

## RESILIENT COAST SANTA CRUZ

BUILDING RESILIENCE  
TO SEA LEVEL RISE



# CASE STUDY IN COMMUNITY ENGAGEMENT

AUGUST 17, 2021

CALIFORNIA ADAPTATION FORUM

TRACK 2 | WORKSHOP 2  
INTEGRATED PLANNING FOR HOLISTIC  
SOLUTIONS

# OUR MEETING IS HELD ON NATIVE LAND

[USDAC.US/NATIVELAND](https://USDAC.US/NATIVELAND)



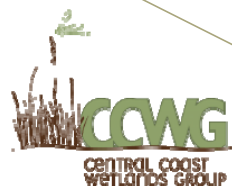


[www.cityofsantacruz.com/ResilientCoast](http://www.cityofsantacruz.com/ResilientCoast)



West Cliff Drive Adaptation  
and Management Plan

*\$343,000 CalTrans funding; \$44k match*



Development of LCP Sea Level  
Rise Strategies & Policies to  
Support Beach and Public  
Access Protection

*\$200,000 Coastal Commission funding; \$82k match*



**BUILDING RESILIENCE  
TO SEA LEVEL RISE**

## **Addressed:**

- COASTAL ACCESS
- TOURISM + RECREATION
- TRANSPORTATION
- ECOSYSTEMS
- COASTAL INFRASTRUCTURE + POLICY
- SENSE OF PLACE + CULTURAL IDENTITY
- EQUITY

## **...and created...**

- AN INCLUSIVE CONVERSATION
  - A COMMUNITY VISION
  - A LONG TERM SOLUTION

And hopefully...A RESILIENT + EQUITABLE  
FUTURE COASTLINE

# SCOPE: BEACHES, BLUFFS + BACKING DEVELOPMENT



# ADAPTATION OPTIONS

## Accommodate

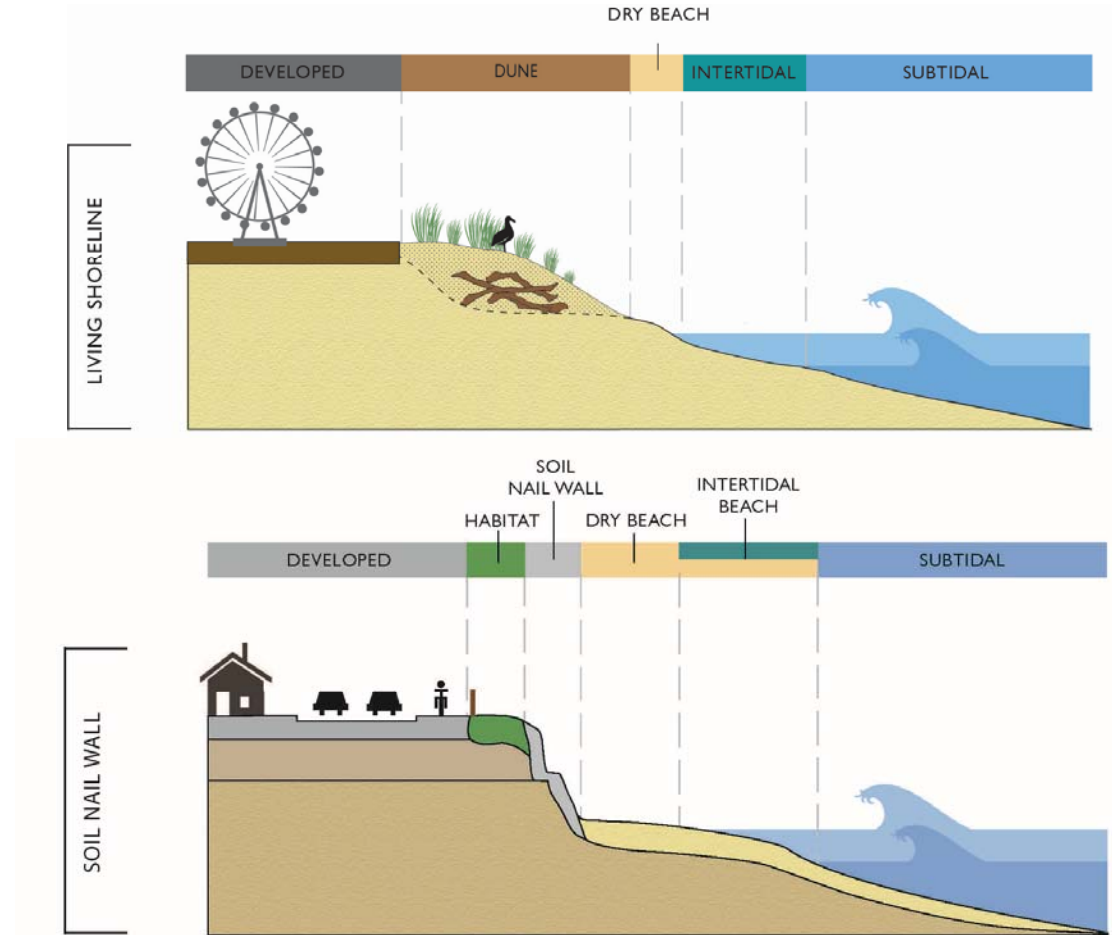
Accommodation strategies refer to those methods that lead to redesigning existing developments or new development to become more resilient to the projected hazard.

