

## 4 THE CARMEL SHORELINE LANDSCAPE

Carmel's shoreline landscape constitutes everything that people see along the shore, including the ocean, beach, dunes and bluffs, flowers, shrubs, trees, and boulders, as well as the Pathway, guardrails, beach accessways, signs, and stone walls. Even the momentary changes of weather, wildlife, people, automobiles, and other transient scenery make up the landscape mosaic of the shoreline experience.

### 4.1 NATURAL LANDSCAPE

During the past one hundred years, people have changed much of Carmel's natural shoreline landscape. Photographs taken in the early 20<sup>th</sup> century depict a shore covered with low native scrub plants and very few trees (Photo 8). As the City of Carmel grew, much of the shoreline was planted with flowers, shrubs, and trees from other parts of the world.



L.S. Slevin photo

Pat Hathaway Photo Collection, Monterey

Photo 8 – Southern Carmel Shoreline (from 11<sup>th</sup> Ave. to Martin Way) 1908

#### 4.1.1 Native Species and Habitats

At one time, much of what is now the City of Carmel was covered with a surprisingly diverse community of native flora and fauna. Near the shoreline, these species were able to tolerate, and even thrive in, the area's harsh coastal conditions: exposure to salt, burial by shifting sand, lack of nutrients, and blasting by sand-laden winds. Today, there remain only a few remnants of Carmel's original native shoreline community – mostly in the North Dunes.

##### *Upper Beach*

Beaches are subjected to heavy disturbance by both natural forces and human activities. As a result, they are seldom vegetated. Along Carmel's upper beach, near the Tenth Avenue (North) stairway and just south of the Eleventh Avenue stairway, are thriving stands of a native beach/dune grass (*Elymus* [= *Leymus*] *mollis*). These plants grow well in the face of the shoreline's natural challenges, but are not very tolerant of trampling. (During the late 1980s, the City planted *Elymus* along the upper beach between Eighth and Ninth Avenues, but the plants eventually succumbed to trampling.)

##### *North Dunes*

The North Dunes represent one of the City's most significant native coastal biotic community. Jones and Stokes (1995) found bush lupine (*Lupinus arboreus*), beach sagewort (*Artemisia pycnocephala*), pink sand verbena (*Abronia umbellata*), and mock heather (*Ericameria ericoides*) along with several other native plant species.

Of special note is the presence of Tidestrom's lupine (*Lupinus tidestromii* var. *tidestromii*), a state- and federal-listed endangered plant species. Jones and Stokes (1995) documented the first record of Tidestrom's lupine at Carmel, reporting 280 individual plants within the North Dunes ecosystem. An informal survey conducted in 2001, in conjunction with this *Carmel Shoreline Management Plan*, confirmed the presence of several hundred plants.

The North Dunes may also be inhabited by the California Black Legless Lizard (*Anniella pulchra nigra*). In 1985, 12 specimens were located in Carmel area dunes by federal wildlife biologists;<sup>44</sup> suitable habitat is thought to exist in portions of the North Dunes. The status of the California Black Legless Lizard

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<sup>44</sup> Bury, B.R. 1985. Status report. *Anniella pulchra nigra* Fisher, black legless lizard (Anniellidae: Sauria) in Central California. Ecosystems Studies Section, Denver Wildlife Research Center. Fort Collins, CA. Prepared for U.S. Fish and Wildlife Service, Office of Endangered Species, Portland, OR. (cited in Jones and Stokes, 1995).

has changed since the Jones and Stokes (1995) report: This species is currently designated as a "Species of Special Concern" by the California Department of Fish and Game, but is no longer a candidate for Endangered Species listing by the federal government.

Based on the presence of Tidestrom's lupine and potential habitat for the California Black Legless Lizard, the City has designated the North Dunes as an Environmentally Sensitive Habitat Area (ESHA). This is shown on Fig. 4.

