



City of Hermosa Beach

Information Item

DATE: November 26, 2019
TO: Honorable Mayor and Members of the City Council
FROM: Leeanne Singleton, Environmental Analyst
SUBJECT: Update on Look Ahead Hermosa Beach—A Virtual Reality Engagement on Sea Level Rise Potential Impacts and Actions

Introduction

In June 2019, the Hermosa Beach City Council authorized a contract with Climate Access, a non-profit organization and the U.S. Geological Survey to assist in the development of a sea level rise virtual reality experience that shows what key Hermosa Beach locations may look like in the future with rising sea levels and engages the community in a discussion about potential climate mitigation and adaptation solutions.

This effort is part of the City's pursuit of a certified Local Coastal Program from the California Coastal Commission which has increased focus on coastal hazards and sea level rise and has worked with the scientific community and local jurisdictions throughout the state to develop sea level rise policy guidance (**Attachment 1**).

The initiative, named "Look Ahead Hermosa Beach," pairs scientific modeling and virtual reality technology together to demonstrate the potential impacts of sea level rise at three key locations: the Hermosa Beach Pier, Pier Plaza, and Noble Park and seeks input from the community on their opinions related to the different mitigation or adaptation strategies the City could pursue to address rising sea levels and increased coastal hazards.

Site Brief and Engagement Plan

Staff from the City, Climate Access, and USGS have worked together to develop a site brief (**Attachment 2**) and engagement plan (**Attachment 3**) to outline how the virtual reality experience will combine the scientific scenarios with a range of survey questions to better understand levels of concern, input on various mitigation and adaptation strategies, and interest in participating in climate and emergency preparedness programs. For those that want to find additional information and learn more about different City programs, the app will direct them to these resources.

Next Steps

Visualizations of the different sea level rise scenarios are underway, with completion of the app expected later this month and a public launch campaign expected in January. A static snapshot of the initial visualizations for Pier Plaza is provided as **Attachment 4**.



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Attachments:

1. California Coastal Commission Sea Level Rise Policy Guidance—
https://documents.coastal.ca.gov/assets/slr/guidance/2018/0_Full_2018AdoptedSLRGuidanceUpdate.pdf
2. Look Ahead Hermosa Beach—Site Brief
3. Look Ahead Hermosa Beach—Engagement Plan
4. Draft Visualizations for Pier Plaza

LOOK AHEAD HERMOSA BEACH

Site Brief - October 2019

SITE #1: Hermosa Beach Pier



Location details: Halfway down the Hermosa Beach Pier

Impacts: Climate change is driving more frequent seasonal flooding patterns in Hermosa Beach, with the potential for overland inundation from sea-level rise and runoff from increased precipitation and storm intensity. The Pier is within the 100-year flood zone and is an iconic part of the city, providing a unique vantage point to view potential coastal erosion.

Solutions: Dune restoration and sand berm extension to protect against sea-level rise and storm surges, as well as expanded bike infrastructure to reduce transit-related emissions.

Survey Questions:

Viz 1A: Present Day

Have you personally experienced flooding near the Pier? Yes/No/Unsure

Viz 1B: Future Sea-Level Rise

How concerned are you about sea-level rise impacting Hermosa Beach? Very/Somewhat/Not at all

Do you think the City of Hermosa Beach should take steps to reduce the risks of flooding from sea-level rise? Yes/No/Unsure

Viz 1C: Future with Climate Action

Would you be in favor of the City of Hermosa Beach extending sand berms to provide flood protection? Yes/No/Unsure

Would you approve of City efforts to restore Hermosa Beach dunes to reduce flooding impacts? Yes/No/Unsure

Are you interested in taking advantage of the City's rebate offers for the installation of solar panels on homes and businesses? Yes/No/Unsure

Do you want to see the City install more bike racks to make beach-access easier? Yes/No/Unsure

Do you think the City of Hermosa Beach should flood-proof the lifeguard station or move it out of the flood risk zone? Yes/No/Unsure

SITE #2: Pier Plaza



Location details: Pier Plaza between The Strand and Hermosa Ave.

Impacts: Pier Plaza is at risk from flooding during heavy rainfall, especially as the street surface prevents water from filtering into the ground and currently relies on drains along the walkway.

Solutions: Instituting low-impact development, such as permeable pavement, rain gardens, and rain barrels to manage stormwater runoff and green the street, as well as increased public transit options in the neighborhood to encourage low-carbon transportation alternatives and reduce emissions.

