

BAYSHORE TRAIL SYSTEM DESIGN MANUAL

Prepared by the Monmouth County Planning Board

Adopted May 1993

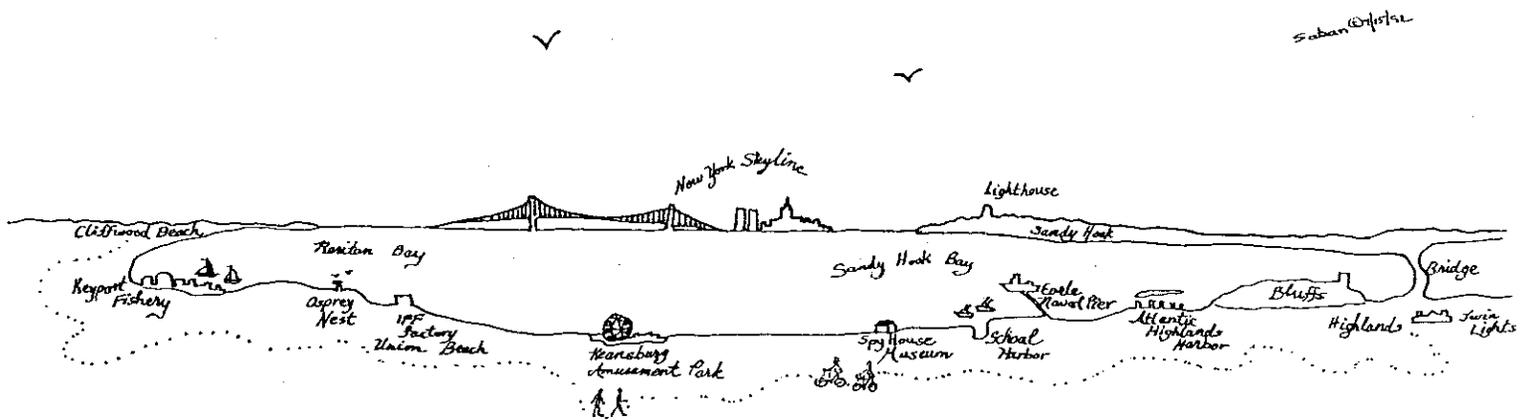


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DESIGN MANUAL

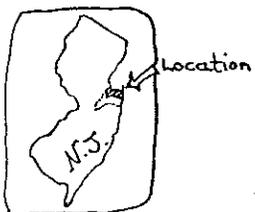
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Yonkers County



(Figure: The Bayshore Trail System)

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FOREWORD

The concept of waterfront public access has three interacting components: physical, visual and interpretive (to get close to or on the water, to see what is going on, and to understand the experience). These three components give the waterfront trail user the opportunity to experience the unique character and resources of the Bayshore waterfront.

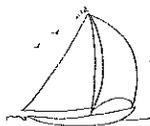


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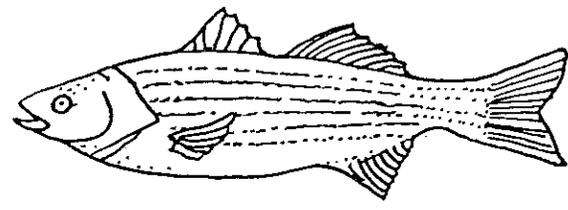
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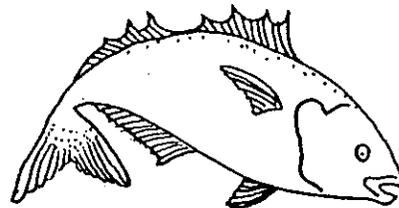
INTRODUCTION

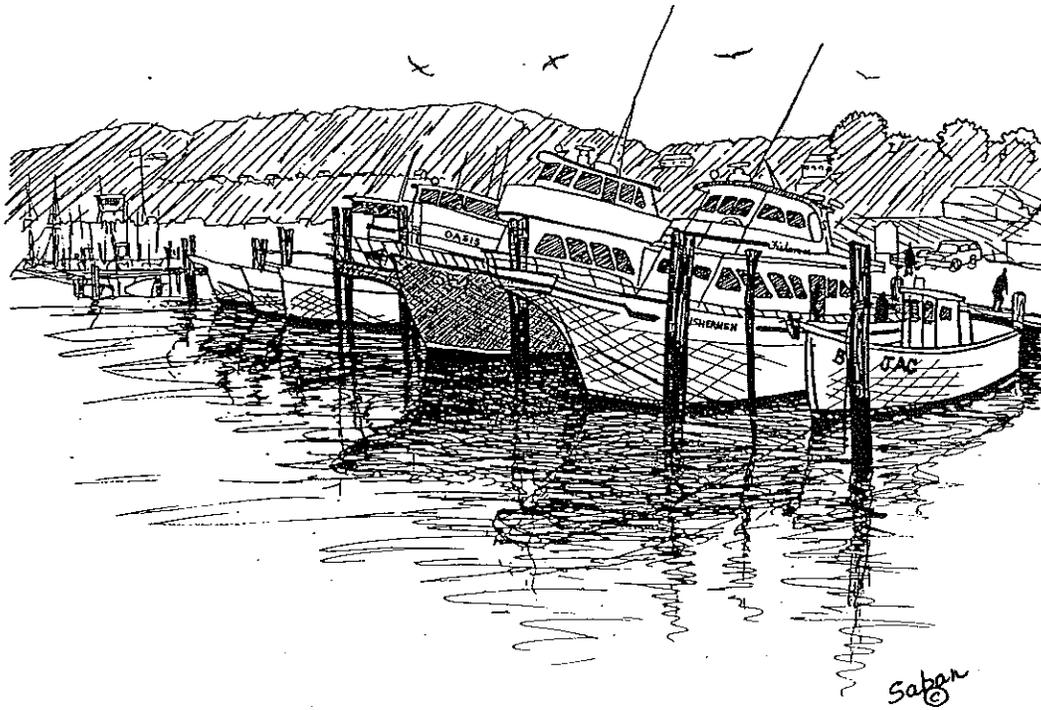
This design manual is a companion piece to a previous County report entitled The Bayshore Waterfront Access Plan. The Plan was adopted by the Monmouth County Planning Board in December 1987 as an element of the County's Growth Management Guide.

The Bayshore Waterfront Access Plan developed a concept of establishing a regional linear park, called the Bayshore Trail System, positioned along the shore of Raritan and Sandy Hook Bays between Cliffwood Beach and Highlands. The plan also provided an inventory of existing conditions and features for the Bayshore Trail System and made recommendations relative to the location of recreational facilities.

The goal of this design manual is to offer objective guidelines for trail features, and to encourage consistent, sensitive design which will enhance the opportunity for the enjoyment of the Bayshore region.

The design manual will be incorporated, as a component of the Bayshore Waterfront Access Plan, by specific reference within the NJDEPE Rules on Coastal Zone Management, the County's Growth Management Guide, local master plans, development regulations, and official maps of the eight waterfront Bayshore communities. The Bayshore Trail System Design Manual will also serve as criteria for reviewing applications for private development and public improvement projects located along the Trail.



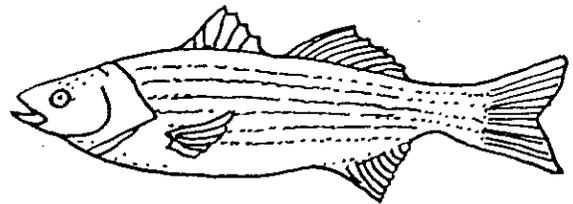


TRAIL COMPONENTS

The Bayshore Trail System consists of three components: the Baywalk, the Bay Bikeway, and the Henry Hudson Trail.

The objective of both the Baywalk and the Bay Bikeway is to provide trail users with an opportunity for physical and visual access to the bay along the entire Bayshore waterfront, and to link points of interest, as per the Rules on Coastal Zone Management (see *Appendix A*). While the Henry Hudson Trail provides a more inland route through the Bayshore, it does connect with the Baywalk and Bay Bikeway at several locations.

The Design Scheme, which illustrates this manual, delineates the Trail Components, which include Trail Segments, Points of Interest, and the Trail Landscape. These maps can be found at the end of the manual.



TRAIL SEGMENTS

The Bayshore Trail is divided into eleven trail segments. Each segment is designed to provide a complete recreational opportunity which can stand alone, or which can be combined with other trail segments to form a more extensive trail experience. From west to east, the segments are:

SEGMENT 1

Cliffwood Beach -
Happy Meadows and Keyport

SEGMENT 2

Happy Meadows and Keyport
- Conaskonk Point

SEGMENT 3

Conaskonk Point - Union Beach

SEGMENT 4

Union Beach - Natco Lake

SEGMENT 5

Natco Lake - Keansburg

SEGMENT 6

Keansburg - Pews Creek

SEGMENT 7

Pews Creek - Shoal Harbor

SEGMENT 8

Shoal Harbor - Leonardo

SEGMENT 9

Leonardo -
Atlantic Highlands Harbor

SEGMENT 10

Atlantic Highlands Harbor
- Bayside Tract

SEGMENT 11

Bayside Tract -
Veterans Park

POINTS OF INTEREST

Key points of interest along the Trail include:

- ◇ Major Activity Centers
- ◇ Minor Activity Centers
- ◇ beaches
- ◇ parks
- ◇ marinas
- ◇ natural areas
- ◇ scenic viewpoints
- ◇ historic sites
- ◇ museums
- ◇ neighborhoods

The recommended trail alignments would link these points of interest to incorporate them into the overall trail system, either through direct access or connecting pathways.

The Major Activity Centers provide focal points for trail activities and are spaced along the Bayshore Trail System as endpoints to the trail segments. When fully developed, these centers should provide for recreational and passive opportunities. The center locations were selected to highlight a combination of existing and potential features including existing parks, popular fishing areas, existing or potential boat launching sites, recreation areas, important views, and water bodies other than the bay itself.

The Minor Activity Centers also provide focal points, centered around points of interest. They differ from Major Activity Centers in their smaller size and relative scope of facilities.

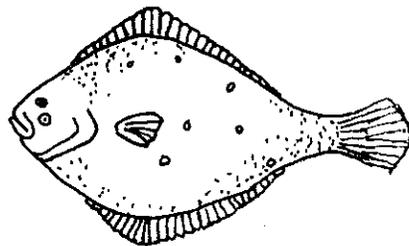
TRAIL LANDSCAPES

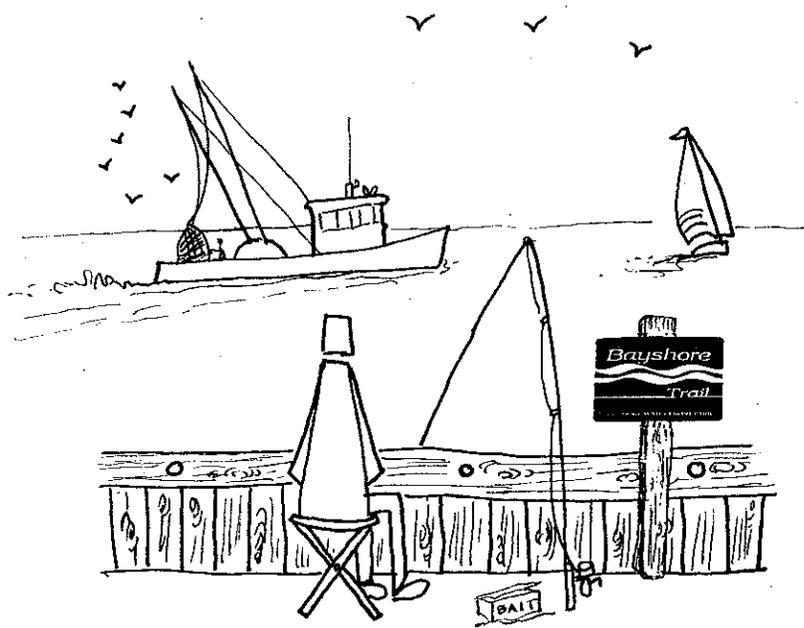
The Bayshore contains a variety of landscapes, including urban areas, "villages" or residential neighborhoods, and natural areas. The Trail passes through each of these. This manual recommends the design of the trail segments be tailored to reflect the surrounding landscape.

THE URBAN LANDSCAPE - These areas have a mix of uses and a concentration of people and activity. The waterfront provides a busy, exciting hub with restaurants, shops and fishing activities. When the trail segments pass through urban landscapes, they should use these areas as gathering places, access points, and information centers.

THE VILLAGE LANDSCAPE - These areas are dominated by residential neighborhoods, but may include small shops. When the Trail passes through these areas, it should blend into the surroundings, while providing access points for neighborhood residents.

THE NATURAL LANDSCAPE - These areas include beaches and marshes, and provide the opportunity to enjoy the quiet solitude of the Bayshore's natural resources. As the Trail passes through natural areas, it should provide opportunities for passive viewing and environmental education. Trail design should not visually intrude.





DESIGN STANDARDS

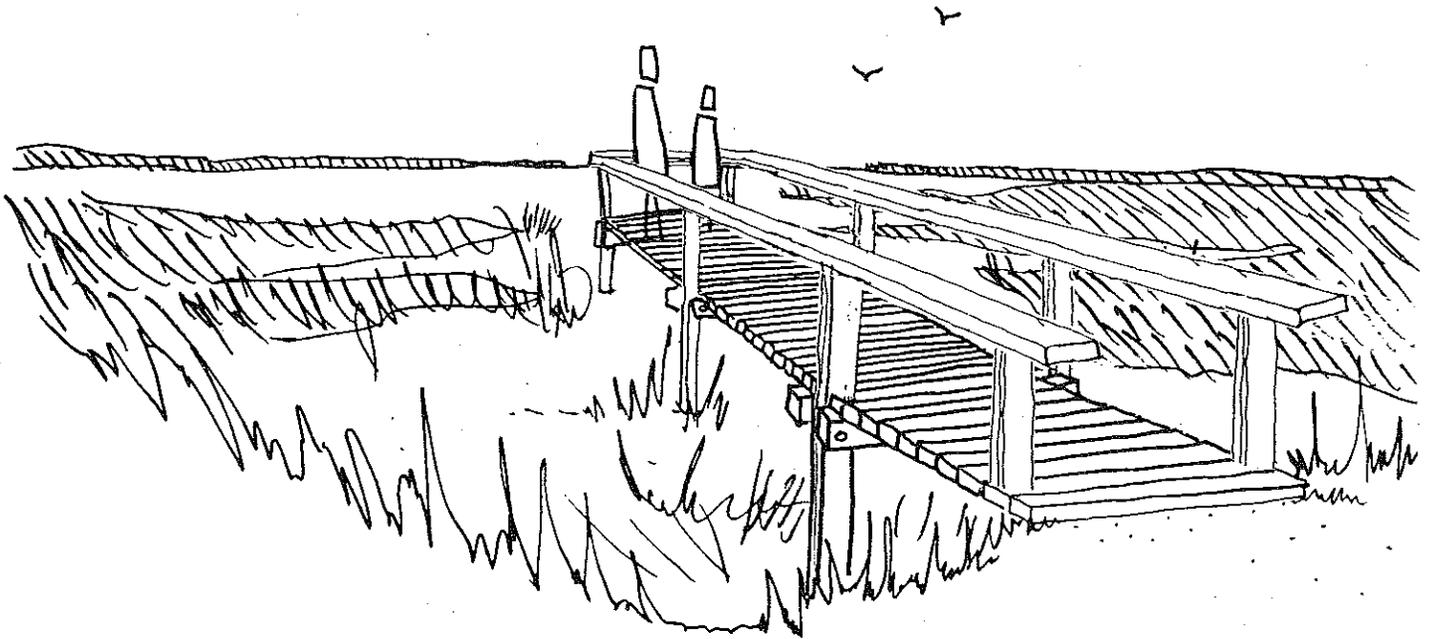
The design standards which follow are intended to encourage consistency throughout the Trail to promote safety, shared goals, and a common theme of Bayshore culture and history, while recognizing that each municipality is unique. See *Appendix B* for permit information. All designs should be consistent with the Americans with Disabilities Act (ADA). See *Appendix C* for additional information.

BAYWALK



THE BAYWALK

The Baywalk is intended to be a pedestrian trail which provides visual, physical, and interpretive access to the bayfront.

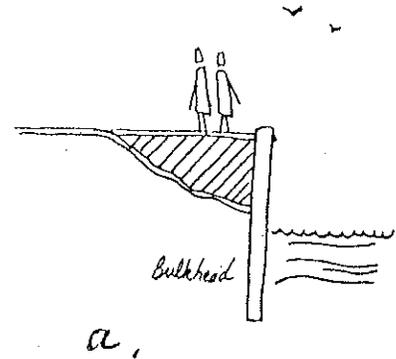


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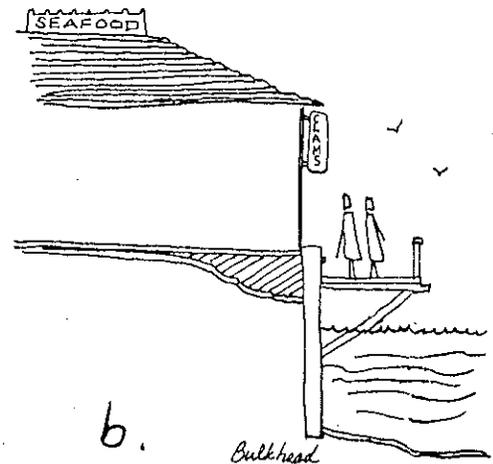


LOCATION - The Baywalk should be located as shown on the Design Scheme, and as near to the water's edge as possible, unless prevented by wetlands or other sensitive environmental factors, or regulations by a State or Federal agency.

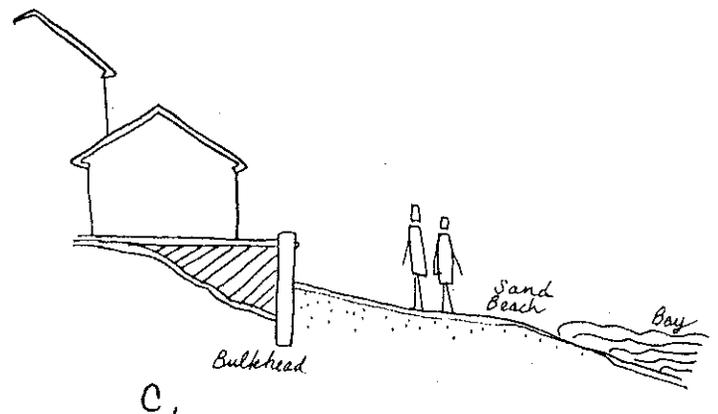
Where bulkheads exist, the Baywalk could be located adjacent to them (see illustration a).



Where on-shore access is not possible due to physical constraints or the unavailability of easements, the Baywalk could be suspended as a boardwalk over the bay (see illustration b).



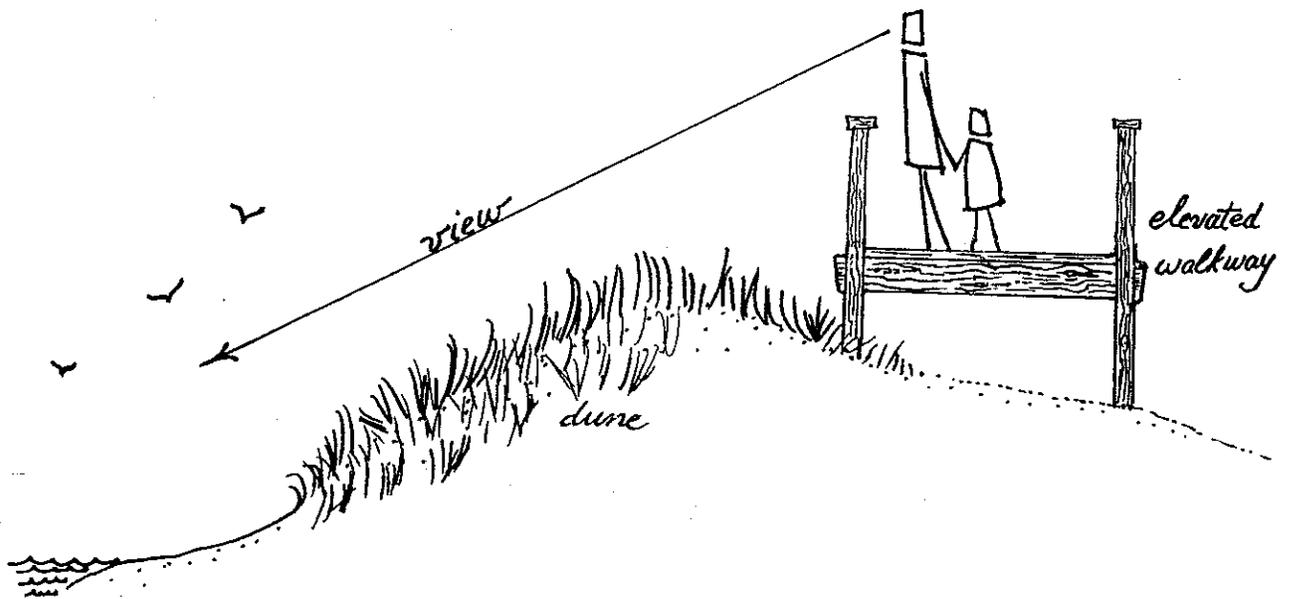
Where sufficient dry sand is available in front of a bulkhead, the Baywalk could use the beach (see illustration c).





BAYWALK

Where the shoreline is not bulkheaded and the beaches have natural dunes, boardwalks could be constructed behind the dunes to allow views of the water. These boardwalks should be at the height of the dune or a little higher to allow for visual access and to allow the dune to migrate underneath the boardwalk (see illustration below).