The North Dunes are also haven to several exotic invasive plant species, including acacia and Hottentot-fig ice plant (*Carpobrotus edulis*). As described below, these aggressive plants tend to overwhelm native plants, replace habitats for native coastal wildlife, and simplify coastal ecosystems. In some portions of the North Dunes, expansion of aggressive ice plant growth could eventually crowd out slower growing native species, including the endangered Tidestrom's lupine.

Protection of the North Dunes and their native habitat will be studied during the upcoming Del Mar and North Dunes Master Plan process.

### *Del Mar Dunes*

Native plant- and wildlife habitats in the narrow Del Mar Dunes have been disturbed by occasional coastal erosion and by the growth of exotic, invasive ice plant and acacia. Jones and Stokes (1995) studied these dunes and determined that they represent potential habitat for native dune plants and animals. The Del Mar Dunes have been designated as an Environmentally Sensitive Habitat Area (ESHA); the restoration of the Del Mar Dunes native habitat would be consistent with the California Coastal Act. This area will also be part of Carmel's Del Mar and North Dunes Master Plan.

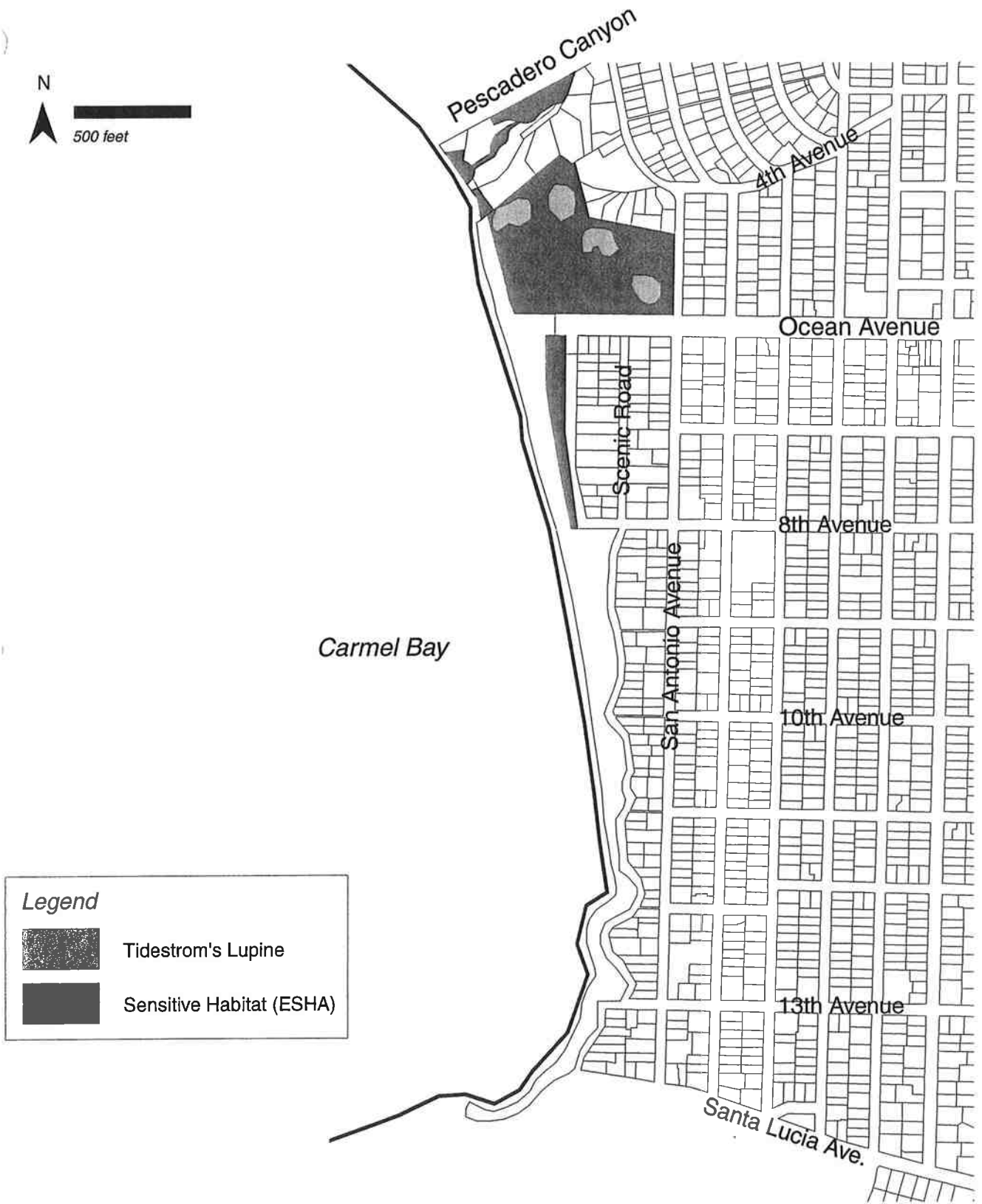


Figure 4  
Environmentally Sensitive Habitat Areas

#### 4.1.2 Horticultural and Introduced Plants

Most of the plants growing along Carmel's shoreline are native to other regions. Some were used to help stabilize the ever-changing coastal dunes. But most were introduced to serve as ornamental elements in a public or private landscape.

##### *Upper Beach*

Over the years, the stretch of upper beach extending between Pescadero Creek and Eighth Avenue has become vegetated mainly with Hottentot-fig ice plant (*C. edulis*), acacia (*Acacia* sp.), and sea rocket (*Cakile maritima*); both ice plant and acacia are exotic invasives. They grow aggressively, outcompeting, and eventually replacing, native California beach and dune plants. This produces a restrictive monoculture that can limit populations of native wildlife that are closely linked with the native plants. Sea rocket is also thought to be an introduced species, but its growth characteristics are not known to have a detrimental impact on California beach and dune communities.