## Protect

Protection strategies are those that use engineered structures or other measures to defend development (or other resources) in the current location.

## Retreat (Realign)

Retreat strategies are those strategies that relocate or remove existing development within defined hazard areas and limit the construction of new development in vulnerable areas.



# SOCIAL VULNERABILITY TO CLIMATE CHANGE ASSESSMENT

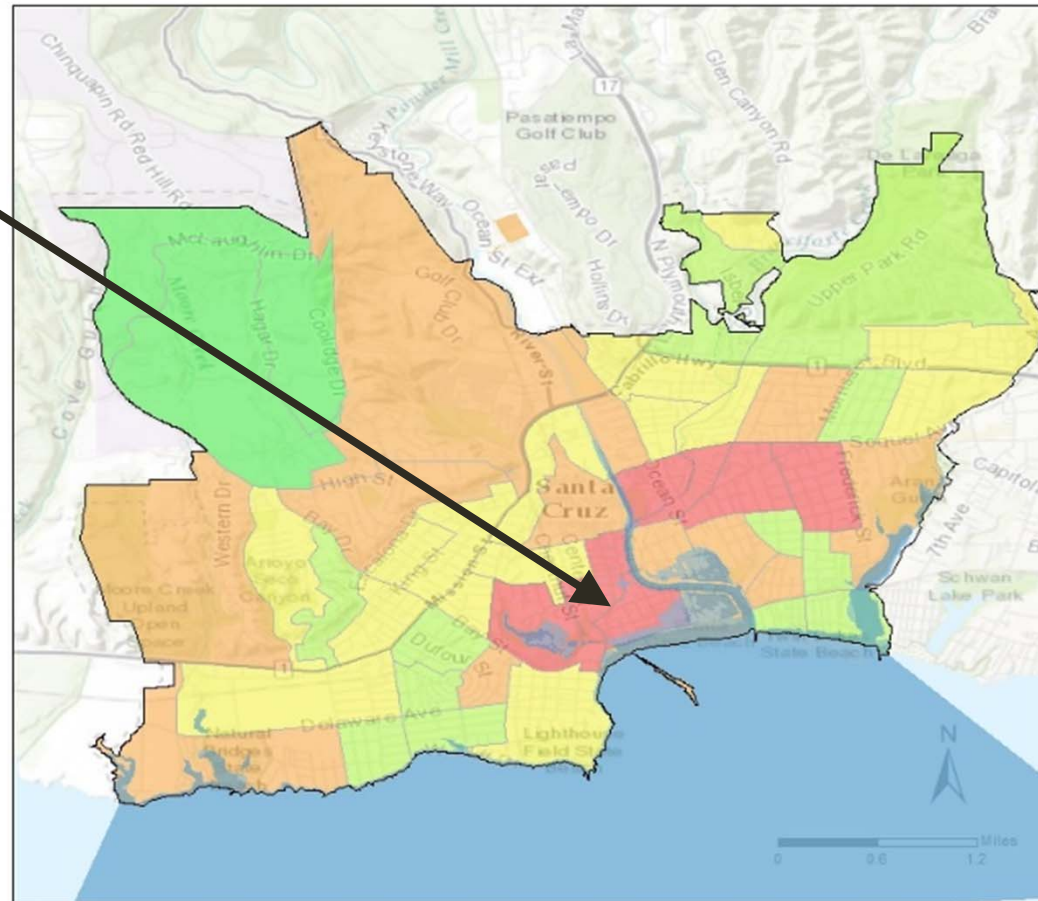
**FRONTLINE COMMUNITIES =  
High Social Vulnerability x  
Climate Hazard Vulnerability**

