



Salisbury Beach Boardwalk Feasibility Study

submitted to
Town of Salisbury
5 Beach Road
Salisbury, Massachusetts

submitted by
VHB *Vanasse Hangen Brustlin, Inc.*
101 Walnut Street
Watertown, Massachusetts

December 2006

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Executive Summary

Introduction

Vanasse Hangen Brustlin, Inc. (VHB) was retained by the Town of Salisbury, Massachusetts in July, 2006 to conduct a feasibility study for a new boardwalk at the Salisbury Beach Center in Salisbury, Massachusetts. The study was conducted as part of an ongoing effort by the town to revitalize its beachfront and assess the feasibility of constructing a public boardwalk at the end of Broadway along Oceanfront South. The feasibility study was funded through a grant award from the Seaport Bond Council and administered through the Department of Conservation and Recreation (DCR).

The revitalization of the Salisbury Beach Center ("the Center") is currently underway. The recently enacted mixed-use overlay district zoning, along with a vision plan created as part of the new zoning, has led to the submission of several new mixed-use private development projects within the Center. Consistent with the vision plan, the town identified the need to create a new boardwalk which would enhance the beachfront area and reinvigorate the streetscape of the Center. The combination of public and private investment promises to be the springboard for a revitalized and economically viable beach center.

The scope of the feasibility study was to provide survey, planning, design, and environmental services to the town in conducting an initial design development study for the proposed new boardwalk. The feasibility study documents existing conditions within the study area, examines various alternative concepts for a new boardwalk, identifies a preferred boardwalk alignment that best achieves the desired goals of stakeholders, and details an overall implementation strategy including identification of likely environmental permits and approvals.

Public Participation

Working collaboratively with town officials, private landowners, other stakeholders in the town, and representatives from the Department of Environmental Protection (DEP) and Department of Conservation and Recreation (DCR), a series of meetings were held to seek input on various aspects of the boardwalk.

The planning process was guided by the participation of various community and state stakeholders. A total of four feasibility study meetings were held in Salisbury throughout the four-month project. Participants in feasibility study meetings included the following:

- Neil Harrington, Salisbury Town Manager;
- Rich Tomczyk, Massachusetts Department of Environmental Protection, Northeast Region Office;
- Michael Magnifico, Department of Conservation and Recreation;
- Ray Foucher, Department of Conservation and Recreation;
- Jerry Klima, Salisbury Board of Selectmen;
- Lisa Pearson, Salisbury Planning Department;
- Leah Hill, Salisbury Planning Department;
- Michelle Rowden, Salisbury Conservation Department;
- Wayne Capolupo, Property Owner;
- Robb Osinski, Property Owner;
- Tim Mulcahey, Property Owner;
- Brian Mulcahey, Property Owner;
- Maria Miles, Salisbury Chamber of Commerce;
- Fred Lucey, Office of State Representative Michael Costello.

