



# Naples Seawall Repairs Phase One

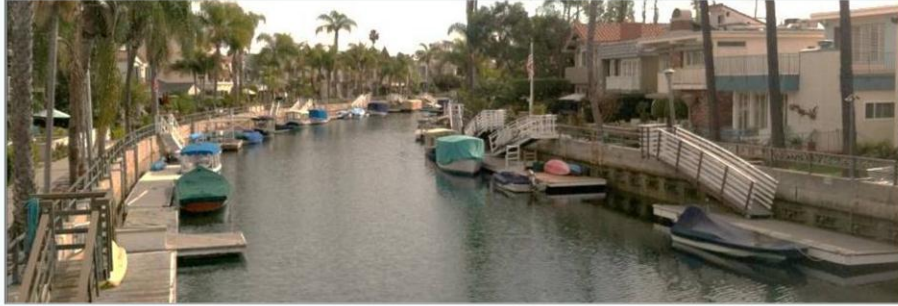
Guide to the New Seawalls

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2/14/14

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This presentation was originally made on Thursday January 15, 2014 at the Long Beach Yacht Club at a meeting hosted by the City of Long Beach. The web version has been altered to reflect the most up-to-date information.



# Project Overview

WHAT | WHY | GOALS | CONSTRAINTS | TIMELINE

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These are some of the topics this document covers.

# What

Construct new seawalls, which will consist of steel piles with a concrete cap.

Current Seawall



Lido Seawall,  
Newport Beach



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- The new seawalls will be **steel sheet piles**. The piles are huge, 41 1/3 feet tall.
- They will be installed using “**silent piler**” technology. Normally, pile driving is very noisy and causes lots of vibrations. The noise and vibrations are not only annoying to humans and animals, but actually cause soils to move and can speed up liquefaction.
- This system, which was used on Lido Peninsula in Newport Beach, limits vibrations. The hydraulic piler applies constant pressure to the sheets and slowly drives them into the sub-surface soil.
- The **color will be concrete gray**, a coating that helps the piles last and creates a pleasant appearance. The wall color will be very similar to the image on the right.
- The “cap” is the upper portion, it encapsulates the top of the sheet piles.

## Why

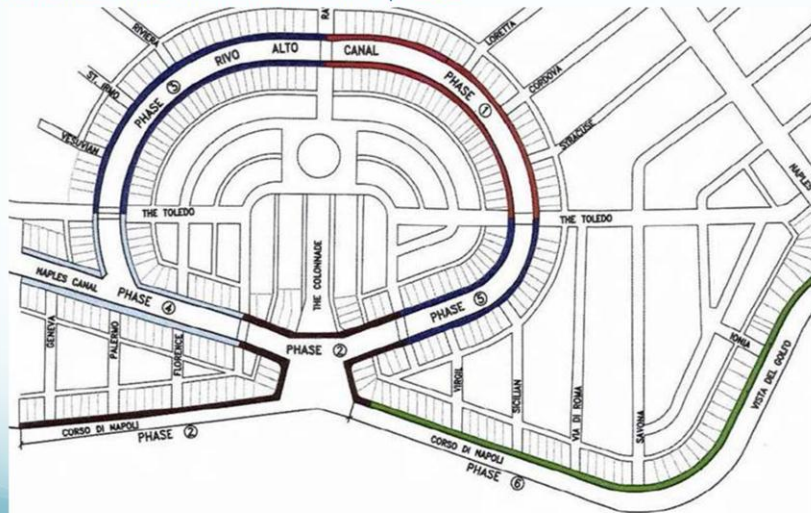
- “...it is our opinion that some sections of the canal seawalls have a **significant risk of ‘global’ failure due to their present deteriorated condition, if the site experiences a ‘moderate’ near-source earthquake.**”
- Phase One area: “...bending failures are ‘probable’ anytime within the next 5 years and ‘expected’ should the site experience a moderate earthquake before the sheet piling can be replaced.

*Naples Seawalls Stability Investigation and Repair Recommendations  
prepared by Transystems, April 2009*

- The seawalls have reached the end of their useful life: In 2009, Transystems completed a report called the *Naples Seawalls Stability Investigation and Repair Recommendations*. The report found that portions of the walls are in eminent danger of collapse in a moderate earthquake
- The walls were originally built in 1938 – 1939; with some structural additions in the late 1960’s.
- At this point, piecemeal repair cannot adequately maintain the structural integrity of the walls.

