## City of Carmel-by-the-Sea

# SHORELINE MANAGEMENT PLAN

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CARMEL-BY-THE-SEA

# SHORELINE MANAGEMENT PLAN

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# 1 INTRODUCTION: A Shoreline To Be Managed

To some, the concept of managing Carmel's shoreline may seem, at first, an impossible task. So many of its characteristic features appear to be out of our control: sparkling white sands that disappear and re-appear each year, ancient dunes, bluffs, rocky promontories, and decades-old Monterey cypress that are exposed to erosion from wind and wave, a vast and powerful ocean whose sea level appears to be on the rise, and intense winter storms generated by weather patterns that seem to be less predictable than in the past.

Photo 1 – *The Carmel Shoreline*

Yet, in the face of these powerful forces, the City of Carmel-by-the-Sea has shown that it is possible to maintain, protect, and even enhance its shoreline. Over the past half century, the City has embarked on a series of projects and programs that have:

- helped protect Carmel's coastal dunes, bluffs, and Scenic Road (including its infrastructure and houses) from erosion;
- provided and maintained ample horizontal and vertical shoreline access;

- maintained a landscape of native drought-tolerant and "natural-looking" plants that protect the dunes and upper bluffs; and most important; and
- provided for the health, safety, and welfare of the residents and visitors who enjoy the City's shoreline.

## 1.1 MANAGEMENT OF THE CARMEL SHORELINE

### 1.1.1 *City Departments, Commissions, Task Forces*

For many years, management of Carmel's shoreline was the responsibility of its Department of Public Works. In 1988, the City created a separate Forestry and Beach Department that shared some of the beach maintenance responsibilities with Public Works. Then, in 1995, Forestry and Beach became the Department of Forest, Parks, and Beach, a name that more accurately reflected its mission.

Even now, responsibilities along Carmel's shoreline are still shared between the Public Works and Forest, Parks, and Beach Departments. The two departments work cooperatively on issues affecting the Carmel shoreline. They are both housed in the same building (on Junipero Avenue), and there is extensive formal and informal dialogue between the leadership of the two departments. Regular maintenance along the Beach Bluff Pathway, litter and trash pick-up from the Pathway and beach areas, maintenance of trees, landscape plants, Pathway irrigation system, beach access stairways, and restroom facilities are all performed by personnel from the Forest, Parks, and Beach Department or by City contractors. Maintenance and repairs of shoreline walls and revetments, beach access stairways and ramps, the Beach Bluff Pathway, storm drains, Scenic Road, and other structures, are the responsibility of the Department of Public Works.

The City's Forest and Beach Commission also deals with issues affecting the coastline. Members of this advisory group are appointed by the Carmel City Council. As with the department it advises, the Forest and Beach Commission grew out of the Forestry Commission in 1988.

On at least two occasions, the City Council has appointed task forces to deal with specific issues related to Carmel's shore. In response to the extraordinary damage to the City's beach bluffs and shoreline structures caused by the devastating 1982/83 El Niño storms, the Carmel Beach Rehabilitation Task Force was created in 1983. It worked with City staff and consultants to oversee structural repairs during Phase I of the Carmel Beach Rehabilitation Project. From 1984 through 1988, this Task Force assisted in Phase II: the planning and development of the Carmel Beach Bluff Pathway project.

Then, in 1996, the City Council created the Carmel Beach Master Plan Task Force. This group worked with City staff and produced the *Beach Master Plan*, which was approved by the City Council in 2000.

### 1.1.2 *Previous Carmel Shoreline Management Documents*

Over the years, three documents have provided information and direction for management of the Carmel shoreline:

#### *Beach Bluff Pathway Landscape Plan*

Between 1985 and 1988, the Carmel Beach Rehabilitation Task Force and landscape architects Royston, Hanamoto, Alley, and Abey (RHAA) of Mill Valley, California, developed the landscape design plan for the Carmel Beach Bluff Pathway.[1] Plants utilized in the design were chosen because they "fit" well with the Carmel shoreline environment; these native or "native-like" plants could thrive when exposed to salty air, coastal winds, and limited water.[2] This landscape plan and its accompanying plant list were approved by Carmel's Forestry Commission, Planning Commission, and City Council, as well as the California Coastal Commission. The plan provides the framework for the City's current shoreline landscape. Approval of Coastal Development Permits for some of Carmel's recent shoreline projects has been based, in part, on conditions specifying that the City continue to follow the RHAA landscape plan.

#### *Shoreline Emergency Action Response Plan*

In 1989, coastal biologist David Shonman and Assistant City Administrator Greg D'Ambrosio developed emergency response guidelines for dealing with damage to Carmel's beach and bluff. The *Shoreline Emergency Action Response Plan* was written primarily in the form of worksheets, describing procedures for shoreline monitoring and erosion repair. Carmel's *Beach Master Plan*, described below, recommends that the City:

> "Continue the implementation of the BEACH EMERGENCY ACTION RESPONSE PLAN[3] … to minimize the dangers to public

[1] The Carmel Beach Bluff Pathway is detailed in the project EIR (City of Carmel-by-the-Sea. 1986. Carmel Beach Restoration Phase II Final EIR). The project's landscape plans are on file with the City Forester.
[2] The Task Force and landscape architects also chose plants whose leaves and flowers were "subdued" in color, to better match existing native coastal plants.
[3] The *Beach Emergency Action Response Plan* is now called the *Shoreline Emergency Action Response Plan*

safety and facilities that may be caused by winter storms or other natural disasters."[4]

### *Beach Master Plan*

The *Beach Master Plan* was the City's first planning document to establish goals, objectives, and policies for the Carmel shoreline. This Plan was developed by the Beach Master Plan Task Force and amended by the Carmel Planning Commission and City Council. The *Beach Master Plan* was approved by the City Council in September 2000.

Each of these documents deals with some aspect of managing Carmel's shoreline, but no one document constitutes a complete management manual. The RHAA design plan, written more than a decade ago, has not been assiduously followed by the City. Many of the plants recommended in this City-approved landscape design have since been replaced by other species, for reasons that have never been documented. The *Beach Master Plan* omits mention of the numerous seawalls and revetments that line and support the beach bluffs. The *Shoreline Emergency Action Response Plan* only deals with conditions that might be encountered along the shoreline south of Eighth Avenue. None of these plans provides guidance regarding the level of action along the shoreline that will require review by City planners in order to conform to the Carmel LCP and State coastal law. Finally, none of these plans serves as a practical document that City staff can use for managing the shoreline.

In 2001, the City received approval from the California Coastal Commission to repair its shoreline damaged during the 1997/98 El Niño storms.[5] One of the conditions of permit approval was that the City prepare a "comprehensive shoreline management plan."

## 1.1.3 *Carmel Shoreline Management Plan*

This *Carmel Shoreline Management Plan* (SMP) is a response to the Coastal Commission's 2001 directive. It also responds to concerns expressed by City staff and consultants regarding the need to consolidate prior documents into a single useable plan.

[4] City of Carmel-by-the-Sea. Beach Master Plan, section (VI)(E)(OM-4). Sept. 2000.
[5] The permit was for the "Carmel Bluff and Beach Access Improvement Project" (Coastal Development Permit # 3-00-140), approved on April 13, 2001.

The *Shoreline Management Plan* is an appendix to the Carmel Local Coastal Program's Implementation Plan. It replaces the Carmel *Beach Master Plan*, while incorporating its Goals, Objectives, and Policies. It utilizes principles that guided the original Beach Bluff Pathway landscape design. It also incorporates and updates the *Shoreline Emergency Action Response Plan*, bringing it into compliance with the City's Local Coastal Program and the California Coastal Act.

In the case of development review, it is important to note that the majority of the actual beach and base of bluff area at Carmel Beach (including the revetments and the seawalls) is located within the California Coastal Commission's retained coastal permitting jurisdiction. Because of this, the standard of review for development in this area is the Coastal Act. In those cases, the General Plan/Implementation Plan can and will provide non-binding guidance to the Commission in making permitting decisions, but the decisions will be based on the policies of the Coastal Act.

The *Shoreline Management Plan* is a comprehensive document that will guide future management of the City's shoreline area, including its beaches, dunes, bluffs, landscape, and associated infrastructure. Periodically, it will be updated to reflect new ordinances, policies, plans, and information necessary for optimal management of the City's shoreline. Pertinent information from the upcoming Del Mar and North Dunes Master Plan will be added to the *Shoreline Management Plan* upon adoption.