Preferred Boardwalk Concept

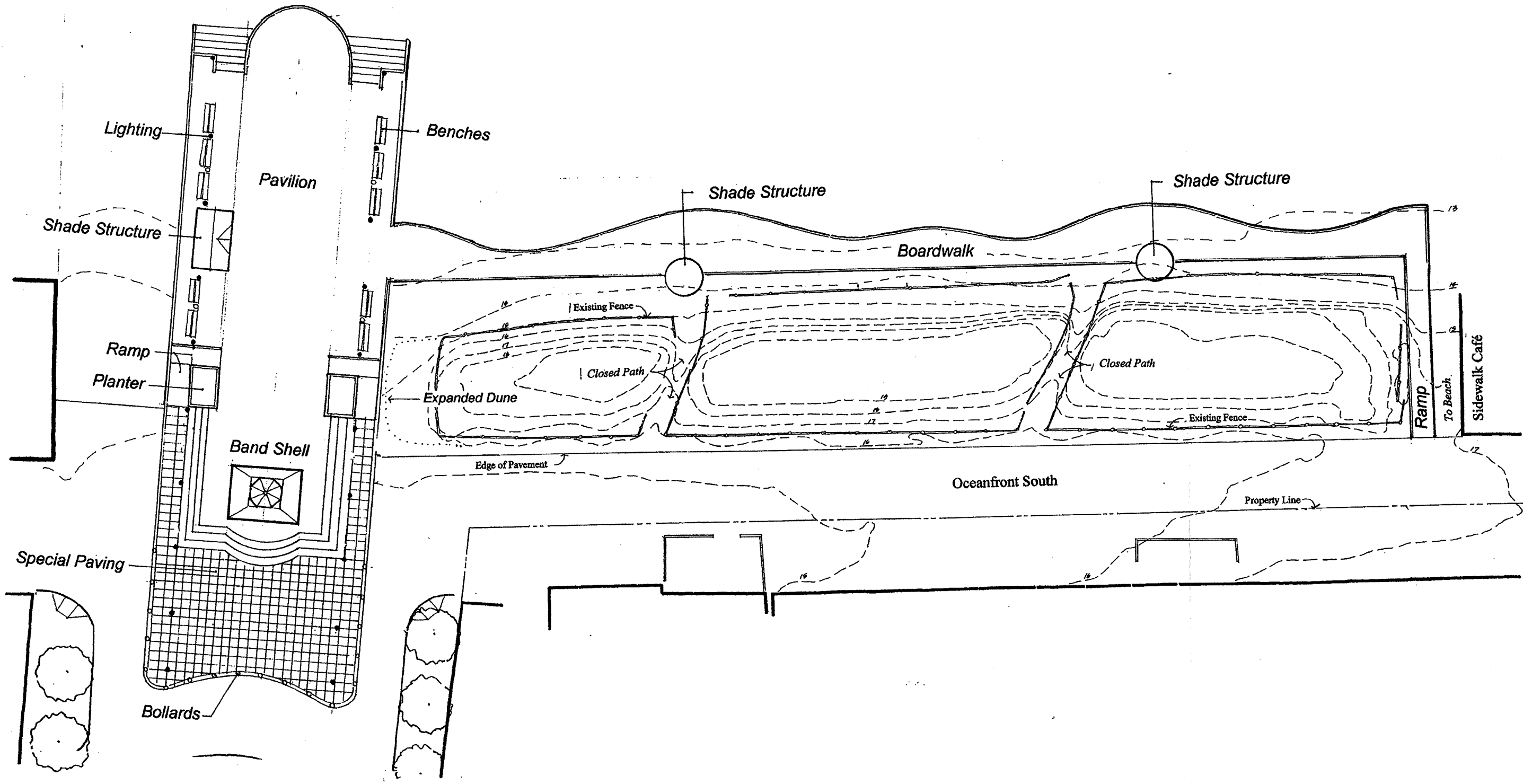
The result of this feasibility study concludes that the alignment of a new boardwalk at the Center should be located between the existing Five O'Clock Lounge site and the former Sidewalk Café site. The consensus of the committee regarding the alignment of a new boardwalk was that it be located east of the existing dune as long as the elevation of structures meet the permitting requirements needed to implement the project. The approximately 450-foot long serpentine boardwalk is conceptually designed to have varying widths of 16 to 24 feet. (see Figure 1-1)

The preferred boardwalk concept provides environmental benefits as well. Dune migration was one of the environmental factors important to the committee. Within the preferred boardwalk concept, the existing paths through the dune would be closed off to pedestrian access and allow for dune growth. In addition, due to the proposed boardwalk plaza design, the northern extent of the existing dune would have the ability to grow further north. This dune growth and future best management practices will provide additional flood protection than what is currently providing along this area.

The design of the preferred boardwalk concept enhances the beachfront experience. A new approximately 7,000 square foot plaza area is proposed at the end of Broadway loop. This plaza will transition to the raised plaza portion of the boardwalk. The proposed plaza allows for large group gatherings such as band

shows in a new band shell. Access to the boardwalk via the new plaza provides a dramatic view of the Atlantic Ocean, while maintaining public access to the beach. Beach access is provided through a northern access point and a southern access point.

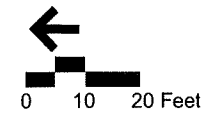
Design details such as benches, lighting, handicap access, paving, traffic circulation, and shade shelters were discussed throughout the study with the committee. In addition, integration with private development proposals nearby and impacts to adjacent development parcels were considered. The proposed boardwalk concept provides the best solution to help bridge public and private investment at the Salisbury Beach Center and enhance public access to Salisbury Beach.