BAYWALK



SPECIFIC DETAILS - To facilitate consistent design, the following standards are recommended for use in design of Baywalk segments:

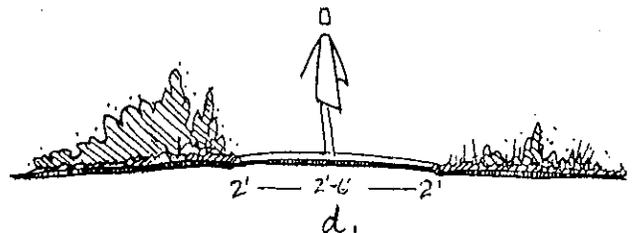
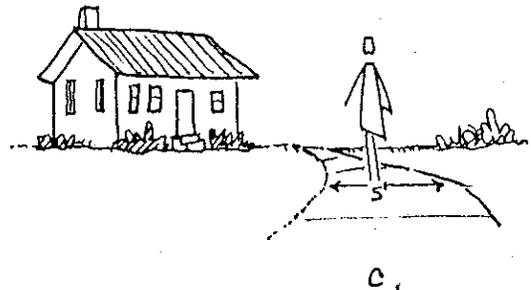
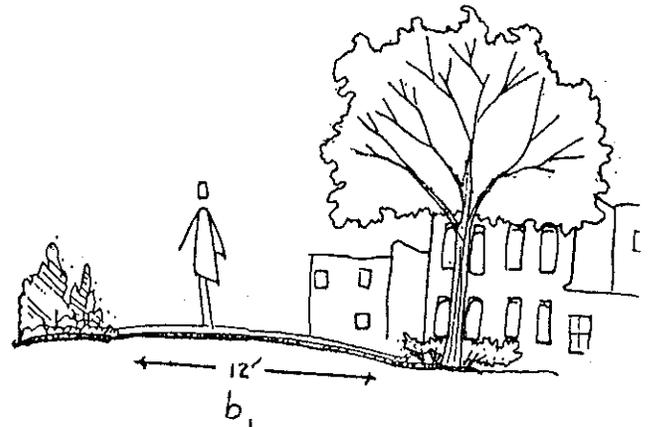
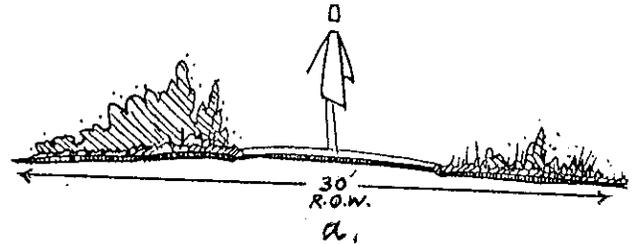
Right-Of-Way - The width of the Baywalk right-of-way should be a minimum of 30 feet. In areas that are already developed and a 30 foot width is not possible, there should be a minimum width of 15 feet (see illustration a).

Surfacing Width- The width of the surfacing should be determined according to the landscape. The walkway should be free of obstructions.

In urban areas, the minimum width of pavement should be 12 feet (see illustration b).

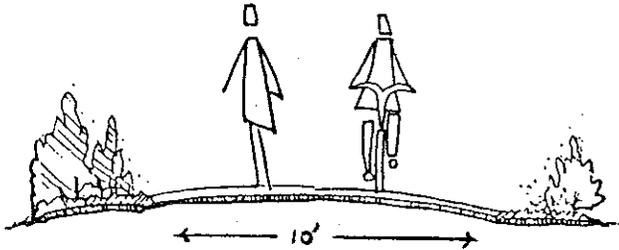
In village areas, walkway widths should be a minimum of five feet. The maximum width should be eight feet (see illustration c).

In natural areas, the width of the walkway should be in scale with the immediate environments and should, where feasible, have a minimum width of four feet and a maximum width of six feet, with two foot wide cleared shoulders on either side of the Trail (see illustration d).





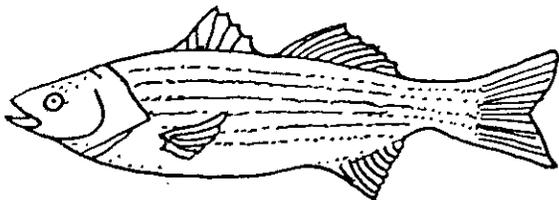
BAYWALK



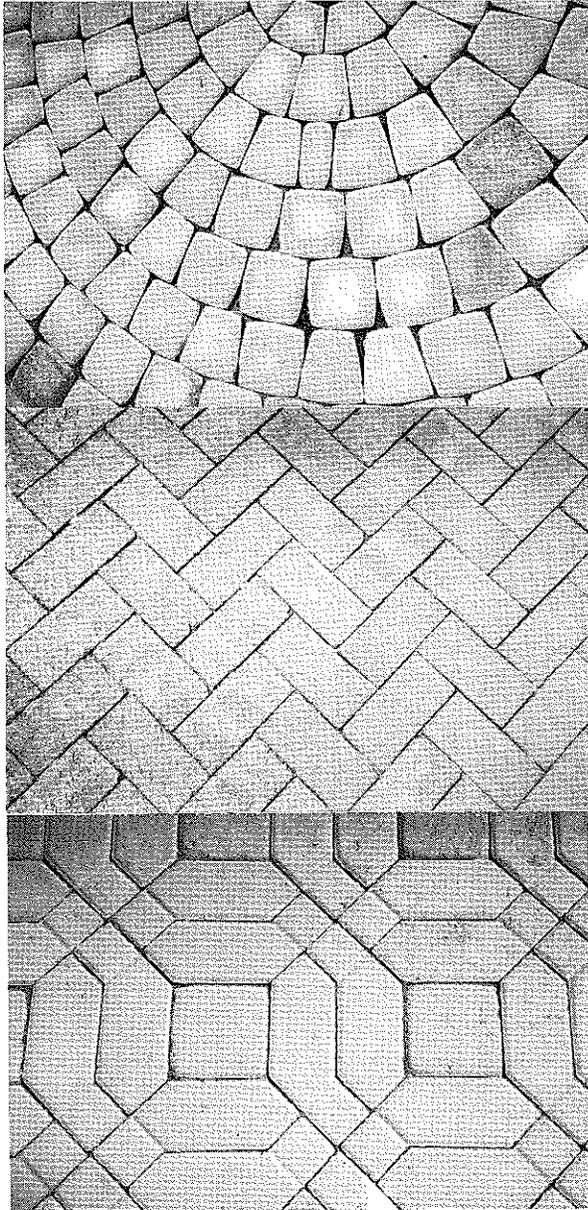
A combined walkway/bikeway should be a minimum of ten feet wide, with two feet cleared shoulders (see illustration above).

GRADIENTS - For recommended design gradients, see *Appendix C*.

SURFACING MATERIALS - The materials and standards recommended are intended to encourage safe, consistent design, while allowing for individual variations. A variety of materials may be used for the Baywalk including concrete, bituminous concrete, brick, stone, recycled plastic decking, or pressure treated wood decking. The surface of all paving materials should be a non-skid texture, safe for outdoor application.



BAYWALK



Urban - All surfacing materials in urban areas, excluding the Bikeway, should consist of a mosaic of pavers (e.g. concrete and brick) or planking (e.g. wood or recycled plastic). For additional recommendations, see *Boardwalks* page 16.

Village - All surfacing materials in village areas should consist of poured concrete, bituminous concrete, planking, hard packed gravel, stone fines, or crushed stone (see also *Boardwalks*, page 16).

Where an existing sidewalk is used as part of the Baywalk, a sloped curb, or curb ramp, would assist the physically challenged, the elderly, and baby strollers. Curb ramps should be constructed in accordance with NJDOT standards.

Natural - Unless trails are heavily used, soft surfaces are acceptable. Soft surface materials include wood chips, shredded bark, planking, sand, grass, gravel, or crushed stone. For planking, see *Boardwalks*, page 16. Hard paved surfaces should only be used if necessary to ensure full utilization and access to the area. Design should consider barrier free access in the selection of materials.



BAYWALK



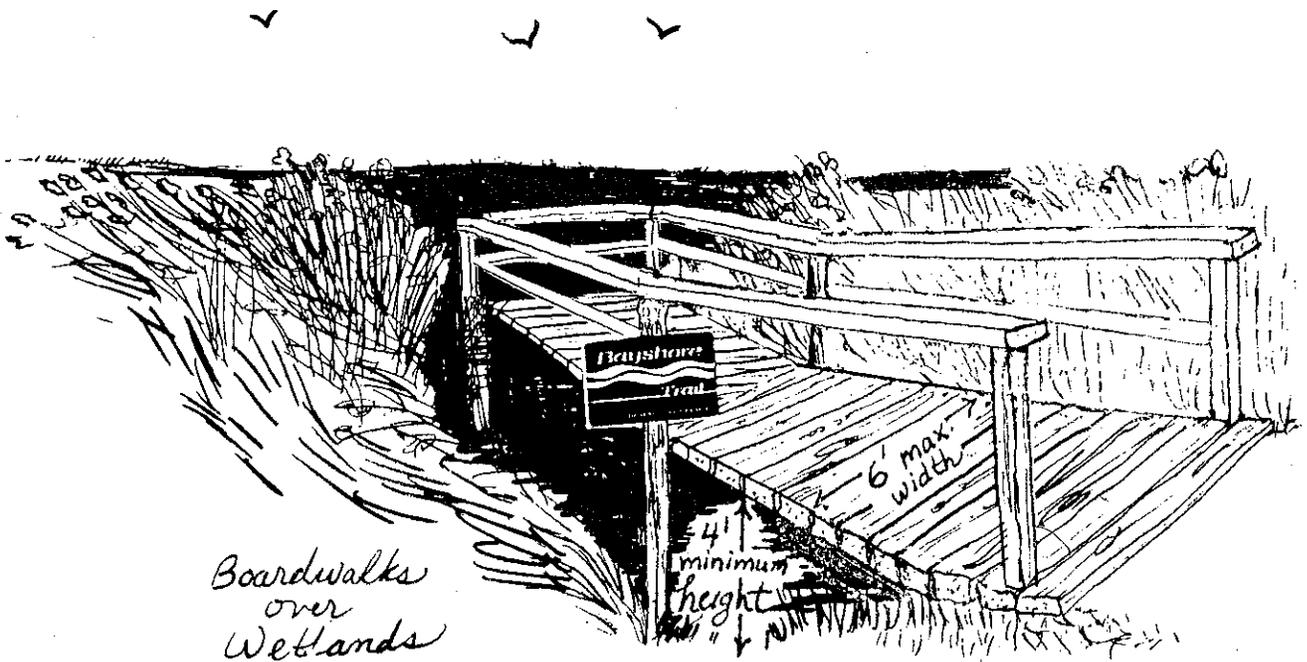
BOARDWALKS - Under special site conditions such as wetland areas, the lee side of dunes or for crossing dunes or drainage swales, boardwalks should be constructed. All measures should be taken to protect the environment. The New Jersey Department of Environmental Protection and Energy (NJDEPE) rules and regulations concerning these environmentally sensitive areas should be strictly followed. Boardwalk construction should conform to NJDEPE regulations (see *Appendix B* for permit information).

BAYWALK



Boardwalks in village and natural areas, should parallel the bay or the lee side of dunes and be a minimum of six feet wide and a maximum of ten feet wide.

Boardwalk planks should be a minimum of three inches wide (nominal dimensions). To ensure both soundness and accessibility of the walkway, the direction of wood planking should be perpendicular to the direction of traffic.



*Boardwalks
over
Wetlands*

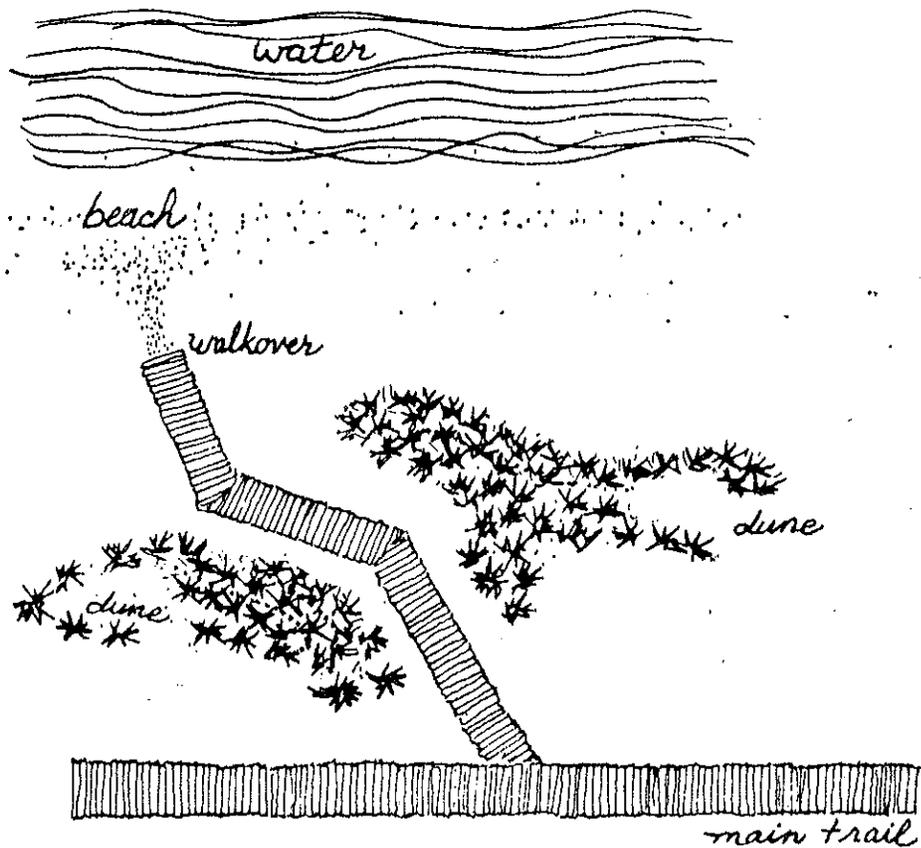
Under special conditions, further restrictions might apply: such as when crossing wetlands, marshes or mudflats, boardwalks should not be wider than six feet; and they should not be wider than eight feet over water. Boardwalks crossing wetlands should be raised a minimum of four feet above the wetlands.

Boardwalks should be constructed of wood or suitable alternatives such as recycled plastic. All wood used should be pressure-treated with appropriate preservatives as per American Wood Preservation Association standards, with a guaranteed minimum life of 15 years. All fastenings should be galvanized steel or have some other approved corrosion-resistant finish.



BAYWALK

Dune walkovers, a type of boardwalk, are encouraged, where feasible, to provide physical access to the water's edge while limiting dune impact. Special provisions for the physically challenged and the elderly should be considered.



BAYWALK





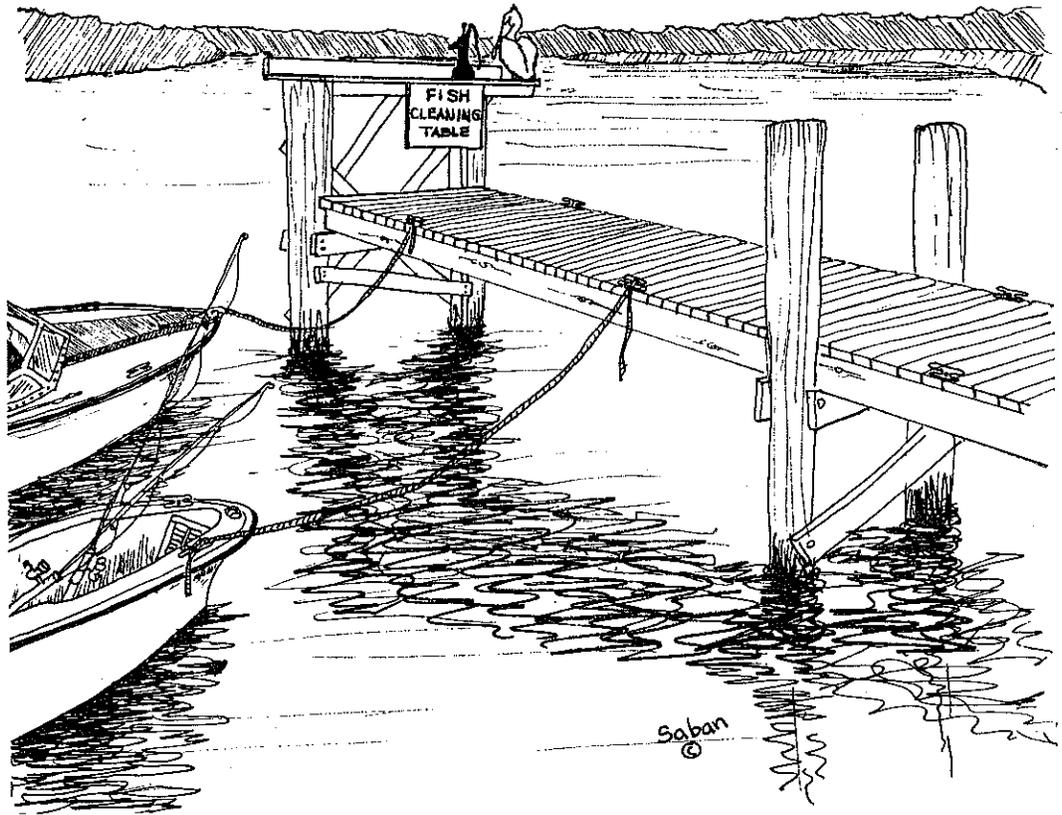
BAYWALK

PIERS, BOAT DOCKS AND MARINAS -

Public piers which extend out into the water allow visual and physical contact with marina life. New construction, as well as rebuilding and restoration of deteriorated piers and docks for public use and access are encouraged along the Baywalk. Restrooms, "porta-potty" dumping facilities, and pump-out stations are encouraged at marinas to preserve water quality. Lifesaving equipment is recommended for installation on piers and docks.



BAYWALK



Piers along the Baywalk should be designed to encourage full public use through the installation of seating, leaning rails for fishing or crabbing, and fish-cleaning stations.



BAYWALK

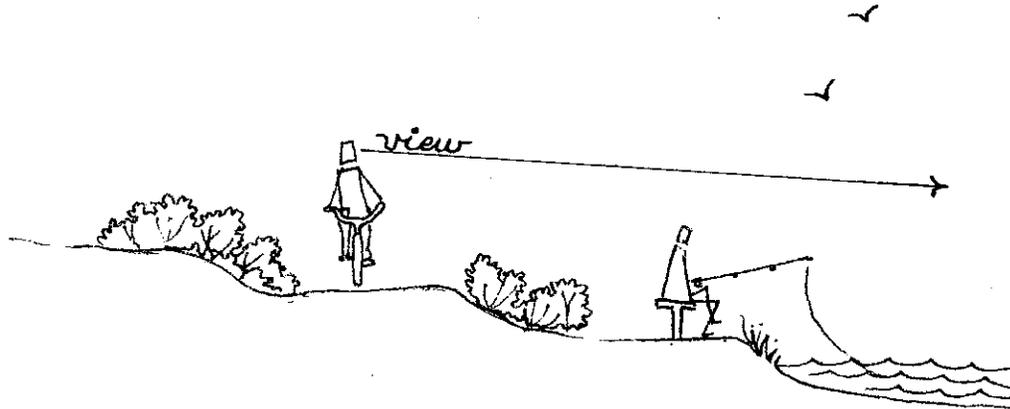
BRIDGES - Pedestrian bridges may be installed where special site conditions warrant their use, and their installation would be permissible under the appropriate County, State and Federal programs.

The following bridge design guidelines are recommended:

- i. Bridge width should be consistent with the trail width. Bridges may be constructed in place, or modular units may be used. Bridge abutments should be wood or concrete. Bridges should be equipped with a handrail.
- ii. Bridge designs should be approved by a licensed engineer, and may require NJDEPE permits. See *Appendices C* and *D* for NJDEPE permit information.
- iii. Efforts should be made to provide for and encourage recreational fishing and crabbing from bridges.



BAYWALK



VIEWS OF WATER - Whenever possible and practical the Baywalk, should have an unobstructed view of the bay. This may require raising of the walkway through the addition of fill in upland areas, raised boardwalks or bridging.

PLANTINGS - Upon construction of the Baywalk, plantings should be installed to soften the built environment, control erosion, direct views, define space, and to provide shade, wind screens, visual buffers and/or physical barriers. Plant material selection and planting plans should reflect the character of the urban, village and natural landscape through which the particular Baywalk segment passes.

In order for the plants to survive, plant species selected should be native and indigenous. Any

ornamental plant materials used should be appropriate for area climate conditions. Monmouth County is within "Climate Zone 6" as referenced in the American Association of Nurserymen handbook. All plants should be grown and installed according to the standards set forth by the American Association of Nurserymen.

Shade trees should be planted in village and urban areas. Unless prohibited by such design constraints as overlooks, alcoves, utilities or roadways, or such natural conditions as wetlands, shade trees should be planted at 40 foot intervals. Limbs on existing trees adjacent to the Baywalk should be pruned from the trunk to a height of ten feet to allow appropriate clearance. Where ten feet is not feasible, a minimum height of eight feet would be acceptable.



BAYWALK

In urban areas, indigenous plants should dominate the landscape.

In village areas, at least 75 percent of the plants selected for use in these areas should be indigenous types.

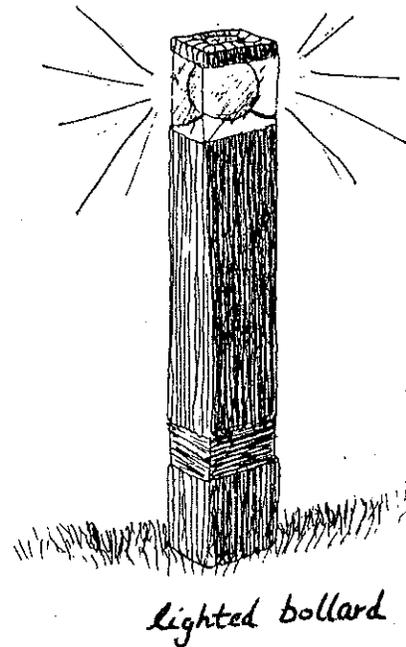
In natural areas, only plants indigenous to the area should be used and the planting plan should consider the size, form, and composition of the climax vegetation type of that area.