## 1.2 A Word About Words

*This management plan deals with Carmel's beach, dunes, bluffs and bluff tops, Ocean Avenue, Del Mar, Scenic Road, adjacent streets, and pedestrian access/ drainageways. In the past, the City, its departments, commissions, task forces, documents, reports, and plans, all have used the word "beach" to refer to different parts of Carmel's coast. Sometimes "beach" has actually meant Carmel's sandy beach, but other times, it has referred to portions of the City's coastline, including its dunes, bluffs, and surrounding areas. In this management plan, "beach" specifically refers to the portions of Carmel's shoreline where sand is naturally deposited by wave action. "Dunes" refers to areas of wind-blown sand, especially landward of the beach. When referring to Carmel's coastal area in general, this management plan uses the words "coast" "shore" and "shoreline."*

# 2 THE CARMEL SHORELINE

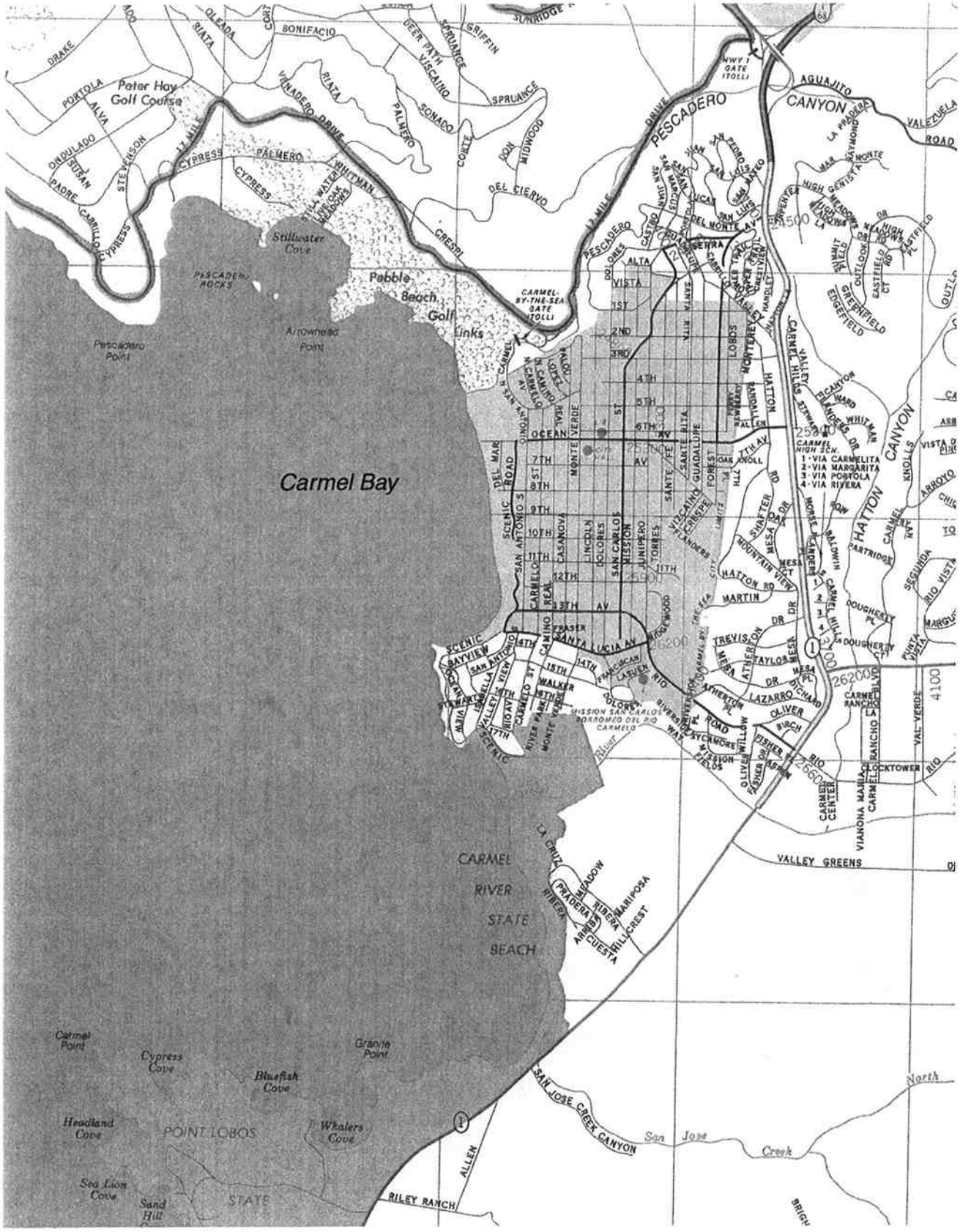
The Carmel shoreline is situated mid-point along the coast of Carmel Bay. It consists of a broad white beach that is backed by steep coastal bluffs in the far northern and southern reaches and by gently sloping dunes in the remaining portions.

Carmel's shoreline is the most dynamic of all the City's public lands. Portions of the coastline are in a state of almost constant change: the amount of sand on its beach, the shape of its dunes, the location of its coastal bluff edge and its waterline – each may fluctuate yearly, seasonally, daily, or even hourly. The natural forces that alter the Carmel shoreline also have a direct consequence on City facilities and visitor-serving amenities, on Scenic Road and its infrastructure, and on nearby private homes. The geologic, oceanographic, and meteorologic forces that have shaped, and continue to shape, Carmel's shoreline are described in detail by Simpson (1972)[6] and Johnson (1984).[7] This section of the *Carmel Shoreline Management Plan* provides an up-to-date summary of what is currently understood about the Carmel shoreline.[8]

## 2.1 CARMEL BAY

Carmel Bay is a 2.8 mile-wide open bay that is protected by the granitic headlands of Pescadero Point in the north and Point Lobos in the south (Fig. 1). The Bay is divided into two smaller cells, separated by Carmel Point in the middle. The City of Carmel's shoreline is located in the northern cell;[9] the southern cell[10] contains Carmel River Beach and San Jose Creek Beach ("Monastery Beach").[11] Though the two cells appear nearly contiguous, their physical features differ in important

[6] Simpson, John Page III.1972. The Geology of Carmel Bay, California. Unpublished M.S. Thesis. Naval Postgraduate School, Monterey, California. (Document on file in the "Carmel Beach Document Collection" at the Carmel-by-the-Sea City Hall.)
[7] Johnson, Rogers E. and Associates. 1984. Carmel Beach Coastal Erosion. Phase I. Final Report. Unpublished report. (Document on file in the "Carmel Beach Document Collection" at the Carmel-by-the-Sea City Hall.)
[8] An in-depth discussion of the oceanographic forces that impact the Carmel shoreline appears in Appendix 9.1.
[9] Called "Northern Carmel Bay" in Storlazzi and Field (2000)
[10] Called "Southern Carmel Bay" in Storlazzi and Field (2000)
[11] Both Carmel River Beach and San Jose Beach are part of the Carmel River State Beach.




*Source: H. M. Gousha*

Figure 1
**Carmel Bay**

ways. The northern cell is served by a single small seasonal watercourse, Pescadero Creek. The southern cell is also served by a small seasonal creek (San Jose Creek), but is dominated by the Carmel River, which delivers substantial amounts of sediment into Carmel Bay during late fall, winter, and early spring.

The southern cell is deeply etched by the Carmel Submarine Canyon,[12] which is an offshoot of the Monterey Submarine Canyon. The head of the Carmel Canyon begins just offshore of Monastery Beach, then quickly reaches a depth of 300 feet within a quarter-mile of shore. Both the Carmel River and the Carmel Canyon have significant impacts on the Bay's southern cell but do not appear to have a noticeable impact on the Carmel shoreline in the northern cell.

## 2.2 CARMEL BEACH

Carmel Beach is recognized as one of the world's most beautiful public beaches. It is a crescent-shaped pocket beach that extends from the upper portion of Carmel Point (sometimes referred to as Abalone Point) about one and one-quarter miles northward to Pescadero Canyon.

Like beaches everywhere, Carmel's beach is subject to periodic changes. Successful management of Carmel Beach requires an understanding of the dynamic processes that are responsible for these changes.

### 2.2.1 *Beach Processes*

Beaches are composed of any available material, of sufficient size and composition, which can be deposited on the shore by ocean waves. Throughout the world, beaches are made from a wide variety of materials: broken coral, mollusk shells, foraminifera tests (the shells of single-celled amoeba-like organisms), and rocks of various sizes, from boulders to cobbles to sand grains. As beach material varies in composition, it also varies in color, from the pink beaches of Bermuda (foraminifera) to the black beaches of Hawaii and Shelter Cove, California (eroded volcanic rock) to the tan sands of Monterey Bay and Big Sur to the sparkling white sands of Carmel.

#### *Typical Beach Formation*

Carmel's white sand beach is formed by processes that differ somewhat from those that generate most typical California beaches. Sands on those beaches are

[12] The Carmel Submarine Canyon is also referred to as the "Carmel Canyon" or the "Carmel Offshore Canyon."

produced by the erosion of inland mountains, hills, and fields. Erosion produces sediment that is carried by streams and rivers out to the ocean where it is sorted and distributed along the shore by wave action. The color and texture of these beaches results from the materials that have been discharged by local rivers, not just during present times, but throughout past millennia.