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Figure 1-1
Preferred Boardwalk Concept

Salisbury Beach Boardwalk
Feasibility Study
Salisbury, Massachusetts



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Existing Conditions

Study Area

The study area is located within the Salisbury Beach Center (“the Center”) within Salisbury, Massachusetts. The study area is bounded by Salisbury Beach to the east, the existing Five O’clock Lounge site to the north, the former Sidewalk Café site to the south, and Oceanfront South and the Broadway loop to the west (see Figure 2-1). The study area is approximately 700 feet in length. The northern portion of the study area is comprised mostly of beach sand area used by visitors to the beach coming from the Center. This northern portion is heavily utilized by visitors and occasionally used as an informal parking area (see Figure 2-2). The central and southern portion of the study area are characterized as the dune area. The dune area is surrounded by a temporary sand fence and a wood post guardrail along Oceanfront South. Beach accessways are provided in two locations within the existing dune, as well as an accessway along the edge of the existing Sidewalk Café site to the south.

Mixed Use Overlay District

In 2005, Salisbury Town Meeting enacted a new mixed-use overlay zoning district to allow for mixed-use development in an effort to revitalize the Salisbury Beach Center. As part of that rezoning process, an illustrative vision plan was developed that included potential mixed-use development buildout of parcels as well as key public realm improvements. The boardwalk, described in this study, was shown in the vision plan as a key public improvement to enhance public access and reinvigorate the public’s enjoyment of Salisbury Beach. Since the 2005 Town Meeting, several development projects have undergone project review by the town utilizing the new mixed-use zoning. In addition, the Coalition for Salisbury Beach Revitalization, a private consortium comprised of landowners and stakeholders within the Salisbury Beach area, has had discussions with town representatives on creating improvements to the Broadway loop and its associated parking configuration.

Survey

A land survey of the study area was conducted in August 2006 as part of the feasibility study (see Figure 2-3 and Figure 2-4). The result of the survey effort confirmed the ownership of various parcels in and around the study area by the town, DCR and private owners. The exact ownership of Oceanfront South was not resolved as part of this study due to a myriad of land ownership deeds involved, but it was confirmed that the roadway is not publicly owned. The majority of the study area is owned by the Department of Conservation and Recreation, as well as the Town of Salisbury. The survey also located the elevation of the existing sand dune in the study area, which is located at El. 19.0. The dune elevation was an important dimension to obtain as the boardwalk design alignment process began.



 Study Area

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Figure 2-1
Existing Aerial View