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

The invasive exotics, Hottentot-fig ice plant and acacia, also grow in the North Dunes and Del Mar Dunes. In the past, City staff or residents purposely planted each of these species in an attempt to stabilize shifting dunes. Both species are now well established; without control, they out-compete neighboring plants and replace native wildlife habitats.

##### *Beach Bluff Pathway*

Plants growing along the remainder of Carmel's shoreline are primarily introduced horticultural species. With the exception of the ubiquitous Hottentot-fig ice plant and acacia, most other plants were introduced as part of the Beach Bluff Pathway landscape.

The original Pathway landscape plants were selected to serve two purposes: to enhance the aesthetic qualities of the Scenic Road/bluff top area, and to protect the City's fragile coastal bluffs from damage.

The palette of plants selected by the Pathway designers (landscape architects from Royston, Hanamoto, Alley, and Abey, in conjunction with the Carmel Beach Rehabilitation Task Force, City staff, and consultants) met several criteria. They were:

- tolerant of coastal conditions, especially exposure to salt spray;

- drought tolerant (or able to thrive on limited water);
- tolerant of human activity;
- suitable for erosion control;
- non-invasive;
- relatively easy to grow;
- commercially available; and
- “natural looking” (native or “native-like” - subtle in color).

The species originally selected for the Pathway landscape are listed in Table 2, below:

Table 2 – APPROVED CARMEL BEACH BLUFF PATHWAY  
PLANTS<sup>45</sup>

**Large Shrubs**

<i>Arbutus unedo</i>	Strawberry Tree
<i>Atriplex lentiformis</i> 'breweri'	Brewer's Saltbush
<i>Leptospermum laevigatum</i> 'compactum'	Australian Tea Tree
<i>Pittosporum crassifolium</i>	NCN
<i>Rhus integrifolia</i>	Lemonade Berry

**Barrier Plants**

<i>Ceanothus impressus</i> 'Joyce Coulter'	Joyce Coulter Ceanothus
<i>Ceanothus impressus</i> 'Julia Phelps'	Julia Phelps Ceanothus
<i>Echium fastuosum</i>	Pride of Madeira
<i>Escallonia</i> 'Newport Dwarf'	Newport Escallonia
<i>Griselinia lucida</i>	NCN
<i>Pinus mugo</i>	Mugo Pine

