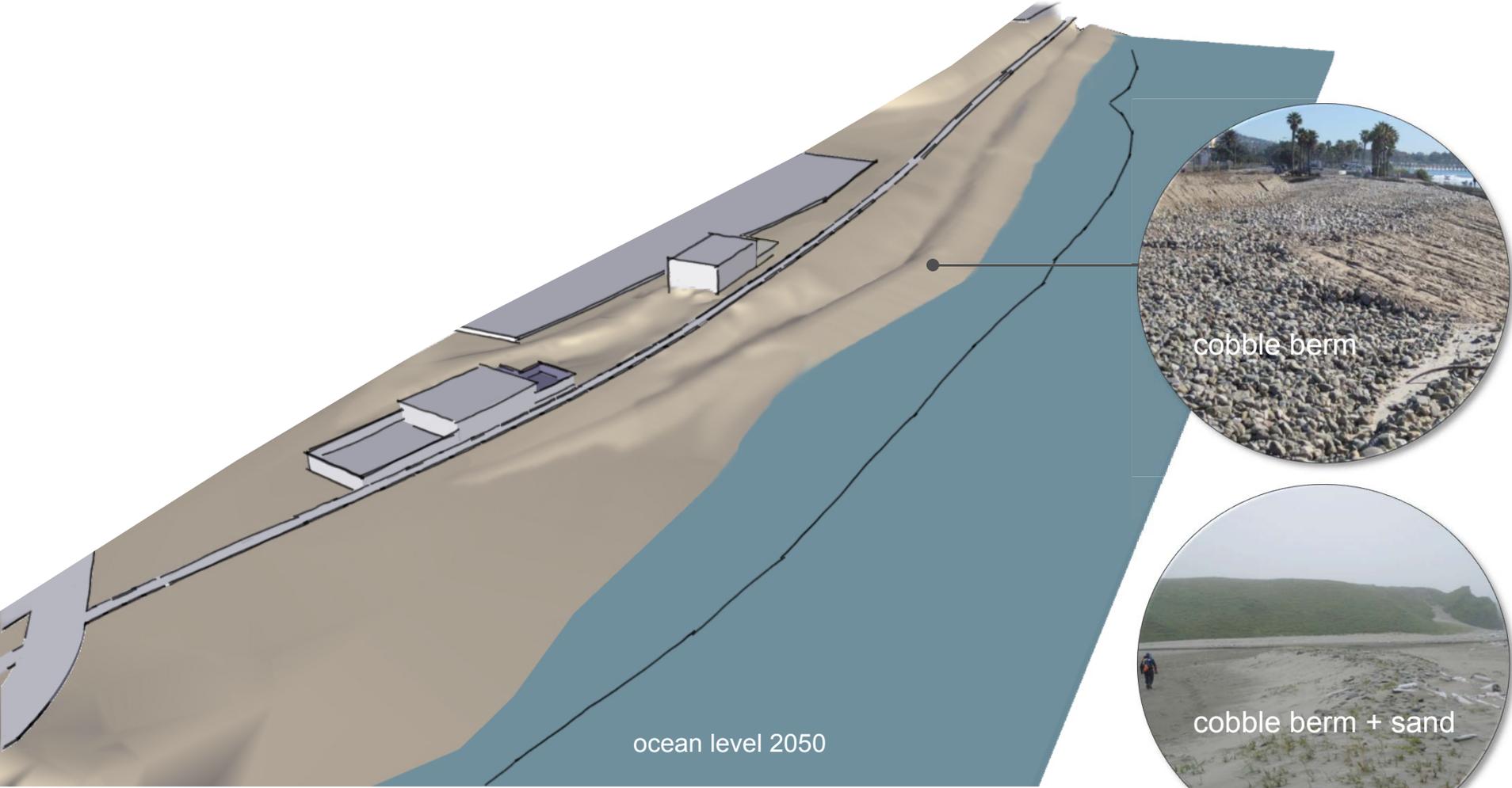


# Exhibit 2: Ocean Beach Master Plan Presentation: Draft Recommendations





**BEFORE**



**AFTER**

**KEY MOVE 2 :**

**introduce a multi-purpose coastal protection / restoration / access system**

## **benefits**

- ✓ incorporates significant coastal retreat
- ✓ protects costly infrastructure in place for decades
- ✓ a softer approach to coastal protection, that can work with coastal processes
- ✓ restores ecological and recreational function

## **constraints**

- ✓ significant up-front investment from multiple agencies
- ✓ challenging to maintain sand cover and surface restoration
- ✓ depends on careful integration with army corps beach nourishment
- ✓ new approach requiring careful study and monitoring

## **outstanding questions**

- ✓ can the tunnel be protected at a low enough profile for a reasonable cost?
- ✓ how will wave action interact with cobble and sand to shape the beach and berm?
- ✓ how will protection measures be phased to prevent spills, protect habitat, and manage cost?

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draft recommendations**



**MIDDLE REACH**

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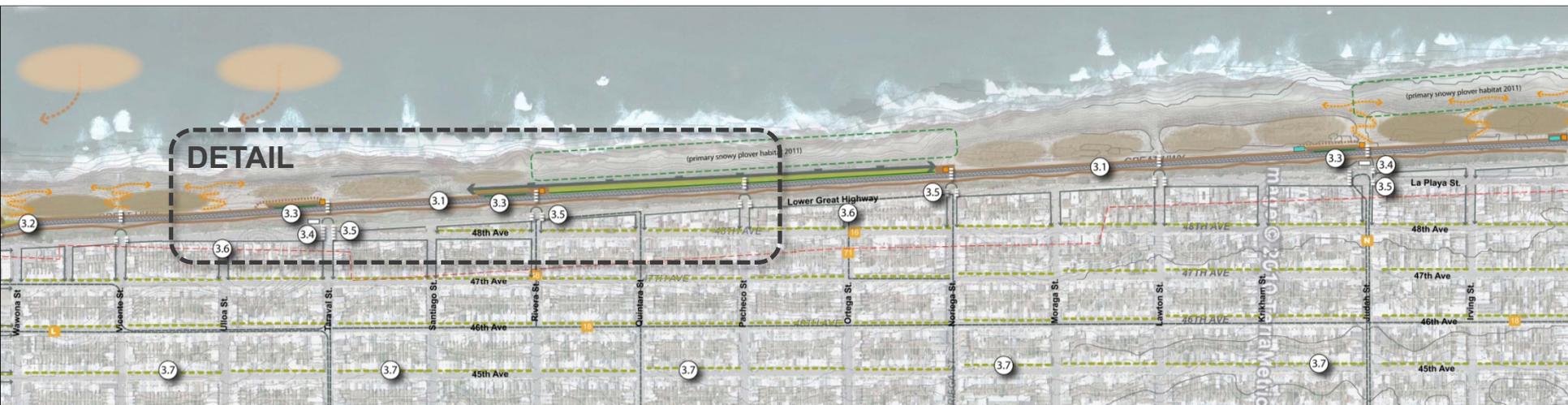
## KEY MOVE 3