RAILINGS - Handrails should be used along all raised surfaces. Railings should conform to Buildings Officials Code Administrators (BOCA) guidelines and the local municipality's building code.

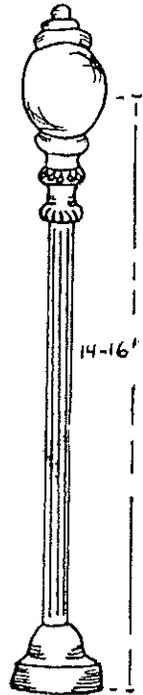
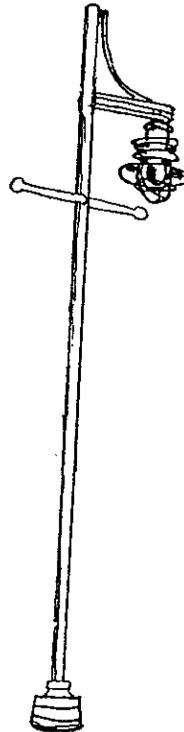
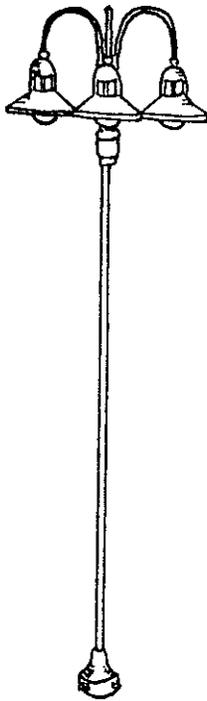


LIGHTING - Lighting is recommended only in areas which are designed for night use, such as near restaurants (see *Appendix E*). Path lights set low to the ground, such as lighted bollards, are recommended when lights are necessary in more natural settings. Where lighting is used, the following recommendations apply:

- i. Light fixtures in natural areas should be made of compatible materials, such as wood or stone.
- ii. Light poles in urban and village areas should complement the scale and style of other site amenities.



BAYWALK



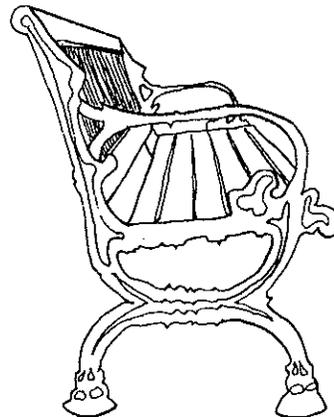


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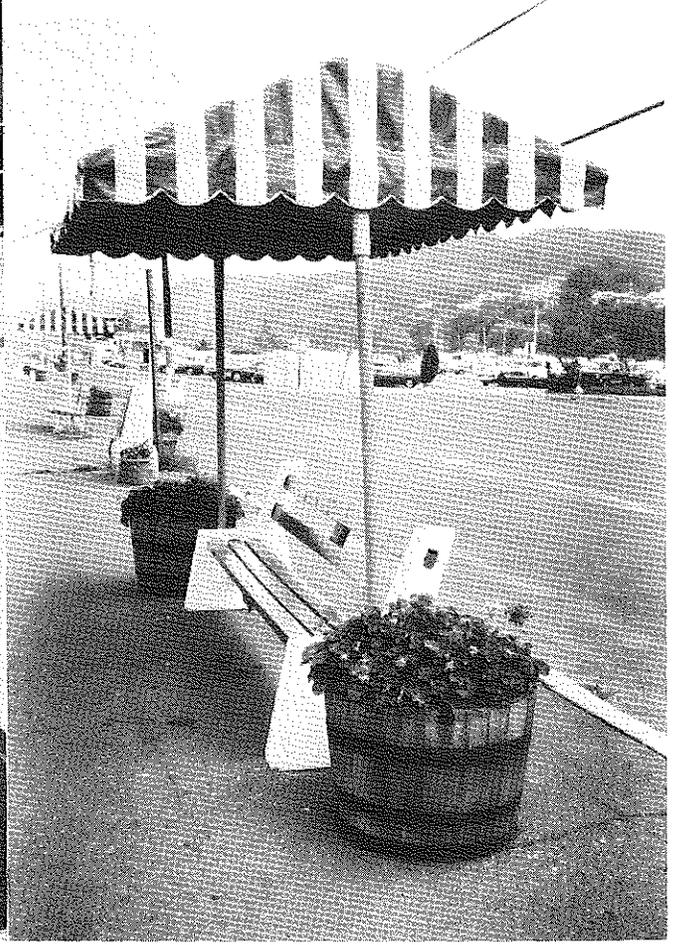
SEATING - Seating is an excellent way to provide for walking breaks and to encourage reflection of the surrounding area. Seating should be out of the pathways of the Baywalk, the Bay Bikeway, and connecting pathways. An attempt should be made to provide shade in some locations. Where natural shade is not available, the use of awnings, lattice, or solid roofing could be provided over some of the seating.

Seating may be provided through alternatives to benches, such as seat walls or steps (see *Appendix F*). A variety of styles and materials may be used, but they should complement the surrounding environment.

Seating areas should be provided at regular intervals along the Trail as rest areas and to highlight scenic viewpoints. Seating in these locations should, as a minimum, consist of two benches oriented toward the view. The intervals between seating locations could increase as the anticipated trail use decreases (e.g., high volume urban areas should provide seating along the Trail at approximately 150 foot intervals, where seating in natural areas could be spaced as far a 1000 feet apart). Seating should also be provided at plazas, gathering places, vistas, and near Major Activity Centers. Some groups of seats should be placed at right angles to promote conversational groups.



BAYWALK





BAYWALK

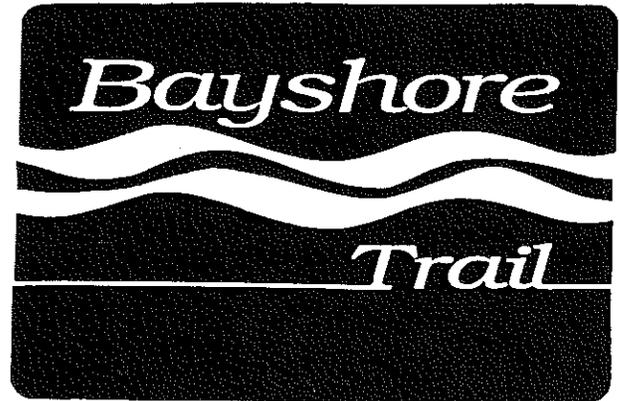
SIGNAGE - An easily recognizable Bayshore Trail Logo has been developed (see illustration). All signage, other than standard traffic signage, should incorporate this logo. Only signage related directly to the Bayshore Trail System features, or events held along the Trail, should be installed.

Signs identifying elements or features along the Trail should utilize the standard Bayshore Trail System logo. Examples of the sign color code include:

- ◇ Activity Centers - dark blue and cyan (light blue).
- ◇ Walkway - green and cyan.
- ◇ Bikeway - brown and cyan.

Additional signs (eg. Historic Sites, Recreation Areas, and Scenic Viewpoints) are currently under development.

Mile markers and signs indicating distances to points of interest are recommended for installation along the Trail. For mile marker designations, please see *the Design Scheme*.

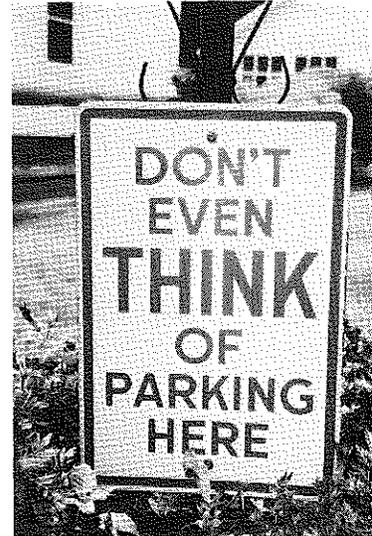
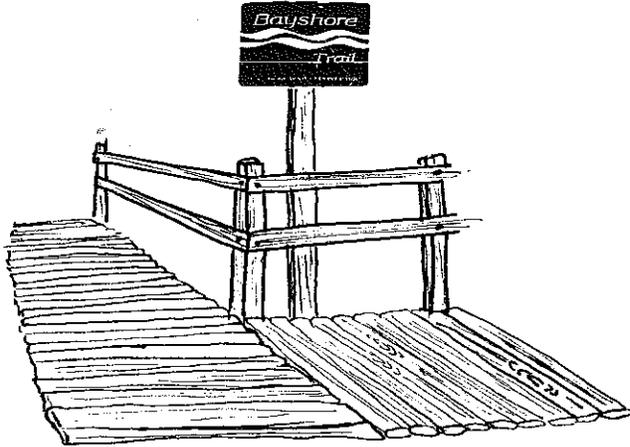


Logo designed by Monmouth County Park System.

BAYWALK



Humor can provide a pleasant way to get a message across (see photograph below).



All traffic warning signs should conform to requirements as identified in the Municipal Uniform Traffic Control Devices handbook (MUTCD) current edition.



Taken From: Bikeway Design Manual, Oregon State Highway Division, 1974, page 29.



BAYWALK

Bayshore Trail System logo signs should be standard metal trailblazer signs as identified in MUTCD. They should be a 24 inches high by 30 inches long and installed at all the following locations:

- i. At all Major and Minor Activity Center entry points from the Trail.
- ii. At formal (non-trail) entrances to Major Activity Centers.
- iii. The Trail's intersection with any streets.
- iv. Every one quarter mile (1/4) along the Trail. These signs can be smaller (a minimum of 12 inches high by 18 inches wide).
- v. Along connecting pathways. These signs can be smaller, but should be a minimum of 24 inches wide by 18 inches high.
- vi. At entry points of all connecting pathways. These signs can be smaller, but should be a minimum of 24 inches wide by 18 inches high.



BAYWALK

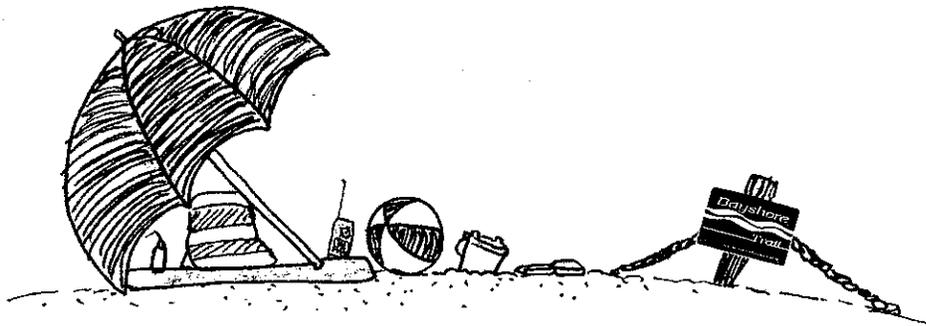


The trail logo signs should be mounted as follows:

- i. The height of pole mounted signs adjacent to roadways and sidewalks should be a minimum of seven feet, as per MUTCD.
- ii. In urban areas, signs may be mounted with metal or wood frames and posts, and should be in character with the surrounding development.

iii. In village areas, signs may be mounted on wooden frames which are stained with a clear stain or painted white, or mounted on a single metal post.

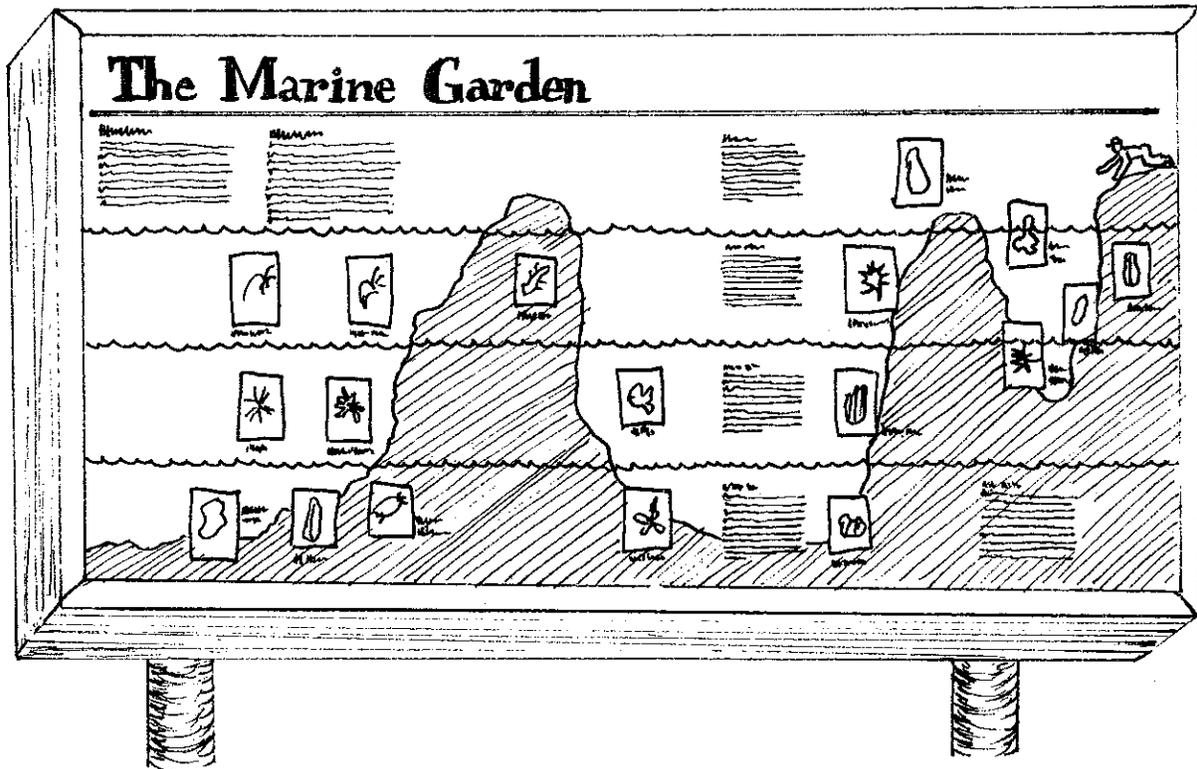
iv. In natural areas, signs mounted on a heavy timber frame and recessed onto the mounting platform would be preferable. A natural or stained finish would be appropriate.



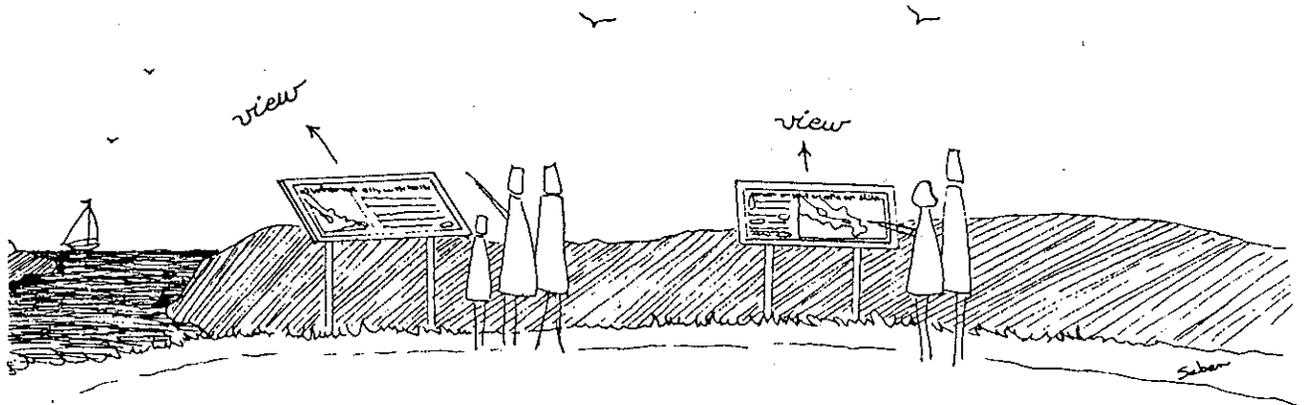


BAYWALK

INTERPRETIVE DISPLAYS - Outdoor exhibits along the Trail can provide educational information regarding the area's culture, waterfront history, and the natural environment.



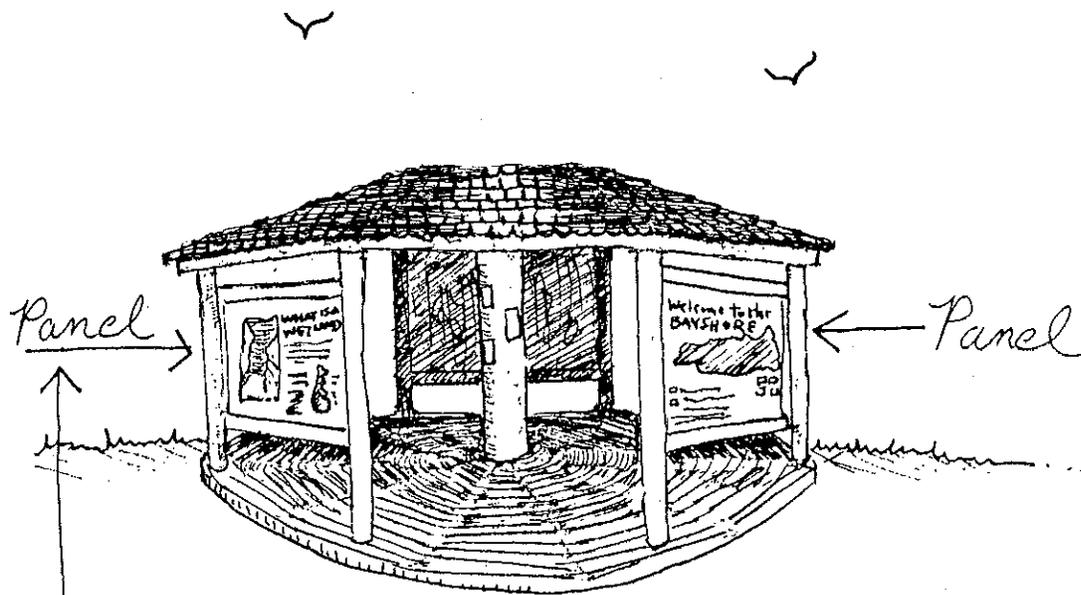
BAYWALK



Outdoor exhibits can range from a simple, tilted, interpretive sign mounted on a pedestal (see above illustration) to a number of panels mounted on a kiosk (see illustration on next page).

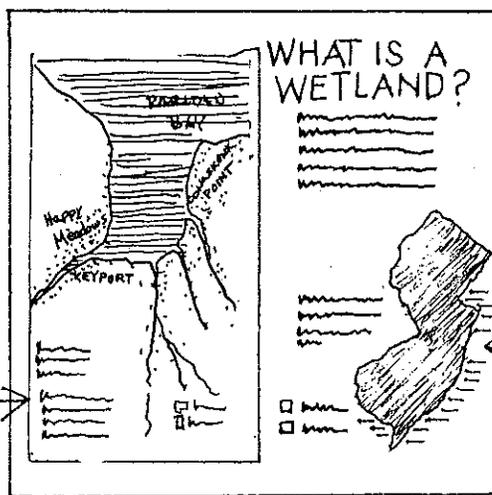


BAYWALK



Kiosk

Bayshore
Wetland
Artwork



New Jersey
Coastal
Wetland
Graphic

Panel

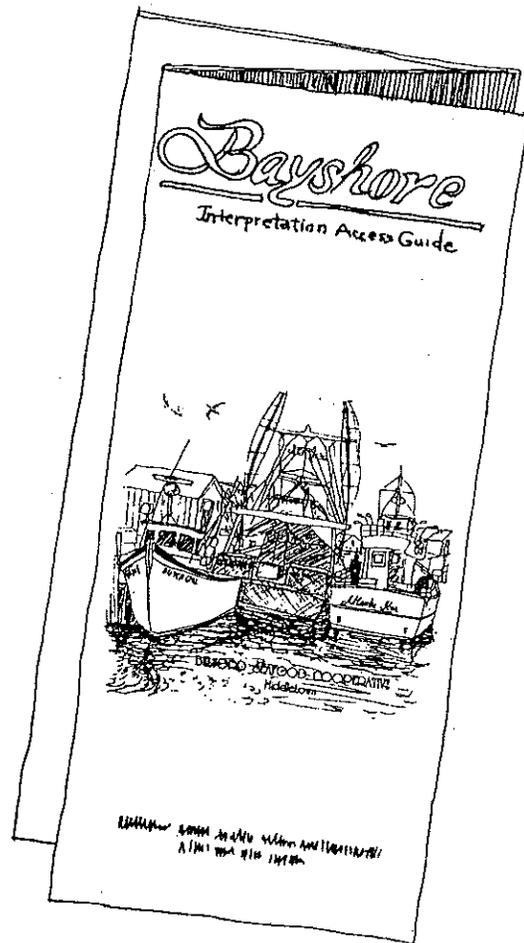


Kiosks can vary from a cylindrical structure on which information is mounted or posted, to an open-air gazebo-like structure with interpretive panels displayed (see illustration on opposite page). Interpretive panels should include locational orientation ("You Are Here" maps).

Outdoor exhibits should be constructed of quality materials and be weatherproof. Appropriate materials include wood, metal, plexiglass or a combination of these.

Orientation and size of an interpretive display should be determined by its location and by the distances from which it will normally be read. The shape of the interpretive display is also important. It should be attractive but unobtrusive. Some provision for viewing by children should be incorporated into the design, such as appropriately located steps or benches. The exhibit panels should be placed at a convenient viewing height for most adults (five feet is the average eye level).

The displays may also be used to distribute information about the Trail. Leaflets and brochures are suitable media for self-guided tours and information about the local culture, history and environment. Containers attached to the display would be convenient locations for brochure storage.