Beach Flats  
Lower Ocean  
Nearby Lagoon

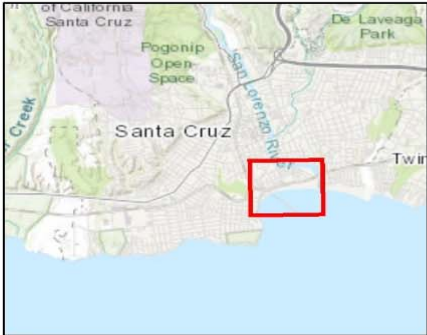
## Social Vulnerability Score

includes

- Poverty
- Age > 65 years old
- Crime incidence
- Non English speakers
- People living with Disability



# INCREASE IN EXTREME STORMS + FLOODING (COASTAL)



### Legend

- Coastal Access
- Coastal Armoring

### Coastal Storm Flooding Hazard Zones

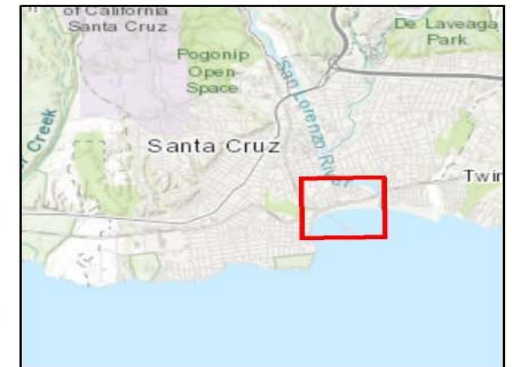
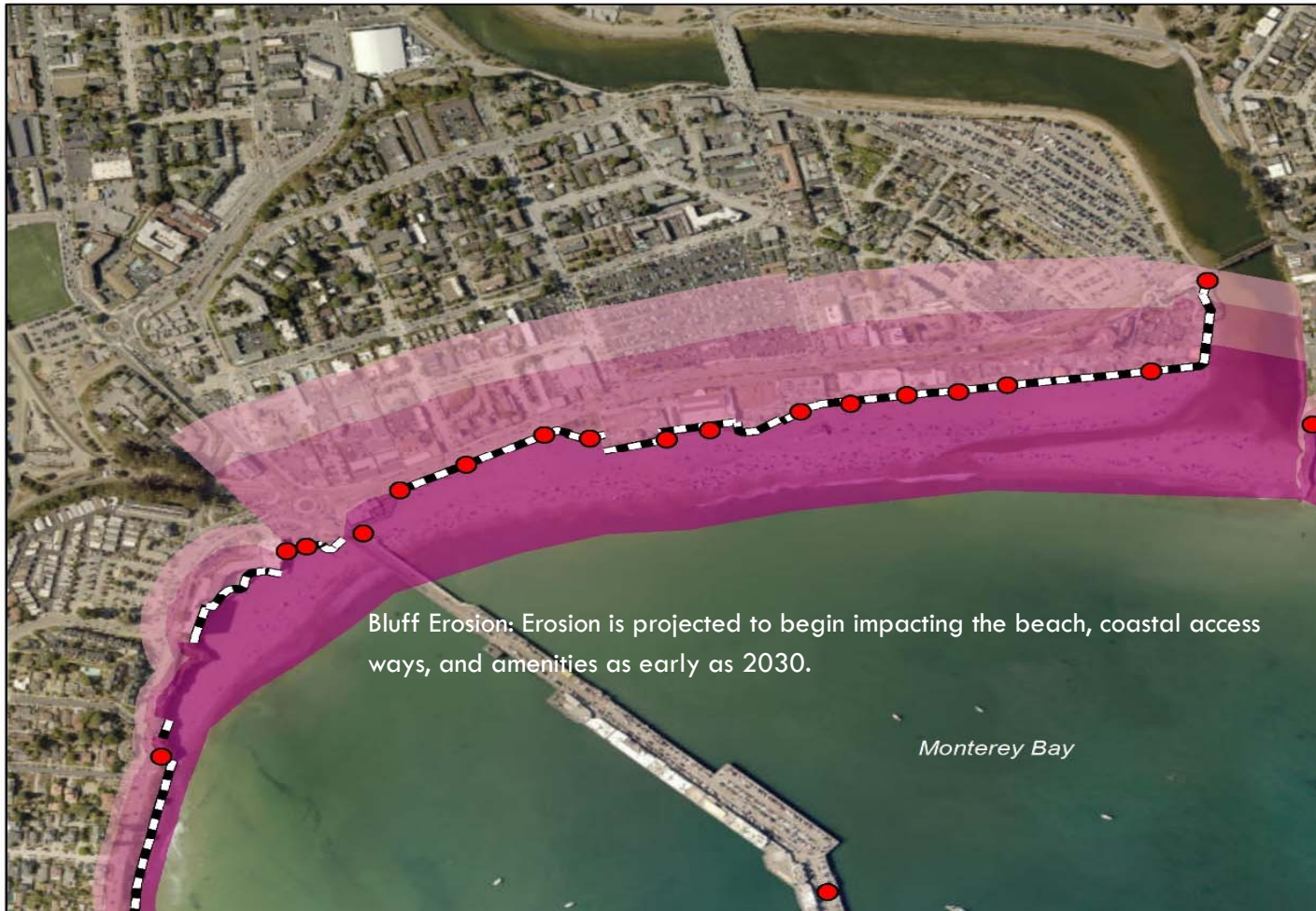
- 2030 (0.3 ft SLR)
- 2060 (2.4 ft SLR)
- 2100 (5.2 ft SLR)