**Color Planting**

<i>Chrysanthemum leucanthemum</i>	Ox-Eye Daisy
<i>Erigeron glaucus</i>	Sea Daisy
<i>Eschscholzia californica</i>	California Poppy
Ferns	Ferns
<i>Iris douglasiana</i>	Pacific Coast Iris
<i>Lupinus chamissonis</i>	Lupine
<i>Limonium perezii</i>	Sea Lavender (Statice)

**Low Shrubs**

<i>Ceanothus griseus</i> 'horizontalis'	Carmel Creeper
<i>Cistus skabergii</i>	Hybrid Rockrose
<i>Cistus ladanifer</i>	Crimson Spot Rockrose
<i>Lavandula angustifolia</i>	English Lavender
<i>Lavandula dentate</i>	French Lavender
<i>Ribes viburnifolium</i>	Catalina
<i>Santolina chamaecyparissus</i>	Lavender Cotton
<i>Teucreum fruticans</i> 'compacta'	Dwarf Bush Germander

<sup>45</sup> These plants were part of the Beach Bluff Pathway landscape design that was approved by the Forest and Beach Commission, Planning Commission, City Council, and California Coastal Commission in 1987 (From: RHAA Landscape Plan for the "Carmel Beach Restoration Project.")

This plant list<sup>46</sup> is a critical feature of the City's overall plan for the shoreline. As part of the Carmel Beach Rehabilitation Project, the landscape plan was approved by two City commissions,<sup>47</sup> the City Council, and the California Coastal Commission<sup>48</sup> in 1987. Over the past decade, this landscape plan has been used as a guide for the re-vegetation of the coastal bluffs and bluff tops in several shoreline repair projects.<sup>49</sup>

The Carmel Beach Bluff Pathway floral landscape is in need of revitalization; steps required to achieve this renewal are described in Section. 4.3.1.

#### 4.1.3 Shoreline Trees

Carmel has been described as "a small village in a forest." The City's shoreline is also blessed with a large number of trees. Monterey cypress, Monterey pine, coast live oak and acacia are the most dominant and dramatic landscape features along the City's shoreline (Fig. 5).

Cypress overwhelmingly populate the bluffs, dunes and the Ocean Avenue/Del Mar parking lot area. All the Monterey cypress along our shore were planted from seedlings gathered from those native stands at Cypress Point to the north and Point Lobos across Carmel Bay to the south. These trees, some 100 strong, were planted by one of Frank Devendorf's<sup>50</sup> maintenance workers and his young daughter, who nurtured each for several years until established. Now, many are over a century old. Over the years, many cypress that were past their prime, declined and died. During the 1982/83 El Niño storms, 16 large cypress were lost.

Monterey cypress are the sentinels of our shoreline. Whether standing tall or twisted and gnarled, they define the transition and progression of our community's landscape. From the water's edge, past the tidal zone up to the bluffs and dunes, Monterey cypress provide the foundation for all other landscape plantings.

Monterey cypress are the primary arboreal element of the Carmel coastal landscape. Views of the beach, bluffs, and ocean through cypress boughs are a unique visual component of the City's shoreline. Plants that conflict with, or

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<sup>46</sup> RHAA landscape plans, entitled "Carmel Beach Restoration Phase II." Copies of these plans are kept on file at the Carmel-by-the-Sea City Hall, and at the Departments of Community Planning and Building and Forest, Parks, and Beach.