Once sediment has reached the coast, it is usually acted upon by two different transport mechanisms. The first, "littoral drift," is a natural process that moves sediment either upcoast or down coast, depending on the angle at which waves strike the shoreline. These waves produce a current ("longshore current") that transports sand along the shore, parallel to the beach. Sediment carried by this current can often be seen to pile up on one side of a coastal structure (e.g. a rock jetty). Along the Pacific Coast, littoral drift usually moves sediment southward, though during winter storms, the direction may be reversed.

The second mechanism is the onshore/offshore sand cycle, an annual process that typically deposits sand onto a beach during summer months and then moves that sand off the beach during winter. This occurs because waves that usually reach the shore during summer are "constructive" waves: low energy waves that pick up subtidal sand and deposit it onto the beach. Waves that reach the shore during winter, however, are usually "destructive" waves: high energy, steep waves that strike the shore with tremendous force, scouring sand from the beach. At many locations, this sand is deposited onto offshore sand bars, where it can then be re-deposited back on the beach by future summer waves.[13]

Within a coastal cell, sand will continue to be moved by the longshore current until:

- it is moved onto the land via the onshore/offshore sand cycle. There, it might either be blown farther landward by onshore winds, or returned to the ocean (and the longshore transport) by shoreline erosion; or
- it is moved by powerful storm waves into deeper water, where it will remain out of reach of the longshore transport. In some areas, sand may be transported down into a coastal submarine canyon, from which it will not likely return to the shoreline without global tectonic changes.

[13] There are exceptions to this pattern. Summer storms can generate destructive waves, and benign winter conditions can create constructive waves, but these are unusual seasonal variations.

### *Carmel Beach Formation*

The model described above, so typical of most California beaches, does not apply to Carmel Beach. Most importantly, the City's beach is not significantly affected by river discharge. Sediment from the Salinas River, the largest river north of Carmel, does not appear to be transported around the Monterey Peninsula.[14] Pescadero Creek, at the north end of Carmel Beach, does discharge sediment into the bay at Carmel Beach, but its impact appears to be minimal. The Carmel River, whose mouth is located approximately one mile south of Carmel, releases plumes of sediment that are sometimes transported northward during winter storm periods. Griffin (1969)[15] concluded that only a very minor quantity of Carmel Beach sands (located closest to Carmel Point) might be derived from Carmel River's winter sediment discharges.

There is also no evidence that sand on Carmel Beach is affected by littoral drift. Johnson (1984) characterized Carmel Beach as a pocket beach that is "unusual because there is no significant littoral drift supplying sand from upcoast, or downcoast, in contrast to many other California beaches." Griffin (1969) describes Carmel Beach as being "effectively isolated … by Arrowhead and Carmel Points."

Carmel Beach's white sand is composed primarily of medium-sized grains of quartz and feldspar (Johnson, 1984). These minerals are characteristic of the granodioritic headlands and offshore rocks found at the western end of the Monterey Peninsula (e.g. Cypress Point, Pescadero Point, and Arrowhead Point). Geologists and oceanographers have concluded that gradual erosion of these rocky features by direct wave action is the source of Carmel Beach sand.

Once created,[16] these grains are moved onto and off of Carmel Beach by the annual onshore/offshore sand cycle. Each year, winter storm waves remove large volumes of sand from Carmel's beach. By the following summer, sand levels appear to return to their "normal" condition. During severe winters, substantial volumes of sand are removed from the beach, exposing large underlying rock formations. However, within a year or two, the beach usually appears to regain its normal sand level.

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[14] Cooper, W.S. 1967. Coastal Dunes of California. Geological Society of America Memoir 104. 131p.

[15] Griffin, Paul Adolph.1969. Heavy Mineral Investigation of Carmel Bay Beach Sands. Unpublished M.S. Thesis. Naval Postgraduate School, Monterey, California.

[16] There have been no studies that describe precisely how these grains are moved laterally within Camel Bay's northern cell. Bascom (1946) states that "sand movement (off Carmel Beach) seems to be local and within the rocky reef which lies about 1200 feet offshore" (cited by Johnson, 1984)

### 2.2.2 *Carmel Sand*

For most people, it is this sparkling white sand that best characterizes Carmel Beach. The fine white sand has provided the backdrop for many memorable beach-going experiences and photographs. These special sand grains are also one of the most important factors in protecting the Carmel coast from erosion. They represent the first line of defense against the onslaught of wave attack.

Unfortunately, much about Carmel's vital beach sand still remains unknown. How much new sand is created every year? How much sand is stored in offshore sand bars? How much sand has been moved out-of-reach of "constructive" waves? Has the volume of sand on Carmel Beach changed over the years – has it increased? Decreased? How has it been affected by City activities like seawall construction and sand redistribution? The answers to these questions could play a critical role in the City's response to future shoreline erosion (see Sec. 6.2).

Photo 2 – *Sand Scour and Exposed Outcrops on Carmel Beach south of Twelfth Avenue*

### 2.2.3 *Beach Berm and Water Ponding*

During the spring and early summer, natural beach-building processes lead to the creation of a wide sand berm that runs along the beach. Behind the berm, beach sand is at a lower level. During any season when periods of high tide occur, wave

run-up may overtop the sand berm and create ponds of seawater landward of the berm. At some locations, the ponded water can cut off access to and from the City's stairways.

During fall and early winter, heavy rains and storm-water runoff can also create beach ponds behind the berm. This also can have a detrimental effect on access.

Ponded water can also despoil Carmel's beach environment by creating a debris field, by depositing silt/mud in the pond's still water, or by harboring animal wastes that could make the ponds a health hazard.

Photo 3 – *Sand Berm and Ponded Water*

### 2.2.4 *Human Impacts*

Carmel Beach is one of the most frequently visited beaches in central California, and is greatly affected by human activities. Trash and garbage, littered by beach-visitors, along with storm water debris, all degrade the natural beach environment. Other material, such as coals from beach fires[17] and mud discharged from storm water outfalls (or left over from ponded water) discolor Carmel's signature white sand. These affect only limited areas and are usually remedied by the beach's annual sand cycle that deposits clean, sorted white beach sand every spring.

[17] Carmel allows fires on its beach, but their location (south of Tenth Avenue and seaward of the high tide line) and size are regulated by City ordinance: Carmel Municipal Code Section 8.32.160 (1995).

The City's annual sand redistribution program has a substantial impact on Carmel Beach. This procedure, discussed in more detail in Section 5, involves bulldozing sand from the lower beach to the upper beach. This task enables the City to compensate for sand that will be pushed downslope by summer beach visitors and covers unsightly and potentially dangerous shoreline revetments. Carmel's sand redistribution program expands and improves the public's access to Carmel Beach. The operation usually takes place during late spring/early summer and has been conducted for more than 30 years.

Since 1958, the City has built seawalls and installed engineered rock revetments at several sites along its shore. Hard shoreline protection structures have long been associated with the loss of beach sand from adjacent areas along other shorelines. Such impacts have not yet been documented at Carmel Beach. Carmel's seawalls and shoreline revetments, as well as their possible impacts, are discussed more fully in Section 6.

## 2.3 CARMEL BEACH BLUFFS

Coastal bluffs, rocky promontories, and coves are found at the northern end and throughout the southern half of Carmel Beach. These beach bluffs consist of sandstone bedrock overlain by deposits of siltstone and claystone, and then covered by an upper layer of partially cemented ("semi-consolidated") terrace deposits. In the north, the terrace deposits are covered with dunes of uncemented ("unconsolidated") fine-grained, wind-blown sand.

The composition of these materials is a critical factor in determining how Carmel's bluffs will respond to erosive forces. Along the shore, sandstone provides the most resistance to erosion. Siltstone, claystone, and the terrace deposits are respectively less resistant. Finally, the unconsolidated dune sands are the most vulnerable; they are even susceptible to wind ("subaerial") erosion.

Another important factor is the structure of Carmel's shoreline bedrock. According to Johnson (1984), this bedrock "has been folded, fractured, and faulted due to tectonic forces that have influenced the geology of the area for millions of years. Faults and joints in the bedrock have affected the rates of erosion and, as a consequence, the shape of the coastline." The Cypress Point Fault, which may be inactive, cuts across Carmel Bay from the northwest (at Pescadero Point) to the southeast (at Abalone Point). On the shore, Johnson describes two "strong sets of

fractures" that have allowed surf erosion to "selectively attack" specific points along Carmel's southern shore.[18]

### 2.3.1 *Human Impacts*

Along Carmel's shoreline bluff tops, south of Eighth Avenue, the City created a pedestrian pathway. Completed in 1988, the Beach Bluff Pathway provides a safe place for people to walk, while enjoying unmatched coastal scenery. This meandering path, built alongside Scenic Road, leads beach visitors to all beach access stairways and sand ramps located between Eighth Avenue and Martin way. The Pathway is discussed in greater detail in Section 3.