0 250 500 1,000 Feet



# INCREASED EROSION + LANDSLIDES (COASTAL)



## Legend

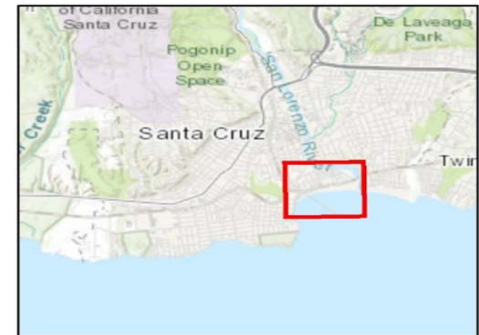
- Coastal Access
- Coastal Armoring

## Erosion Hazard Zones

- 2030 (0.3 ft SLR) with armoring
- 2060 (2.4 ft SLR)
- 2100 (5.2 ft SLR)



# SEA LEVEL RISE (RISING TIDE)



## Legend

- Coastal Access
- Coastal Armoring

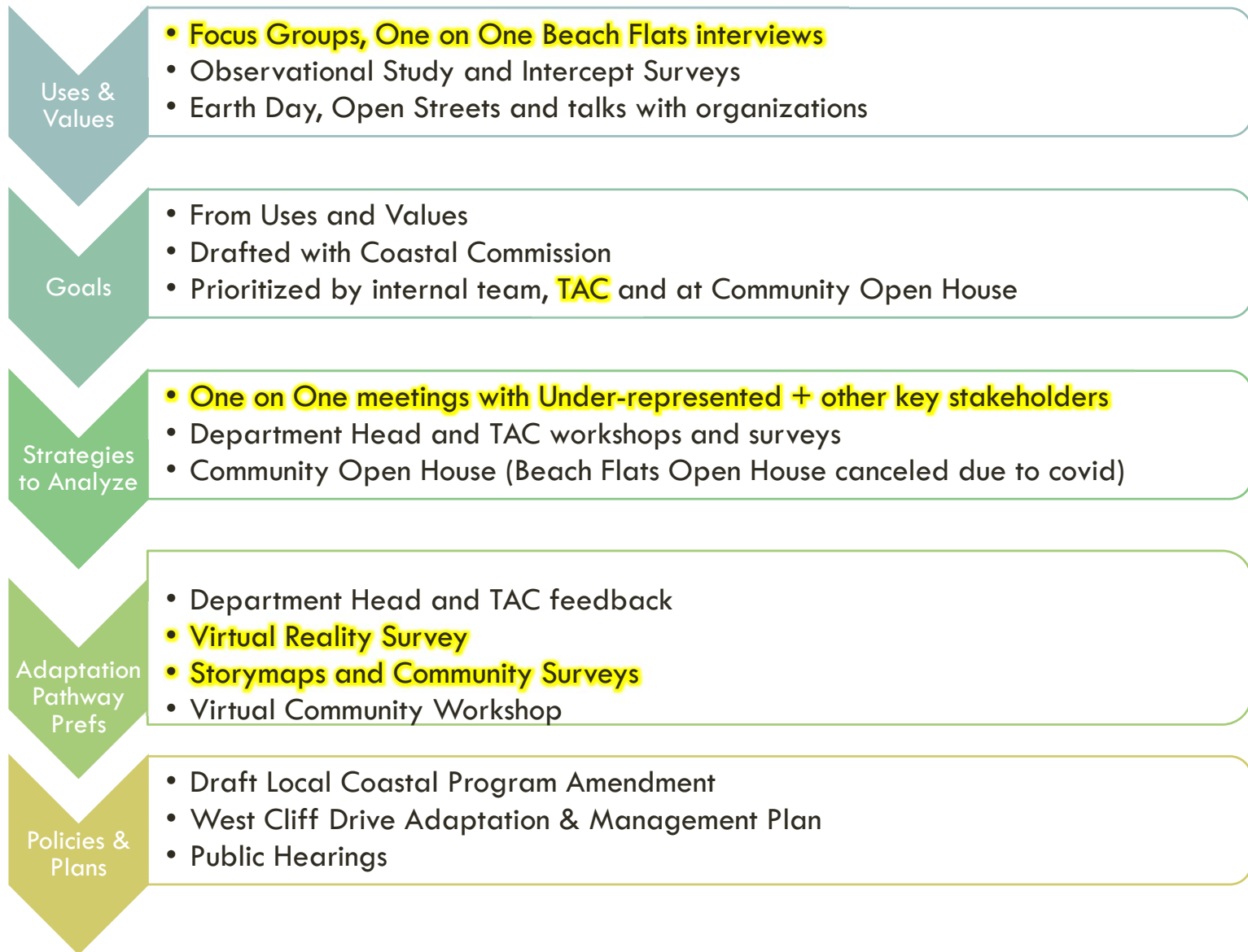
## Rising Tides Hazard Zones

- 2030 (0.3 ft SLR)
- 2060 (2.4 ft SLR)
- 2100 (5.2 ft SLR)



0 250 500 1,000 Feet

# COMMUNITY ENGAGEMENT





COLLECTION

# Resilient Coast Santa Cruz: Aportes sobre la Adaptación Cost

Conozca las vulnerabilidades costeras de Santa Cruz sobre los caminos y las estrategias de adaptación para West Cliff Drive y las playas adyacentes. (Verano 2020) Más información en: [cityofsantacruz.com/ResilientCoast](http://cityofsantacruz.com/ResilientCoast)

**Get started**



1 Playa Estatal Natural Bridges



2 Playas Main y Cowell



3 Playa Estatal Seabright



4 Zona de West Cliff N.o 1: Playa Pyramid



5 Zona de West Cliff N.o 2: Mitchell's Cove



6 Zona de West Cliff N.o 3: Lighthouse Point



7 Zona de West Cliff N.o 4: Pelton Ave. a Bay...



8 Estrategias de Transporte para We...