**reduce the width of great highway  
to provide amenities / managed  
retreat**

**KEY MOVE 3 :**

**reduce the width of great highway to provide amenities / managed retreat**

- 3.1 reduce great highway from 4 lanes to 2 at balboa-sloat, including wide shoulder for cycling/emergency access; use current south-bound lanes and median for dune restoration, amenities
- 3.2 reconfigure great highway/sloat intersection slightly inland, following transport box to avoid erosion
- 3.3 introduce small pockets of parking distributed at key access nodes
- 3.4 powered by wind and solar restore existing restrooms; introduce 3 new off-the-grid restrooms
- 3.5 improve access at judah, taraval, rivera and noriega with trailheads/info, bike parking, vertical elements, etc
- 3.6 traffic calming and mitigation measures to lessen neighborhood traffic impacts
- 3.7 LID (Low-Impact Design) throughout adjacent neighborhoods to address stormwater management

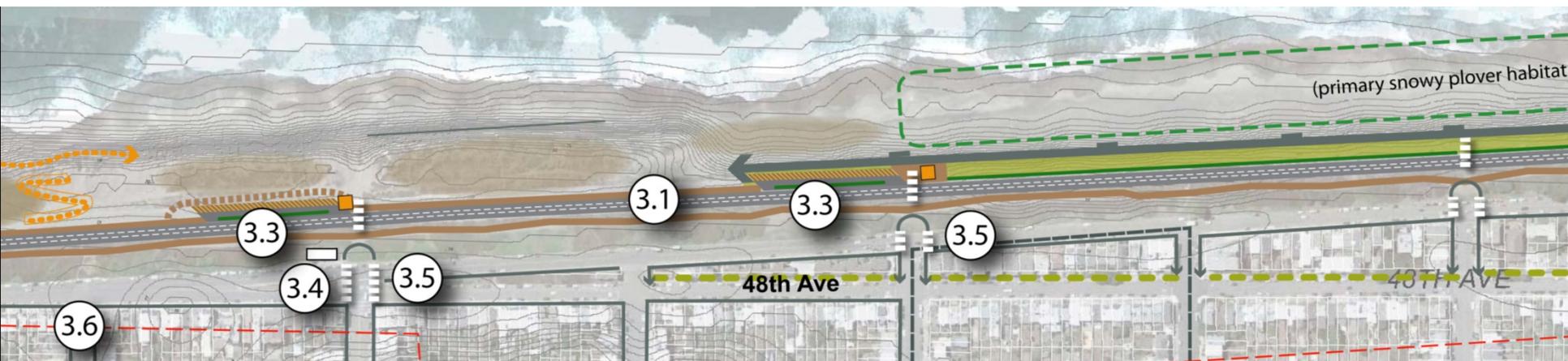


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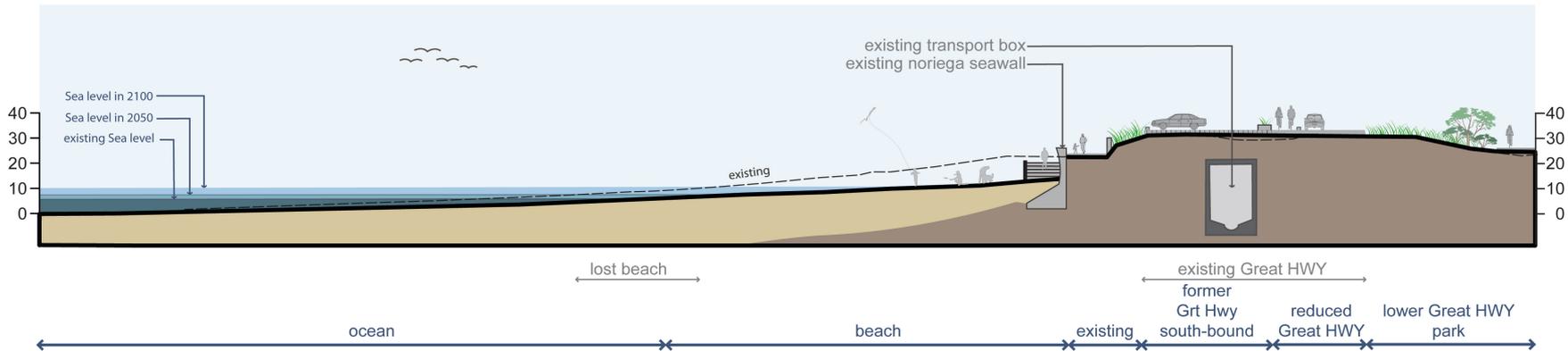
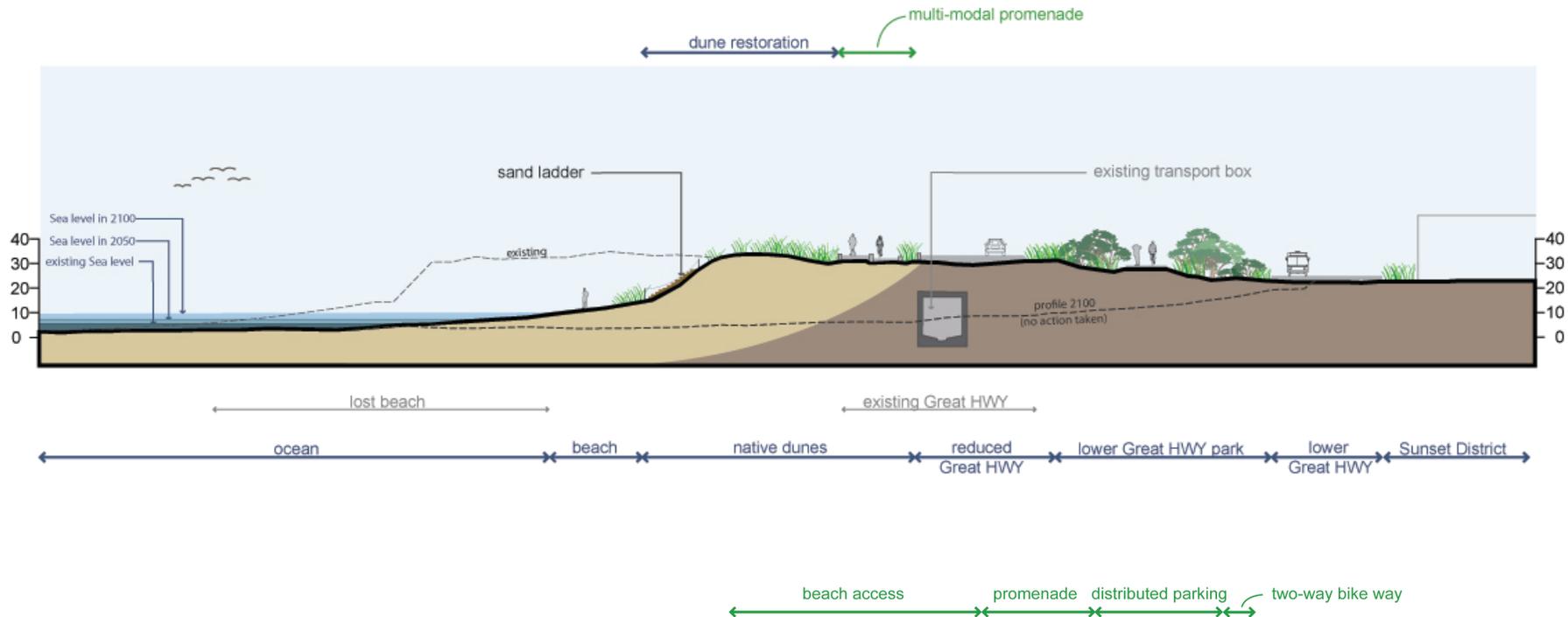
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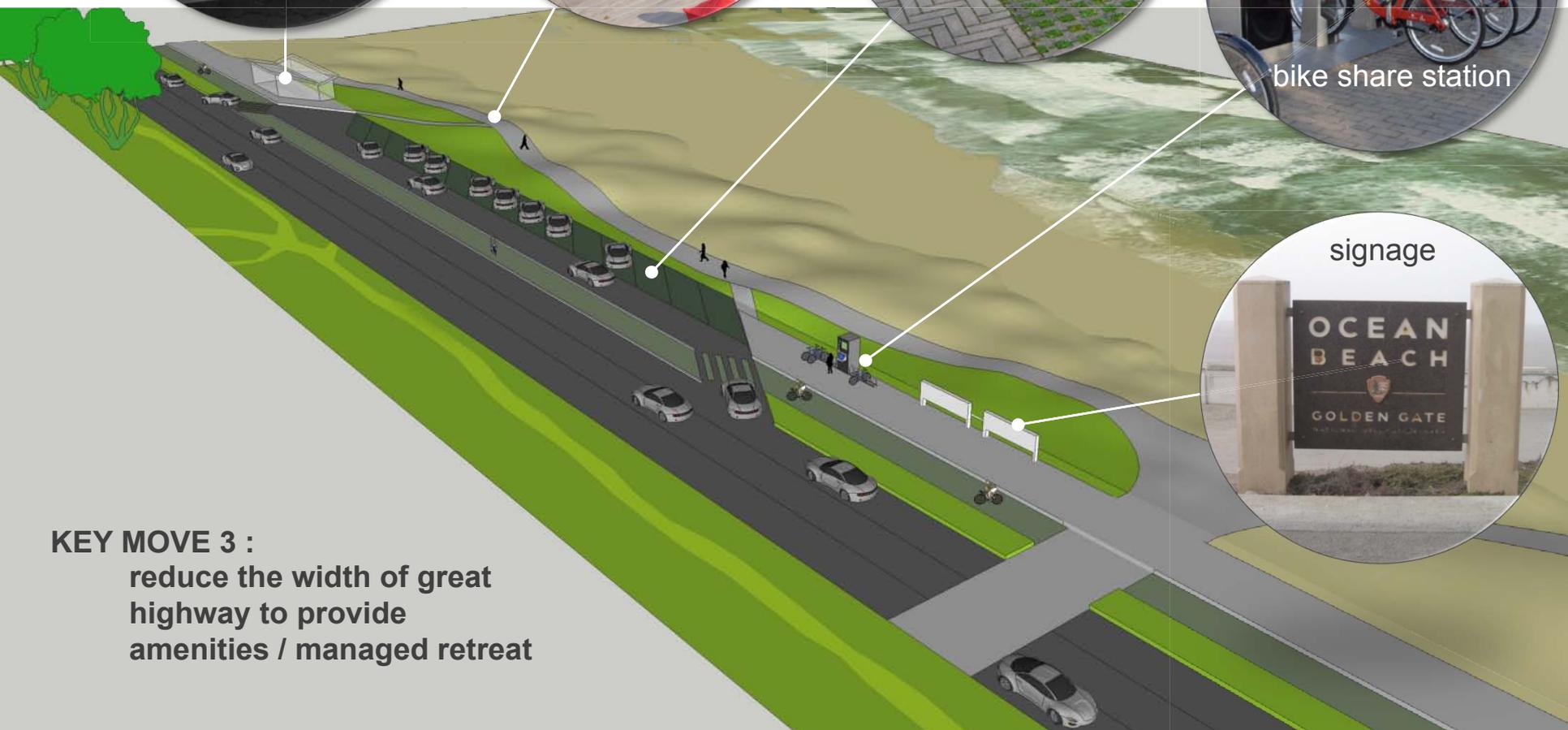
### DETAIL