Since the 1930s, the City has built a series of beach access stairways to enable people to traverse from the bluff top to Carmel Beach. As described in Section 3, these stairways allow people to travel safely up and down the steep bluffs without damaging their fragile vegetation. Foot traffic on Carmel's beach bluffs leads to severe erosion, is unsafe, unsightly, and violates City ordinances.[19] A number of techniques are used to discourage bluff-cutting, including guardrails, plantings, boulders, driftwood log barriers and informative signs.

Nearly all of Carmel's shoreline bluffs south of Eighth Avenue are protected by seawalls, retaining walls, and engineered revetments. Beginning in 1958, the City has used these armored structures in response to severe erosion caused by winter storm waves. Carmel's shoreline walls and revetments are discussed in more detail in Section 6.

Over the years, the City has added significant amounts of fill material to Carmel's coastal bluffs. For many years, this fill consisted of sand, dirt, dead vegetation, rocks, concrete, and other material. During the past two decades, the City has limited its use of fill material to "clean fill" from Carmel area soils. At some locations, vegetative fill material has decomposed, creating hollows just under the surface. These areas may present a potential safety hazard for anyone who walks on the beach bluffs, from City personnel who do so in performance of their duty, to citizens who do so in violation of posted City ordinances.

### 2.3.2 *Wildlife*

Some portions of the City's coastal bluff tops have been weakened by the actions of California ground squirrels[20] (*Spermophilus beecheyi*). These rodents are commonly found throughout most of California. Over the past 20 years, ground

[18] Examples of this are the Thirteenth Avenue Cove and sites north of the Santa Lucia stairway.
[19] Carmel Municipal Code Section 12.32.165B.
[20] Also called "Beechey Ground squirrels"

squirrels have become a nuisance in many parts of the Monterey Peninsula, including Carmel's shoreline bluffs. They eat a wide variety of plant parts, including leaves, stems, seeds, fruit and nuts. They have also been known to eat bird eggs and gnaw on plastic sprinkler heads, as well as a surprising variety of other objects.

Ground squirrels also cause damage to Carmel's coastal bluffs by digging extensive systems of burrows; some may extend as long 20 feet. In many areas (i.e. near Del Mar, Tenth, Twelfth to Thirteenth, and Santa Lucia Avenues), burrows are causing undermining, and could even result in collapse of the bluffs. Ground squirrels are also known carriers of several diseases, including bubonic plague.

The recent growth of Carmel's ground squirrel population has been mainly attributed to visitor feeding. These "cute" squirrels are not shy, and can often be seen "begging" for food.[21] This has led to a larger population than available natural resources can support, making these rodents susceptible to the spread of disease. Control of ground squirrel populations is discussed in more detail in Section 8.

## 2.4 CARMEL DUNES

The City of Carmel was originally founded on an extensive dune field (Cooper, 1967). Carmel's dunes are built from sand that was transported by wind action from the beach. These wind-blown sands have similar composition, but are finer-grained than the Carmel Beach sands.[22] Today, only two remnant sand dune areas still exist: the Del Mar Dunes and the North Dunes. These dunes were described by Jones and Stokes Associates, Inc. (1995).[23] Both dune areas, along with the Ocean Avenue/Del Mar parking lot, have been identified as a future Master Plan Area, and will soon be the subject of more extensive study ("Del Mar and North Dunes Master Plan").

[21] The areas along the Carmel shoreline where the ground squirrel problem is most prevalent are also the most popular areas for picnics and transient visitors.
[22] It is reasonable to assume that portions of these dunes were formed during a prior glacial period, when sea level was lower.
[23] Jones and Stokes Associates, Inc. 1995. Final Results of the Environmentally Sensitive Habitat Area Study Conducted for the City of Carmel-by-the-Sea. Unpublished report.

### 2.4.1 *North Dunes*

Carmel's largest stretch of dunes is the North Dunes. This is a 4 – 5 acre tract of substantially disturbed dunes bordered by Fourth, North San Antonio, and Ocean Avenues. This extensive area is the site of past development, including:

- a public restroom and four sand volleyball courts (near the west end of Ocean Avenue);
- two storm water outfalls and underground storm water drainage pipes; and
- a private housing development – "Sand and Sea" (near the intersection of Fourth and San Antonio Avenues).

The North Dunes are host to some exotic, invasive vegetation, but also include significant areas of native California dune plants, including one species protected by state and federal laws (described in Sec. 4).

### 2.4.2 *Del Mar Dunes*

The Del Mar dunes are a thin stretch of disturbed coastal sand dunes, extending from the end of Eighth Avenue north to the foot of the Ocean Avenue/Del Mar parking lot. The eastern boundary of these dunes is defined by the Ocean Avenue/Del Mar parking lot and by a line of private homes.

These dunes are physically and biologically disturbed. Erosion by high-energy waves occurred during the 1982/83 El Niño winter storms. In 1983, engineered revetments were installed beneath the Ocean Avenue storm water outfall, and seaward of the Eighth Avenue outfall and stairway. Following installation, the City restored the Del Mar dunes to their original size.[24] The seaward edge of the Del Mar Dunes is maintained during the City's sand redistribution operations.

The dunes' natural community is also significantly disturbed; it is vegetated primarily with exotic, invasive species (described in Sec. 4). This area is an opportunity for habitat restoration consistent with sections 30240(b) and 30251 of the Coastal Act. This issue will be studied in conjunction with public access opportunities in the Del Mar and North Dunes Master Plan process.

[24] Major portions of these revetments have remained buried since their installation in 1983.

## 2.5 MANAGEMENT POLICIES[25]

- Pursue scientific studies that document physical processes occurring at Carmel Beach (e.g. sediment transport, sand bar dynamics and influences from the Carmel Offshore Canyon). Seek funding for such studies from governmental agencies. (P5-1)

[25] All Management Policies in this *Carmel Shoreline Management Plan* are statements of the Goals, Objectives, and Policies established in the City's Coastal Land Use Plan (approved June 2003) (adopted by the Carmel City Council on 2 Jun 2003; certified by California Coastal Commission on 17 July 2003).

# 3 ACCESS TO THE CARMEL SHORELINE

The white sand beaches, rocky promontories, and breathtaking vistas make the Carmel coast one of the most popular destinations in central California. The City of Carmel's shoreline is a 22.5-acre public park that is used by both visitors and residents alike. It is served by an extensive public access system that includes roadways, parking areas, pedestrian pathways, beach access stairs, sand ramps, and bus service.[26]

## 3.1 VEHICLE ACCESS TO CARMEL'S SHORELINE

Many residents and visitors use vehicles for travel to Carmel's shore. Some drive along Scenic Road and enjoy the view. Others park to watch the ocean from their vehicle. Most seek a convenient parking space and walk along the Pathway or down to the beach.

Travel on the Ocean Avenue/Del Mar parking lot loop and Scenic Road is open to all vehicles other than buses and large trucks, but the City prohibits parking of over-sized vehicles on roads near the Carmel shoreline.[27]

### 3.1.1 *Ocean Avenue / Del Mar and North Dunes*

The primary access to Carmel Beach is located at the lower end of the City's main street, Ocean Avenue. This is one of the few places within the City limits where the upper beach rises to meet street level.[28] Here, Ocean Avenue intersects with Del Mar, a street easement that has been abandoned and modified into a beach access parking lot.

The Ocean Avenue/Del Mar parking lot is primarily used by day-visitors to the City (Fig. 2). Parking spaces here allow convenient access right up to the edge of the sand, and to the City's main beach restroom facilities.

[26] Monterey-Salinas Transit (MST) currently brings bus passengers within two short blocks of the shoreline.
[27] This prohibition applies to any vehicle that exceeds 12,000 pounds gross weight, or 20 feet in overall length (including bumpers), or seven and one-half feet in height at its highest point. These vehicles can stop when "engaged in the loading or unloading of passengers or goods as may otherwise be permitted by law." Carmel Municipal Code, section 10.32.080G.
[28] This condition is maintained through the City's annual sand redistribution program.