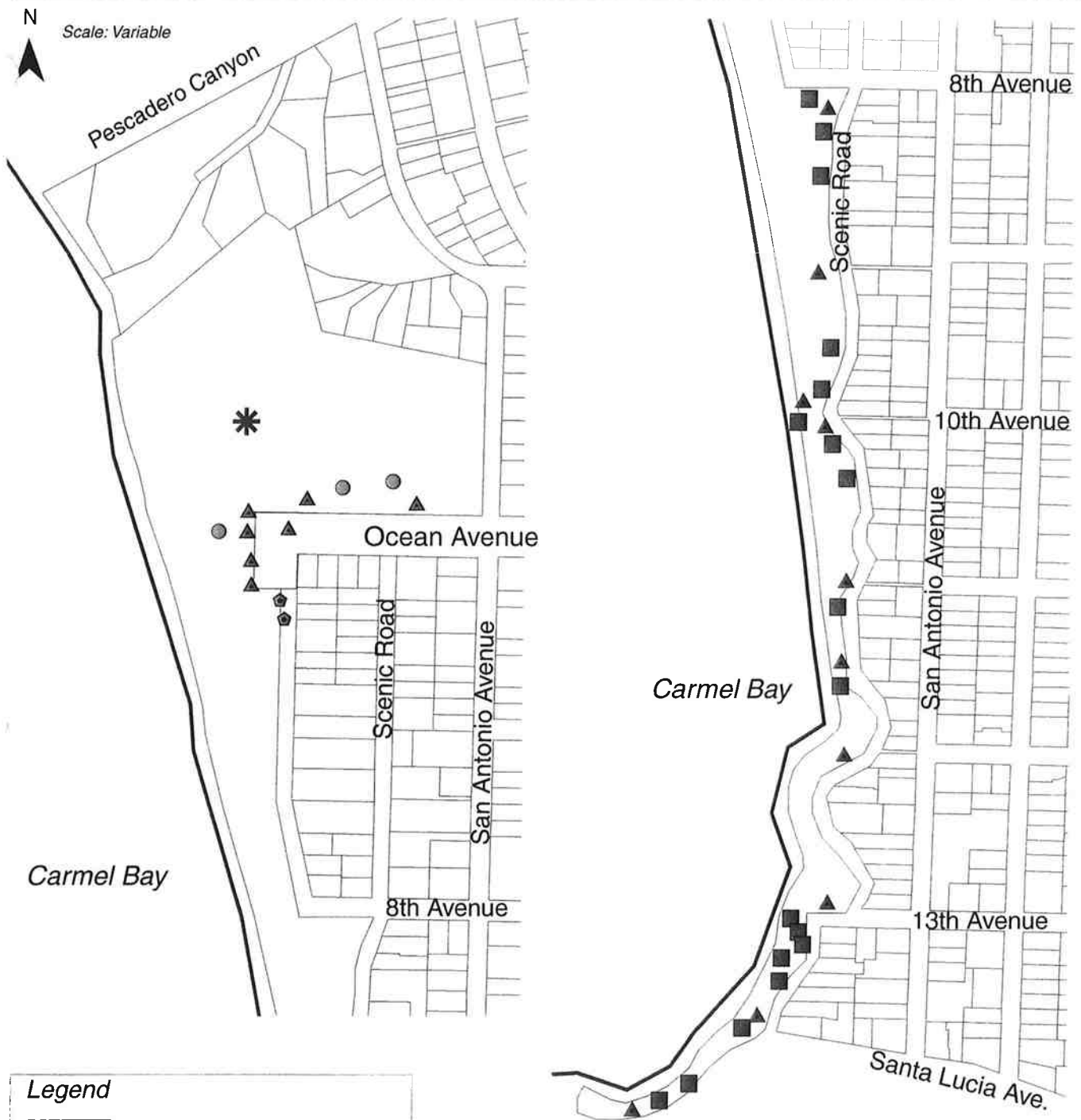
<sup>47</sup> Forestry Commission and Planning Commission

<sup>48</sup> Coastal Development Permit #3-83-217-A2, approved June 9, 1987.

<sup>49</sup> Coastal Commission approval of the recent Carmel Bluff and Beach Access Improvement Project was based, in part, on the City's promise to follow the RHAA landscape plans when re-vegetating areas affected by the project.