**Costa Resiliente Santa Cruz**  
**CONVOCATORIA**  
**ABIERTA A TODOS – Beach Flats**  
**¿Cuál es el futuro de nuestras costas?**

**¿CUÁNDO?** sábado 7 de marzo 2020; de 10:00 a 1:00 pm  
**¿A DÓNDE?** Beach Flats Community Park  
160 Raymond St. Santa Cruz

**¿QUÉ?** aparezca a cualquier hora entre las 10:00am y la 1:00pm a una reunión abierta a toda la comunidad para ver el progreso sobre la iniciativa sobre la resiliencia de la Costa de Santa Cruz. Esto será una oportunidad para los miembros de la comunidad de Beach Flats para aprender sobre el cambio costero y la planificación de adaptación en sus patios traseros, además de recibir sus comentarios sobre el tema. Materiales y presentaciones serán en español. Averigüe más acá: [cityofsantacruz.com/ResilientCoast](http://cityofsantacruz.com/ResilientCoast)

Visitante recibirá una plantilla and semilla gratis!

Visa en 5 minutos el levantamiento del nivel del mar de forma virtual con el Reality Explorer mientras esté acá!

Habrá un evento abierto a toda la comunidad el jueves 5 de marzo de 3 a 8 pm en el Loudon Nelson Community Center. Los mismos temas serán cubiertos pero esta vez en inglés.

Having the control of the ocean rising makes it visceral

I study sea level rise , but it really made it a reality. It's not just words anymore.