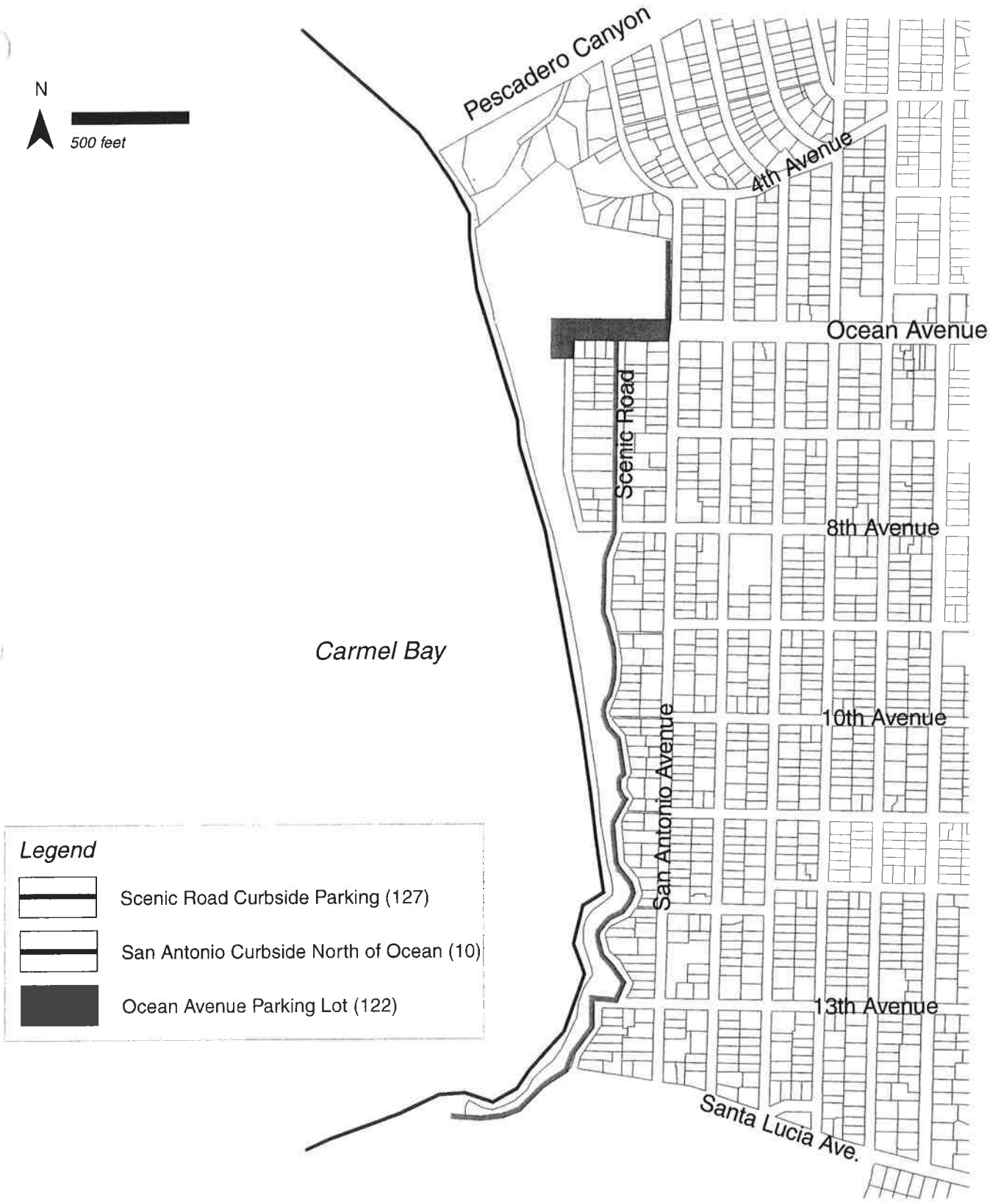


Figure 2
**Shoreline Parking Resources**

This lot contains spaces for 122 vehicles; four of the spaces near the City's main beach restroom are sized and marked for disabled parking. The roadway here is narrow, and movement of over-size vehicles can be difficult, especially when the parking lot at Del Mar is full.

People visiting the North Dunes can use available parking either in the Ocean Avenue/Del Mar parking lot, or along the west side of North San Antonio Avenue between Ocean Avenue and the "Sand and Sea" development (near Fourth Avenue), which has room for ten vehicles.

### 3.1.2 *Scenic Road*

Scenic Road is a street that truly lives up to its name. The portion that stretches between Ocean and Eighth Avenues is typical of many attractive streets in residential Carmel. But at Eighth Avenue, visitors and residents are greeted with stunning vistas of Carmel Bay, framed through tall Monterey cypress and accented by white beach sand. In many respects, the history of Scenic Road traces the history of Carmel's coastal bluff erosion, increasing public use, and the City's efforts to preserve lateral and vertical beach access.

Scenic Road winds along the bluffs above the beach and continues past the City's southern limit. The road continues to the south end of Carmel Point, in an unincorporated portion of Monterey County. When it was constructed, Scenic Road carried traffic in both directions. During the early 1960s, vehicles driving between Eighth and Santa Lucia Avenues were restricted to southbound travel. In 1988, this stretch of Scenic Road was narrowed to provide additional space for Carmel's Beach Bluff Pathway and landscape improvements while preserving ample space for curbside parking.

The portion of Scenic Road between Eighth Avenue and Martin Way provides curbside parking for many visitors to the City's shoreline. This stretch of Scenic Road has 127 parking spaces; all are adjacent to the Beach Bluff Pathway. There are two stalls located on either side of the pedestrian sand ramp, between Eighth and Ninth Avenues, which are sized and marked for disabled parking. The City has also established two passenger loading zones; one located at Eighth Avenue and the other at Eleventh Avenue.

### 3.1.3 *Scenic Road Neighborhood (Adjacent Streets)*

On many warm summer days, especially weekends and during special events (e.g. Great Sand Castle Contest), beach parking spills over onto neighboring streets. On

these occasions, vehicles often park along streets that intersect with Scenic Road and San Antonio Avenue: Eighth, Thirteenth, and Santa Lucia Avenues.

During the busiest periods, vehicles also park along San Antonio Avenue, Carmelo Street, and even Camino Real Street. Occupants of vehicles parked at these locations then walk a short distance to the Carmel shore along one of the Avenues between Eighth and Santa Lucia. At San Antonio Avenue, some pedestrians may use one of the four narrow pedestrian pathway/drainageways[29] between Ninth and Twelfth Avenues; these are discussed below. Vehicle access and available parking spaces are generally well dispersed. The public is afforded easy access to all parts of Carmel's shoreline and impacts are not concentrated in any one area. This is consistent with Section 30212.5 of the Coastal Act.

## 3.2 PEDESTRIAN ACCESS TO CARMEL'S SHORELINE

Walking is a popular way for residents and visitors to access the shore. Many enjoy walking on the Beach Bluff Pathway above the beach. Others walk from their parked vehicles, on nearby residential streets, and need a safe, convenient route to the nearest beach access (Fig. 3). In contrast to many areas along the California coast, pedestrian shoreline access in Carmel is abundant and convenient. Lateral access is continuous along the City's entire coast and, from Eighth Avenue southward; vertical access is available at intervals of one block or less.

### 3.2.1 *North Dunes and Del Mar Dunes*

The North Dunes and upper Carmel Beach are easily accessible to many pedestrians via North San Antonio and Ocean Avenues and the Ocean Avenue/Del Mar parking lot. This area of beach and dunes can also be reached by a pedestrian access easement, maintained by the City, which passes through the privately owned "Sand and Sea" development, near the intersection of Fourth and North San Antonio Avenues. The Fourth Avenue shoreline access easement is described in more detail in Section 3.2.5.

The Del Mar Dunes are reached from the north via the Ocean Avenue/Del Mar parking lot and from the south by the Eighth Avenue beach access stairway. Pedestrians may walk in the dunes between these two access points, but there is no improved lateral access through the dunes.

[29] These pathway/drainageways (at Ninth, Tenth, Eleventh, and Twelfth Avenues) have sometimes been referred to as "easements." They are, however, owned in fee by the City. They are recorded in *Cities and Towns* vol. 2, p. 23, as seven foot-wide "footpaths," and they connect San Antonio Avenue and Scenic Road.