BAYWALK

LITTER CONTROL RECEPTACLES - Litter control receptacles should be provided in the following locations:

- ◇ At every Major Activity Center.
- ◇ At all seating areas along the Baywalk.
- ◇ At all points where people may be expected to congregate.
- ◇ At connecting pathways.
- ◇ At every 150 feet of Baywalk in urban areas.
- ◇ At parking areas.

Litter control receptacles should be a minimum of 30 gallons in size and be secured so they cannot be removed or toppled over. Receptacles should have a removable covering to prevent rain or snow from entering the container. The receptacles should not be placed within the paved area or pathway of the Baywalk.

In urban areas, suitable litter control receptacle materials may include masonry, wood, metal or combination of these. They should complement the design theme.

In village areas, appropriate litter control receptacles include metal, wood or a combination of these, and should blend with the surrounding areas.

In natural areas, litter control receptacles should blend into the surrounding environment. Natural materials are most appropriate.



BAYWALK



COLOR - A coordinated site furnishing plan which depicts finishes of site elements should be developed and presented for review.

In urban and village areas, light poles and other painted site elements should use colors which reflect the Bayshore heritage, such as sea tones (e.g., blue, blue-green, and seafoam green) or colors historically appropriate to fishing villages (e.g., red, grey, white, and black). Wooden features should be finished in a clear wood stain.

To blend with the natural environment, painted elements in natural areas should be finished in earth tones of brown or grey. Wooden fixtures should be finished in a clear wood stain.

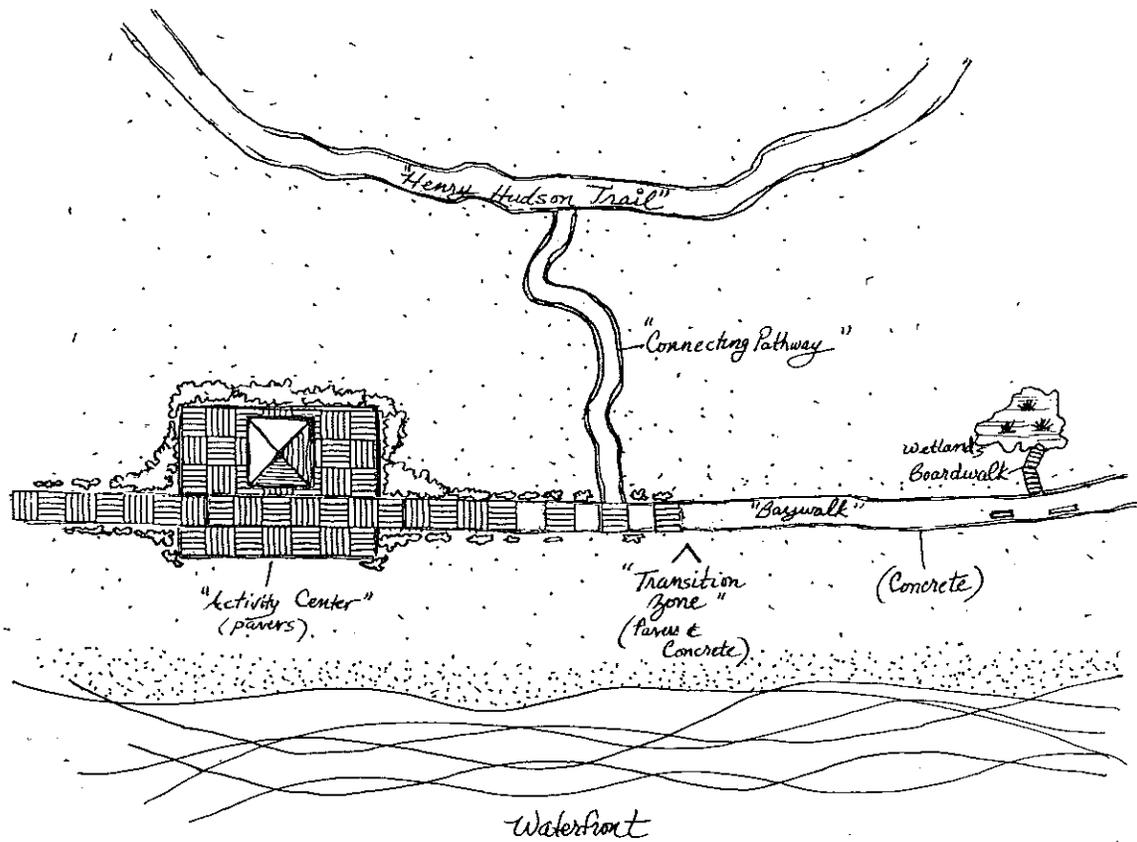




BAYWALK

TRANSITION ZONES - Transition zones between developments are required to resolve two different adjacent designs. This includes paving, planting, lighting and handrail design. The design of the transition zone should either be a gradual blending of the two styles or an intermediate style. Transition area design should be coordinated with new development projects.

CONNECTING PATHWAYS - Connecting pathways are intended to provide a connection between activity centers and the Baywalk, or between the Baywalk and the Henry Hudson Trail. They may be established by the private or public sector or through a cooperative effort of both. In areas which are privately owned, development of the connecting pathway should be required and submitted as part of the site plan review process.



BAYWALK



When designing a connecting pathway, the following elements should be considered:

Location - These pathways should be used to connect the Trail to a variety of areas including residential neighborhoods, commercial centers, schools, etc. When providing a connection to the Henry Hudson Trail, the pathway should be defined as shown on the Design Scheme.

Length - Connecting pathways from various areas should not exceed one half of one mile in length. Attempts should be made to locate the connections over the shortest route.

Right-Of-Way - The width of the connecting pathway right-of-way or easement should be a minimum of ten feet.

Surfacing Width - Connecting pathways should have a minimum surfacing width of four feet. Where barrier free access is desired, the width should conform to barrier free design codes. There should be at least two feet of clear space on each side of the path surface.

Surfacing Materials - Attempts should be made to relate the materials used in surfacing the connecting pathway to the surface of the intersected main path. This can be accomplished by blending contrasting materials for a transition, or choosing complementary materials, where possible. Please refer to *Surfacing* on page 14 for material recommendations.

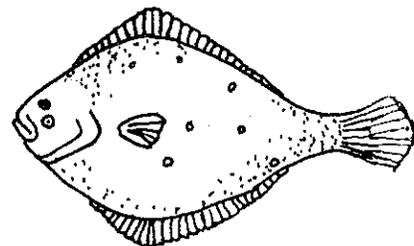
Innovative Designs - Innovative design for connecting pathways is encouraged. Alternative surfacing materials, the sensitive

incorporation of plantings, seating and lighting, or meandering the path, are examples of innovative designs.

Seating - Seating areas should be established along lengthy connecting pathways. The seating should not, however, be within the path surface. Seating areas should also include a litter control receptacle.

Signage - A trail logo sign should be located at each end of every connecting pathway and at intervals along the pathway (see *Signage*, page 28).

Litter Control Receptacles - One litter control receptacle should be located at each entrance of every connecting pathway.





BAYWALK

LOOP TRAILS - Points of interest which are near the Baywalk, but not directly adjacent, can be linked through the use of loop trails. Trail users traditionally prefer trails that loop. A waterfront pathway might include extension loops through adjacent downtown areas, historic districts, or natural areas. Design of loop trails should be consistent with the design recommendations for the Baywalk and should include trail logo signs. The loop trail length and level of difficulty should be specified at the beginning. Interpretive displays are recommended at key points along loop trails (see also *Interpretive Signs*, page 32).

STREET ENDS - Where the Trail encounters waterfront street ends, an opportunity is presented for physical and visual public access. These public rights-of-way can be developed as passive recreation areas. Street end recreation areas could include the following facilities, where feasible:

- ◇ Beach access (steps & ramps)
- ◇ Seating
- ◇ Bicycle racks
- ◇ Litter control receptacles
- ◇ Parking
- ◇ Small-boat access



Saban
©

BAYWALK



BOAT ACCESS - Where the adjacent beach is publicly owned, street ends offer an opportunity for access to the water to launch small, portable boats such as canoes, windsurfers, kayaks, rowing-skulls, jon-boats, inflatable dinghies or other play craft.

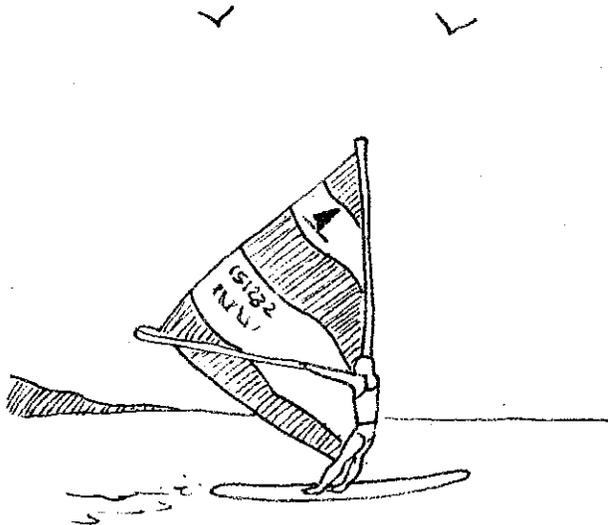
The physical path to the water's edge would typically be over the natural beach. Provisions should be made for parking. Portage of the craft from the parking area to the water needs to be considered. Where parking can not be immediately adjacent, an off-loading area may be appropriate.

Access points for small, portable boats should be appropriately signed. Boat launching should not conflict with swimming beaches or busy boat channels.

MISCELLANEOUS - It is imperative, for the success of the Baywalk, that developers commit themselves to developing any public amenities in writing, including drawings and site plans, and that they be submitted for review.

Intersection Crossings - Where crosswalk markings are used, they should be placed perpendicular to the crossing roadway. At traffic signal controlled intersections, pedestrian push-button devices should be provided.

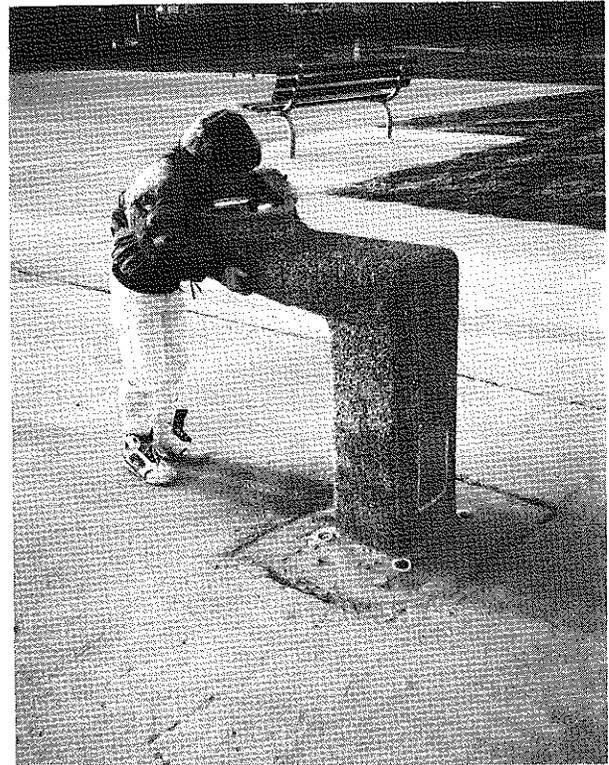
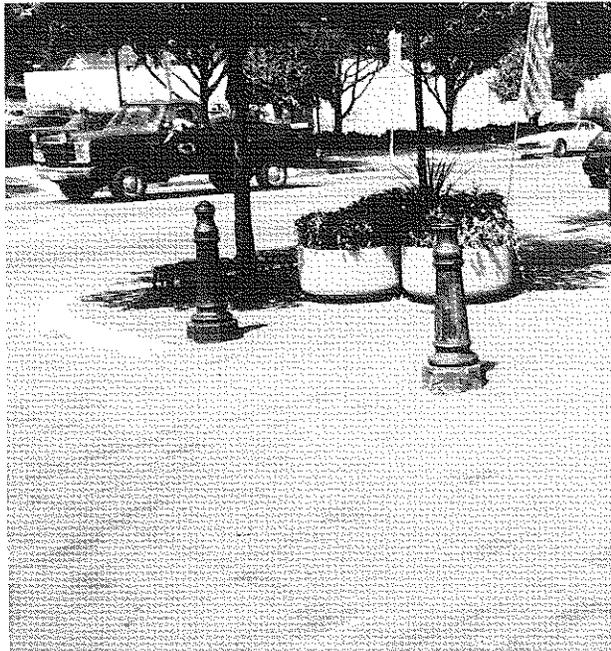
Bicycle Racks - Racks should be provided at plazas and at connecting pathways to discourage the use of other site elements as fixtures to which bicycles may be attached. For additional recommendations, see the upcoming section on page 64, entitled *Bicycle Parking*.





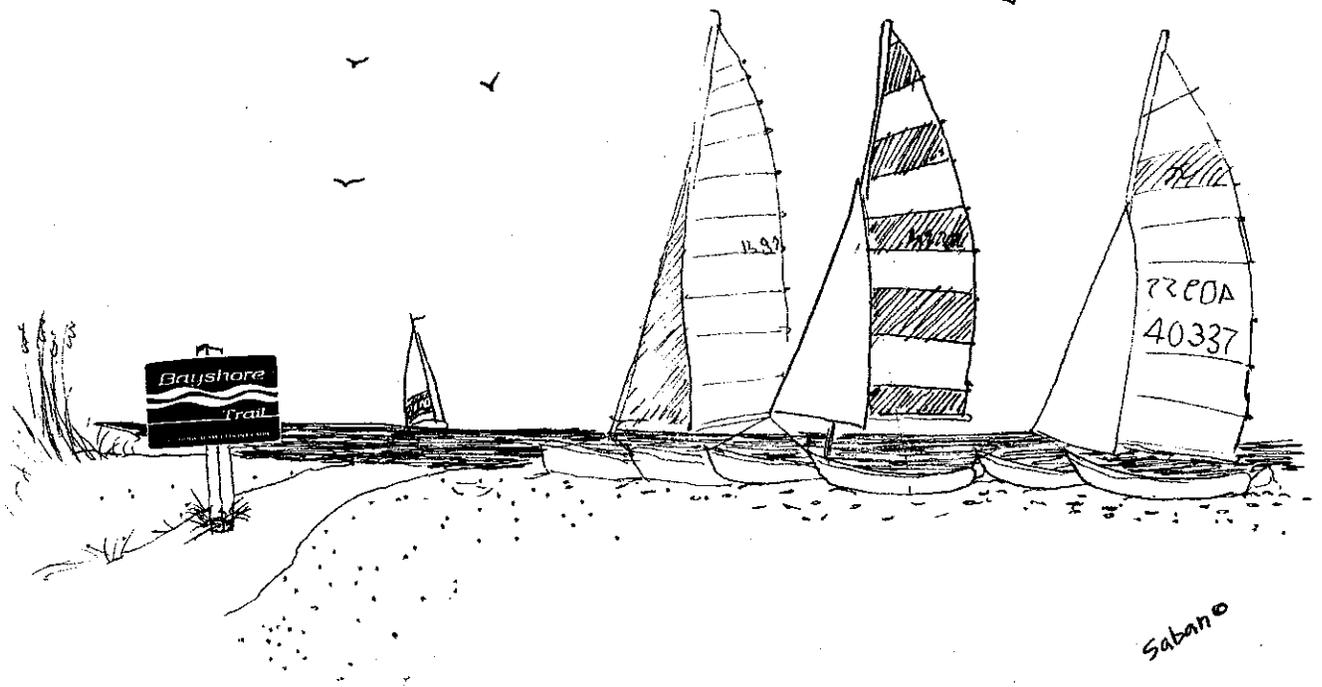
BAYWALK

Bollards - Bollards may be used to separate forms of traffic or as design elements. An average bollard is 8 x 8 inches and 36 inches high. Bollard height should not exceed four feet. Bollards should be removable where necessary for the passage of service and emergency vehicles. If a gate is used it should be heavy wood timber and a minimum of eight feet wide. Bollards and gates should have reflectors for night time visibility. Bollards in village and urban areas may be wood, concrete or metal. Bollards in natural areas should be wood. Bollards that are adjacent to fire lanes or in areas used by maintenance vehicles should be reviewed by the local municipality.



Rest Rooms - Directional signs should be located on the Baywalk to guide the public to accessible rest rooms. The provision of drinking fountains is also encouraged.

BAYWALK



BAY BIKEWAY

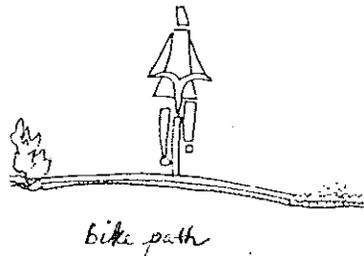


THE BAY BIKEWAY

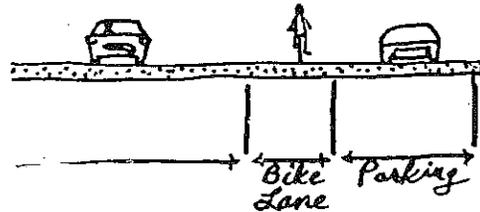
The Bay Bikeway is intended to provide a safe route for bicyclists to use while enjoying the attributes of the Bayshore.

TYPES OF BIKEWAYS - The term "Bikeway," as defined in the *Glossary*, means any road, path or pathway which in some manner is specifically designated as being open to bicycle travel whether exclusively or shared with motorized vehicles. This manual refers to three different forms of bikeways:

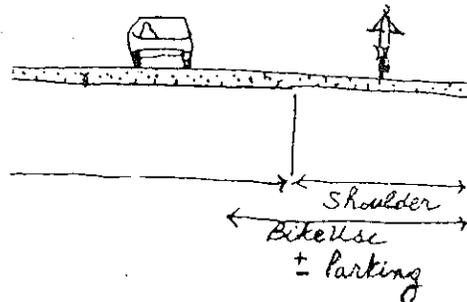
Bike Path - A separate off-road bikeway.



Bike Lane - A bikeway physically within a vehicular road right-of-way, which is reserved for the exclusive use of bicycles. It has its own lane within the roadway and is marked as a separate lane. It usually has pavement markings designating "Bike Lane Only".



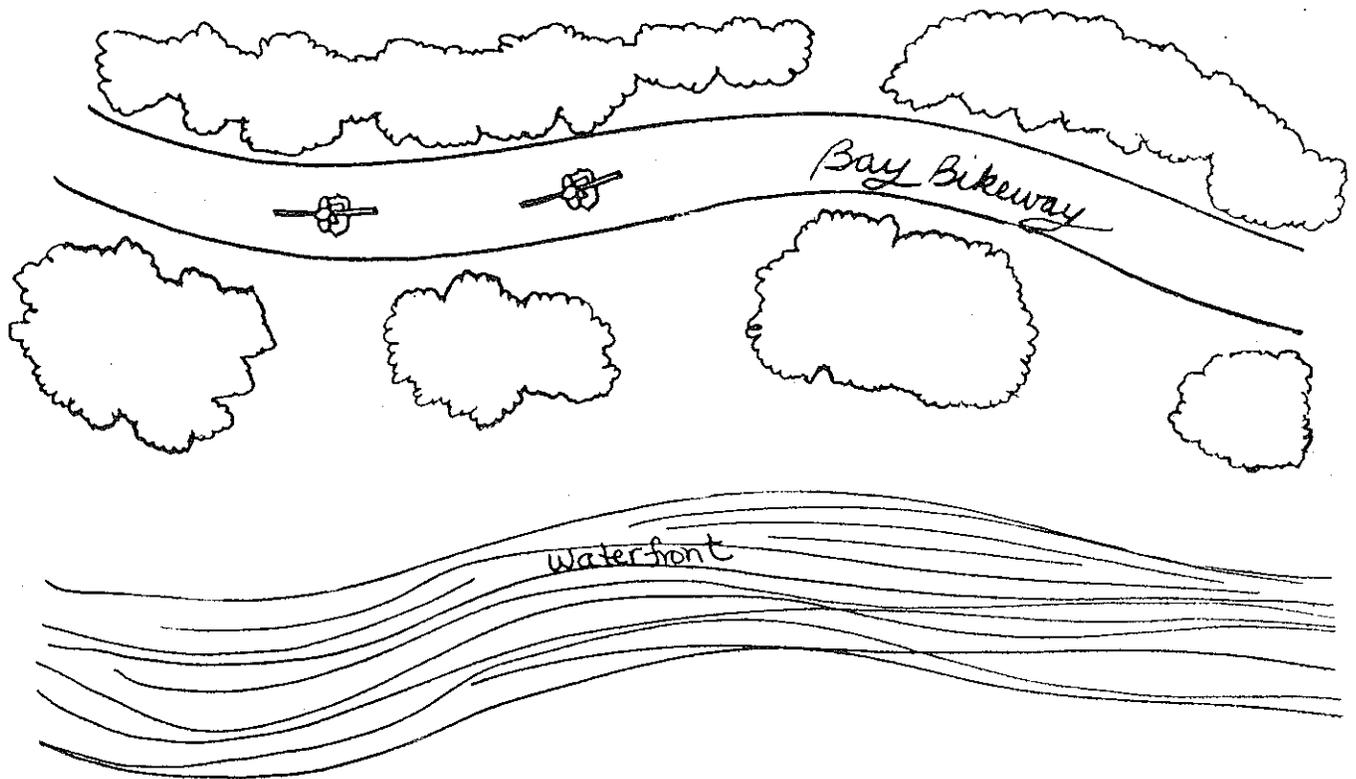
Bike Route - A route marked for bicyclists to use along a roadway. This bikeway shares the road right-of-way with motorized vehicular traffic. Bicyclists use the shoulder of the roadway or the right edge of a wide traffic lane. The bicyclist may or may not share the shoulder with parked vehicles. If parked cars are present, the bicyclist must steer around them.