Salisbury Beach Boardwalk
Feasibility Study
Salisbury, Massachusetts

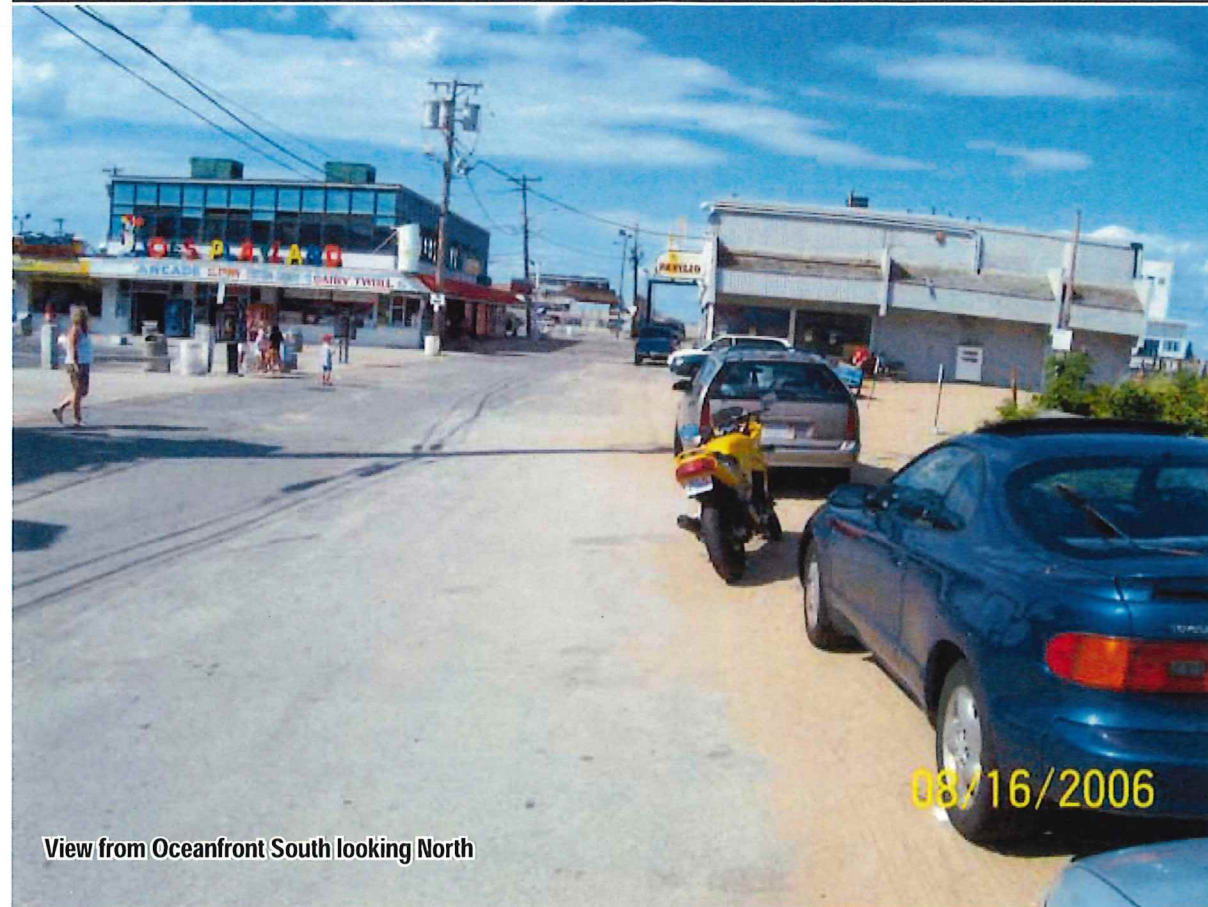


 Study Area

Vanasse Hangen Brustlin, Inc.

Figure 2-1
Existing Aerial View

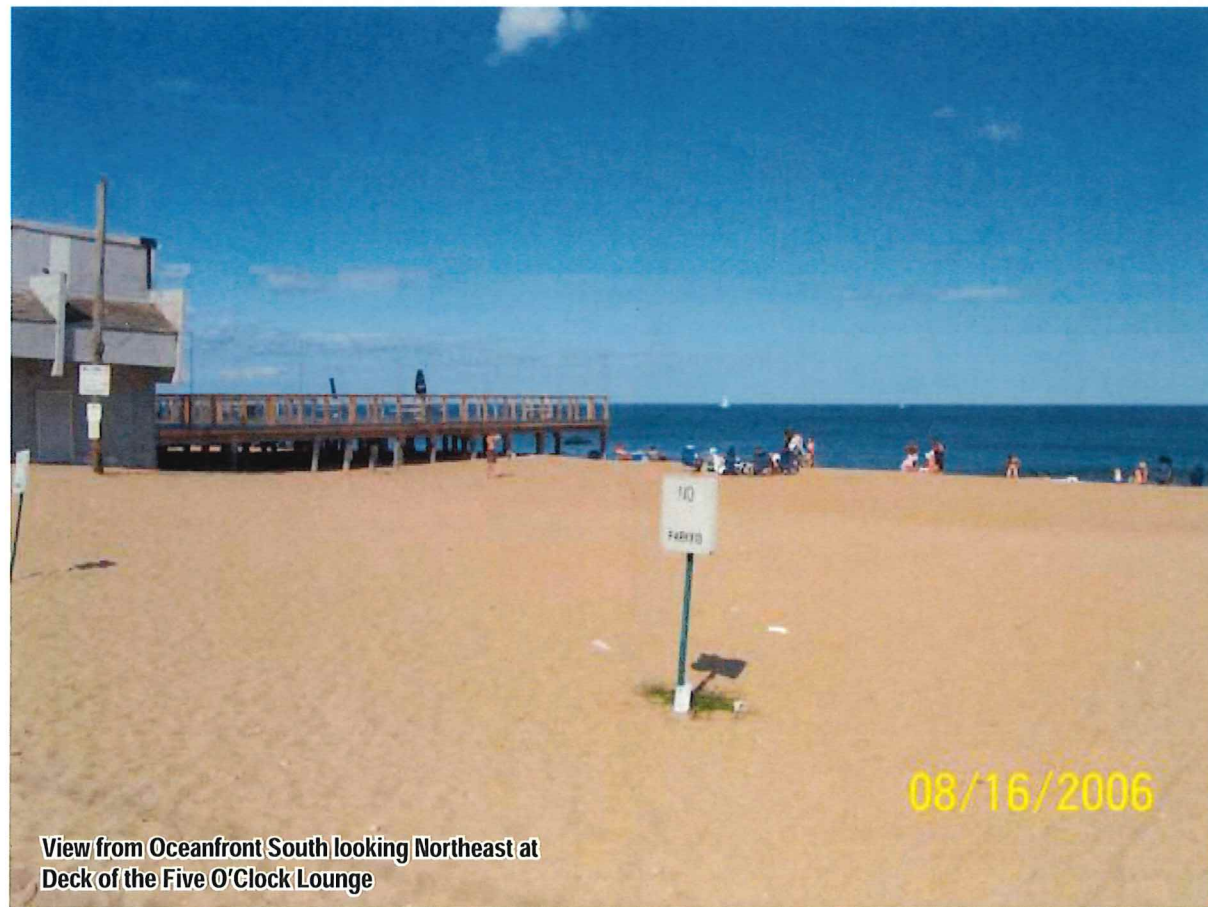
Salisbury Beach Boardwalk
Feasibility Study
Salisbury, Massachusetts