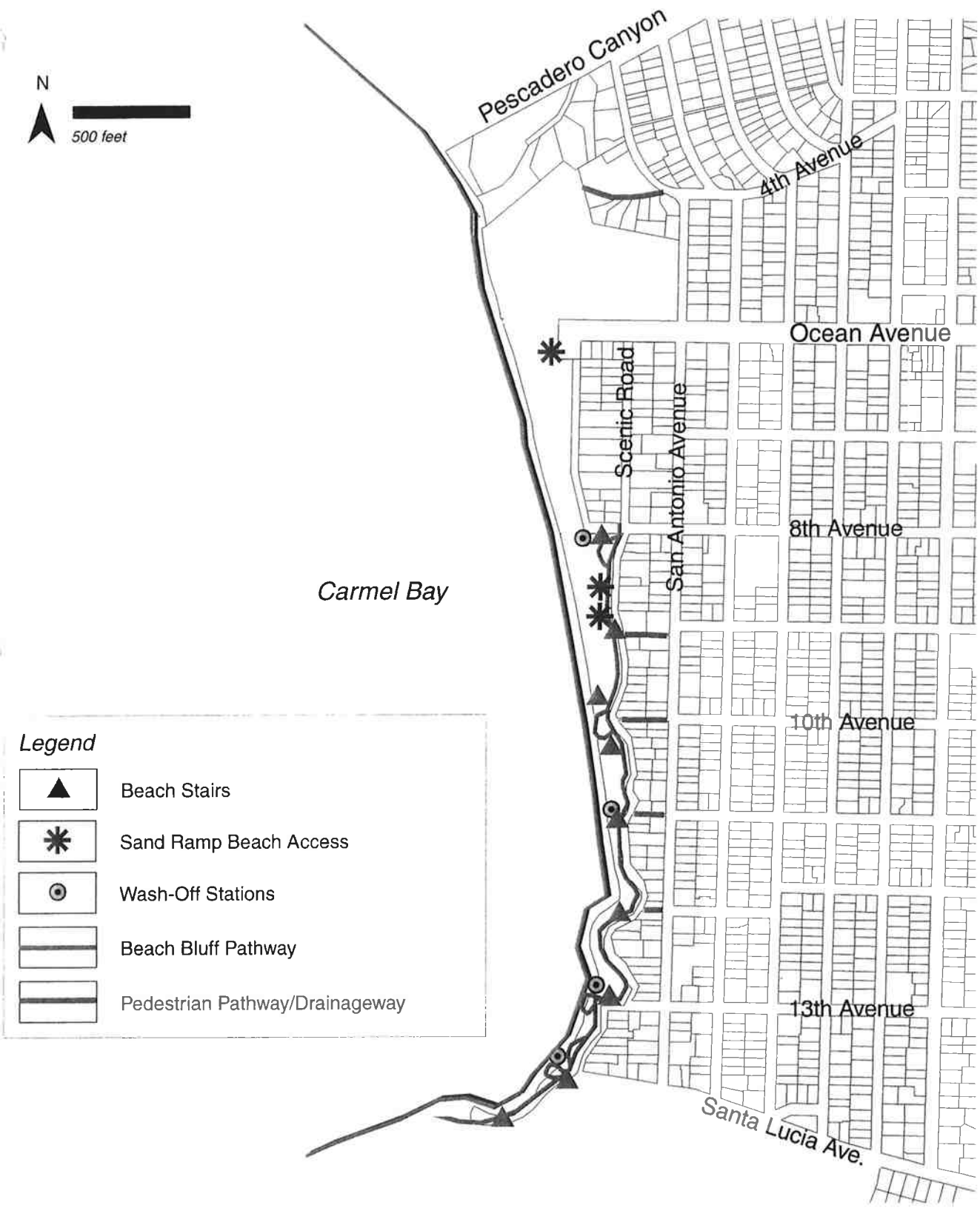


Figure 3
**Public Access**

The *Carmel Beach Master Plan* (2000) addressed the lack of lateral access by recommending the installation of a boardwalk in the dunes that links the "Del Mar area" with the Beach Bluff Pathway at Eighth Avenue.[30,31] Recently, the City designated the Del Mar Dunes as an Environmentally Sensitive Habitat Area (ESHA).[32] The establishment of formalized lateral access through the Del Mar Dunes could help protect them by controlling errant foot traffic, but such a development must be undertaken with great care. As noted in the *Beach Master Plan*, the City should support public activities that are "consistent with the sensitive dune environment."

Pedestrian access issues in both dune areas discussed above will be addressed through preparation of the Del Mar and North Dunes Master Plan.

### 3.2.2 *The Carmel Beach Bluff Pathway*

The Beach Bluff Pathway has been designed to serve pedestrians traveling along Scenic Road (Fig. 3). Before the Pathway was built, Scenic Road was a one-way, broad, busy thoroughfare that lacked a safe space for people to walk or jog. Pedestrians walking in the roadway were often forced to weave among parked cars and dodge moving vehicles.

After the 1982/83 El Niño storms, the bluffs were ravaged, storm water drainage facilities were destroyed and, in places, Scenic Road itself was threatened. At this time, there were only five narrow stairways remaining that connected Scenic Road with the beach. Impatient beach-goers often climbed on the City's coastal bluffs and trampled protective vegetation, instead of using the beach access stairways.

The City addressed these problems by installing bluff armoring and improving drainage facilities during Phase I of the Carmel Beach Rehabilitation Project. During Phase II, the City addressed access and landscape issues. Scenic Road was narrowed and a meandering Pathway was created that enabled people to enjoy the beautiful vistas of Carmel's shoreline in serenity and safety.

The 3,250 foot-long Pathway winds along the bluff top, near the seaward edge of Scenic Road. It extends from Eighth Avenue southward to the City limits, just south of Martin Way. The Pathway is built primarily of decomposed granite

[30] Carmel Beach Master Plan (2000) policy PDM-4.
[31] Consideration of lateral access through the Del Mar Dunes should include examination of various styles and materials, including boardwalks of wood or composites and pathways of decomposed granite.
[32] This was based, in part, on the biological survey of the Del Mar Dunes by Jones and Stokes (1995).

(DG),[33] and averages four to five feet in width. It was designed to provide access for people who have limited mobility or are physically disabled.

The Pathway design was jointly developed by the Carmel Beach Rehabilitation Task Force and consulting landscape designers from the firm of Royston, Hanamoto, Alley, and Abey (RHAA);[34] it was formally opened in 1988.

The Carmel Beach Bluff Pathway project has won several awards, including the American Society of Landscape Architects (ASLA) National Merit Award (1988), the ASLA Northern California Chapter Merit Award (1988), and the Garden Club of America Award for Significant Contribution to Horticulture (1991).

Photo 4 – *The Carmel Beach Bluff Pathway*

### *Pathway Design and Purpose*

The Beach Bluff Pathway was designed to play a critical role in the City's overall plan to protect its shoreline while improving coastal access. Its design was based on five guiding principles adopted by the Task Force:

[33] Pathway material consists of 95% decomposed granite + 5% cement. The cement was tinted with Davis Concrete Color ("Mesa Buff" no. 5447), mixed dry at 2 lbs./94 lb. bag of I-II Portland Cement.

[34] The key RHAA personnel were Principal Planner Robert Royston and Associate Planner Lucille Biesbroeck.

- Restore and retain the natural, pristine beauty of Carmel Beach, which is unique in the world.
- Strive for natural, timeless design.
- Design elements so as not to intrude upon the scenic beauty; no apparent structural intrusions to mar vistas from residences, roadway, walkway, beach, etc.; maintain an uninvaded panorama of the Bay.
- Maintain the "meandering style" that is typical of Carmel (e.g., intimate, narrow, winding paths leading from the main walkway to isolated, unobtrusive resting places).
- Introduce new and innovative schemes to control behavior of people and dog traffic (e.g., guide people to accesses and encourage sitting and meeting on the beach instead of on the roadway).[35]

Guided by these principles, the designers created a Pathway that protected pedestrians and the City's vulnerable coastal bluffs by modifying where people walked, parked, and congregated along the Carmel Beach bluff top.

### *Pedestrian Protection*

The Beach Bluff Pathway provides safe lateral access for pedestrians along the shoreline bluff top. This clearly responded to the needs of beach visitors who walk along Scenic Road (from their residences or cars) in order to reach one of the City's numerous beach access stairways or sand ramps.

The Pathway design also enhances the experience of shoreline visitors whose activities are limited to the bluff top area. These include: people whose physical condition makes walking on the beach difficult or impossible; people who prefer to sit or stand on bluffs overlooking the shore and enjoy the scenic vistas; and people who use the bluff top area for walking or running.

Finally, the Pathway provides a coastal experience during those times when conditions discourage use of the beach itself. These conditions, characteristic of the Carmel shoreline, cause many people to limit their shoreline visit to the City's coastal bluffs, instead of the beach:

- Climate – local weather conditions often include periods that range from cool and windy to wet and foggy. These conditions are most likely to occur during the period of highest public use (mid-spring through early fall). Many find these conditions are more conducive to strolls along the bluffs in warm clothes rather than the more stereotypical beach activities.

[35] City of Carmel-by-the-Sea. 1986. Carmel Beach Restoration Phase II Final EIR.

- Tides – Like most sections of the central California coast, tides at Carmel Beach range from –2.0 to +8.0 feet. Under some winter conditions, travel on the beach during high tide may be difficult or dangerous; this is especially true of the beach south of Twelfth Avenue.

- Sand Level – During severe winters, sand scour can expose massive bedrock platforms that can deter pedestrian movement along the beach.

*Bluff Protection*

Many facets of the Beach Bluff Pathway were designed to remedy problems caused by people who climb on Carmel's coastal bluffs. "Bluff-cutting" damages vegetation and can lead to severe erosion from storm water runoff. The Pathway landscaping includes plants, boulders, and protective wooden barriers that serve to keep people from straying onto the City's vulnerable coastal bluffs. Discreet signs along the Pathway remind people to stay off the slopes. Other signs direct pedestrians to the nearest beach accessway.