Survey Questions:

Viz 2A: Present Day

How concerned are you about flooding impacting businesses in Hermosa Beach? Very/Somewhat/Not at all

Have you personally experienced flooding at Pier Plaza? Yes/No/Unsure

Viz 2B: Future Sea-Level Rise

Do you think climate change is an urgent risk? Yes/No/Unsure

Do you support the City of Hermosa Beach preparing for climate impacts such as flooding? Yes/No/Unsure

Viz 2C: Future with Climate Action

Would you be willing to take public transit to the beach to cut carbon? Yes/No/Unsure

Would you be in favor of the City of Hermosa Beach installing rain gardens to manage stormwater runoff?
Yes/No/Unsure

Are you interested in seeing the City use permeable pavement that allows stormwater to seep into the ground? Yes/No/Unsure

SITE #3: Noble Park



Location details: Noble Park on The Strand between 14th and 15th St.

Impacts: Stormwater drainage and urban street flooding along The Strand is a growing issue for Hermosa Beach due to sea-level rise and more frequent heavy rainfall events. The restroom facilities at Noble Park are subterranean, placing them at risk for future flooding and saltwater corrosion.

Solutions: Construction improvements to the restroom facilities to mitigate flooding, controlled stormwater runoff systems, and drought-tolerant native plants that are also able to withstand inundation and lessen the impact of flooding. Additional electric vehicle charging stations in the area and energy efficiency retrofit incentives for business owners would contribute toward carbon emission reductions.

Survey Questions:

Viz 3A: Present Day

In your opinion, climate change: Is already impacting Hermosa Beach/Will impact Hermosa Beach in 10 years/Will impact Hermosa Beach in 50 years/Will not impact Hermosa Beach

How concerned are you about damage to homes from flooding? Very/Somewhat/Not at all

Viz 3B: Future Sea-Level Rise

Do you think sea-level rise is an urgent risk near Noble Park or The Strand? Yes/No/Unsure

Would you be in favor of the City of Hermosa Beach taking steps to manage flooding and sea-level rise? Yes/No/Unsure

Viz 3C: Future with Climate Action

Would you be willing to create an emergency preparedness kit and plan? Yes/No/Already have one

Do you want to see the City expand the number of electric vehicle charging stations in Hermosa Beach? Yes/No/Unsure

Would you support the City of Hermosa Beach flood-proofing park facilities, such as raising up underground restrooms? Yes/No/Unsure

Would you support creating or redesigning existing green spaces to help capture floodwater? Yes/No/Unsure

Do you think the City of Hermosa Beach should offer retrofit incentives to assist building owners with energy efficiency improvements? Yes/No/Unsure



Demographic info:

1. What is your age? <15/15-34/35-49/50-64/65-73/74+
2. Where do you live? Hermosa Beach/Somewhere else in the South Bay region/Somewhere else in Los Angeles/Somewhere else in the United States/Another country
3. Are you currently in Hermosa Beach? Yes/No

Actions steps:

Thank you for taking the virtual reality tour with Look Ahead Hermosa Beach. Visit www.hermosabch.org/sustainability to learn more about local environmental programs, how you can reduce your carbon footprint, and help Hermosa Beach prepare for sea-level rise. Share your email address to receive updates and invitations to Hermosa Beach climate change events.



Virtual Reality
Climate Change
Engagement Project

October 2019





LOOK AHEAD HERMOSA BEACH

Virtual Reality Climate Change Engagement Project

October 2019

PROJECT OBJECTIVE

Hermosa Beach is facing sea-level rise, flooding, and inundation risks that threaten homes, businesses, and beaches. Community input is needed to shape response strategies, build support for implementing coastal resilience strategies, and increase the personal resilience of community members and business owners to the impacts of climate change.

The *Look Ahead Hermosa Beach* campaign will leverage the power of virtual reality (VR) to reach thousands of community members, raise their awareness of the impacts of climate change, and provide them with a vehicle to help shape coastal resilience strategies and take action. Through *Look Ahead Hermosa Beach*, the public will be able to take 360° virtual tours of three locations along the coast and experience what they will be like with flooding from sea-level rise and coastal storms, as well as visualize what is possible at the sites if climate action is taken. Within the scenarios, community members can answer questions regarding their support for different resilience strategies. This information will help shape the city's climate plans. From the VR experiences, community members can also connect to city programs to help them prepare for climate change as well as take steps to cut emissions. The scenarios will be designed for use with VR headsets as well on computers, tablets, and smartphones for those without access to VR equipment.

ENGAGEMENT GOALS

1. Increase awareness among City of Hermosa Beach community members and visitors from inland communities coming to Hermosa Beach to access the coast about climate impacts, specifically sea-level rise and associated flood risks for infrastructure, the natural and built environment, business activities, public health, and community well-being.
2. Gauge support for coastal resilience being considered in Hermosa Beach's planning processes before plans are finalized to ensure strategies reflect community concerns and priorities.
3. Provide pathways to programs that support community members, business owners, and visitors to take steps to increase their resilience to the impacts of climate change and take steps to cut emissions.