# Where

The new seawalls will be installed in 6 phases.



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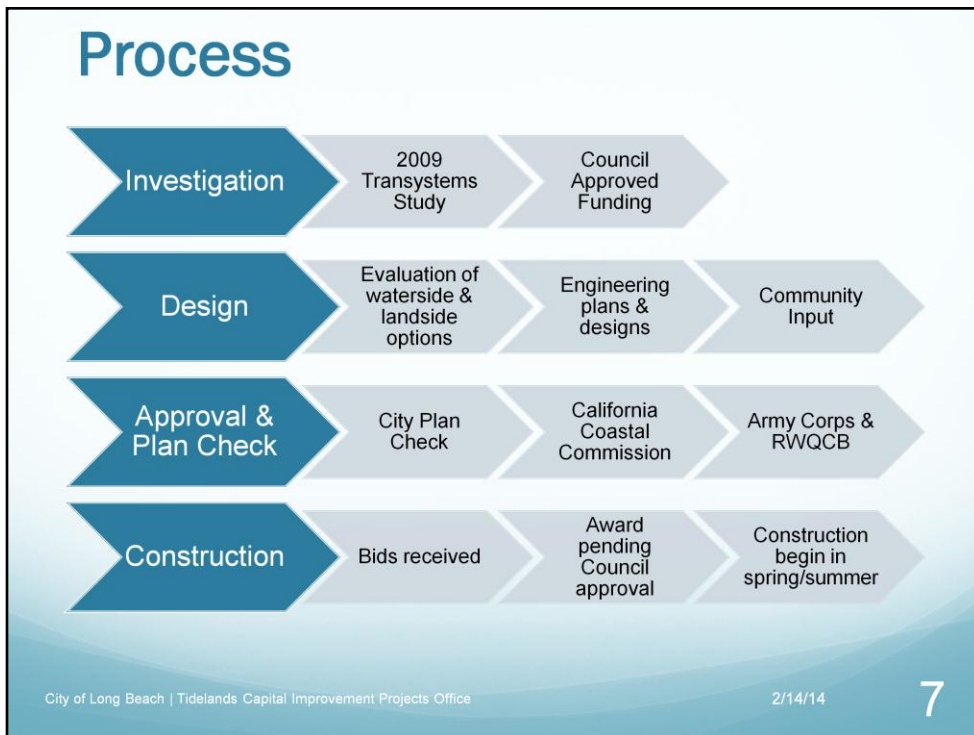
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- A 2009 Transystems report (called the *Naples Seawalls Stability Investigation and Repair Recommendations*) identified areas where immediate repair is necessary and areas where repairs the threat of collapse is not imminent. Thus, the project has been divided into 6 phases, from the most severe to the least.
- Phase One is the area between the Ravenna Bridge and the eastern portion of The Toledo Bridge

## City Goals

1. **INVEST** in public infrastructure that literally supports Naples Island, an important part of Long Beach
2. **PRESERVE** Naples for the next 70 years
3. **ENHANCE** by incorporating the latest in safety and accessibility standards

As the City began to consider replacing the walls, we kept 3 key goals in mind: Invest, Preserve, and Enhance.



This graphic illustrates some of the steps that have brought us to this place.

The first phase was the Investigation Phase, which included the Transsystem study and appropriation of funds by City Council.

The second phase was the Design Phase, which included consideration of land or waterside options and creating engineering plans.

The third phase was the Approval and Plan Check Phase, some of which is ongoing (such as receiving the Army Corps permit and Regional Water Quality Control Board permit).

The fourth phase is the Construction Phase; right now bids are being received, they must be evaluated, and the contract must be awarded.