<sup>50</sup> J. Frank Devendorf was one of Carmel's founders.





**Legend**

■	Benches
●	Stone Fire Pits
▲	Trash Enclosures
*	Volleyball Courts (4)
⬠	Water Storage Tanks

Figure 5  
**Shoreline Support Facilities**

disrupt, the cypress viewshed should be carefully trimmed to avoid encroachment on this viewshed.<sup>51</sup>

Even in death, the Monterey cypress is a noble, majestic feature of our shoreline landscape. Its wood resists decay when other tree species have long since crumbled and returned to the soil. Over the years, those that have died have been allowed to remain as part of the scenic landscape for thousands to appreciate, photograph and paint. Only when they finally weaken and succumb to nature's constant attack are they removed from the shoreline.

The Forest, Parks and Beach Department inspects the structural integrity of all trees along the bluffs and the dunes. If a tree is determined to be a hazard and presents a clear and present danger to the public, then the Department will remove that tree and replace it. In many cases, mature trees are replaced with young seedlings germinated from local seed stock well in advance of their removal. By continuing these management practices, our forested beach lands will remain in balance.

In the North Dunes, when trees are removed, the trunk(s) should remain as part of the landscape and only those portions that would be considered a fire hazard (small limbs and branches) should be disposed. This practice would create a more interesting dune environment; one that provides shelter and protection, and aids in the dune building process.

Other tree species have established themselves in small groves in and around the North Dunes. A small stand of Monterey pines (and more seedlings) are thriving on the sands near the northern City border very close to the Fourth Avenue pedestrian access. Two groups of coast live oak are at home in the heart of the dunes just north of the Ocean Avenue parking lot; they hug the edge of the "Sand and Sea" residences near Fourth Avenue. All of these trees have germinated from seed transported there by some natural means. A lone eucalyptus, the largest in the City, dominates the North Dunes and beach parking lot entry at the corner of Ocean and N. San Antonio Avenues.

Finally, acacia thickets grow at several locations in the City's coastal area: throughout the North Dunes, along the northern bluffs, in many pockets on the Del Mar dunes, and on shoreline bluffs south to the Santa Lucia stairway. These thickets promote landform stability by trapping sand and binding bluff soils. Conversely, acacia's aggressive growth enables it to dominate some areas of the upper beach landscape, out-competing and replacing native species, leaving less room for shoreline visitors to enjoy. Acacia thickets have become convenient

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<sup>51</sup> See Carmel Coastal Land Use Plan (approved June 2003) Policy P5-35.

places for illegal trash disposal, and are attractive sites for transients to set up residency.

Carmel's shoreline trees and shrubs are trimmed periodically. Trimming of the massive Monterey cypress trees reduces the length and weight of upper boughs, protecting the tree from structural damage during periods of high winds; this also protects the safety of people who walk, park, or live under these trees. Trimming of acacia and *Myoporum* helps maintain coastal viewsheds and protects neighboring plant habitats from encroachment. Thinning of acacia thickets discourages transient activity and illegal trash dumping.

#### 4.1.4 Beach Landscape Progression

The landscape design of the Carmel Beach Bluff Pathway affects, and is affected by, private property landscapes along Scenic Road between Eighth Avenue and Martin Way. One goal of the original Pathway design was to create a landscape link between public lands and adjacent private property. This landscape progression concept would help unify the visual experience of the shoreline. This goal has been only partially achieved. Progress in this area could result in a revitalized holistic landscape theme for the City's entire shoreline.

#### 4.1.5 Coastal Viewshed

Carmel's shoreline affords extraordinary views of the ocean and coastline. Protection of this unparalleled coastal viewshed is one of the cornerstones of the City's shoreline management program. Designers of the Beach Bluff Pathway sought to avoid structures or dense plantings that conflict with the coastal viewshed. Plants that have grown tall enough to partially obscure these special views are continuously noted during independent shoreline assessments and, when necessary, are attended to by City staff and/or contractors.