ENGAGEMENT TARGET

Audience

The project aims to reach at least 1,000 individuals (City of Hermosa Beach staff, residents, business owners, and inland visitors) between September and December 2019. Hermosa Beach residents are engaged on environmental issues, such as the Los Angeles “straw ban” to limit the effects of single-use plastic waste on marine life. In 2015, residents organized to reject an oil-drilling proposal that has sparked continued engagement on environmental issues. Through interviews with community leaders, it is apparent there is an opportunity to connect these environmental interests with an understanding of local climate impacts and available solutions.

The Hermosa Beach community is comprised of a mix of young residents, families, and a growing senior population. Within Hermosa Beach, the neighborhoods most at risk of damage from climate impacts include those located in the flood zone along the beachfront and neighborhoods to the east. Within these areas, female-headed households earning less than \$75,000 per year are considered to have the highest level of social vulnerability. Additionally, [renters](#) constitute 54% of the Hermosa Beach community, and are more susceptible to climate vulnerability as they are less likely to live in structures that are resilient to natural hazards and tend to have fewer resources to recover following a storm event.

Public opinion

[Polling shows](#) that a majority (76%) of California's 33rd congressional district, which includes Hermosa Beach, acknowledges that global warming is happening and is caused by human activities (62%). While majorities (67%) express concern about global warming, only 46% say it will affect them personally, which is lower than state-wide and national public opinion, providing an opportunity to raise awareness of how climate change will impact Hermosa Beach.

There is support for action and an interest in seeing corporations (72%), citizens (69%) and local officials (58%) do more to address global warming. 85% support providing tax rebates for energy-efficient vehicles or solar panels and 74% say that environmental protection is more important than economic growth. Even with less than half (44%) saying they discuss global warming at least occasionally and 29% hearing about global warming in the media at least once a week, California's 33 district is more engaged than the state and nation as a whole.

Local media coverage

Easy Reader News (easyreadernews.com) has featured stories on climate impacts in Hermosa Beach, with a focus on how Pier Plaza sits below sea level and the risk to businesses on The Strand from flooding as large storms coincide with high tides. Stories highlight how storm surges and sea-level rise have the potential to submerge homes and businesses in the area and how flooding can lead to severe infrastructure damage, featuring scientists explaining climate projections and calls for increased resilience from environmental groups. The “No on O” vote also received a large amount of coverage, including observations that the campaign to reject the oil drilling proposal

activated residents who were not previously engaged on environmental issues. The paper also highlighted controversy over local zoning decisions, particularly whether opportunities to increase housing capacity will help meet climate goals.

The Beach Reporter (tbrnews.com) also closely followed the campaign leading up to the vote to reject oil drilling in Hermosa Beach and featured a story on rising ocean temperatures and the role of climate change in driving heat and extreme weather trends. The paper covered efforts to assess sea-level rise, extreme high tides, storms and coastal erosion due to climate change. Another key story focused on concerns surrounding efforts and projects needed to manage stormwater. The Beach Reporter promoted local events as well, such as a discussion on climate change and changing shorelines hosted by Surfrider Foundation, USC Sea Grant Education Program, and the Hermosa Beach Historical Society and Museum. It also announced that the Hermosa Beach City School District earned a California Green Ribbon Schools Award for its efforts to conserve resources while promoting health and environmental literacy, from issues like climate change to water quality.

National Public Radio member station KCRW (kcrw.com) covered how extreme heat is becoming more frequent due to climate change and how there are energy efficiency programs available to upgrade air conditioning units and utility bill assistance in communities across Los Angeles, including Hermosa Beach. Another story mentioned how revenue from the area's trans-pacific cables is spent on the tidelands (stretching from the ocean to The Strand). KPCC covered how the City of Hermosa Beach is preparing for sea-level rise through sand berms and storm drain improvements, as well as education and outreach to residents.

City programs

The City of Hermosa Beach offers the following programs that can serve as pathways to increasing public engagement on climate change:

- [Discounted composting and worm bins](#) and [community garden](#)
- [Recycling and upcycling to promote zero waste](#)
- [Renewable energy installation rebates](#)
- [Public transit options](#) and [ridesharing zones](#)
- [Electric Vehicle purchase, parking, and charging incentives](#)
- [Municipal employee bikeshare](#)
- [Emergency and natural hazard preparedness](#)

ACTIONS PROMOTED THROUGH LOOK AHEAD HERMOSA BEACH

- Experience and learn about projected climate impacts and solutions scenarios through the immersive virtual reality app.
- Participate in a survey embedded within the VR experience to gauge support for coastal resilience approaches.