# Exhibit 2: Ocean Beach Master Plan Presentation: Draft Recommendations



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**KEY MOVE 3 :**  
reduce the width of great highway to provide amenities / managed retreat

**KEY MOVE 3 :**

**reduce the width of great highway to  
provide amenities / managed retreat**

## **benefits**

- ✓ a restored dune system is given space to migrate landward, allowing a wider beach as sea-level rise sets in.
- ✓ allows space for additional amenities, improved beach access
- ✓ favors pedestrians, bicycles, beach access, and wildlife over traffic flow

## **constraints**

- ✓ traffic impacts, which may be significant, in adjacent neighborhoods
- ✓ limited space gained at substantial cost
- ✓ potential to bring more users to plover habitat areas
- ✓ some redundancy between recreational trails

## **outstanding questions**

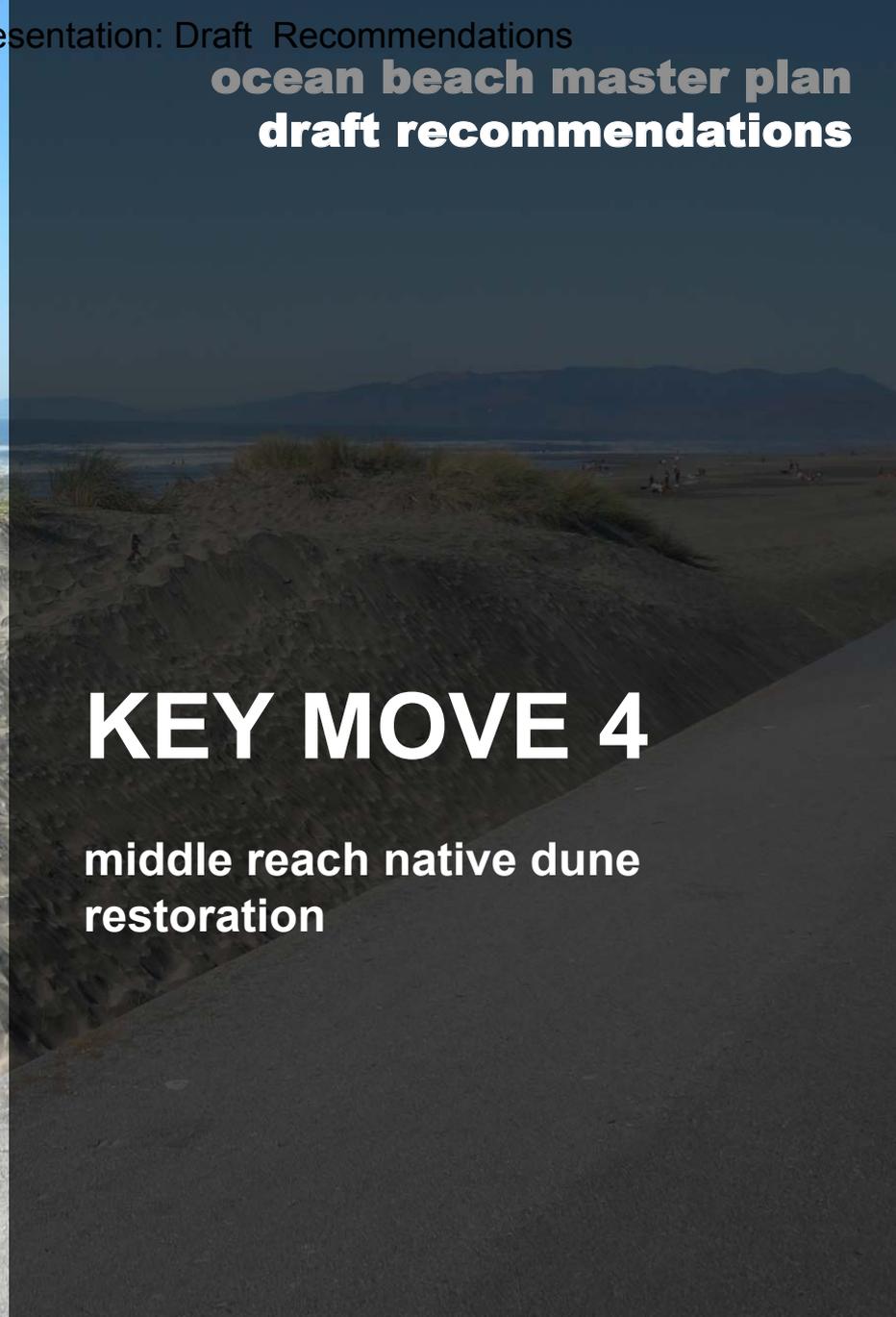
- ✓ what will traffic impacts be and to what degree can they be mitigated?
- ✓ how much additional beach width will result in the long run?