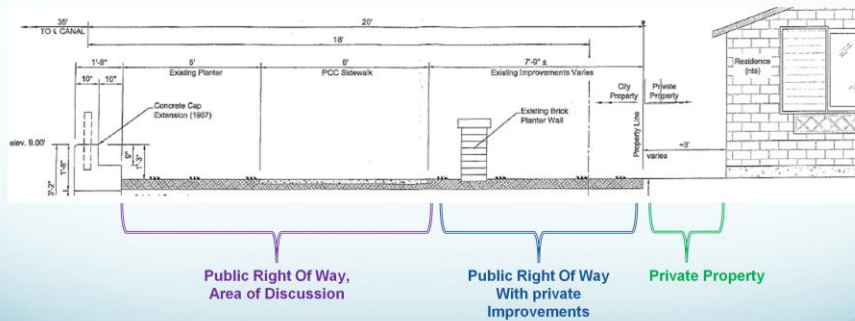


## Seawall Design

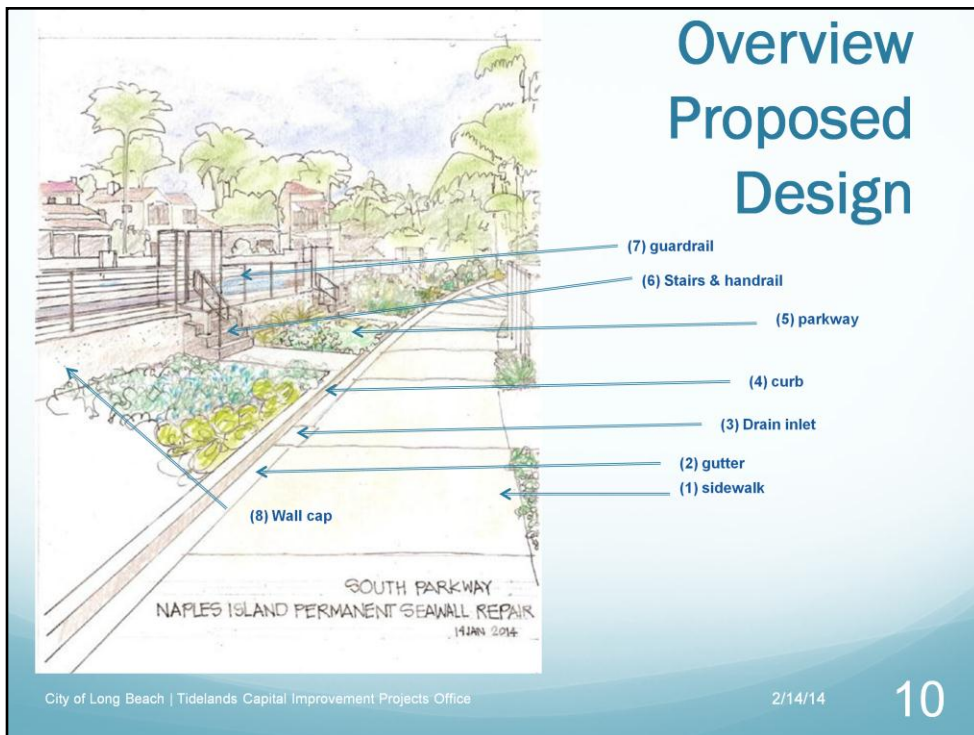
RENDERINGS | WALL & CAP DESIGN | PARKWAY | BENCHES | DRAINAGE |  
GANGWAYS & LADDERS |



# The Area



The improvements displayed in this presentation concern the purple area, the “public right of way, area of discussion”. There are other portions of the public right of way with private improvements that will not be affected by the new seawalls.



In this artistic rendering of the canal area, several key features of the design are visible.

- (1) Sidewalk: Which will be 6 feet wide. It will be at the same elevation as the current sidewalk. It will slope towards the canal, allowing rain water to drain to the gutter (2). Below the gutter will be an 18 inch storm drain, fed by drain inlets (3). Currently, there is no drainage except for private sump pumps that have been installed. So the storm drain will be completely new, and should alleviate the flooding experienced during rain events. There is a 4-inch curb (4). This curb is similar to the curbs that currently exist in many portions of the canal. The parkway (5) on the waterside of the curb slopes towards the sidewalk allowing rainwater to drain over the curb and into the gutter. The city will install irrigation in the parkway and allow residents to install plantings from a planting palette. Stairs (6) will allow residents access to ladders and gangways. There will be a handrail to provide safety and support. There will also be a gate to limit access to private docks and gangways. There will be a 27" guardrail (7) . Finally, there will be the concrete wall cap itself (8).