- Sign up for the City of Hermosa Beach's newsletter and follow the City of Hermosa Beach's social media channels to learn more about the city's plan to cut carbon and increase resilience.
- Receive notifications to attend City of Hermosa Beach climate-related planning meetings.
- Register for NIXLE to get emergency notifications from the City of Hermosa Beach.
- Register for the California Green Business Network if you're a local business interested in green business practices or receiving recognition by becoming a Hermosa Beach Certified Green Business.

OUTREACH STRATEGIES

The project team will drive interest and involvement in *Look Ahead Hermosa Beach* through the following outreach strategies:

- Impact and solution visualizations will be created for **three sites**: 1) Hermosa Beach Pier, 2) Pier Plaza and 3) Noble Park. The sites were chosen in close proximity to one another to motivate individuals to visit and experience the virtual reality scenarios at all three locations, as well as to provide opportunities for local walking tours to incorporate *Look Ahead* into their routes.
- Vinyl **signage** (24" x 36") will be installed at the Pier to generate awareness of the campaign, provide information about the project's goals, and encourage individuals to engage with the VR app and follow-up actions. Sticker decals will be considered for installation on the ground at Pier Plaza and Noble Park to show participants where to stand to best view the scenarios.
- *Look Ahead Hermosa Beach*, including opportunities to learn more about the project's goals and participate in the fully immersive virtual reality experience through the use of available VR headsets, will be promoted at a number of Hermosa Beach **special events**, such as the following:
 - Pier to Pier Run/Walk (Nov 9)
 - Tree Lighting Celebration (Dec 7)
 - Pier Plaza Farmers Market (Wednesdays)
- **Promotional materials** will be made available to business groups such as the Downtown Hermosa Business Association, Hermosa Beach Hospitality Association, Hermosa Beach Green Business Network, and the Chamber of Commerce & Visitors Bureau, as well as local businesses located in close proximity to the site locations.
- **City of Hermosa Beach staff** will be notified of the project's goals and plans for outreach activities at community events. Trainings for new council members (winter 2019/20) will

include an overview of the project's purpose, a VR demonstration of the three sites, and a review of preliminary findings.

- **Local businesses** located within the VR visualization zones of the three sites (e.g. business owners along Pier Plaza and adjacent to Noble Park) will be notified by the City of the Look Ahead project's goals and activities. Prior to launch, the City will host a "soft launch" meeting with business owners (possibly in conjunction with the Hermosa Chamber Networking Luncheon) to demonstrate the immersive VR experience and answer questions about the project.
- The team will continue to connect with **community-based organizations** representing a range of sectors and perspectives in an effort to involve a diverse population of the community. Local organizations and institutions will have an opportunity to use the virtual reality experience in their own programs and events to increase awareness of sea-level rise and flooding, convey the urgency of the challenge, and impart ways to take action. Possible community partners include Beach Cities Health District (i.e. Blue Zones Project and volunteer base), Hermosa Beach City School District, Surfrider, Heal the Bay, Grades of Green, Hermosa Beach Friends of the Parks, Leadership Hermosa Beach, Hermosa Beach Historical Society and Museum, Emergency Preparedness Advisory Commission (EPAC), THRIVE Hermosa, South Bay 350 Climate Action Group, Hermosa Surf Camp, Ocean Lifeguard Training Academy, and Volunteers and Organizations Improving the Community's Environment (VOICE).

MEDIA CHANNELS

Media outreach will be coordinated through the City of Hermosa Beach's public information officer to assist with press releases and scheduling interviews. The following media channels will be considered:

- **City website:** The City of Hermosa Beach will create a webpage dedicated to the virtual reality engagement project hosted on the city's website, featuring information on the project, site locations, action steps, and press releases.
- **Social Media:** The City of Hermosa Beach will promote the project and update community members on opportunities to engage with the VR experience at special events through the city's monthly online newsletter (2,800 subscribers), City of Hermosa Beach Instagram account – including Instagram Stories (8,750 followers), City of Hermosa Beach Facebook page (4,350 followers), City of Hermosa Beach Community Resources Department - Parks & Recreation Facebook page (1,461 followers), and Sustainable Hermosa Beach Facebook page (390 followers).



- **Print and Online Media Coverage:** The team will submit features for inclusion in the Easy Reader News and Beach Reporter weekly newspapers (circulation of 10,000 each), as well as the blog SouthBayByJackie.com.
- **Television and Radio:** Local television networks (KCBS, KNBC, KABC, KLCS (PBS), KOCE (PBS SoCal), KMEX (Univision) and public radio stations (KCRW, KPCC and KPFK) will be notified of opportunities, via press releases, to cover the project's launch and presence at events.



Pier Plaza: With 150 CM of Sea Level Rise (Everyday Scenario)



Pier Plaza: With 150 CM of Sea Level Rise + 100 Year Storm