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draft recommendations**



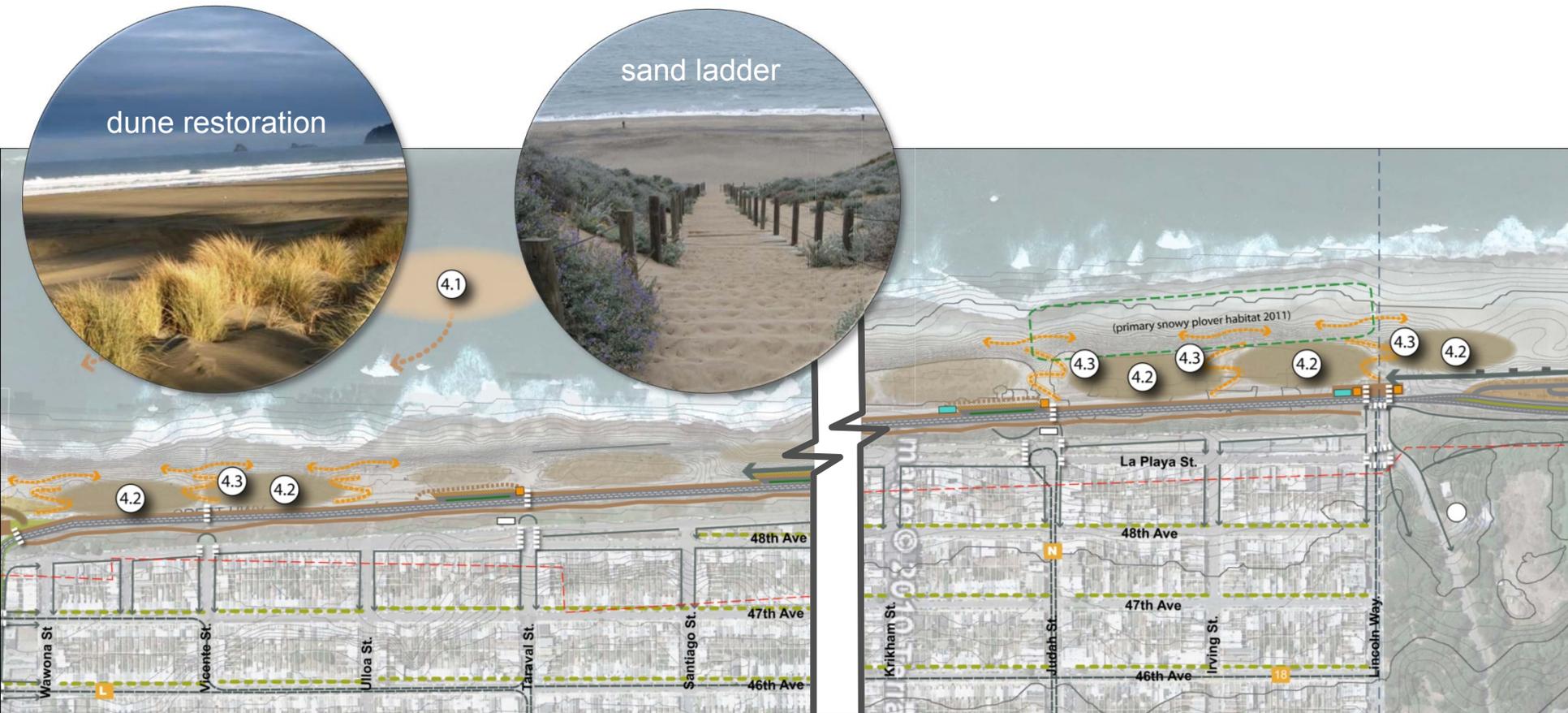
**KEY MOVE 4**

**middle reach native dune  
restoration**



**KEY MOVE 4 :**  
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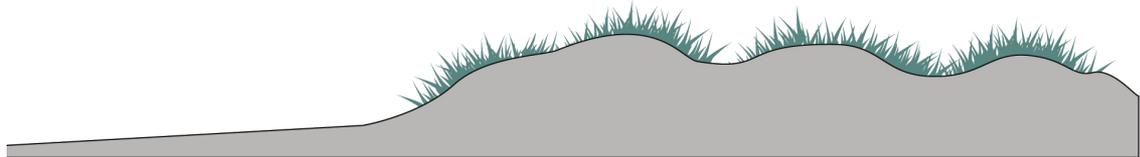
- 4.1 sand nourishment via army corps of engineers along southern end of middle reach
- 4.2 dune restoration in key locations: especially at lincoln, vicente
- 4.3 sand ladders and modular boardwalks provide access while limiting impact



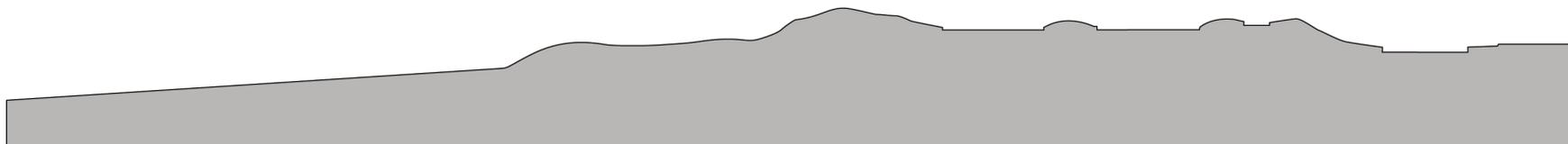
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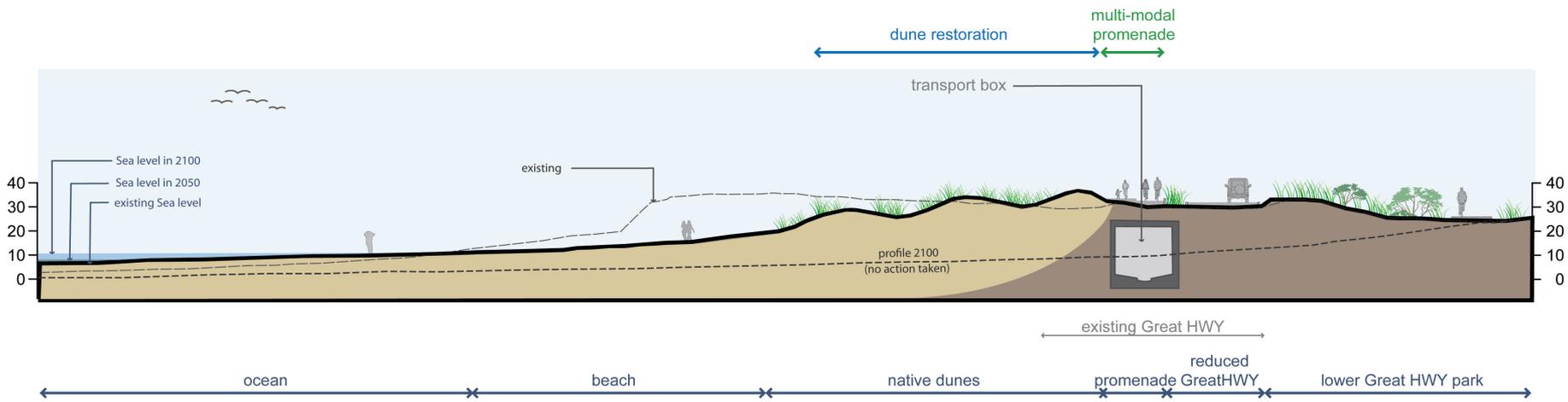
CA native dune profile