BAY BIKEWAY



LOCATION - The Bay Bikeway should be located as shown on the Design Scheme. The route of the Bay Bikeway was selected to be as close to the waterfront as possible. The Bay Bikeway route includes off-road bikepaths, bike lane and bike route segments along streets, and segments shared with the Monmouth County Park System's Henry Hudson Trail.

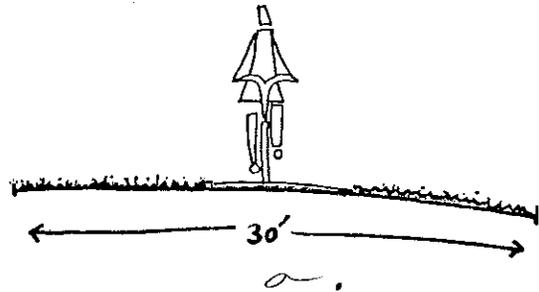




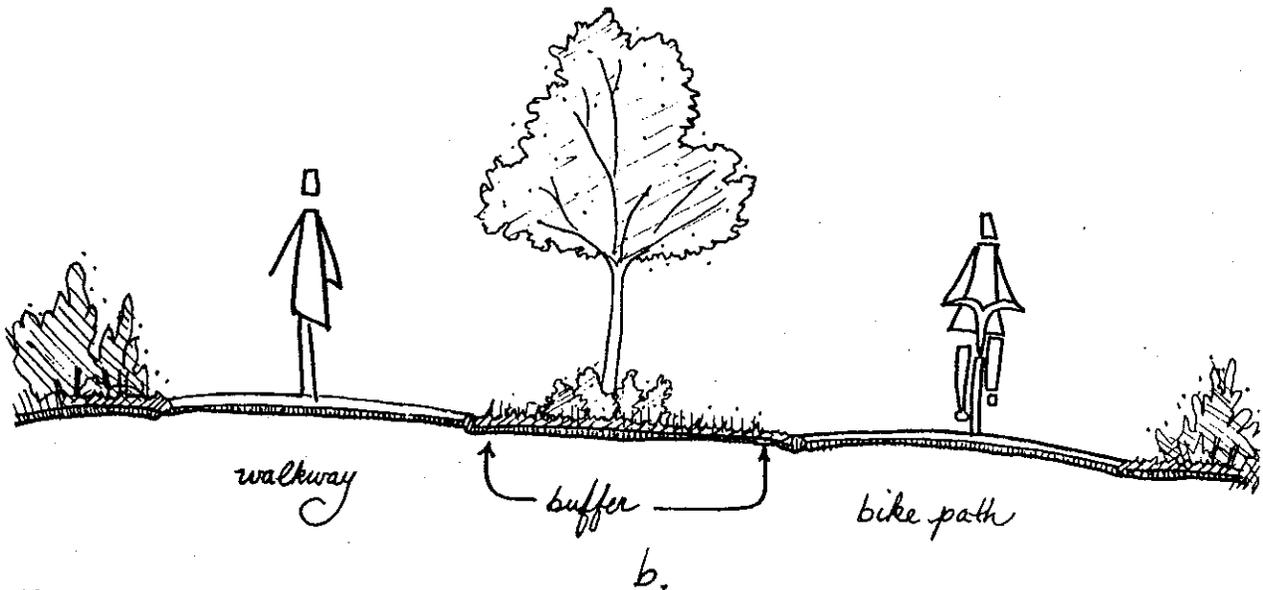
BAY BIKEWAY

SPECIFIC DETAILS - Throughout its length, the Bay Bikeway is expected to change its form to accommodate the various physical aspects found within each trail segment. Where the Bay Bikeway uses the Henry Hudson Trail, the Monmouth County Park System's design standards should prevail. Connecting pathways and loop trails are highly recommended (see pages 38 through 40).

Right-Of-Way Widths - As the form of the Bikeway varies, so does the right-of-way width requirement.



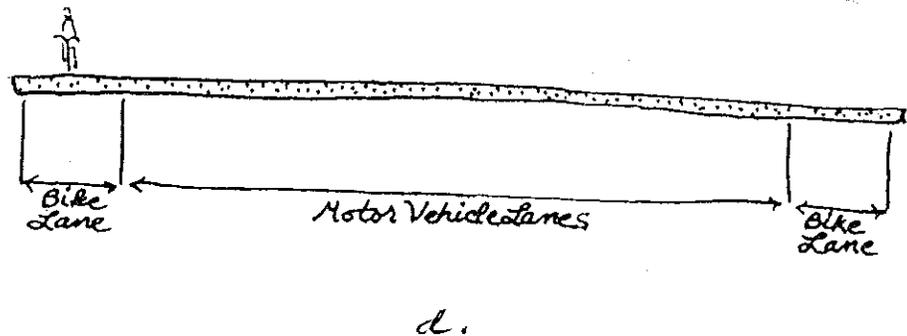
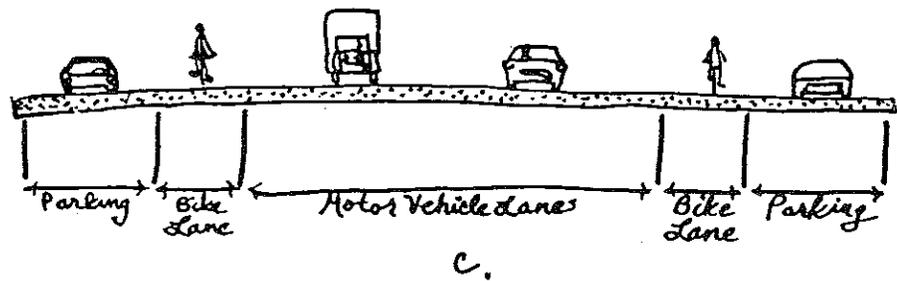
i. **Bike Path** - The right-of-way width for bike path segments should be a minimum of 30 feet (see illustration a). In already developed areas where a 30 foot width is not possible, there should be a minimum width of 15 feet. Buffers may be necessary to separate bike paths from walkways. When necessary, the buffer area should be a minimum of five feet wide (see illustration b).



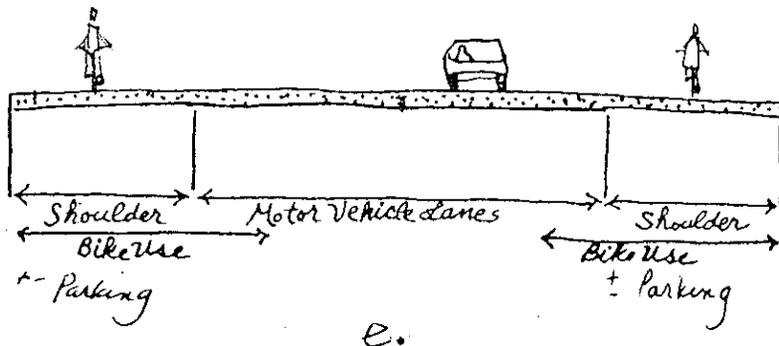
BAY BIKEWAY



ii. Bike Lane - The width of the existing road right-of-way, the physical conditions (eg., presence of shoulders), and the mix of road uses (eg., parking) impact the potential need to increase road right-of-way to allow for the addition of a bike lane (see illustrations c and d).



iii. Bike Route - No additional right-of-way width is typically required (see illustration e).



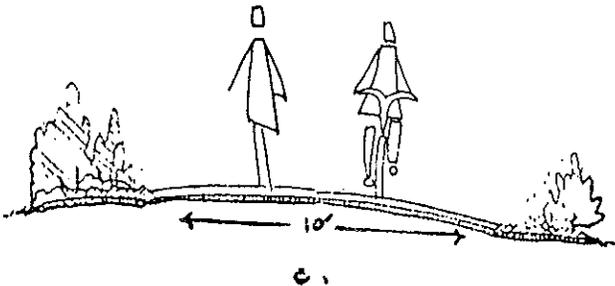
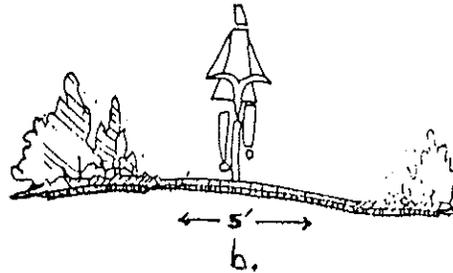
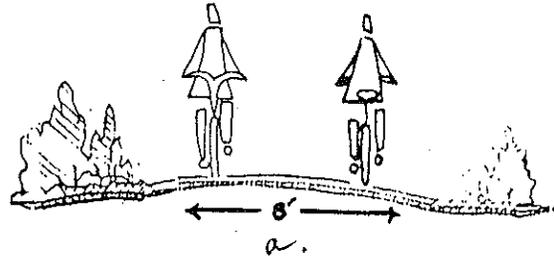


BAY BIKEWAY

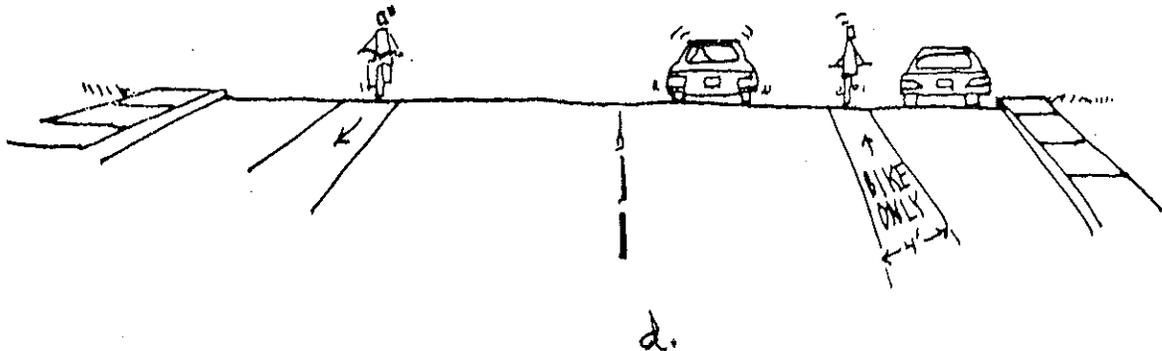
Surfacing Width - The necessary width of the paved surface varies not only with the type of bikeway, but also with the existing influential physical conditions. Cleared shoulders should be provided, however, they may not need to be paved.

i. **Bike Path** - The width for the surfacing area of a bike path with two-way bicycle traffic should be a minimum of eight feet (see illustration a). A minimum surfacing width of five feet should be provided for a one-way bike path (see illustration b).

ii. **Combined Walkway/Bikeway** - The surfacing width of a combined walkway/bikeway should be ten feet (see illustration c).



iii. **Bike Lane** - The surfacing width of a bike lane should be a minimum of four feet wide and be only one way in the direction of traffic (See illustration d). *Appendix G* provides details on special cases for bike lane width adjustment.

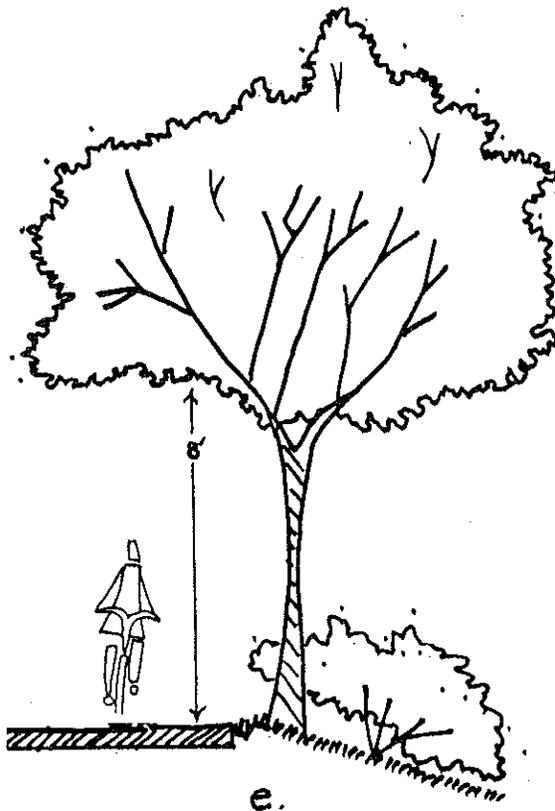


BAY BIKEWAY



iv. **Bike Route** - In bike route segments, the surface used by bicyclists would be the existing shoulder or sidewalk. Where the roadway width does not accommodate bicycle travel, and sidewalks do not exist, sidewalks should be installed which are sized to allow joint use by pedestrians and bicyclists.

Overhead Clearance - All bikeways should be cleared of overhanging obstructions to a height of eight feet (see illustration e).



GRADIENTS - For recommended design gradients, see *Appendix B*.

SURFACING MATERIALS- Pavement surfacing materials should be asphaltic bituminous concrete, concrete, or appropriate substitutes. Where impervious pavement is not permitted (eg. wetlands), planking may be considered. Planking should be installed perpendicular to the direction of travel.

The pavement surface of the Bay Bikeway should be as smooth as any adjacent motor vehicle lanes. No obstacles should exist on designated bikeways.

In urban areas, other pavement surfacing materials may be used, such as pavers (see photographs, page 15). The alternate surfaces should, however, provide a smooth, comfortable, skid resistant ride for the bicyclist, and any transition between two different surfaces should be smooth.



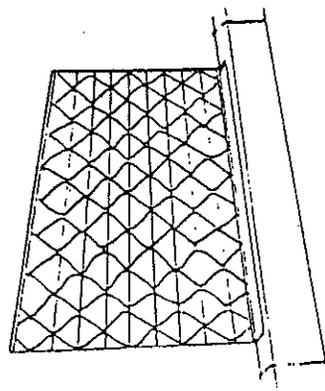
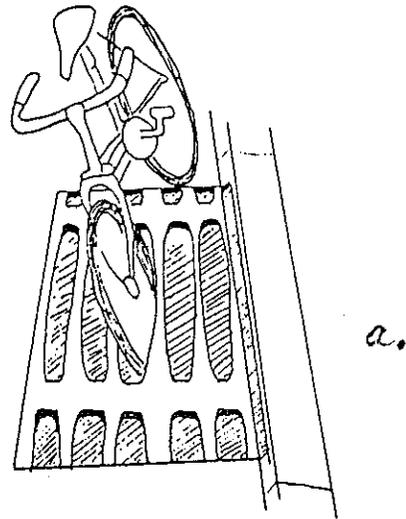
BAY BIKEWAY

DRAINAGE AND UTILITY COVERS - Each municipality should inventory the drainage grates and utility covers which exist along the Bikeway, classifying them as unsafe or safe.

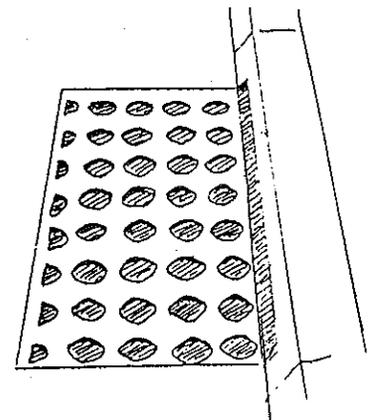
An unsafe grate runs parallel to the direction of travel and has elongated openings into which a bicycle tire may fall (see illustration a). Grates or utility covers set below the road grade creating a depression in the surface, or those projecting above the road surface, are also unsafe.

Safe grates and utility covers are flush with the pavement. A safe grate should also have a smooth surface with small openings (see illustration b).

During resurfacing of roadways, no drainage grates or utility covers should be left projecting above the surface or depressed below it. Adjustments may be necessary to make the structures flush with the pavement surfaces. Unsafe grates should be replaced with bicycle safe grates as recommended by NJDOT.



HONEY COMB
GRATE



ELIPSE GRATE

BAY BIKEWAY



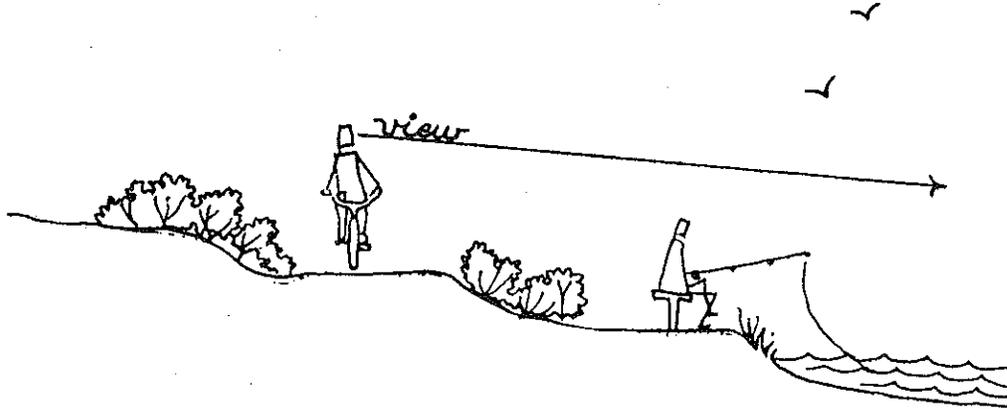
BOARDWALKS - Where boardwalks are needed to carry the Bay Bikeway across wetlands or other obstacles, the boardwalk should be constructed with consideration given to the same recommendations as outlined for the Baywalk (see *Boardwalks*, page 16). Wood planking should be installed perpendicular to the direction of travel. Railings should be provided (see *Railings*, page 24).

BRIDGES - The Bay Bikeway should have access over existing roadway bridges. Upon rebuilding or replacement of the existing bridges, bicycle lanes should be installed where feasible. Where not feasible, the bikeway could be in the form of a bike route. Bridges should be equipped with a handrail. For bridges designed solely for pedestrian and bicycle use, see *Bridges*, page 22.





BAY BIKEWAY

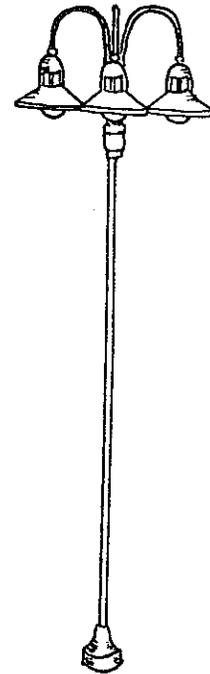
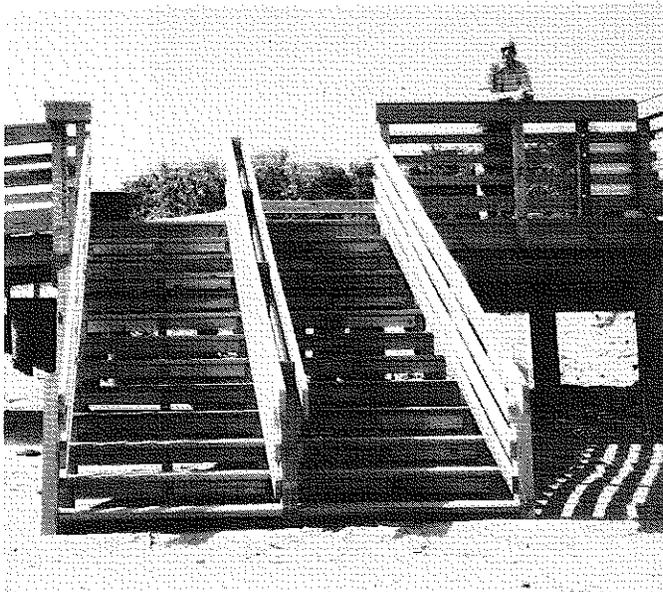


VIEW OF THE WATER - It is a goal for the Trail to have an unobstructed view of the water. The location and design of the Bikeway should reflect this.

PLANTINGS - For plantings along the Bikeway, see *Plantings* page 23.

RAILINGS - Railings should be provided on all raised platforms (see *Railings* page 24).

LIGHTING - Where lighting is provided along the Bay Bikeway, see *Lighting*, page 24.



BAY BIKEWAY



SIGNAGE - An easily recognizable Bay Bikeway Logo has been developed. All Bay Bikeway signage other than standard traffic signage should incorporate this logo.

Signs - Bikeway signs should be a standard of 12 inches high by 18 inches wide. Signs should be standard metal trailblazer signs. For color and mounting specifications, see *Signage*, page 28. Along bike lane and bike route segments, bikeway signs may be mounted on the same pole or post with existing signs, or on a separate pole or post.

Regulatory and warning signs for both bicyclists and motorists should be placed as warranted. Bikeway and roadway signs should be kept to a minimum for aesthetic reasons. Traffic warning signs should conform to the requirements identified in the MUTCD, current edition. Signs should be easily visible for both bicyclists and adjacent roadway traffic.

Bay Bikeway signs should be installed at the following locations:

- i. At a maximum of one quarter mile (1/4) intervals along the Bikeway.
- ii. At the intersections of crossing streets.
- iii. At all intersections and changes of direction.

Mile markers and signs indicating distances to points of interest are recommended for installation along the Trail. For mile marker designations, please see *the Design Scheme*.



BAY BIKEWAY

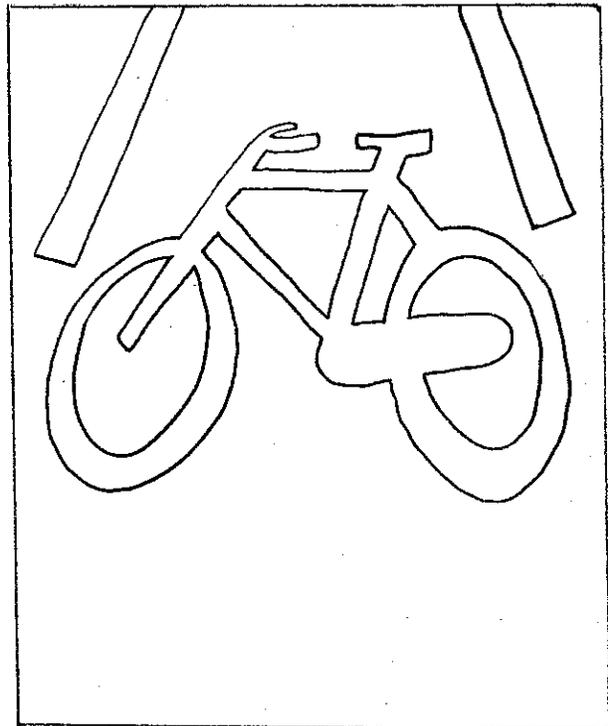
Pavement Markings - Pavement markings can be used alone or in conjunction with signs.

