

## Executive Summary

The Adaptation Plan serves as the City's "toolbox" to help property owners (public and private) plan for and address future sea-level rise, storm surge, coastal flooding, and erosion. In 2016, the City of Del Mar prepared a Coastal Hazards, Vulnerability and Risk Assessment that identified the degree of vulnerability posed to City beaches, lagoons, coastal bluffs, visitor-serving amenities, public access areas, residential and commercial areas, and public infrastructure. In consideration of the vulnerabilities and risks, the Adaptation Plan provides tools for owners to manage risks and take actions based on measurable changes in conditions.

The Adaptation Plan provides flexibility for owners to choose from an array of adaptation options, rather than prescribing a specific plan of action. Project-level planning and approvals will be required to further develop and implement specific adaptation measures.

Adaptation measures are typically categorized within the following categories:

- **Protection strategies**, which employ some sort of engineered structure or other measure to defend development (or resources) in its current location without changes to the development itself. Examples include "hard" armoring via structures such as seawalls, revetments, groins and breakwaters that defend against coastal hazards like wave impacts, erosion, and flooding; "soft" armoring using natural or "green" method like beach nourishment and artificial dunes to buffer coastal areas; and hybrid approaches using both hard and natural infrastructure.
- **Accommodation strategies**, which modify existing development or design new development in a way that decreases hazard risks and thus increases the resiliency of development. Examples include elevating structures, retrofitting structures, using materials that increase the strength of development, or incorporating extra setbacks from hazards.
- **Retreat strategies**, which relocate existing development as necessary out of hazard areas and limit the construction of new development in vulnerable areas in a manner that considers property rights. Examples where this strategy could be used for public property include relocation of public facilities, roads, and infrastructure.

Adaptation strategies should not be considered in isolation. Different types of strategies will be appropriate in different locations, and in many cases a hybrid approach with strategies from multiple categories will be necessary. Additionally, the suite of strategies chosen may need to change over time.

The following principles were established to provide guidance for developing, evaluating, and analyzing adaptation measures:

- Limit the risk of extreme coastal and river flooding and damage.
- Maintain a walkable beach for recreational use, economic benefit, and to reduce flooding.
- Maintain continuous horizontal coastal access and vertical water access points to North and South Beach.
- Maintain continuous coastal access from North Beach to South Beach.
- Maintain San Dieguito Lagoon wetland habitat functions.

In terms of City assets, the Adaptation Plan identifies high priority adaptation measures for which near term actions are recommended to reduce high vulnerabilities and risks. The Plan also discusses sediment management and sand retention measures and identifies potential adaptation measures to address the following areas and vulnerabilities:

- San Dieguito Lagoon wetland adaptation for the River Valley
- San Dieguito River flooding adaptation for the North Beach and River Valley including the Del Mar Fairgrounds
- Bluff and adjacent beach erosion adaptation for the South Bluffs, and bluffs along South Beach and North Bluffs
- Beach erosion and flooding adaptation (north from 15th St to the San Dieguito River mouth)

The Adaptation Plan is based on the best science and adaptation practices available today. However, sea-level rise science and practices are evolving and environmental conditions along the beach, bluffs, and San Dieguito Lagoon are changing; therefore, it is anticipated that this document will be updated over time as needed.

The Sea Level Rise Technical Advisory Committee (STAC) evaluated retreat as an adaptation option and determined it is too early in the process to include retreat as an adaptation strategy in Del Mar. **At this time, retreat is intentionally not included as an adaptation option for private property.** STAC recommends that the City prioritize beach nourishment in conjunction with sand retention.

STAC recognizes that additional reports will be generated over time, including a Sediment Management Plan and a Wetlands Habitat Migration Assessment. **Analyses of the financial and legal impacts of adaptation measures will be preformed when any future project is initiated and details for a given project are available.** It is expected that the City reevaluate options, including retreat, as appropriate when amendments to the Adaptation Plan are considered at a future date.