Drives "real" reality home

I was relatively aware already but having POV visuals is very Impactful

3D experience is much more powerful than photo models

Welcome to Virtual Planet's  
**SEA LEVEL RISE  
EXPLORER**



VIRTUAL PLANET



<http://www.virtualplanet.org/santa-cruz>

# CENTERING EQUITY IN RESILIENT COAST INITIATIVE



- Spent time building trust w/ frontline community leaders + designed meetings with them
- Leveraging Academic Partnerships to bring capacity to focus long term on frontline communities
- One on one meetings with historically under represented & follow up
- Exploring how we can let under represented communities lead
- Compensating historically under served groups in current Climate Action Plan project as equity advisors!
- Showing up

# BEACH FLATS COMMUNITY — WHAT WE HEARD

- 59% of Beach Flats + Lower Ocean residents are **not prepared for flooding**
- Coastal issue residents are **most concerned about trash** is on the beaches
- **Ensure equitable relocation/retreat if and when it's necessary**
- Once a year the Beach Flats **garden floods** and residents lose crops
- Strong interest in **green/natural infrastructure**
- Ensure housing **prioritizes folks living w/homelessness + w/o documents**
- Interest in **home ownership opportunities** through a Land Trust
- Need to **maintain open space** because housing is overcrowded
- **Storm drain maintenance needed**
- Community is divided based on home country affiliation/cultural differences
- If relocated, must keep rents at same proportion of overall income as now

# BEACH FLATS GENERATED ADAPTATION IDEAS

## SHORT TERM

- Rental maintenance (e.g., mold, other code issues)
- Rental assistance program in the case of disaster
- Storm drain maintenance/improvements
- Planning ahead for disaster

## SHORT-MEDIUM TERM

- Elevating Buildings and Structures Seawalls + beach nourishment
- Tourism overlay zone with hotel/parking fees to pay for redevelopment/relocation costs

## LONG TERM

- Parking garage over Boardwalk parking lots to reclaim marshland/habitat
- Relocation





# LEVEL OF SERVICE/ACCESS LIMITATIONS

Under-represented Group	Seabright	Main/Cowell	West Cliff Zone 4	West Cliff Zone 3	West Cliff Zone 3	West Cliff Zone 1	Natural Bridges
Elderly	High	High	High	High	High	High	High
Youth	High	High	High	High	High	Moderate	High
People with Disabilities	Moderate	High	Moderate	High	Moderate	Moderate	High
Low Income residents	High	High	Moderate	High	Low	Low	High
Tribal	High	High	Moderate	High	High	Low	High
Homeless	Low	High	Low	High	Low	Low	High
LGBTQ+	Low	High	Low	High	Low	Low	High
Fishers	High	High	High	High	High	Moderate	High