View from Oceanfront South looking North



View from Oceanfront South looking East at Northern End of the Existing Dune



View from Oceanfront South looking Northeast at Deck of the Five O'Clock Lounge



View from Oceanfront South looking South at Fomer Sidewalk Cafe site

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Figure 2-2
Existing Views of the Study Area

Salisbury Beach Boardwalk
Feasibility Study
Salisbury, Massachusetts

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Conceptual Design Development

This section presents the conceptual design development process undertaken with the Boardwalk Feasibility Study Committee. The scope of the study required that a boardwalk location be studied and determined, as well as recommendations on design features.

Boardwalk Location and Alignment

As described in the scope of the study, the location of the Boardwalk is at the end of the terminus of Broadway at the Salisbury Beach Center. This study analyzes the area between the 5 O'Clock Lounge site and the former Sidewalk Café site along Oceanfront South. This area is approximately 700 feet in length.

Discussions with the committee regarding extending the length of a boardwalk to tie into adjacent properties and beyond into a more comprehensive boardwalk system occurred during this study, but the consensus of the committee was to keep the location of the proposed boardwalk to this 700 feet stretch of the beach as a first phase. In addition, should adjacent property owners be interested in connecting to the boardwalk, then site design issues should be considered through the local review process.

Once the location of the boardwalk was agreed upon, an alternatives analysis of various boardwalk alignments was conducted and is described below.

Boardwalk Alternatives

Two alternative boardwalk alignments were generated as part of the study, (see Figure 3-1). The goal of the alternatives analysis was to illustrate how the boardwalk may operate in two different locations and to present the strengths and weaknesses of each alternative. A third alternative located on top of the existing dune was identified, but the consensus of the committee was that this option was not feasible nor desired, and therefore not studied any further.

Alternative A – Oceanside of the Dune

Alternative A locates the boardwalk on the east side of the dune. This 420 foot long boardwalk alternative includes a deck plaza at the end of Broadway as a gateway to the Boardwalk. A short ramp would allow access from the street (El. 15.25) to the boardwalk (El.17.0). A 16-foot wide boardwalk would continue south to a shade structure and access point at the location of one of the existing beach access pathway through the dune. The boardwalk would terminate at a shade structure and set of stairs to the sand directing the walker to the water and to the street. This alternative included closing off the northern access pathway through the existing dune and a reserved area (up to 35 linear feet) for dune expansion to the north.

Strengths

- The alignment is closer to the ocean and allows better views.
- Allows for a wider boardwalk, perhaps as wide as 20 feet.
- Maintains Oceanfront South to pedestrian and vehicular circulation.
- Accommodates natural migration of sand, which typically migrates vertically and westward.
- Allows for dune expansion.
- Eliminates one of the access pathways through the dune.
- Creates pedestrian circulation loop with Oceanfront South.
- Simpler land ownership.

Weaknesses

- Separates beach pedestrian traffic away from future Oceanfront South retail.
- Visibility of the boardwalk from Broadway is blocked by the dune.
- Height differential from the ocean is six to seven feet.
- Higher elevation of the boardwalk requires more steps and longer ramps.