non-native dune profile



EXISTING non-native dune at OB



PROPOSED native dune restoration

**KEY MOVE 4 :****middle reach native dune restoration****benefits**

- ✓ ecological restoration and improved aesthetics
- ✓ removal of non-native species
- ✓ lower profile will allow more visual access to the ocean
- ✓ potential for improved sand management with lower profile

**constraints**

- ✓ significant cost
- ✓ challenge of fully removing non-native grasses
- ✓ access to dunes limited to protect restoration

**outstanding questions**

- ✓ would a native dune form offer comparable coastal protection?
- ✓ to what degree would management of windblown sand be improved
- ✓ how can sand placed through beach nourishment best feed the dune system?

# ocean beach master plan draft recommendations



# NORTH REACH



# ocean beach master plan draft recommendations

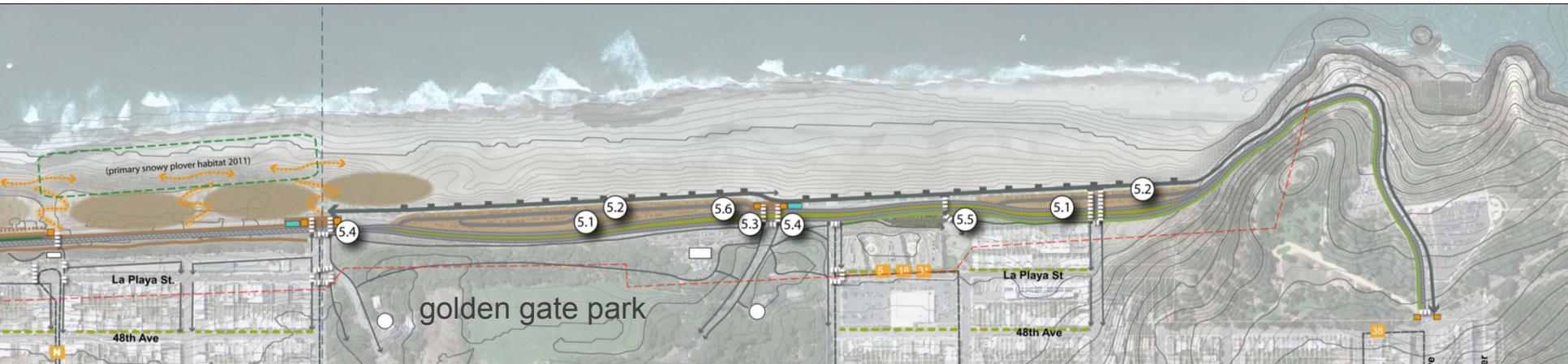
## KEY MOVE 5

better connection between golden  
gate park and beach



**KEY MOVE 5 :**  
**better connection between golden gate park and beach**

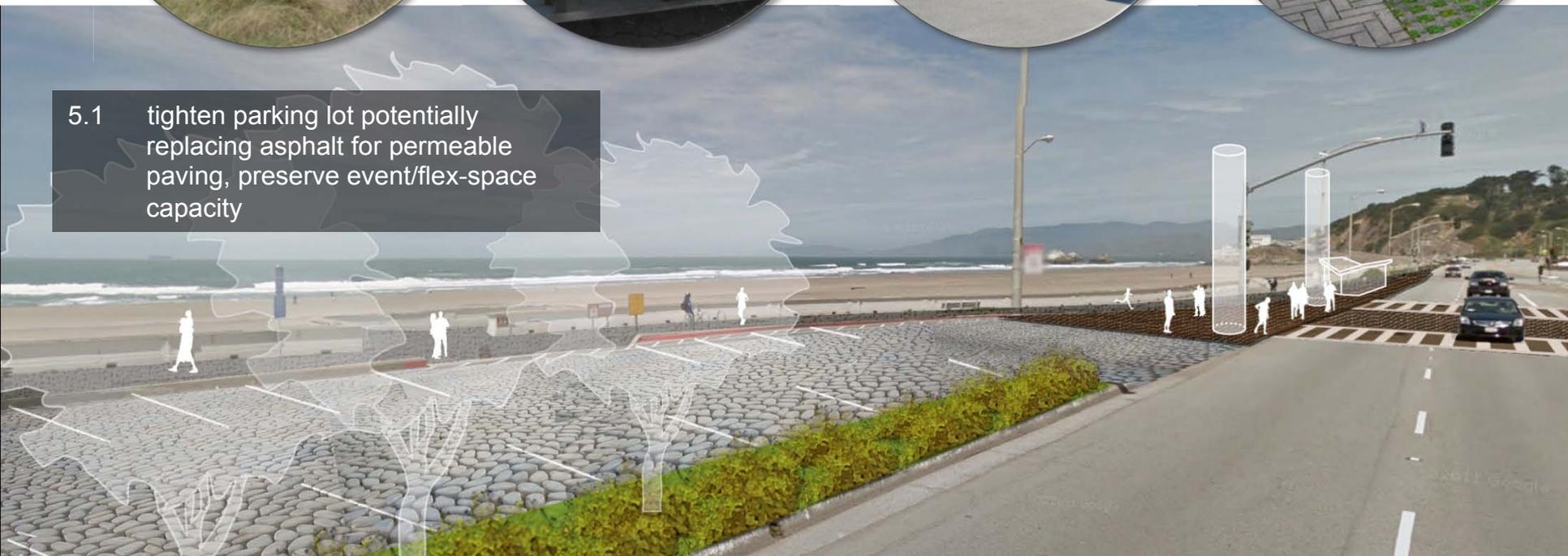
- 5.1 tighten parking lot potentially replacing asphalt for permeable paving, preserve event/flex-space capacity
- 5.2 maintain row of “watching the water” parking
- 5.3 modify parking entrances, and improve pedestrian crossings at JFK/beach chalet
- 5.4 provide vertical arrival element / overlook at ends of golden gate park
- 5.5 add east side bike lanes (in both directions) north of fulton to balboa, connect bike trail with existing GGP trail right-of-way
- 5.6 add abundant bike parking
- 5.7 joint city/federal parking management plan, consider some fee parking on peak days
- 5.8 introduce landscape site elements and seating appropriate to rugged conditions and introduce and restore climate appropriate/native landscape