For bike routes and bike lanes, a four inch wide solid line should be used to separate motor vehicle lanes from the bicycle lane. Where a bike lane is created between automobile travel lanes and parking, another four inch wide solid line should separate the bike lane from the parking lane. Lines should be white.

Intersections have to be evaluated and treated on an individual basis and should be reviewed by a licensed engineer. Bicyclists should be expected to follow the rules of the road but whenever possible intersections should be improved to increase the visibility of the bicyclists. Zebra-striping the Bikeway through non-signalized intersections should make drivers more conscious of the potential presence of bicyclists.

Zebra striping on bridges alerts the drivers that bicyclists may be sharing the roadway over the bridge.

*Bike Symbol
Pavement Marking*



BAY BIKEWAY



LITTER CONTROL RECEPTACLES - Litter control receptacles should be placed along the Bikeway in key locations, such as near activity centers and access points.

COLOR - Colors of site elements (such as bike racks and pavers) used along the Bay Bikeway should blend with the surrounding features and environment (see *Color*, page 37).

TRANSITION ZONES - Responsibility for the design and development of a transition zone should be the same as for the Baywalk (see *Transition Zones*, page 38).

MISCELLANEOUS - It is imperative for the success of the Bay Bikeway that developers commit themselves in writing to the construction of any public amenities for the Bay Bikeway within their development plans. Consistency throughout the Trail comes from such a commitment. Consistency also results from attention to design detail.

Sight Distance - The minimum safety sight distance should be as calculated from the Guide for Development of New Bicycle Facilities, 1981 as published by the American Association of Highway and Transportation Officials (AASHTO).

Bicycle Racks - Bicycle racks should be provided at all probable stopping locations. For additional recommendations, see *Bicycle Parking*, page 64.

Bollards - Bollards should be installed where bike path segments intersect streets, to prevent unauthorized motor vehicles from entering the bike path segments. For additional information see *Bollards*, page 42.



ACTIVITY CENTERS



ACTIVITY CENTERS

The Design Scheme designates 12 Major Activity Centers and 15 Minor Activity Centers. The intent of these centers is to provide a focal point for trail activities, such as special events, interpretive displays, and access between the Trail and existing points of interest. Each activity center should have a distinct identity. The design of each center should follow a theme which is appropriate to the immediate surroundings, the overall trail design, and the culture and history of the Bayshore. Appropriate themes include a seaport village, the natural environment, and marinas. The style, color and finish of all center amenities (e.g., seating, lighting, pavement, etc.) should be coordinated around the theme.

Existing waterfront parks were incorporated into the trail system through their designation as activity centers.

Major and Minor Activity Centers differ primarily in the scale and scope of facilities recommended for development.



ACTIVITY CENTERS

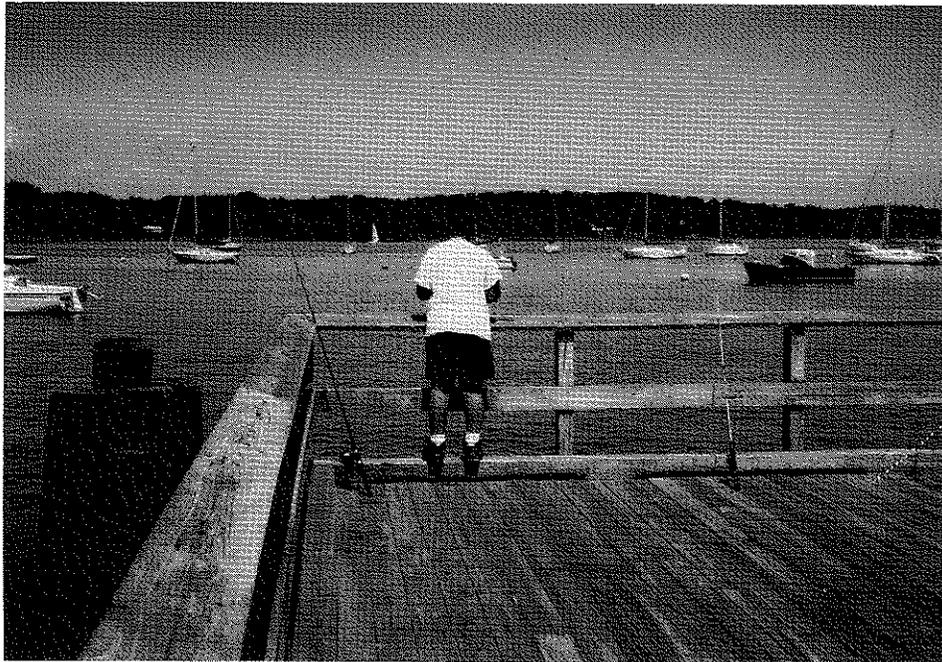


LOCATION - Activity centers should be established along the Trail by either the private or public sector, or through a cooperative effort of both. In areas privately owned, development of the activity centers should be required and submitted as part of any site development application.

The centers should be adjacent to the water, and designed to provide the trail user with an unobstructed view and with unimpeded physical access to the water.

Major Activity Centers should be located on or adjacent to the Baywalk and Bay Bikeway, at the endpoints of each trail segment. Recommended locations are shown on the Design Scheme.

Minor Activity Centers should be located at key points of interest such as marinas, existing parks, wide beaches, and street ends, and have proximity to the Trail. Where they are not directly adjacent to the Trail, Minor Activity Centers should be linked through connecting pathways.





ACTIVITY CENTERS

APPURTENANCES - Major Activity Centers should include:

- ◇ Parking
- ◇ Rest Rooms
- ◇ Shelters
- ◇ Viewing Platforms
- ◇ Access Ramps and Landings
- ◇ Picnic Facilities
- ◇ Bicycle Parking
- ◇ Recreational Accessories

Minor Activity Centers should include:

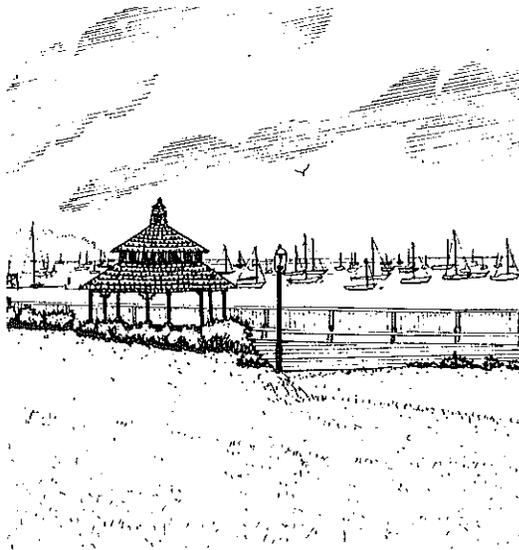
- ◇ Seating
- ◇ Tot Lots\Playgrounds
- ◇ Small-boat Access
- ◇ Bicycle Parking
- ◇ Parking (optional)

Parking - Major Activity Centers should provide public parking for trail users. Except in remote areas, Minor Activity Centers should have access to parking, either on-street parking spaces, or a few off-street stalls. The actual number of stalls would depend on the scope of the activity center and any local requirements.

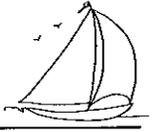
Sharing parking with adjacent uses is recommended wherever possible. Parking spaces should be designed and reserved for handicapped parking use, as required by the Barrier Free Design Act and ADA. Handicap reserved parking should be clearly marked with appropriate signage and located adjacent to public access entry points. A well-identified, signed, barrier free route of pedestrian travel should be provided between seating and parking areas.

In urban and village areas, parking spaces should be paved, however, in natural areas, parking spaces may be gravel or crushed stone. The pitch of the parking area should be away from any environmentally sensitive areas.

The parking lot should be visually screened from the Trail and activity center facilities. Separator walls, fences, berms or vegetation could provide effective screening, however, the screening should not intrude on the natural landscape.



ACTIVITY CENTERS



Rest Rooms - Public rest room facilities should be provided at all Major Activity Centers. Drinking fountains should also be available.

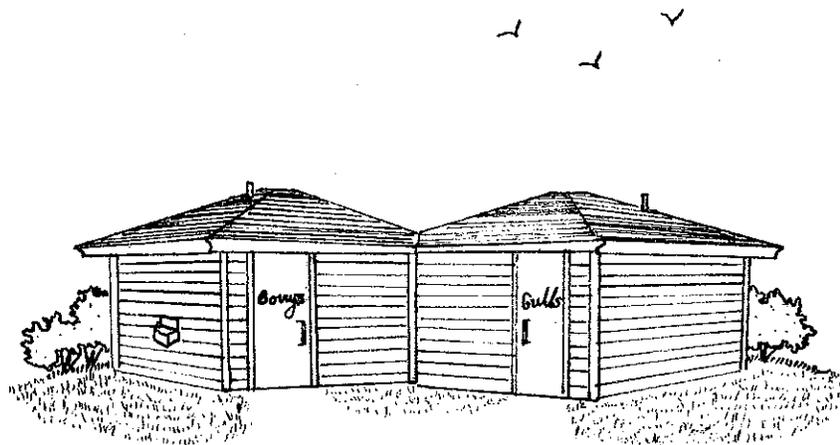
Rest rooms should meet handicapped access code requirements and should be of high quality construction, meeting BOCA and local building code specifications. They should also be designed to require only a minimal amount of maintenance. One-story, low-profile buildings are recommended when new construction is proposed. The buildings should be landscaped.

For new buildings, the use of natural light and ventilation is encouraged. The rest rooms should be well-lit and well ventilated. Skylights and solar-powered ventilation systems should be considered.

In urban areas, rest room design should reflect the character of the surrounding development. Appropriate facades might be masonry, stone or wood. Roofing should complement the facade.

In village areas, rest rooms should reflect the predominate character of the surrounding area. Building facade and roof design should be compatible and blend into the neighborhood.

In natural areas, the outside facade and roofing should blend into the natural surroundings. Recommended facade materials include natural wood or light colored masonry block (eg., light brown, sand, or tan). Appropriate roofing materials include natural cedar shingles.





ACTIVITY CENTERS

Shelters - Shelters provide protection from the weather elements and a rest stop for trail users. All Major Activity Centers should have some form of shelter. Shelters are also recommended for Minor Activity Centers.

Shelters could be open-air, roofed-over structures with hard-paved surfacing underneath. Gazebos are an example of a type of shelter. If lighting is desired, see the recommendations for *Lighting* on page 24.

The size of shelters should vary depending on the anticipated need. Shelters within Major Activity Centers in urban and village landscapes should be a minimum of 400 square feet. Support columns may be wood, decorative masonry or stone, and anchored with concrete footings. The shelters should be adjacent to or include seating areas, and their pavement should complement the paving around the seating area.

In Major Activity Centers and Minor Activity Centers within the natural landscape, shelters should be a minimum of 144 square feet. Support columns may be wood and supported with concrete footings.

Loop Trails - Off-trail points of interest and natural areas can be linked to the Trail through the use of loop trails. For detailed information see *Loop Trails*, page 40.



ACTIVITY CENTERS

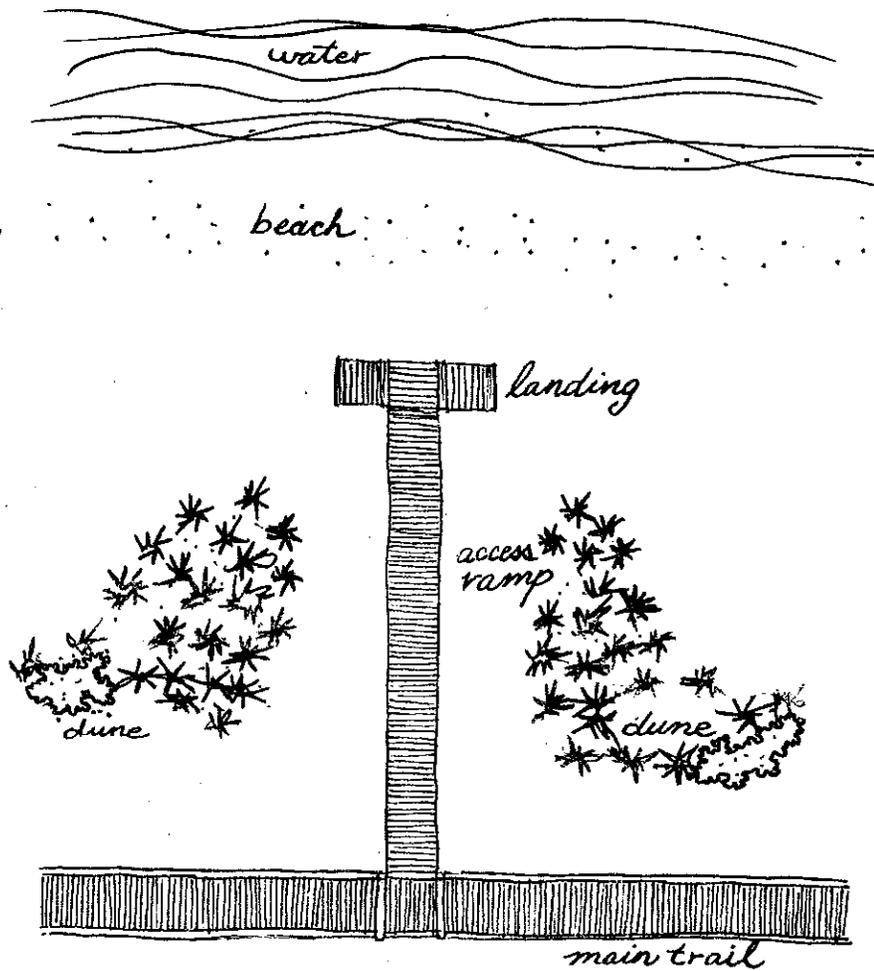




ACTIVITY CENTERS

Viewing Platforms - Raised viewing platforms, or observation decks, provide the opportunity to see the water when the natural view might be blocked by low obstructions, such as dunes and seawalls. The platforms and their accessways should be barrier free for the physically challenged.

Access Ramps and Landings - Barrier free physical access to the water's edge or beach should be provided whenever feasible. This can be accomplished through the construction of access ramps which lead from the main trail, over the sand to a point near the water's edge, providing a hard surface on the beach for the physically challenged. A landing at the ramp end would provide a location which is outside the flow of ramp travel (see illustration).

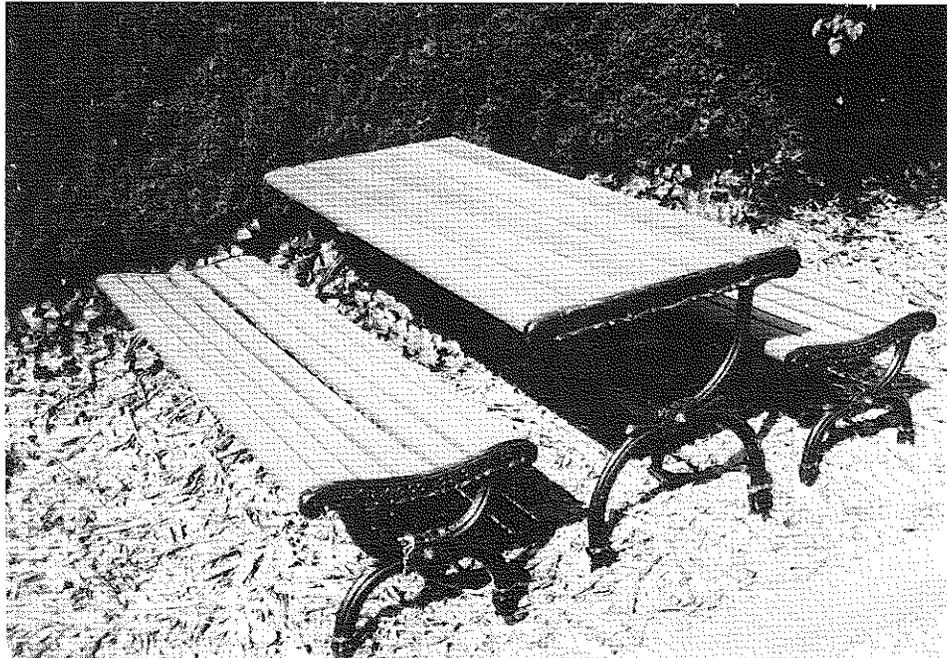


ACTIVITY CENTERS



Picnic Facilities - Activity center design should consider picnic facilities. Tables should have the capacity to seat at least four people. Tables should be securely anchored.

The style and materials used in table construction should be compatible with the overall center theme and other furnishings.





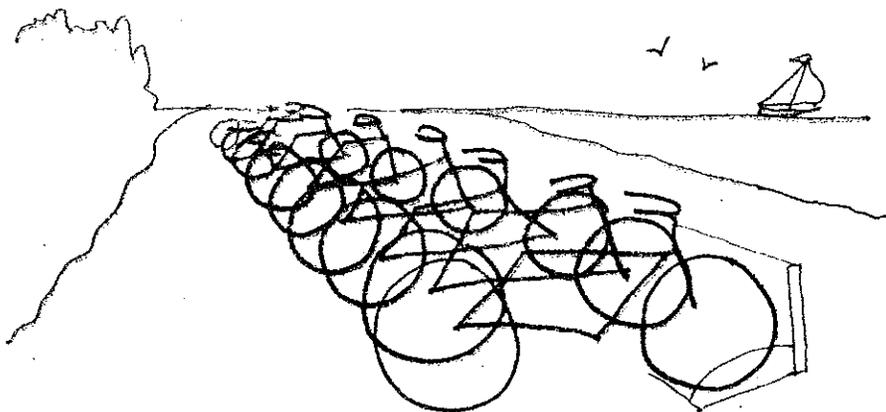
ACTIVITY CENTERS

Bicycle Parking - Bicycle parking areas should be conveniently located within 50 feet of the main entrance to Major Activity Centers and near seating areas. Except in remote areas, the entrances to Minor Activity Centers should be equipped with bicycle parking. Bicycle parking areas should not be within pedestrian pathways.

A secure rack should be provided which will allow both the frame and one bicycle wheel to be anchored and secured. Free standing bicycle racks could be securely anchored into concrete footings. A minimum of two feet should be allotted for each bicycle parking space.

Metal bicycle racks should have a rust resistant finish. For color recommendations see *Color*, page 37.

Acceptable materials for urban and village area bicycle racks include wood, concrete, steel or combinations of these materials. Care should be taken in natural areas to assure that the style of the racks is compatible to the natural environment.



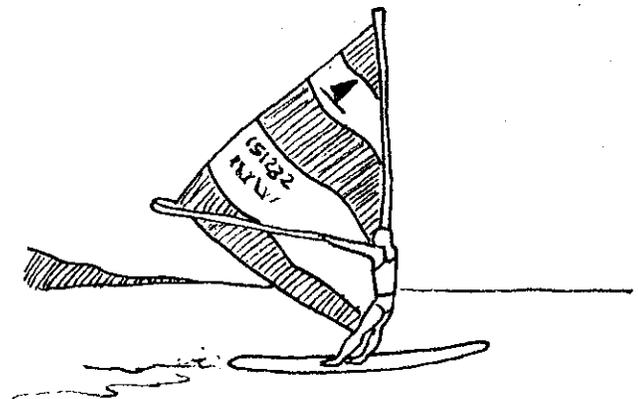
ACTIVITY CENTERS



center. The accessories should also be suitable for location at the specific center. For example, locations recommended for small-boat access are: Happy Meadows, Conaskonk Point, Flat Creek and Leonardo, which could easily accommodate the access. For more information about boat launches, see *Boat Access*, page 41.

In general, Major Activity Centers should provide a greater number and diversity of accessory facilities than the Minor Activity Centers.

Recreational Accessories - Recreational accessories encourage the public's use of the waterfront. Volleyball nets on the beach, playground equipment, checkerboard or backgammon tables, tot lots, fishing piers, crabbing docks, and small-boat access are examples of recreational accessories which encourage the public to utilize the waterfront. These accessories are suggested for some, but not necessarily all activity centers. The facilities proposed should be compatible to the theme and design of the particular activity





ACTIVITY CENTERS

VIEWS OF WATER - Shelter and seating areas at activity centers should be located and oriented to take full advantage of views of the water.

PLANTINGS - A planting plan should be developed and presented for review as part of the development package for each activity center. For recommendations, see *Plantings*, page 23.

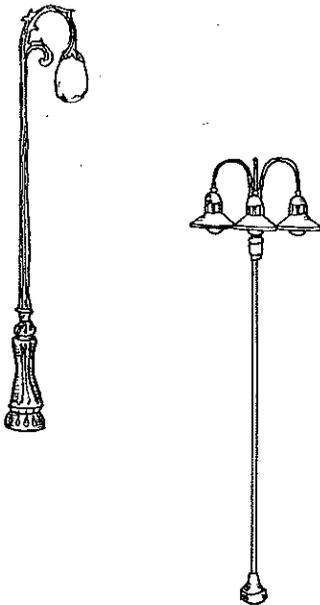
RAILINGS - Handrails should be provided as per the recommendations for the Baywalk, see *Railings*, page 24.

LIGHTING - Where activity centers are proposed for illumination, lighting should also be installed in the associated parking areas, seating areas, and connecting walkways. For additional recommendations see *Lighting*, page 24.

SEATING - Seating areas should be located and oriented to take full advantage of views of the water. In Major Activity Centers, seating should be adjacent to or within shelter buildings and in close proximity to the rest rooms and parking (eg., within 50 feet).