Alternative B – Streetside of the Dune

Alternative B locates the boardwalk on the west side of the dune. This 390 foot long boardwalk alternative includes a deck plaza at the end of Broadway as a gateway to the Boardwalk as well. A short ramp would allow access from the street (El. 15.0) to the boardwalk (El.17.0). A 16-foot wide boardwalk would continue south to a shade structure and access point at the location of one of the existing beach access pathway through the dune. The boardwalk would be located against a guardrail and project into the right-of-way of Oceanfront South. The boardwalk would be located two feet above grade at the north, and due to the increased slope of Oceanfront South at the former Sidewalk Café site, the boardwalk would end up at grade (El. 17.0) at the southern terminus. The boardwalk would terminate at a shade structure and set of stairs to the sand directing the walker to the water and to the street. This alternative

also included closing off the northern access pathway through the existing dune and a reserved area (up to 47 linear feet) for dune expansion to the north.

Strengths

- A shorter boardwalk length would be needed.
- Engages potential future retail along Oceanfront South.
- Better visibility from Broadway.
- Height differential requires less steps and ramps.
- Allows for dune expansion.
- Eliminates one of the access pathways through the dune.
- Provides useful linkage to future extensions to the north and south.

Weaknesses

- Width of the boardwalk is limited to 16 feet and limits the activities within the right-of-way of Oceanfront South.
- Multiple ownership of land associated with Oceanfront South may prove problematic for implementation.
- Dune migration westward is impacted by the boardwalk.
- Ramp reduces the width of the boardwalk.

Preferred Boardwalk Concept

Upon analyzing and evaluating the alternatives presented previously, the consensus of the committee was that a boardwalk located east of the existing sand dune would be more desirable as long as the structures comply with permitting requirements needed to implement the project, (see Figure 3-2). The preferred boardwalk concept would consist of a approximately 400-foot curvilinear boardwalk accessed at the south along the former Sidewalk Café site and to the north from a new deck plaza. The new 7,000 square foot deck plaza, an integral part of the boardwalk project, would serve as a large gathering area extending into the existing paved roadway section of Oceanfront South at the Broadway terminus. The boardwalk as proposed would be located primarily on property owned by the Department of Conservation and Recreation, as well as town property.

The preferred boardwalk concept provides significant public and environmental benefits. Dune migration and growth was identified early on as an important environmental factor to be incorporated into the design. The preferred concept closes off two existing paths through the dune, thereby protecting the dune and allowing for dune growth. In addition, due to the proposed boardwalk plaza design, the northern extent of the existing dune would have the ability to grow further north.

This dune growth and future best management practices will provide additional flood protection over what is currently provided along this area.

Dimensions

The preferred boardwalk is approximately 450 feet long and varies in width from 16 to 24 feet. The project would also include a 7,000 SF pile-supported plaza which would be the primary public gathering area and the northern portion of the boardwalk.

Grading

The boardwalk and deck plaza would be located at El. 17.0, which is approximately two feet above the existing dune elevation, in order to allow sand migration. The structures would require new pilings, which would need to be reviewed locally through the permitting process.

Materials

While the committee did not discuss the proposed material of the boardwalk in great detail, materials recently used at the Plum Island boardwalk were cited as good examples of boardwalk material to be investigated during the design and engineering phase of the project.

Pedestrian access

Access to the beach from Broadway would be provided north of the deck plaza along the Five O'Clock Lounge site. Access from Oceanfront South would be provided along the former Sidewalk Café site. In addition, the proposed deck plaza would be designed to incorporate steps to the boardwalk elevation. The deck plaza steps offers informal seating opportunities near the relocated band shell, as well as handicap-accessible ramps.

The Broadway terminus would include new decorative paving and bollards to designate a seasonal pedestrian zone marking the gateway of the boardwalk and deck plaza (see Figure 3-3). The deck plaza would include a new band shell as well as benches, planters, and decorative lighting to enhance the enjoyment and pedestrian scale of the boardwalk. New shade structures would be included on the deck plaza and the boardwalk.

Handicap access

The conceptual design includes dimensional considerations to comply with the American Disabilities Act (ADA). The deck plaza includes handicap-accessible ramps and the southernmost access point allows for handicap access as well. Further design and engineering of the boardwalk should include universal design elements to enhance the pedestrian experience for all users.