**KEY MOVE 5 :**  
**better connection between golden gate  
park and beach**



5.1 tighten parking lot potentially replacing asphalt for permeable paving, preserve event/flex-space capacity



## **KEY MOVE 5 :**

**better connection between golden gate  
park and beach**

## **benefits**

- ✓ a sense of arrival in a context-appropriate landscape
- ✓ improved basic amenities at the busiest access point
- ✓ maintains parking and event capacity while improving pedestrian and bicycle safety
- ✓ improved environmental performance with permeable paving, alternative energy

## **constraints**

- ✓ cost
- ✓ interagency management challenges

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**KEY MOVE 6**

**bicycle + pedestrian  
improvements north of balboa**

**KEY MOVE 6 :**  
**bicycle + pedestrian**  
**improvements north of**  
**balboa**

- 6.1 narrow great highway north of balboa (from 4 to 2 lanes)
- 6.2 keep diagonal cliff house parking
- 6.3 narrow point lobos avenue from 4 lanes to 2, add 2-way separated bikeway on inland side; separated bikeway along cliff to prevent bicycle/vehicular conflict on steep slope
- 6.4 connect bike lane to bike trail to lands end and add "bicycle box" at pt lobos and 49<sup>th</sup>



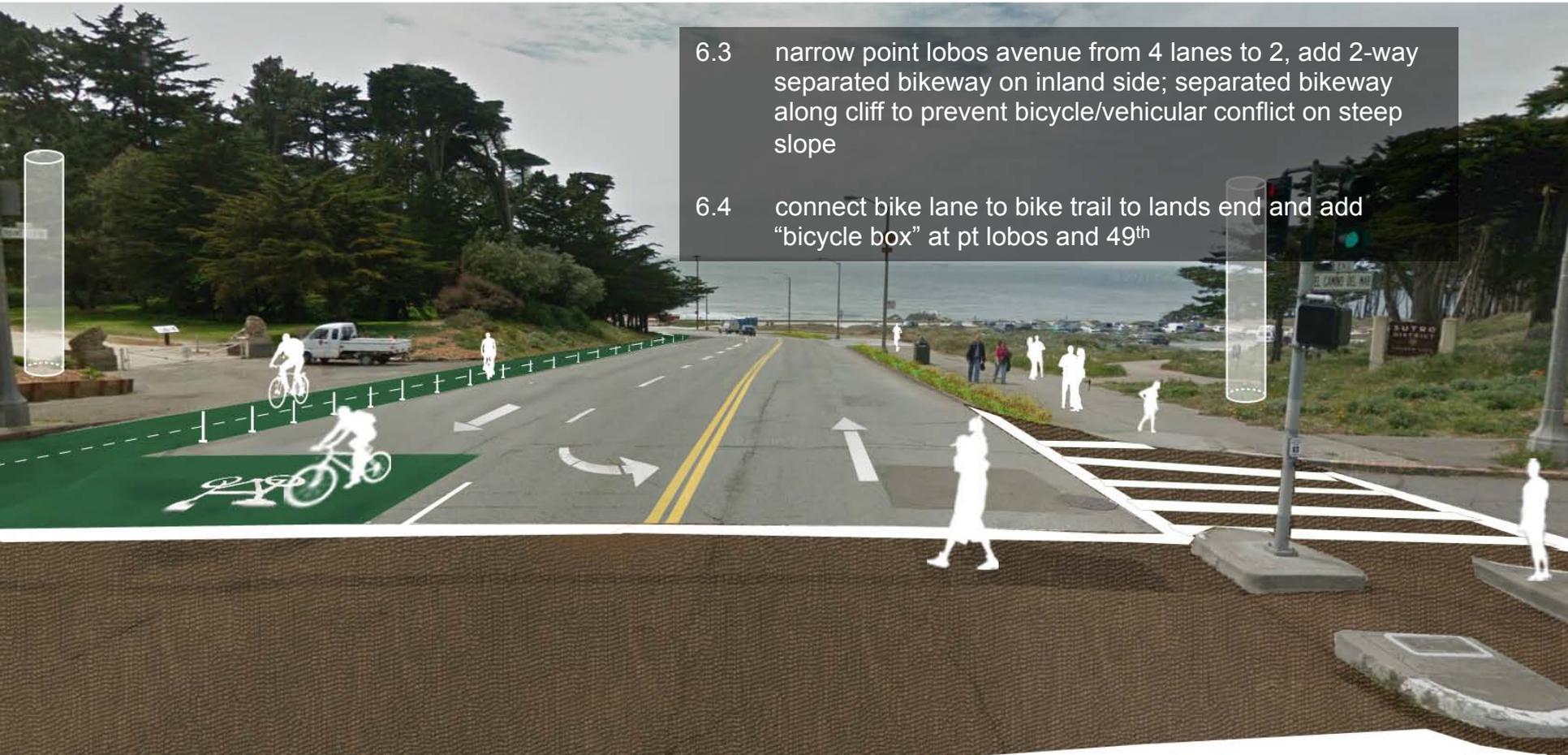
**KEY MOVE 6 :  
bicycle + pedestrian  
improvements north of  
balboa**



**BEFORE**

**KEY MOVE 6 :**

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**AFTER**

**KEY MOVE 6 :**

**bicycle + pedestrian improvements  
north of balboa**

## **benefits**

- ✓ improved pedestrian, bicycle safety, shortened crossings
- ✓ improved aesthetics and street design
- ✓ maintains cliff house parking while reducing car-bike conflicts
- ✓ enhances key recreational connection to land's end, coastal trail

## **constraints**

- ✓ modest traffic impacts

## **outstanding questions**

- ✓ what is the optimal arrangement of bicycle lanes along point lobos avenue?
- ✓ what will the traffic impacts be?