Seating should be placed adjacent to the Baywalk, Bay Bikeway, or any other pathway, but not within the path surface. Barrier free walkways connecting seating areas to adjacent parking areas are recommended.

Seating should be secured to a hard-paved or wood plank surface, or anchored into the ground. At least some of the seating should be on a paved surface for barrier free access. Some of the seating should have backs. Benches can be placed at right angles or facing each other to promote conversational groups. For additional recommendations, see *Seating*, page 26.



ACTIVITY CENTERS



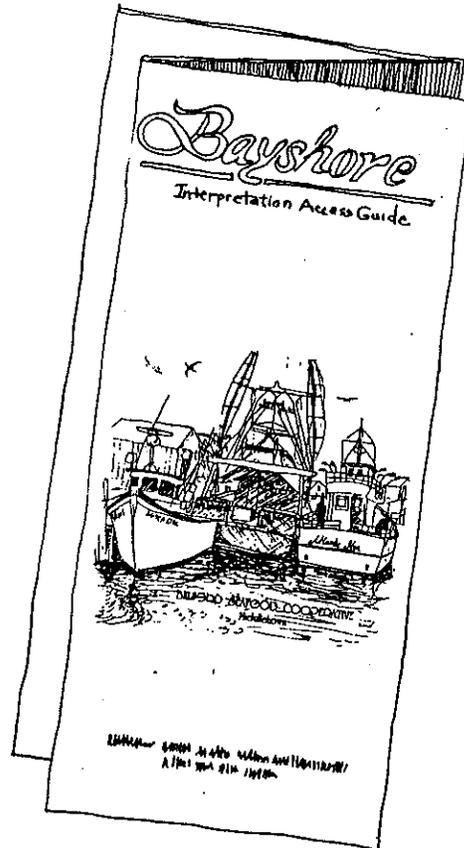


ACTIVITY CENTERS

SIGNAGE - Signs identifying the activity centers should be in keeping with the theme and design of the center. Signs for centers located within the natural landscape could be sand blasted or routed wood signs. For additional recommendations, see *Signage*, page 28.

Signs indicating distances to nearby points of interest are recommended for installation at Activity Centers. Examples might include the distance to downtown business districts, the next Activity Center, and natural areas.

INTERPRETIVE DISPLAYS - Activity Centers provide ideal locations for cultural, historical, and environmental interpretation. Planned walking tours, outdoor exhibits, kiosks with brochures about local points of interest, and interpretive signs, can educate the public about their surroundings (see *Interpretive Displays*, page 32). The use of interactive media, such as guided tours and slide shows might be appropriate, at least seasonally, for Major Activity Centers. Audio taped tours could also be available.



ACTIVITY CENTERS



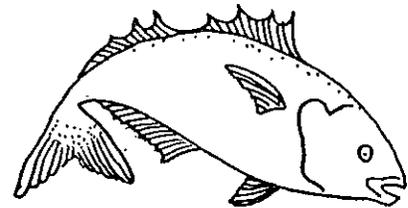
LITTER CONTROL RECEPTACLES - Litter control receptacles should be located:

- ◇ At the parking areas
- ◇ At the shelter building
- ◇ Outside the rest room building
- ◇ At each seating area
- ◇ Within activity centers
- ◇ At activity center entrances.

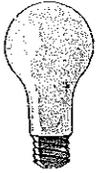
For additional recommendations, see *Litter Control Receptacles*, page 36.

COLOR - Colors of site furnishings should be consistent with the recommendations for the Baywalk (see *Color*, page 37).

TRANSITION ZONES - For transition zone recommendations, see *Transition Zones*, page 38.



MAINTENANCE & SECURITY



MAINTENANCE AND SECURITY

Use and enjoyment of the Bayshore Trail System will depend heavily on the degree of maintenance which is performed. Preventive maintenance will protect the capital invested in the construction of the facilities. Periodic inspection and timely maintenance will insure this.

MAINTENANCE - The list of general guidelines which follows is meant to be a reasonable minimum for inspection and general maintenance along the Bayshore Trail System.

i. All components and elements of the Trail should be inspected a minimum of once a week and all litter and trash should be removed. Any damage should be noted and repaired within one week of being reported. It is recommended that trash be collected at least three times per week between Memorial Day and Labor Day of each year, due to the anticipation of heavier seasonal usage.

ii. Bikeways should be inspected at least once a week and kept free of sand, dirt, gravel, broken glass, and other hazards that would hinder safe and enjoyable bicycle use.

iii. Signage and other structures should undergo a major inspection at least once a year after Labor Day, and preferably once before Memorial Day as well, to determine the need for routine maintenance work such as repainting or replacement of components. Quarterly inspection of signage is also recommended.

iv. Plant materials should be inspected each year to determine their relative vitality and should be treated or replaced as required.

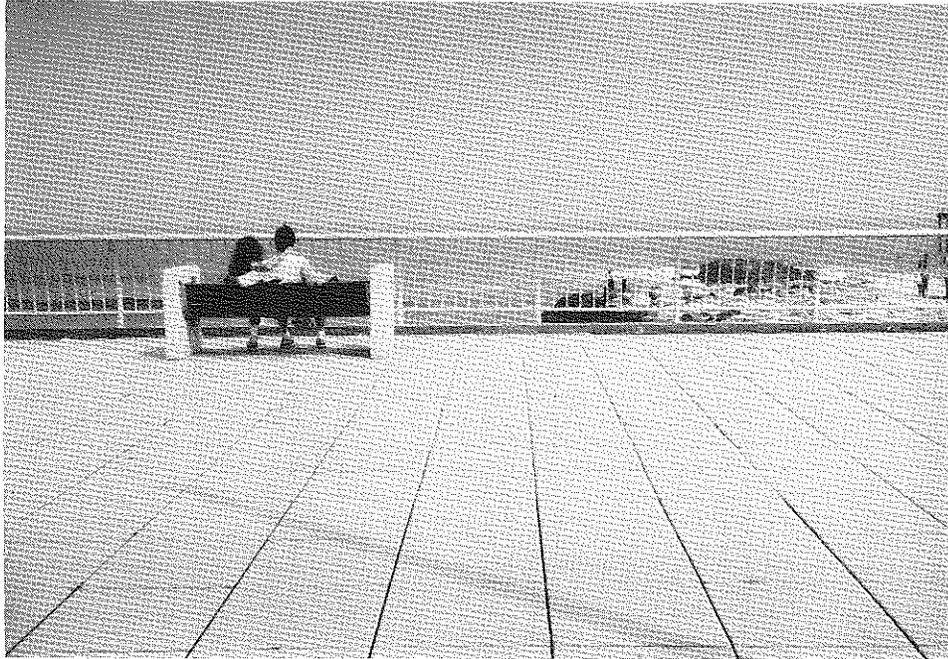
v. Public rest rooms should be inspected, and cleaned each day.

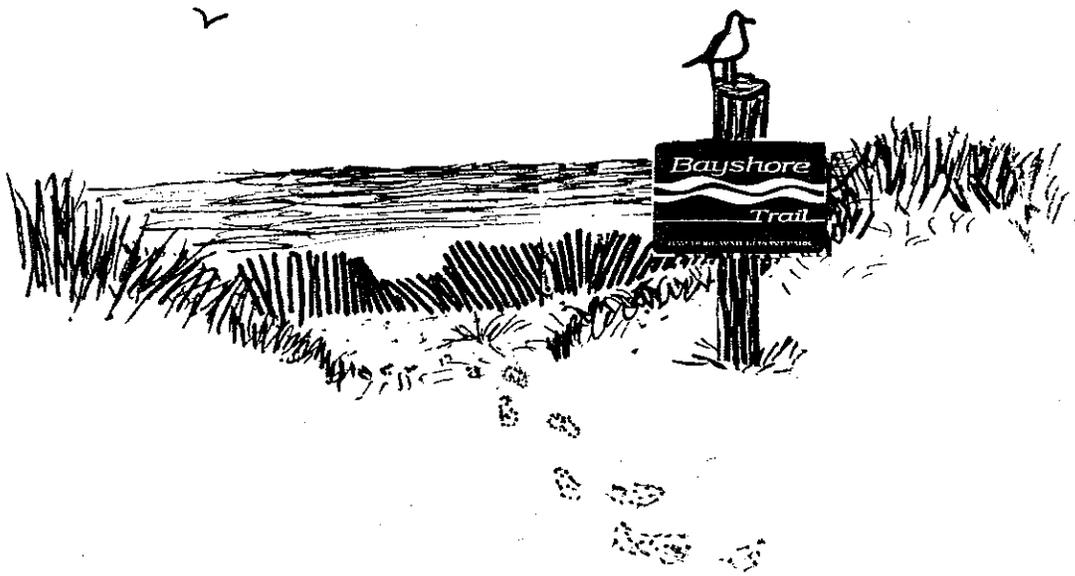
vi. Every attempt should be made to repair and/or replace any damaged Trail sections or elements. Volunteers can be used for maintenance through organized clean-ups. Volunteers may be available from community groups (e.g., scouts) or special interest groups (e.g., hiking clubs).

A maintenance plan should be developed for each of the components of the Bayshore Trail System. Included in the plan should be an estimated yearly budget for maintenance and funding to ensure property maintenance.

SECURITY - When a regional trail is proposed, often the municipal officials and nearby property owners are concerned about crime and reduced property values. A study prepared after the construction and operation of a similar trail, the Burke-Gilman Trail in Washington, found that, in general, incidence of crime did not increase, and in fact went down along certain trail segments. The trail attracted families, joggers, serious walkers, and bicyclists, and because of the presence of the recreational users, the trail was not isolated and did not attract loiterers and criminals. The study also found that property values in the area around the trail actually increased by approximately 6 percent. Maintenance was a factor in these positive impacts. A well maintained trail was found to be an asset to the community.

MAINTENANCE & SECURITY





FOOD FOR THOUGHT

FORMATION OF A DESIGN ADVISORY COMMITTEE

Each Bayshore municipality should consider the formation of an advisory committee which includes design professionals, to further develop and refine the Bayshore Trail System in their own town.

FORMATION OF A MECHANISM FOR REVIEW

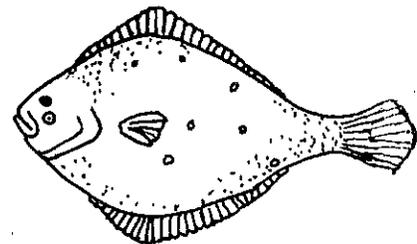
A mechanism for review should be set up so that the staff of the Monmouth County Planning Board and the Monmouth County Park System can be made aware of plans for any development contiguous to the Bayshore Trail System. Comments should be forwarded to the Department of Environmental Protection and Energy regarding any permit actions which have proximity to the Trail. Local municipal planning boards should inform the County of any such known development plans.

FORMATION OF A FOUNDATION OR LAND CONSERVANCY

Formation of a Foundation or Land Conservancy is suggested to elicit support for the Trail and to provide for a cohesive plan of action and identify funding sources towards the Trail's completion along the entire Bayshore.

SPECIAL PROMOTIONS

Special event fund-raising for trail-building projects can include promotions with local businesses to create a win-win situation. An example is to work with area businesses on promotions that devote a percentage of the sales revenue to the development of the Trail.



APPENDICES

APPENDIX A RULES ON COASTAL ZONE MANAGEMENT

NJDEPE REQUIREMENTS FOR "PUBLIC ACCESS TO THE WATERFRONT," as per Rules on Coastal Zone Management, N.J.A.C. Chapter 7E, August 20, 1990, NJDEPE, Division of Coastal Resources, handbook page 204, are as follows:

- "1. All development adjacent to water shall, to the maximum extent practicable, provide, within its site boundary, a linear waterfront strip accessible to the public. If there is a linear waterfront accessway on either side of the site and the continuation of which is not feasible within the boundaries of the site, a pathway around the site connecting to the adjacent parts, or potential parts of the waterfront path system in adjacent parcels shall be provided.
2. Municipalities that do not currently provide, or have active plans to provide, access to the water will not be eligible for Green Acres or Shore Protection Bond funding.
3. Public access must be clearly marked, provide parking where appropriate, be designed to encourage the public to take advantage of the waterfront setting, and must be barrier free.
4. A fee for access including parking where appropriate, to or use of publicly owned waterfront facilities must be set no greater than that which is required to operate and maintain the facility and must not discriminate between residents and non-residents except that municipalities may set a fee schedule that charges up to twice as much to non-residents for use of marinas and boat launching facilities for which local funds provided 50 percent or more of the costs.
5. All establishments, including marinas and beach clubs, which control access to tidal waters shall comply with the Law Against Discriminating, N.J.S.A. 10:5-1 et seq.
6. Public access, including parking where appropriate, must be provided to publicly-funded shore protection structures and to waterfronts created by public projects unless such access would create a safety hazard to the user. Physical barriers or local regulations which unreasonably interfere with access to, along or across a structure are prohibited.
7. (refers to Hudson River Waterfront Special Area only)

8. Development along Raritan Bay within Monmouth County shall be consistent with the Bayshore Waterfront Access Plan (Monmouth County Planning Board and the Trust for Public Land for NJDEP, 1987).
9. Development elsewhere in the Coastal Zone shall conform with any adopted municipal, county or regional waterfront access plan, provided the plan is consistent with the Rules on Coastal Zone Management.
10. The Department may require some or all of the public access portion of a site to be dedicated for public use through measures such as conservation easements.
11. Development adjacent to coastal waters shall provide fishing access within the provision of public access wherever feasible and warranted.
12. Development adjacent to coastal waters shall provide barrier free access within the provisions of public access wherever feasible and warranted by the characteristics of the access area."

APPENDIX B

PERMITS AND COMPLIANCE

This manual and its recommendations have been reviewed by NJDEPE. Most of the recommended Trail development is not expected to require state permits. However, permits might be necessary for the following design options:

- i. Bridges for either pedestrians or vehicles, which are installed or constructed as part of the Trail System, may require NJDEPE Waterfront Development and/or NJDEPE Stream Encroachment permits.
- ii. Development which disturbs more than 5000 square feet of land may require a Soil Erosion and Sediment Control Plan Certification from the New Jersey Department of Agriculture. Contact the Freehold Soil Conservation District office for more information.
- iii. Construction proposed in or near wetlands might require permits or waivers from NJDEPE. To determine if wetlands permits are necessary, contact the NJDEPE Land Use Regulatory Element, Monmouth Region, in Trenton.
- iv. The recommendations in this manual are recreational in nature, however, any non-recreational development proposed on lands purchased or developed with NJDEPE Green Acres and Recreational Opportunities Program funding may require Green Acres Program Review. Contact the NJDEPE Green Acres Program office for further information.
- v. Trail components should comply with the Americans with Disabilities Act (ADA). The New Jersey Department of Labor has a short video available. For more information, contact the NJDOL Office of Communications. Additional information is available from the County ADA Coordinator within the Monmouth County Department of Human Services, Office of the Handicapped.

Contact the appropriate regulatory agency for applications and further details. Additional permits might be required by the United States Army Corps of Engineers (New York District) or the United States Coast Guard for such water oriented structures as piers.

APPENDIX C TRAIL GRADIENTS

Trail segments should be designed to slope for positive drainage, but the slope should not be excessive. An excessive slope might interfere with trail access for the disabled, bicyclists, or strollers. Designs should conform with the Barrier Free Design Act, the Americans with Disabilities Act (ADA), and the BOCA Code, as applicable.

Cross Slope of the Path

- i. For purposes of this manual, the "cross slope of the path" is defined as the gradient across the path width.
- ii. The minimum cross slope of the surfacing or pavement should be two percent (2%).
- iii. The maximum cross slope of the surfacing or pavement should be three percent (3%).
- iv. Where the natural grade is relatively level, the path may be crowned.

Slope of the Path

- v. For purposes of this manual, the slope, or pitch of the path is defined as the gradient along the path length.
- vi. Grades along the walkway should not exceed five percent (5%) except where there is no other feasible alternative and then the pitch should not exceed eight percent (8%), in accordance with the Barrier Free Design Guidelines.

Steps and Ramps

- vii. Where steps are to be included in the design, access ramps should also be provided.
- viii. Steps should have a maximum riser height of six inches and a minimum tread width of 12 inches.

APPENDIX D REQUIREMENTS FOR DOCKS AND PIERS

NJDEPE REQUIREMENTS FOR "DOCKS AND PIERS," as per Rules on Coastal Zone Management, Chapter 7E New Jersey Administrative Code (N.J.A.C.), August 20, 1990, NJDEPE, Division of Coastal Resources, handbook page 107, are as follows:

- "v. Space between horizontal planking is maximized and width of horizontal planking is minimized to the maximum extent practicable. *(Use narrow planks)*
Under normal circumstances, a minimum of 3/8", 1/2", 3/4", or 1" space is to be provided for 4", 6", 8-10", or 12" + wide planks, respectively;
- vi. The width of the structure should not exceed twice the clearance between the structure and the surface of the ground below or the water surface at mean high tide (measured from bottom of stringers, except for floating docks). *(width = w)*
(clearance = c)
 $w \leq 2c$
Under typical circumstances the maximum width of the structure should be 8 feet over water and 6 feet over marsh, wetlands and mudflats. *For water:*
 $w \leq 8'$
The height of the structure over wetlands should be a minimum of 4 feet regardless of width." *For wetlands:*
 $w \leq 6'$ and $c \geq 4'$

APPENDIX E LIGHTING

Where lighting is desired, low levels of illumination are encouraged. Where lighting is provided for safety concerns (eg., at steps), higher intensities may be necessary. Under those situations, the average illumination levels should be a minimum one half (0.5) foot candle at ground level. The average uniformity ratio should be no greater than four to one within a paved area (eg., parking lots and plazas).

APPENDIX F SEATING

The following dimensions may be used as guidelines for custom designed seating:

- i. The minimum seat width should be 14 inches from front to back.
- ii. The minimum back height should be 12 inches.
- iii. The angle of the back should be 8 to 12 degrees from vertical.
- iv. The angle of the seat from front to back should be a minimum of zero degrees and a maximum of ten degrees from the horizontal.
- v. Dimensions of seat walls:
 - a. The maximum height should be 36 inches.
 - b. The minimum height should be 15 inches.

APPENDIX G
LANE ADJUSTMENT DISTANCES FOR BIKE LANES

Boundary Condition	Additional Lane Width Required
Continuous lateral obstruction (walls, fences)	Add + 12.0 inches
Curb/Gutter	Add + 12.0 inches
Parked vehicle	Add + 14.5 inches
Intermittent lateral obstruction (poles, trees)	Add + 18.0 inches

APPENDIX H GLOSSARY

The following definitions are provided relative to word use in this manual:

"BARRIER FREE" refers to unobstructed passage for the physically challenged. Barrier free design should be in accordance with the Barrier Free Design Act (N.J.A.C. 17:19A) and the Federal Americans with Disabilities Act (ADA). Examples of barrier free design include the provisions of access ramps, and sizing the width of pedestrian paths to accommodate wheelchairs.

A "BIKEWAY" is any road, path, or travel-way which in some manner is specifically designated as being open to bicycle travel regardless of whether such facilities are designated for the exclusive use of bicycles or are to be shared with other transportation uses. This manual refers to three forms of bikeways.

- i. **Bike Path:** A bike path is a physically separated, off-road bikeway designated for the exclusive use of bicycles. It may be within a road right-of-way or an independent right-of-way. Cross-flows by pedestrians and motorists are minimized.
- ii. **Bike Lane:** A bike lane is part of a road. It is a restricted travel lane within a road right-of-way designated for the exclusive use of bicycles. Travel by motor vehicles or pedestrians is not allowed. Cross-flows by motorists (eg., to gain access to driveways or parking facilities) is allowed.
- iii. **Bike Route:** A bike route uses a road and is designated by signs placed on vertical posts or stenciled on the pavement. It shares the right-of-way and pavement of a road, without the benefit of a restricted travel lane. Any bikeway which shares its through-traffic right-of-way with moving motor vehicles is considered a bike route.

A "BULKHEAD" is a vertical retaining structure constructed to prevent soil from moving into a water area.

A "TRAIL" is a linear corridor on land with protected status which provides public access for recreation or transportation.

"TRAIL RIGHT-OF-WAY" refers to the strip or area of land, including surface, overhead or underground space, which is granted by deed or easement for the purpose of public access and the construction and maintenance of linear elements, such as the Baywalk and Bay Bikeway.

The term "WALKWAY" refers to any road, path or travel-way which is specifically designated as being open to only pedestrian travel. Use is not intended to be shared with vehicles unless specifically designated.

A "SHARED WALKWAY/BIKEWAY" is a pathway which is separated from any road rights-of-way and is designated for the exclusive use of both pedestrians and bicyclists.

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Study of the effects of an operating regional trail on adjacent properties.

U.S. Department of Transportation, A BIKEWAY CRITERIA DIGEST, Washington, D.C. 1980.
Logistics of creating a bikeway; illustrations.

U.S. Department of Transportation, ABANDONED RAILROAD RIGHTS-OF-WAY IN NEW JERSEY, Washington, D.C. 1980.

Inventory of abandoned railroad right-of-way, features of old Central Jersey Railroad right-of-way from Union Beach to Highlands; fold-old maps.

U.S. Department of Transportation, BICYCLE TRANSPORTATION, Washington, D.C., 1974.
Data oriented; bicycle as a mode of transportation.

U.S. Department of Transportation, BIKEWAYS - STATE OF THE ART, Washington, D.C., 1974.
Parameters of bikeways, Photos and illustrations.

U.S. Department of Transportation, SAFETY AND LOCATIONAL CRITERIA FOR BICYCLE FACILITIES, Washington, D.C. 1976.

Descriptive design discussions, illustrations, charts and photos.