The City, however, allows a limited amount of short-term coastal viewshed interference by some of the adolescent Monterey cypress trees that line the public shoreline. As described above (Sec. 4.1.2), Carmel values views of the coast through the open boughs of its Monterey cypress. When young, these trees are characterized by dense foliage. Only as they mature do Monterey cypress grow into the tall, open "sentinels of the shoreline." To achieve this valued shape, some loss of coastal viewshed must be tolerated during a tree's early years.

## 4.2 STRUCTURAL LANDSCAPE

The Carmel shoreline landscape is also composed of many inanimate structural elements that were designed to serve the public in myriad ways. Some are required for public safety (guardrails), others support and/or protect the shoreline and its landscape (walls and revetments, boulders, irrigation system), while still others provide important public amenities (stairways, restrooms, benches, drinking faucets) or information (signage). Though artificial, their design and construction should reflect the important role they play in the Carmel shoreline's visual landscape.<sup>52</sup>

### 4.2.1 Guardrails

At many locations, the City uses wooden guardrails as a barrier between the Pathway and the beach bluffs. Guardrails, in conjunction with landscape plantings and boulders, help prevent beach visitors from trampling vegetation or walking on fragile and sometimes dangerous slopes. Guardrails are substantial structures, and are usually built no higher than 30 inches. City personnel must be prepared to install additional guardrails, plants, and/or boulders, if changes in pedestrian traffic patterns threaten other less-protected areas.

### 4.2.2 Walls and Revetments

For nearly fifty years, the City has responded to erosion of its coastal bluffs by building seawalls, retaining walls, and engineered rock revetments. These structures are discussed in detail in Section 6 of this *Shoreline Management Plan*.

### 4.2.3 Rocks and Boulders

One special component of the shoreline's natural landscape is the use of rocks and boulders. All public walls along Carmel's beach and bluffs are either built from stone or from reinforced concrete that has been faced with stone.

The Eighth Avenue stairway is built of "Carmel stone," flat pieces of "soft" limestone that were quarried locally. Two patios located near Eleventh Avenue and the entries to all stone trash/recycling container enclosures are built with "Arizona sandstone," an imported "hard" stone that creates an excellent walking surface.

At most other locations, the City used locally quarried golden granite rocks. Some of the earliest shoreline walls were built with golden granite rocks and mortar.

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<sup>52</sup> See City of Carmel Coastal Land Use Plan (approved June 2003) Policy P5-12 and P5-5.

Walls constructed after 1978 are constructed of reinforced concrete faced with golden granite. This style is used for seawalls, retaining walls, and on many stairways and trash/recycling container enclosures.

Large granite boulders are an integral part of the shoreline landscape and undeniably contribute to its aesthetic character. Boulders punctuate planting areas. They also serve as natural benches. At strategic locations, they are used to help guide pedestrian flow along the Pathway.

#### 4.2.4 Water Storage Tanks

Irrigation water for the Beach Bluff Pathway landscape is supplied by an innovative system that collects spring water in two underground storage tanks. These 10,000 gallon fiberglass tanks are buried in the dunes just south of the Del Mar portion of main beach parking lot.

At this site, spring water flows continuously throughout the year. During the drought of 1978, the City recorded flows of 12 gallons per minute, and during the peak of the 1982/83 El Niño winter storms, flows of 60 gpm were recorded.

In 1985, the City installed a single underground water storage tank; three years later, a second tank was connected in series. Water from these reservoirs is now pumped through a two-inch diameter underground PVC pipe to the Pathway irrigation system controller at Eighth Avenue. From there it is piped to numerous sites along the Beach Bluff Pathway.

Water from these storage tanks is also used to fill the City's street sweeper, sidewalk-cleaner, tree-planting/watering trucks, and fire apparatus. In addition, this water could serve as an emergency back-up for water commercially supplied to the City.<sup>53</sup> Use of this spring water has greatly reduced both the amount and cost of Carmel's potable water consumption.