Level of Service Provided to Group



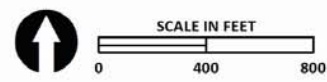


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- Coastal Armoring

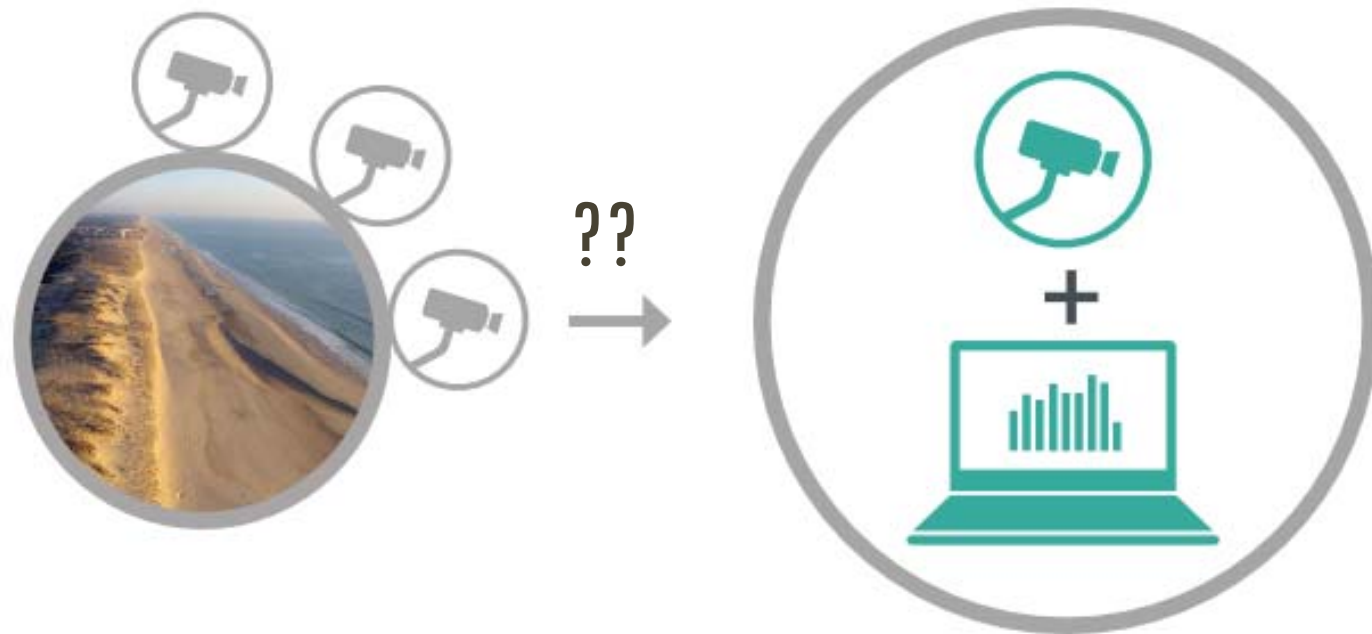
Pathway Strategies

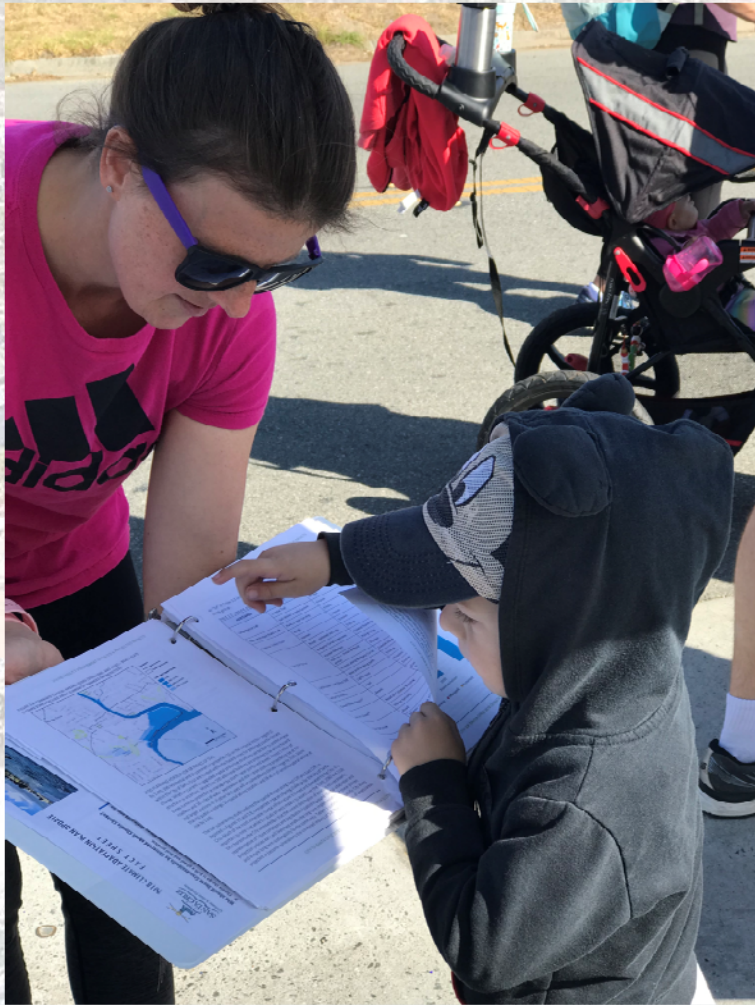
- 1a Living shoreline
- 1b Increase pump capacity
- 2 Raise curb wall
- 3a Accommodate/  
Increase resiliency
- 3b Managed retreat



Main & Cowell Beaches: Protect, Accommodate, Retreat  
(Pathway 2)

# NEXT STEPS: COASTAL CHANGE TRIGGERS MONITORING PROGRAM, COASTAL CONSERVATION CORPS? + FUNDING STRATEGY IN DEVELOPMENT





# THANK YOU?

ALL DELIVERABLES CAN BE VIEWED AT:

[www.cityofsantacruz.com/ResilientCoast](http://www.cityofsantacruz.com/ResilientCoast)

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