## Existing Conditions



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You may notice the similarities between the previous rendering and what is currently present. In this image, for example, looking East from the Ravenna Bridge, you can see the:

- Sidewalk
- The area that will be the parkway, where there are currently plantings and hardscape
- Float access supports
- The concrete cap and the existing guardrail.
- A curb associated with private improvements in the public right of way.

# Cap & Guardrail

Existing



Existing



## What is the Cap?

- A cap already exists. It is what you see when you walk along the canal. In these images you can see the landside and waterside views of the existing cap and guardrail.
- The new cap will be thick concrete that encapsulates the old seawall and the new seawalls. Its design is a critical part of the wall.

# Cap & Guardrail

Proposed



Existing



Anchoring for landings

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The rendering on the left shows the new design laid over an image of what currently exists. The guardrail is shown in black to increase visibility of the image. When constructed, the guardrail will be stainless steel with a satin finish.

## - Cap

- The concrete cap will be about 24 inches tall.
- Keep in mind, the ground elevation varies across the island. So in some areas more than 24" of wall cap will be exposed, in other areas less than 24". But that is the average user experience.
- The proposed cap is 6 inches higher than the existing cap. The 6 inches has been added in response to anticipated sea level rise; we hope it will mitigate some of the impacts of sea level rise on Naples island.

## - Guardrail height

- The guardrail will measure 24 inches above the cap.
- The current guardrail is 27 inches.
- In this picture the guardrail is black so that it stands out, but it will not black; the guardrail will be stainless steel with a satin finish.

## - It is important to understand what drives the height of the guardrail and cap.

- The goal of the wall is to keep water out; the goal of the guardrail is to keep

people out of the water. The primary purpose of the guardrail is to protect public safety in the public right of way. The city must maintain a safe environment here for people that are walking along the public right of way.

- California Building Code requires that when there is a walking surface next to an edge—like the canal—there must be a 42” barrier between the public and the canal.
  - In this area, the walking surface is the parkway. So we need a minimum height of 42” from the top of the parkway to the top of the guardrail. Since the elevation around the island varies, the combined height of the wall and guardrail in some areas is 48”; this means that in the areas with higher elevation, we can still maintain the minimum of 42”.
- You can also see how the anchoring for landings are incorporated into the new cap.

# Cap & Guardrail: Guardrail Design

Stainless steel railing with  
horizontal stainless steel cables.

- Safety: 42" near walking surface
  - Preserve view
  - Long Term Durability



- These pictures are from Lido Island; the guardrail design is very similar to the guardrails shown here.
- The guardrail on Naples will not be the shiny, mirror finish in these images; it will be a matte, satin finish, not a mirror finish
- Horizontal cables were selected in order to limit the impact on views.

# Gates & Stairs

Proposed



Existing



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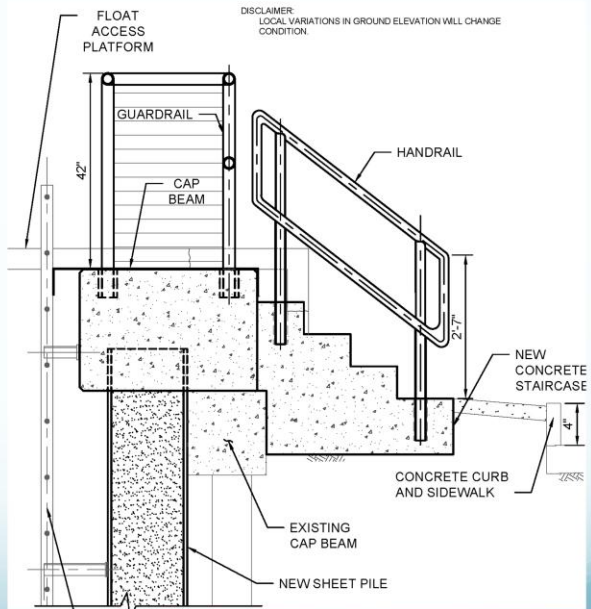
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- Gates & Stairs
  - The gates will measure 42 inches from top to bottom.
  - The gates are 42 inches in order to comply with the California Building Code. The walking surface will be the top of the cap itself. The cap will measure 3 feet across, which is just 2 feet shy of being an ADA complaint sidewalk. So there must be a 42 inch barrier here.
  - As you can see, the height of the gate is the exact same height as code-compliant gangways (code-compliant gangway is behind and featured on the right).
  - You can see here 3 stairs, with the 4<sup>th</sup> "stair" being the cap. The stairs will extend about 30 inches into the parkway area.
  - There will also be a handrail for safety as you climb the stairs.