Lighting

The consensus of the committee on lighting dealt with public safety and attraction. The boardwalk should include pedestrian scale lighting within the deck plaza and the boardwalk itself. A consistent theme between street furniture, such as lighting, benches and trash receptacles should be considered for the project. Proper lighting is essential on the boardwalk in order to draw pedestrians from Broadway and Oceanfront South. In addition, lighting under the boardwalk should be considered to limit covered poorly-lit areas which have been a problem for Salisbury public safety officials in other areas along the beach. Finally, a historically themed light fixture with opportunity for plantings or banners should be considered to enhance the pedestrian beach experience.

Signage

Boardwalk signage should be integrated with future new district-wide signage guiding visitors from retail areas, parking areas and the nearby bus stop. As the district is redeveloped, a unified signage program should be considered, and the boardwalk project should be a major component. Signage on the boardwalk should be durable and be able to withstand the year-round beach conditions. The signage program should incorporate educational or historic interpretative elements. Educational signage may include a panel on the nearby oceanfront geography (ie, Merrimack River, Isle of Shoals, the Marsh Lands). Historic signage may include interpretive panels which describe and illustrate the unique history of Salisbury Beach. Signage on the project should also include a seasonal installation to promote events (such as concerts or festivals) in the Pavilion or along Broadway.

Other boardwalk furnishings

The boardwalk project should include other furnishings (see Figure 3-4 through Figure 3-6) to help enhance the pedestrian scale and experience, such as:

- **Trash receptacles** should be designed to be low-maintenance and durable. These receptacles should incorporate a unified design approach to all furnishings.
- **Benches** should be included along the boardwalk and deck plaza. Benches should have backs and armrests to allow for comfort and encourage visitors to stay and enjoy the boardwalk experience. Groupings of benches should be considered to allow for large groups or families to congregate as well.
- **Shade shelters** in a few locations where benches are located should be installed as a permanent year-round feature. Any shade shelter should be designed to withstand the various year-round wind and temperature conditions experienced at the beach.

- **Railings** must be a part of the boardwalk design. Particular attention should be given to wire railing features to allow for a more transparent railing system. A horizontal wire railing system would allow beachgoers to sit on a bench and to view the beach. A typical vertical wood railing system obstructs views from a seated position and should not be encouraged.
- **Picnic benches** should be considered within a few locations on the boardwalk project. Due to the high number of food establishments along Broadway, picnic benches would enhance the beach experience and allow for a more social setting for all visitors.

Future extension and connections to adjacent parcels

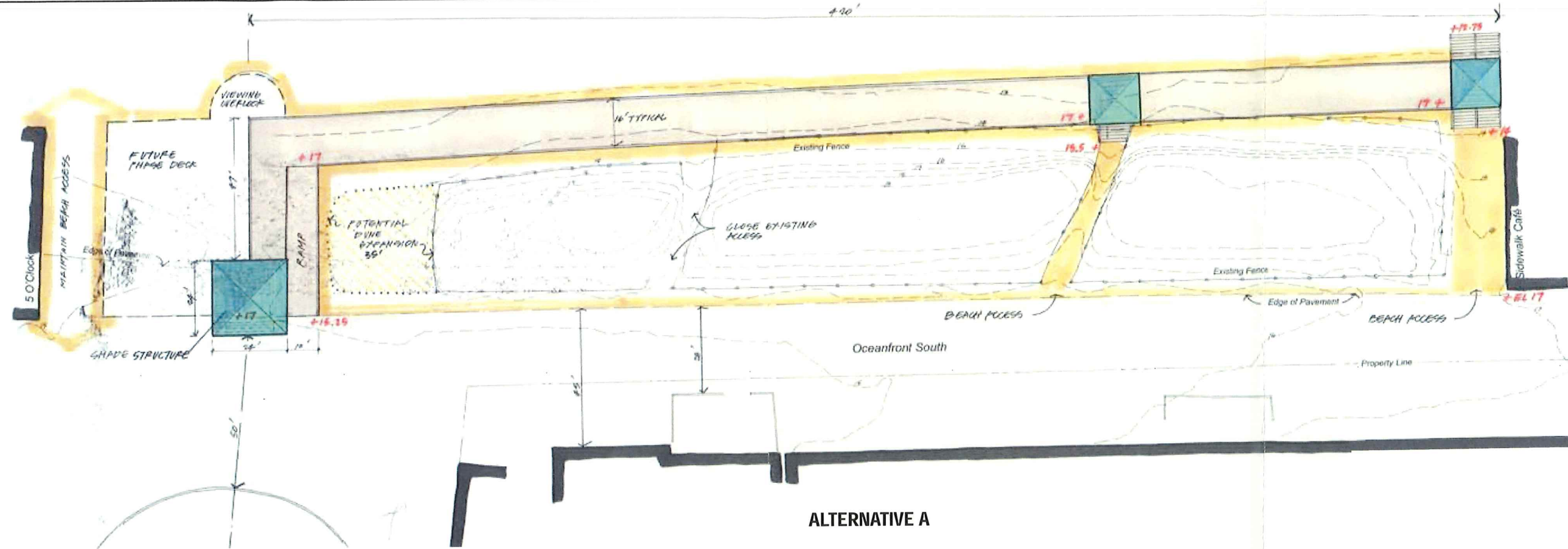
The consensus of the committee was to treat the boardwalk as a stand alone project that does not rely on adjacent private development commitments for connections. The conceptual design of the boardwalk incorporates at-grade beach access at its northern and southern ends to further the separation aspect of the project. However, should adjacent private development occur, efforts to expand the boardwalk or build an adjacent segment with similar design features and furnishings should be explored by the town or state and through the local permitting boards. The boardwalk project is conceptually designed to better integrate the Broadway activity and attract visitors all the way to the boardwalk. By attracting visitors to the boardwalk, it is believed that visitors may also visit new future ground floor retail opportunities along Oceanfront South and the new restaurant proposed for the Five O'Clock Lounge site. In addition, parking and circulation modifications along Broadway are being explored by the Coalition for Salisbury Revitalization and the Town of Salisbury to improve the traffic and parking conditions of the district.