## after 2050

- ✓ with the same assumptions:
  - ✓ additional armoring will likely be required
  - ✓ availability of sand may change
  - ✓ beach may become difficult to maintain
- ✓ revisit assumptions and adapt in 2030
  - ✓ infrastructure configuration
  - ✓ private property acquisition

## key move 7

### ocean beach master plan adaptive revision : 2030

- ✓ better data on climate change
- ✓ advances in techniques and policies
- ✓ more public awareness
- ✓ 2 decades of proactive management
- ✓ 2 decades left in phase I

## implementation updates

- ✓ **Army Corps beach nourishment process update**
  - ✓ **Environmental Review Documents Pending**
  - ✓ **Beneficial Reuse Plan in Draft Form**
  - ✓ **Dredge retrofit awaiting funding**





## implementation updates

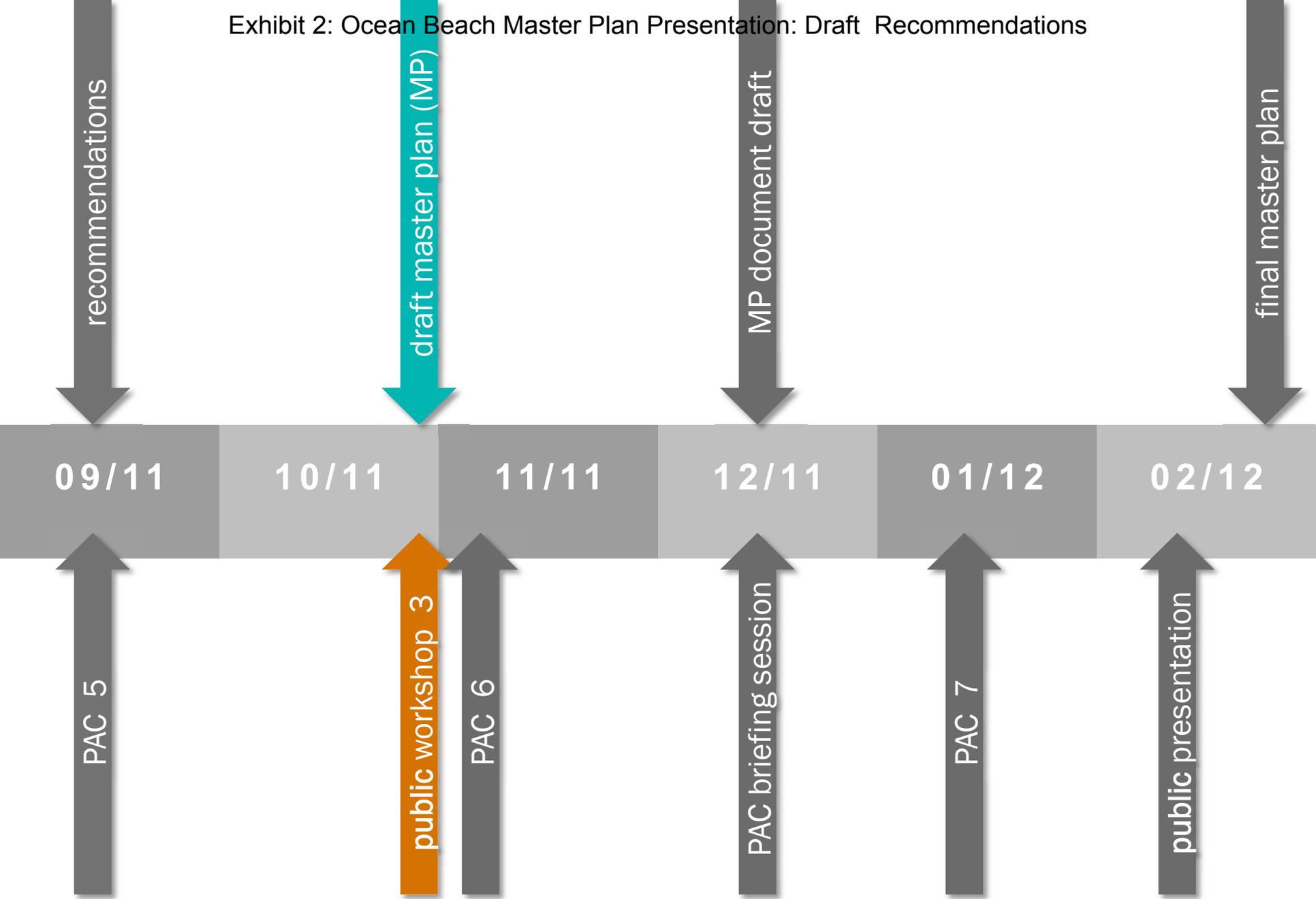
- ✓ **OBMP implementation roadmap in progress**
  - ✓ **projects**
  - ✓ **lead and partner agencies**
  - ✓ **regulatory process**
  - ✓ **funding opportunities**

## implementation updates

- ✓ **Several efforts already pending**
  - ✓ **Recreation and Open Space Element (SF General Plan)**
  - ✓ **GGNRA General Management Plan Update (in Draft)**
  - ✓ **Urban Watersheds Framework (SFPUC)**
  - ✓ **"Tier 5" Westside Transportation Study (meeting 11/2, SFSU)**



Exhibit 2: Ocean Beach Master Plan Presentation: Draft Recommendations



**master plan document draft : december 2011**  
**next public meeting : february 2012**

**questions / comments / suggestions?**  
**email: [oceanbeach@spur.org](mailto:oceanbeach@spur.org)**