The success of the Carmel Beach Bluff Pathway can be attributed to the interplay of all its elements: pathway layout, beach accessways, landscape plants, boulders, guardrails, signs, and other amenities (discussed in detail in Sec. 4). Changes to the design of any one of these elements may impact the function of other elements and of the Pathway as a whole. Therefore proposed changes must be undertaken with great insight and care.

### 3.2.3 *Beach Access Stairways and Sand Ramps*

The Pathway was designed to seamlessly integrate with a series of beach access stairways and sand ramps (Fig. 3). Some of these accessways were built years earlier, and survived the 1982/83 El Niño storms. Others were built as part of the Phase II project. At present, the City has nine stairways and two sand ramps that provide access for beach visitors (see Fig. 3).

*Stairways*

Carmel's shoreline stairways provide the critical link in the City's beach access program. These structures enable people to travel safely from the bluff top down to the beach at nine locations, from Eighth Avenue south to Martin Way (see Table 1). The stairways are built in varying styles using a variety of materials: some are built of wood, some utilize reinforced concrete with "golden granite" facing, and some use a combination of these materials. Some

stairways carry people over irregular rock revetments, tall seawalls, or steep cliffs. At Twelfth Avenue, the stairway guides people down to a beach 50 feet below.

Yet, these stairways are the most vulnerable of the City's shoreline structures. To perform their function, they are built in "harm's way," extending out beyond the protective bluffs and walls. Over time, Carmel's beach access stairways often incur significant damage during winter storms. Some stairways have been damaged by direct wave attack while others were broken by the sheer weight of seaweed flung onto, or draped over, exposed sections.

## Table 1 - **CARMEL BEACH ACCESS STAIRWAYS**

| Location | Year Built | Composition and Features |
|---|---|---|
| Eighth Avenue | late 1930s[36] | Carmel stone and golden granite rock<br>Includes Foot Wash-off Station |
| Ninth Avenue | 1984 | Wood beam and posts. Break-away design. |
| Tenth Avenue (North) | 1974[37] | Wood beam and posts<br>Break-away design |
| Tenth Avenue (South) | 1986 | Upper section: Wood beam and posts<br>Lower section: Reinforced concrete faced with golden granite; wave deflectors at bottom |
| Eleventh Avenue | late 1930s | Golden granite rock with exposed aggregate treads<br>Includes Foot Wash-off Station |
| Twelfth Avenue | 1986 | Wood beam and posts<br>Temporary[38] |
| Thirteenth Avenue | late 1970s | Reinforced concrete and golden granite rock<br>Includes Foot Wash-off Station |
| Santa Lucia Avenue | late 1930s | Golden granite rock and exposed aggregate treads<br>Includes Foot Wash-off Station |
| Martin Way | 1958/59 | Upper section: Reinforced concrete faced with golden granite. Lower section: Wood beam and posts |

[36] Modified in 1985/86
[37] Redesigned in 1986
[38] This temporary stairway built in the Twelfth Avenue cove is discussed in more detail in Section 3.4.1.

Photo 5 – *The Tenth Avenue (South) Stairway*

Some of the stairways constructed during the Phase II project employed the concept of "break-away" sections. On these stairways, the lowest section was built to be separate from the upper section. This design arose out of observations of stairway failures during the 1982/83 El Niño storms:

> First, waves attacked the lowest portion of a stairway, undercutting its foundation.[39] As the bottom section was destroyed, it pulled the (attached) upper portion of the stairway away from the bluff. In at least one case (Ninth Avenue stairway), loss of the upper stairway section caused massive erosion of bluff soils and toppling of two large Monterey cypress.

Understanding that Carmel's beach access stairways will always be exposed to potential wave damage, designers created new stairways whose lowest portions could separate from the upper sections. When attacked by high-energy storm waves, these sections would break cleanly away. In most cases, the upper stairway sections and the upper bluffs escape extensive damage. This greatly reduces potential repair costs as well as the threat of bluff erosion.

This concept has been tested in recent years. The lower section of the Tenth Avenue (North) stairway was severely damaged by high-energy waves during the 1997/98 El Niño winter storms; the upper section and surrounding bluffs were relatively undamaged. Within a year, the lower section was repaired and

[39] These observations apply to both wood and concrete/masonry stairways.

re-opened to public access. During the Winter of 2000/01, storm waves again damaged the lower sections of the stairways at Tenth Avenue (North) and Martin Way. The upper section and surrounding bluffs suffered only minor damage. Approved designs for these "break-away" lower sections are on-file with the City; replacement sections can be built when conditions allow.

Photo 6 – *Limited Damage to the Upper Portion of the Break-Away Stairs at Tenth Avenue (North)*

All stairways are complemented with trash/recycling container enclosures; four have foot wash-off stations (these are described in Sec. 4).

With one exception,[40] beach access stairways along the Pathway are located adjacent (or very near) to a Pathway access ramp that allows disabled access from Scenic Road. Each ramp is located within one of Scenic Road's marked crosswalks, providing Pathway access from the intersecting streets or pathway/drainageways. This creates a coordinated "access system" that leads pedestrians safely and conveniently to the beach.

[40] The exception is the Twelfth Avenue stairway, which was built approx. 100 feet west of where the Twelfth Avenue pedestrian access intersects with Scenic Road. The curb ramp is located at that intersection, within the marked crosswalk.

### *Sand Ramps*

Along the shoreline, the City has built and/or maintained three sites where beach sand has been moved up to the street/parking level. These allow pedestrian access to and from the beach. Each also provides access to the sands of the upper beach for people who have limited mobility or who are physically disabled.[41]

The largest is located adjacent to the City's main beach parking lot at the foot of Ocean Avenue/Del Mar. This sandy area is primarily a natural formation, but its sand level is maintained by bulldozing activities during the City's sand redistribution program.

The other two sites are sand ramps that are maintained by the City's annual sand redistribution program. One ramp is located just south of Eighth Avenue and is constructed of bulldozed sand in a GEOWEB® cellular confinement system covered with a cap of compacted decomposed granite (DG). When necessary, it is used as an equipment-access ramp for maintenance and emergency vehicles.

About 40 feet south, the City has built another sand ramp. It is constructed of bulldozed sand and buried driftwood logs; it is for pedestrian use only. The buried driftwood logs help stabilize the ramp by controlling the downslope movement of sand. The logs also serve to prevent exposure of irrigation pipes and valve control wires. When these logs are not well covered by sand, they may become obstacles for pedestrians. The ramp should be regularly monitored and exposed logs should be re-covered with sand.

Each sand ramp is equipped with a concrete curb access ramp that provides accessibility for the disabled to/from Scenic Road.

## 3.2.4 *Pedestrian Pathway/Drainageways*

The Pathway provides pedestrians with safe access along Carmel's shoreline bluff top and directs them to the City's convenient beach access stairs and ramps. Bringing pedestrians and vehicles west to Scenic Road and the Pathway are five streets (Ocean, Eighth, Thirteenth, and Santa Lucia Avenues, and Martin Way). Four other City streets (Ninth, Tenth, Eleventh, and Twelfth Avenues) provide vehicle access only as far west as San Antonio Avenue. Here, each of these four streets becomes a narrow storm water drainageway that also doubles as a

[41] This is discussed in greater detail below.

pedestrian walkway. These pathway/drainageways can provide safe pedestrian travel only in the absence of heavy storm water runoff, which may create difficult-to-hazardous conditions for pedestrian passage.

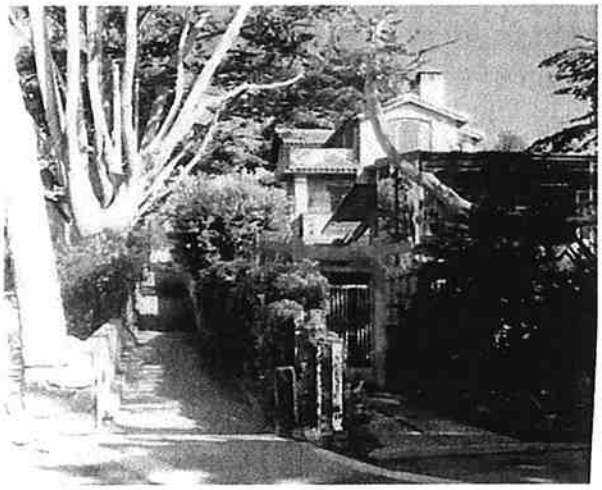

Photo 7 – Pathway/drainageway at Ninth Avenue

### 3.2.5 *Pedestrian Access Easement*

The City provides public access to the northern portion of Carmel Beach with a pedestrian walkway that begins near the intersection of North San Antonio and Fourth Avenues. The eastern portion of this walkway is a paved easement across the privately-owned "Sand and Sea" development.