# Gates & Stairs



- Stairs: This drawing shows the stairs in more detail.

## Gangways & Ladders



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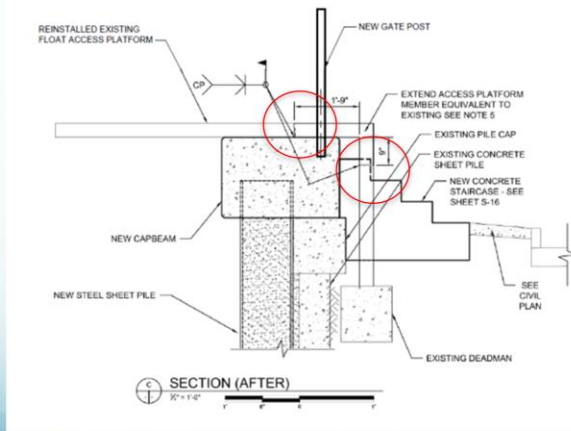
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- This rendering provides a sense of what you would see if you looked over the seawall towards the opposite side of the canal. You can see a mix of gangways, ladders, and floats.

# Gangways & Ladders

Existing

Proposed



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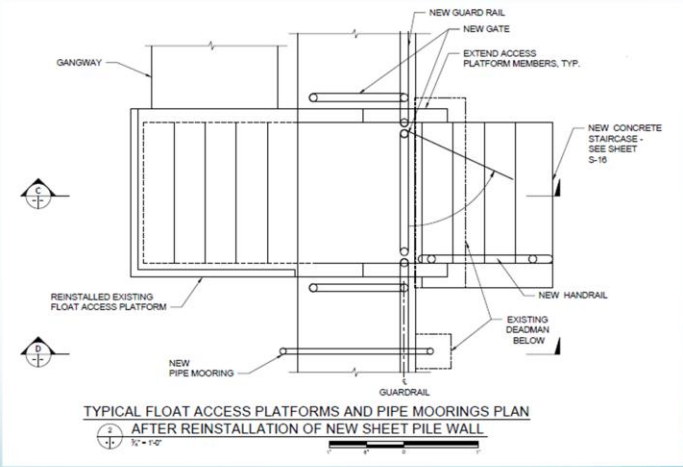
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- Existing anchors for each float access platform will be modified so that they can span the distance of the new wall.
- The areas circled in red are the points at which a new extension piece will be welded to existing anchors.
- The new weld will be stronger than steel.

# Gangways

Proposed



This detail is a plan view (as though you are looking down from the sky) of the new float access platforms.

# Gangways & Ladders

Proposed



Existing



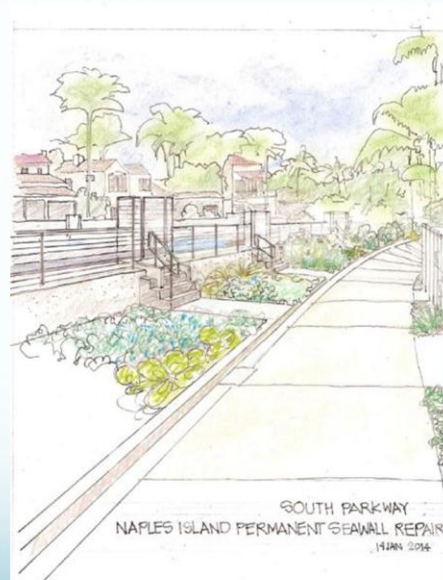
- Old ladders won't fit across the new wall.
- This picture illustrates the proposed ladder. The proposed ladder will have metal rungs that are 1 inch diameter.
- The City will provide ladders to all who currently have ladders. Ladders will also be provided to any individuals who have un-permitted floats or float access platforms.