#### 4.2.5 Benches

Pathway designers wanted to ensure ample places for people to sit along the bluff top and enjoy the shoreline's scenic vistas. In keeping with the project's design philosophy, they chose to build benches of a simple style, made of wood and/or stone.

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<sup>53</sup> This spring water has been tested and found to range from pure to containing low levels of coliform bacteria. This water could easily become potable if treated using standard water purification techniques.

Some benches were fashioned from large pieces of driftwood that washed up on Carmel Beach. City personnel began setting these aside, even before the final plan had been approved. During the Pathway's construction phase, the most suitable driftwood was sanded, attached to cement plinths, and installed at strategic locations. These informal benches have become a popular design element of the Beach Bluff Pathway.

In addition to benches, the City has also placed large boulders in selected locations to be used for sitting.

#### 4.2.6 Signage

Signs provide information for shoreline visitors. They identify traffic and parking regulations, give directions to nearby beach accesses, warn of hazardous conditions, and inform about City ordinances regarding alcohol use, beach fires and fragile slope protection.

Of all the topics dealt with by the Carmel Beach Rehabilitation Task Force, signage was the subject of the most intense deliberations. The final design was a compromise between notifying beach visitors of pertinent information and not causing them to be overwhelmed or the unique coastal viewshed to be disrupted.

The number of signs along the Pathway was limited by consolidating information at selected locations (e.g. signs on trash/recycling container enclosures and on "access" sign posts). All informational signs were of muted earth tones to sustain the integrity of the landscape design. To avoid unsightly rust, non-metal signs and fasteners were used. When signs were legally required to be made of metal (e.g. traffic and parking signs); they were enclosed within a wooden frame.

One type of sign purposely stands out from the others. The signs that warn of hazardous surf conditions are standard dark brown with bright yellow lettering and made of metal. They were designed by a consortium of Monterey Bay municipalities, in conjunction with the California Department of Parks and Recreation and the U.S. Coast Guard. They are placed mid-level on each beach accessway and are double-sided to be seen from both the beach and the bluff.

Over the years, the number and types of signs have gradually increased. Sign colors and locations have expanded beyond the original design and intent. At some locations, signs are now competing with the natural viewshed.

Signage is a critical part of Carmel's shoreline management program. To ensure that signs enhance, rather than detract from, the City's coastal resources, adopted policies require that signs.<sup>54</sup>

- provide information in a clear, accurate and concise manner;
- are visible to the public without detracting from protected coastal viewsheds;
- are consistent in design style, use of color and materials;
- are efficiently used, limiting overall numbers and avoiding a cluttered appearance; and
- reflect the aesthetic sensitivities of the Carmel community.

#### 4.2.7 Shoreline Amenities/Recreational Support Facilities

The shoreline landscape also contains many elements that serve those who walk, run, or play throughout the Carmel shoreline area (Fig. 6).

##### *Beach Access Stairways*

The stairways that provide public access to and from Carmel Beach are discussed in Section 3.

##### *Restrooms*

Carmel's shoreline visitors are served by restroom facilities located at nearly opposite ends of Scenic Road (Fig. 7). The main restroom is sited at the foot of Ocean Avenue, adjacent to the City's primary beach parking lot. This facility contains separate restrooms for men and women. Each is complete with running water, sinks, and appropriate toilet facilities. The women's side also includes a fenced privacy area for changing clothes.

The outside of this facility is faced with golden granite stone, and its appearance fits well with other structures along the City's coastline. The inside of the restroom was designed to facilitate cleaning, including gently sloping floors and drains for easy cleaning. This facility meets ADA requirements for disabled accessibility.

In 1995, the City established temporary restroom facilities at "Lloyd Point," near Santa Lucia Avenue. These facilities consist of two portable toilets screened by a few Monterey cypress trees and a wooden fence. Both facilities may be used by men and women; one provides accessibility to the physically

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<sup>54</sup> The City of Carmel plans to implement a comprehensive shoreline area sign program once its Local Coastal Program has been certified.