MONMOUTH COUNTY PLANNING BOARD

RESOLUTION ADOPTING THE BAYSHORE TRAIL SYSTEM DESIGN MANUAL AS A COMPONENT OF THE MONMOUTH COUNTY BAYSHORE WATERFRONT ACCESS PLAN, AN ELEMENT OF THE MONMOUTH COUNTY GROWTH MANAGEMENT GUIDE

Mr. Paul Kiernan offered the following Resolution and moved its adoption:

WHEREAS, the Monmouth County Planning Board adopted the Monmouth County Growth Management Guide in October 1982 as the official County master plan pursuant to NJSA 40:27-2 and adopted the Bayshore Waterfront Access Plan in December 1987 pursuant to NJSA 40:27-2; and

WHEREAS, the Monmouth County Planning Board has prepared the Bayshore Trail System Design Manual to provide design guidelines and standards by which to build the Bayshore Trail System along Monmouth County's Bayshore waterfront, an area which has been the focus of considerable redevelopment interest; and

WHEREAS, in accordance with NJSA 40:27-4, a public hearing was held on 19 April 1993 on the Bayshore Trail System Design Manual following the publication of an official notice in one newspaper of general circulation, the Asbury Park Press, and the transmittal of the Manual and notice 20 days prior to the hearing to the Mayor and Council and planning boards of each municipality in the County and to the county planning boards of adjoining counties; and

WHEREAS, consideration was given to the public comments received at the public hearing;

NOW THEREFORE, BE IT RESOLVED that the Monmouth County Planning Board hereby adopts the Bayshore Trail System Design Manual as a component of the Monmouth County Bayshore Waterfront Access Plan, which is an element of the Monmouth County Growth Management Guide; and

BE IT FURTHER RESOLVED that an attested copy of the Bayshore Trail System Design Manual be sent to the Monmouth County Board of Chosen Freeholders, Monmouth County Board of Recreation Commissioners, the governing body and planning board of each municipality in the County and to the county planning boards of neighboring counties.

Seconded by Mr. William Warters and passed upon the following vote:

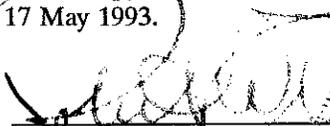
In the affirmative: Chairman Joseph Rettagliata, Paul Kiernan, William Warters, David Segal, Mary Burne, George Illmensee and Freeholder Carmen Stoppiello.

In the negative: None.

Absent: Vice Chairman Frederick Storz, Theodore Giannechini and Freeholder Director Harry Larrison.

I do hereby certify that the foregoing is a true copy of the Resolution adopted by the Monmouth County Planning Board at a meeting on 17 May 1993.


Jodi Leitstein
SECRETARY OF THE BOARD


Robert W. Clark P.P.
DIRECTOR OF COUNTY PLANNING
Professional Planners License #1561



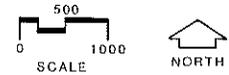
DISCLAIMER

The preparation of this report has been financed by a coastal development grant from the Division of Coastal Resources at the New Jersey Department of Environmental Protection and Energy. This document is disseminated in the interest of information exchange. The United States government, the State of New Jersey and the County of Monmouth assume no liability for its contents or use therefore.

BAYSHORE TRAIL SYSTEM DESIGN SCHEME

PREPARED BY
MONMOUTH COUNTY PLANNING BOARD

DATE: MAY 1993
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OPPORTUNITY: USE THE TOP OF THE HALF-MILE LONG SEAWALL FOR THE TRAIL LOCATION

MINOR ACTIVITY CENTER: WOODLAND DRIVE PROVIDES VISUAL ACCESS TO THE BAYFRONT. A RECREATION AREA COULD BE DEVELOPED HERE.

MAJOR ACTIVITY CENTER: EXPAND EXISTING PARK FACILITIES TO BLEND ACTIVE RECREATION WITH PASSIVE OBSERVATION OF THE NATURAL ENVIRONMENT.

RARITAN BAY

OPPORTUNITY: BOARDWALK CONSTRUCTION ALONG THE EDGE OF THE MARSH WOULD ENCOURAGE TRAIL USERS TO TAKE ADVANTAGE OF THE NATURAL SURROUNDINGS.

MAJOR ACTIVITY CENTER: THE URBAN WATERFRONT PROVIDES A FOCAL POINT FOR TRAIL ACTIVITIES. INCORPORATE BOARDWALK AND BIKEWAY INTO SCHEME.

Conasconk Point

ABERDEEN

MINOR ACTIVITY CENTER: EXPAND EXISTING PARK FACILITIES.

MAJOR ACTIVITY CENTER: HIGH GROUND ADJACENT TO THE BAY PROVIDES AN EXCELLENT VIEW OF THE KEYPORT HARBOR.

KEYPORT

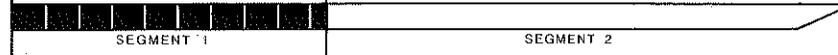
CONNECTING PATHWAY: PROVIDE A CONNECTION BETWEEN HENRY HUDSON TRAIL AND MAJOR ACTIVITY CENTER.

NOTE: EXISTING BRIDGES ARE NARROW. RECOMMEND SIGNS DIRECTING BICYCLISTS TO USE SIDEWALK. INCORPORATE BIKEWAY WHEN BRIDGES ARE REBUILT OR REPLACED.

LEGEND

TRAIL COMPONENTS:	POINTS OF INTEREST:	TRAIL LANDSCAPES:	MILE MARKERS:
BAY BIKEWAY	MAJOR ACTIVITY CENTER	URBAN	BAY BIKEWAY
BAYWALK	MINOR ACTIVITY CENTER	VILLAGE	BAYWALK
HENRY HUDSON TRAIL		NATURAL	

CLIFFWOOD BEACH HAPPY MEADOWS & KEYPORT



RARITAN BAY

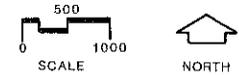
BAYSHORE TRAIL SYSTEM DESIGN SCHEME

PREPARED BY

MONMOUTH COUNTY PLANNING BOARD

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LOOP TRAIL: PROVIDE LOOP/CONNECTION BETWEEN BAYWALK AND MAJOR ACTIVITY CENTER.

MAJOR ACTIVITY CENTER: DEVELOP THE CENTER USING A NAUTICAL THEME TO EXPAND ON CURRENT WATERFRONT USES AND TIE INTO EXISTING 1800' PUBLIC WALKWAY. ENCOURAGE ADJACENT BUSINESSES TO ADOPT THE NAUTICAL THEME THROUGH COMPATIBLE COLOR SCHEMES AND SIGN STYLES.

MINOR ACTIVITY CENTER: MARINA EXPANSION AND OVERLOOK AREAS. PROVIDE LOCATION FOR A CENTER. INVESTIGATE USING THE FLOOD GATE TO CROSS THE CREEK.

MAJOR ACTIVITY CENTER: USE UPLAND ADJACENT TO STREET ENDS FOR CORE FACILITIES AND PROVIDE LOOP TRAILS THROUGH THE WETLANDS.

MINOR ACTIVITY CENTER: USE EAST CREEK FOR SMALL BOAT ACCESS. DEVELOP INTERPRETIVE DISPLAY AT THE EDGE OF THE INTERTIDAL ZONE.

MAJOR ACTIVITY CENTER: TIE NEW FACILITIES INTO EXISTING AMUSEMENT AREA.

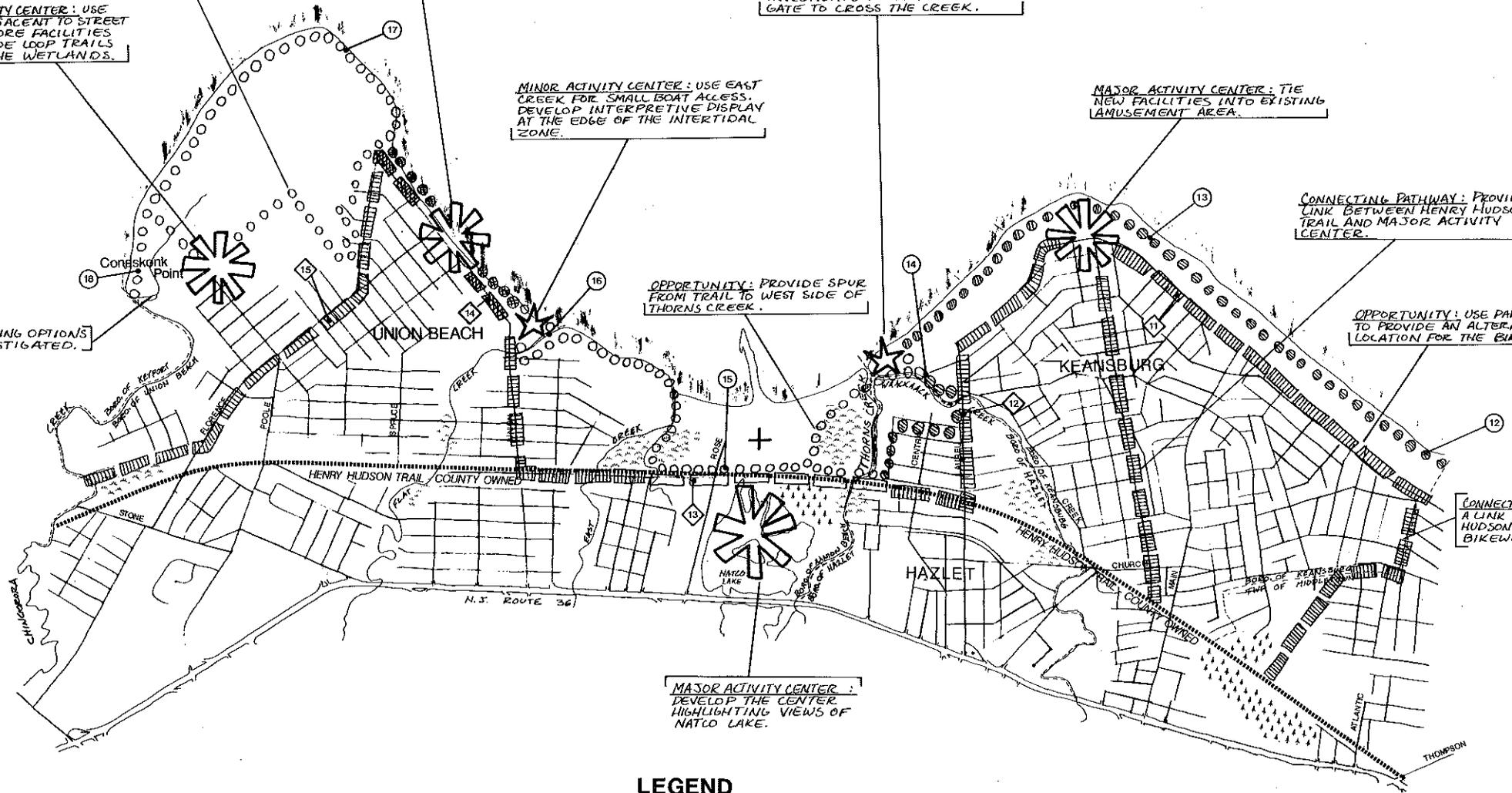
CONNECTING PATHWAY: PROVIDE LINK BETWEEN HENRY HUDSON TRAIL AND MAJOR ACTIVITY CENTER.

OPPORTUNITY: USE PAPER STREET TO PROVIDE AN ALTERNATIVE LOCATION FOR THE BIKEWAY.

OPPORTUNITY: PROVIDE SPUR FROM TRAIL TO WEST SIDE OF THORN'S CREEK.

CONNECTING PATHWAY: PROVIDE A LINK BETWEEN HENRY HUDSON TRAIL AND BAY BIKEWAY.

NOTE: CREEK CROSSING OPTIONS NEED TO BE INVESTIGATED.



LEGEND

TRAIL COMPONENTS:	POINTS OF INTEREST:	TRAIL LANDSCAPES:	MILE MARKERS:
BAY BIKEWAY	MAJOR ACTIVITY CENTER	URBAN	BAY BIKEWAY
BAYWALK	MINOR ACTIVITY CENTER	VILLAGE	BAYWALK
HENRY HUDSON TRAIL		NATURAL	



SANDY HOOK BAY

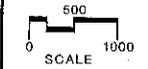
BAYSHORE TRAIL SYSTEM DESIGN SCHEME

PREPARED BY

MONMOUTH COUNTY PLANNING BOARD

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MINOR ACTIVITY CENTER: EXISTING PARK OFFERS EXPANSIVE VIEWS OF THE MANHATTAN SKYLINE.

MAJOR ACTIVITY CENTER: EXISTING MONMOUTH COVE MARINA AND BAYSHORE WATERFRONT PARK, BOTH MCPs FACILITIES, PROVIDE THE ACTIVITY CENTER FOCUS.

MINOR ACTIVITY CENTER: EXISTING SPY HOUSE MUSEUM COMPLEX PROVIDES CULTURAL, ENVIRONMENTAL AND RECREATIONAL OPPORTUNITIES.

OPPORTUNITY: PROVIDE TRAIL SPURS TO GAIN ACCESS TO THE NORTH SIDE OF COMPTON'S CREEK.

MAJOR ACTIVITY CENTER: DEVELOP THE CENTER WITH A PORT THEME TO TIE INTO EXISTING AND PLANNED MARINE ORIENTED USES.

MAJOR ACTIVITY CENTER: HIGHLIGHT FISHING AND WILDLIFE VIEWING IN THIS CENTER.

MINOR ACTIVITY CENTER: EXISTING MARINA PROVIDES THE POINT OF INTEREST.

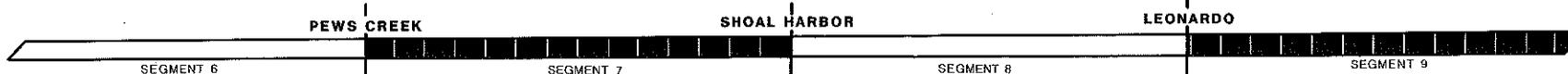
MINOR ACTIVITY CENTER: LIGHTHOUSE ON THE BEACH PROVIDES A FOCUS AND THEME FOR THIS ACTIVITY CENTER.

NOTE: USE ALTERNATE ROUTE UNTIL PEWS CREEK BRIDGE IS REPLACED.

CONNECTING PATHWAY: LOCATION OF THE TRAIL ON TOP OF THE HURRICANE DIKE ELEVATES THE VIEWER ABOVE THE EXTENSIVE TIDAL WETLANDS, AND PROVIDES A CONNECTION TO THE HENRY HUDSON TRAIL.

MINOR ACTIVITY CENTER: PONDS EXIST ON BOTH SIDES OF THE HENRY HUDSON TRAIL.

TRAIL COMPONENTS:	POINTS OF INTEREST:	TRAIL LANDSCAPES:	MILE MARKERS:
BAY BIKEWAY	MAJOR ACTIVITY CENTER	URBAN	BAY BIKEWAY
BAYWALK	MINOR ACTIVITY CENTER	VILLAGE	BAYWALK
HENRY HUDSON TRAIL		NATURAL	



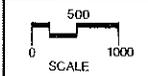
BAYSHORE TRAIL SYSTEM DESIGN SCHEME

PREPARED BY

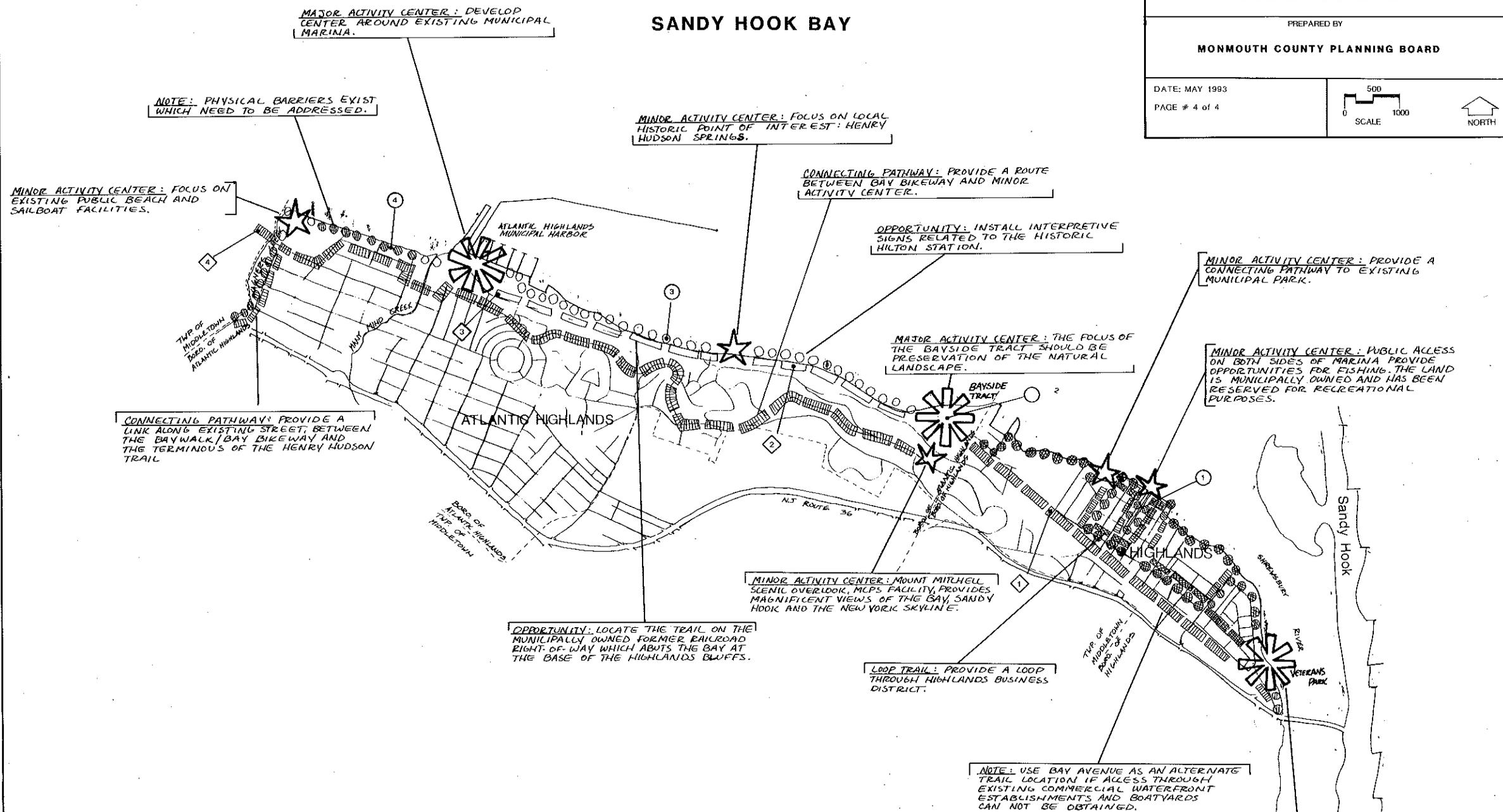
MONMOUTH COUNTY PLANNING BOARD

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SANDY HOOK BAY



MAJOR ACTIVITY CENTER: DEVELOP CENTER AROUND EXISTING MUNICIPAL MARINA.

NOTE: PHYSICAL BARRIERS EXIST WHICH NEED TO BE ADDRESSED.

MINOR ACTIVITY CENTER: FOCUS ON LOCAL HISTORIC POINT OF INTEREST: HENRY HUDSON SPRINGS.

MINOR ACTIVITY CENTER: FOCUS ON EXISTING PUBLIC BEACH AND SAILBOAT FACILITIES.

CONNECTING PATHWAY: PROVIDE A ROUTE BETWEEN BAY BIKEWAY AND MINOR ACTIVITY CENTER.

OPPORTUNITY: INSTALL INTERPRETIVE SIGNS RELATED TO THE HISTORIC HILTON STATION.

MINOR ACTIVITY CENTER: PROVIDE A CONNECTING PATHWAY TO EXISTING MUNICIPAL PARK.

CONNECTING PATHWAY: PROVIDE A LINK ALONG EXISTING STREET, BETWEEN THE BAYWALK/BAY BIKEWAY AND THE TERMINUS OF THE HENRY HUDSON TRAIL.

MAJOR ACTIVITY CENTER: THE FOCUS OF THE BAYSIDE TRACT SHOULD BE PRESERVATION OF THE NATURAL LANDSCAPE.

MINOR ACTIVITY CENTER: PUBLIC ACCESS ON BOTH SIDES OF MARINA PROVIDE OPPORTUNITIES FOR FISHING. THE LAND IS MUNICIPALLY OWNED AND HAS BEEN RESERVED FOR RECREATIONAL PURPOSES.

MINOR ACTIVITY CENTER: MOUNT MITCHELL SCENIC OVERLOOK, MOPS FACILITY, PROVIDES MAGNIFICENT VIEWS OF THE BAY, SANDY HOOK AND THE NEW YORK SKYLINE.

OPPORTUNITY: LOCATE THE TRAIL ON THE MUNICIPALLY OWNED FORMER RAILROAD RIGHT-OF-WAY WHICH ABUTS THE BAY AT THE BASE OF THE HIGHLANDS BLUFFS.

LOOP TRAIL: PROVIDE A LOOP THROUGH HIGHLANDS BUSINESS DISTRICT.

NOTE: USE BAY AVENUE AS AN ALTERNATE TRAIL LOCATION IF ACCESS THROUGH EXISTING COMMERCIAL WATERFRONT ESTABLISHMENTS AND BOATYARDS CAN NOT BE OBTAINED.

MAJOR ACTIVITY CENTER: EXPAND THE APPURTANCES OF THE EXISTING PARK, FOCUSING ON WATERFRONT ACTIVITY.

LEGEND

TRAIL COMPONENTS:	POINTS OF INTEREST:	TRAIL LANDSCAPES:	MILE MARKERS:
BAY BIKEWAY	MAJOR ACTIVITY CENTER	URBAN	BAY BIKEWAY
BAYWALK	MINOR ACTIVITY CENTER	VILLAGE	BAYWALK
HENRY HUDSON TRAIL		NATURAL	