Pedestrian travel to, and along, this walkway is sometimes difficult. To reach the access, pedestrians must walk in the street along a narrow stretch of North San Antonio Avenue. On this section of roadway, pedestrians encounter a blind curve where fast-moving vehicles travel to and from the nearby Carmel Gate to Pebble Beach. This portion of North San Antonio Avenue lacks both convenient parking and a dedicated pedestrian lateral pathway/walkway. The entrance to this coastal access, as yet, is not adequately signed.

Once pedestrians reach the easement, they must walk across the paved "Sand and Sea" driveway. The final portion of the walkway is a dirt trail that traverses dunes and coastal bluffs before leading to the North Dunes of the Carmel shoreline (near the Fourth Avenue storm water outfall).

## 3.3 DISABLED ACCESS TO CARMEL'S SHORELINE

Carmel Beach is located at the base of a series of high dunes and shoreline bluffs. Public access to the beach is primarily via the parking lot at the foot of Ocean Avenue, as well as from numerous sites along Scenic Road. But from these locations, access to the tideline requires a descent that ranges between 12 and 50 feet, depending on location and season. This trek can be challenging for many beach visitors and impossible for those with limited mobility.

The City of Carmel has an abiding commitment toward making its shoreline as accessible as possible, given the existing topographic conditions. The Beach Bluff Pathway and its shoreline restroom facilities were all designed to meet existing Americans with Disabilities Act (ADA) guidelines for disabled accessibility. The City's two sand ramps,[42] as well as the sand annually bulldozed up to the Ocean Avenue/Del Mar parking lot, allow access to the upper beach for disabled persons. These three sites have been certified by the State of California as offering reasonable disabled access to the shoreline.

Carmel maintains six spaces that are sized and marked for disabled parking: four are in the main beach parking lot, at the foot of Ocean Avenue/Del Mar and two are located on either side of the sand ramp north of Ninth Avenue.

It is important to note that those features that guarantee disabled access also promote use by the numerous shoreline visitors who, while not legally classified as "disabled," are nonetheless of limited mobility. Experience has shown that their shoreline visits are enhanced by the City actions described above.

## 3.4 FUTURE PROJECTS

### 3.4.1 *Twelfth Avenue (Point) Stairway*

Many of the beach access stairways damaged during the 1982/83 El Niño storms were re-designed and rebuilt as part of the Beach Bluff Pathway project[43] in 1987/88. In 1986, while the Pathway was still in the design phase, the City built a temporary stairway in the cove near Twelfth Avenue to provide short-term "emergency" access to the beach. This wooden structure is the tallest stairway along Carmel Beach and is less integrated with the adjacent bluffs, than other beach stairways.

[42] Located: 1) just south of Eighth Avenue, and 2) just north of Ninth Avenue.
[43] Carmel Beach Rehabilitation Project Phase II

During development of the Pathway project, the Beach Task Force had planned to re-design and rebuild the damaged stairway originally located at the Twelfth Avenue point. However, installation of the temporary stairs in the cove reduced public pressure for beach access in this area and the Task Force left this project for a future time.

In recent years, this stairway has received the brunt of several high-energy winter storms. Inspections by the Department of Public Works and the City Engineer have determined that the stairway's superstructure is out of alignment and is in need of repair.

A replacement permanent stairway for the Twelfth Avenue point has been designed and proposed. It would consist of an upper section built of wood beams and posts and a lower section, along with two wave deflectors, that would be built of reinforced concrete with golden granite facing. The proposal also includes a stone patio located at the top of the bluff that would merge with the Beach Bluff Pathway. The patio would contain a trash/recycling container enclosure, benches, and a bike rack.

## 3.5 MANAGEMENT POLICIES

- Provide for maximum public access to, and recreational use of, the shoreline consistent with private property rights and environmental protection. (G4-1) Development shall not interfere with the public's right of access to the sea. (Coastal Act)

  - Maintain frequent and safe points of access along the beach. (O4-1)

    - Continue to provide vertical access along the Carmel shoreline at approximately one or two block intervals. (P4-2)

    - Improve and sign the vertical access at Fourth Avenue. Consider development of a pedestrian path from the foot of Jane Powers walkway to the Fourth Avenue beach access through Sand and Sea. Investigate and implement opportunities to establish or reestablish additional vertical access from North San Antonio to the beach to the extent feasible. (P4-3)

    - Periodically reestablish the sand dune at the foot of Ocean Avenue, to provide convenient beach access from the Ocean Avenue/Del Mar parking lot. Reestablish and regularly maintain a vehicle and disabled-access ramp south of Eighth Avenue. (P4-4)

- Enhance pedestrian access to the shoreline from San Antonio Avenue using existing pedestrian access easements/drainageways that connect San Antonio Avenue with Scenic Road located at Eighth, Ninth, Tenth, Eleventh, and Twelfth Avenues. Redirect surface storm water flows in these easements/drainageways to underground culverts to improve pedestrian safety, access, and aesthetics. (P4-5)

- Establish a local segment of the California Coastal Trail through Carmel-by-the-Sea by connecting existing pedestrian paths and developing new pedestrian paths or routes as required to create a continuous trail through the City. (O4-2)

  - Designate the Beach Bluff Pathway as part of the California Coastal Trail (as long as this does not require any alteration to design or use). Coordinate with Monterey County to increase public awareness of the new segment of the Trail. (P4-9)

  - Coordinate with Monterey County to establish a continuous coastal trail through Carmel that links Rio Park, Carmel Point, the Beach Bluff Pathway, and the trail network in Del Monte Forest. Support efforts by Monterey County to establish a pedestrian pathway around Carmel Point to continue the California Coastal Trail. (P4-10)

  - Establish, in coordination with the State Department of Parks and Recreation, Monterey County Regional Park District and the Monterey County Parks Department, a trail network linking the state-owned Odello land and Carmel River State Beach to the Carmel Mission, Mission Trail Nature Preserve and Beach Bluff Pathway. (P4-46)

- Develop a Master Plan for the Del Mar and North Dunes area. Upon approval, the Coastal Land Use Plan shall be amended to incorporate all elements of the Master Plan. (G4-2)

  - Appoint an ad hoc citizens committee to develop the Del Mar and North Dunes Master Plan. Address issues related to parking and circulation, access, recreation facilities, aesthetics, special events, impacts on residents and visitors and protection of environmental resources. Guide Plan development using the goals, objectives and policies of th(e) (Coastal) Land Use Plan consistent with Coastal Act policies, for provision of public access and protection of sensitive resources. (O4-3)

- Improve pedestrian circulation between the north end of the Beach Bluff Pathway at Eighth Avenue and the beach facilities at Ocean Avenue and the Del Mar Avenue parking lot as part of the Del Mar and North Dunes Master Plan. (P4-11)

- Provide safe and adequate pedestrian access from the Carmel Gate at the North City boundary to Ocean Avenue while protecting environmental resources. (P4-12)

- Address circulation and parking problems, make the area more pedestrian/people friendly and protect the environment. (P4-15)

- Use City staff along with needed consultants (environmental restoration specialist, traffic engineer, landscape architect) to develop a plan of balanced improvement. (P4-16)

- Consider reallocating parking so it will flow in a more efficient manner. Consider a regular shuttle from downtown or from a designated parking area. (P4-17)

- Improve the pedestrian experience through the Del Mar parking area for those arriving on foot and from parked vehicles to the beach. Consider construction of boardwalks or other improvements to aid beach circulation, protect tree roots and protect the sensitive vegetation in the North Dunes area. (P4-18)

- Provide disabled access consistent with ADA requirements. Provide access that blends with the beach and allows disabled individuals the opportunity to enjoy a more natural beach experience. (P4-19)

- Provide adequate and aesthetically pleasing trash containers. (P4-20)

- Provide secure bicycle racks. (P4-21)

- Continue to support passive beach activities that are consistent with maintaining the natural beach setting. Active recreational opportunities need not be enhanced. (P4-22)

- Do not install formal picnic tables or benches. Rather, provide driftwood logs for seating. Picnicking on the beach should be conducted in a traditional manner with blankets, etc. (P4-23)

- Retain the informal atmosphere of the volleyball courts. (P4-24)

- Provide a parking program for Carmel Beach that supports convenient access without compromising aesthetics, environmental quality or residential character. (O4-8)

  - Develop a design plan for the Del Mar parking area that improves circulation, reduces congestion, enhances visual quality, and enhances community character. The redesign shall avoid or minimize any loss of parking spaces. (P4-42)

  - Continue to regulate beach parking using time limits. Retain beach parking as a free resource to the public facilitating access for all. Keep public spaces along the Beach Bluff Pathway small, intimate and dispersed to avoid large congregations of people that would disturb nearby residents. (P4-43)

  - Provide convenient and free public beach parking from 5:00 a.m. until 12:00 midnight daily. Parking outside of these hours along Scenic Road and at the Del Mar parking lot shall be limited to residents and guests with a resident's parking permit. (P4-44)