# Parkway

Existing



Proposed



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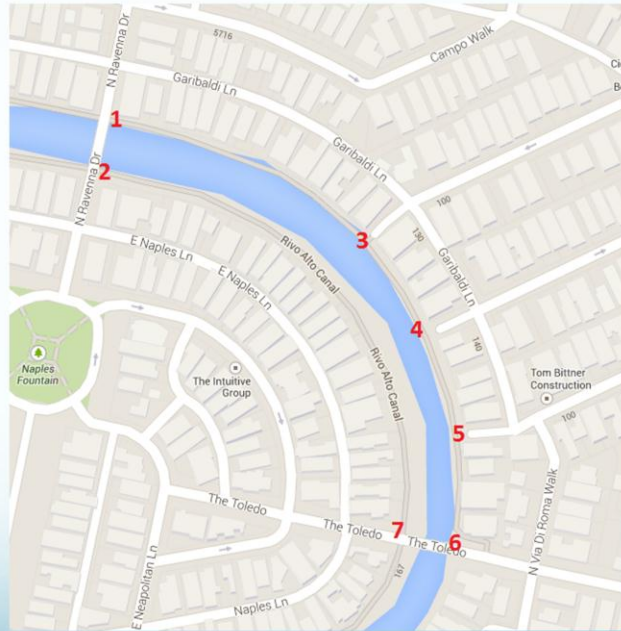
- Looking at the photo and rendering, you can see some of the similarities between the existing parkway area and the proposed parkway area.
- In both images, you can see a 4 inch curb separating the sidewalk from the parkway.
- In both images, you can see a means to access the gangways and ladders.
- The primary difference is that where you see grass in the existing image, there will be plantings.
- The City will assemble a planting palette. Residents can choose to plant and maintain their own plants, or the city can install and maintain plants there. The entire area will be irrigated. The City will pay for the water to irrigate the parkway.

## Parkway

- Planter boxes are NOT allowed; they put too much weight on the wall.
- Hardscape will not be allowed on the seaward side.
- Landscaping only – subject to approved guidelines.



# Benches



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- The California Coastal Commission requires the City to place benches throughout Phase One.
- You can see on this map where benches have been sited.
- Bench Design has not been determined. The City is working with residents to identify a bench that meets the community's desired characteristics.



# Drainage

- Water Quality Improvements
  - Filtered
- Significantly Decrease Flooding

(1) Drain inlet

(2) gutter

(3) curb



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- You can see part of the new drainage system in this rendering.
- There will be inlets (1) throughout that allow the water to flow into a storm drain. There will be approximately 53 inlets in the phase one area, roughly one per property. This inlet will connect to an 18 inch pipe that runs beneath the sidewalk.
- There will also be a gutter (2), very similar to a gutter you might see in the street, that will collect the water and will direct it towards the inlets.
- There will also be a 4 inch curb (3).
- The sidewalk will slope 2% towards the gutter. The parkway will slope 2% towards the gutter. This slope will direct the water towards the gutter and then the drain.

# Lighting

Remove & replace with new fixtures similar to others found on the island.

Existing Light Poles & Fixtures



Lighting near Colonnade (preferred design)



## Cap Design

	Existing	Option 1
Parkway Elevation	4 inches (varies)	4 inches
Cap Height	18 inches (varies)	24 inches
Guardrail Height	27 inches	24 inches
Combined Curb, Wall, & Guardrail Height	49 inches (varies)	52 inches
Ledge	Yes	No

In January, the City allowed residents to identify their preferred cap design. There were 2 options. Option 1 was selected by over 70% of the respondents. Respondents included both residents and property owners. This table shows the differences between the existing wall and cap and the selected design. Ultimately, there are only a few inches of difference.

# Communication

- If you have comments or questions regarding the Naples Seawalls Repair Project, please contact Rachael Tanner, Management Assistant in the City Manager's Office, at 562-570-6190 or [Rachael.Tanner@longbeach.gov](mailto:Rachael.Tanner@longbeach.gov)



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