Constructability

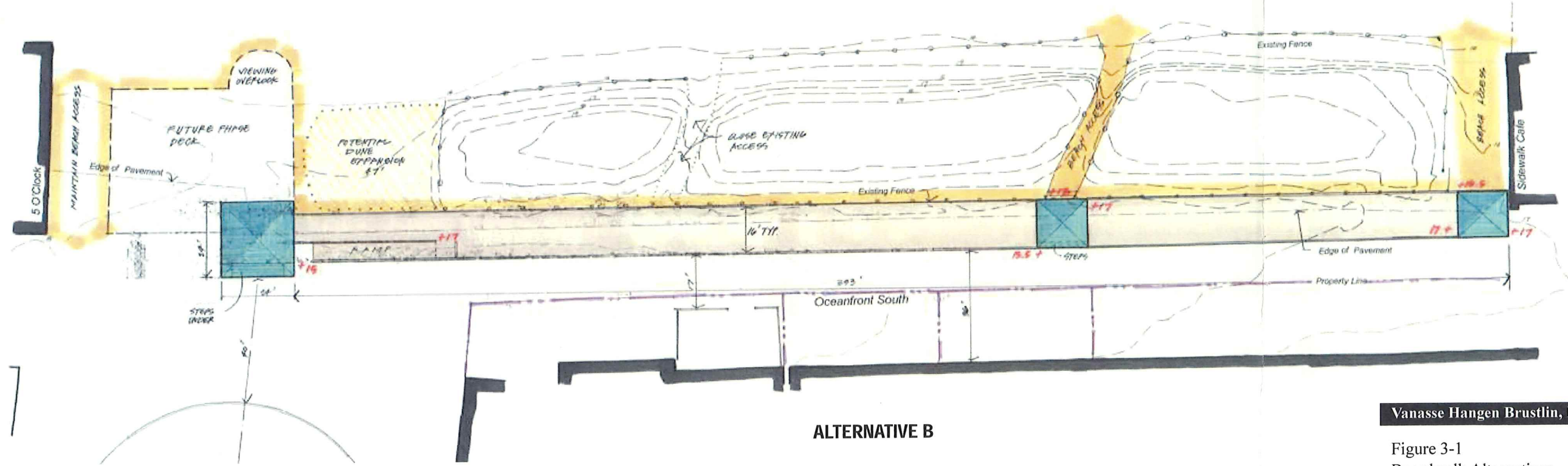
Based on initial conceptual design undertaken for this study, the constructability of the project is achievable and would have minimal impact to environmental resources through the implementation of best management practices through the construction phase of the project. The constructability of the boardwalk should be investigated in greater detail within the design and engineering phase of the project. Piles would need to be installed to support the boardwalk and deck plaza area.

Estimates of probable cost

A previous cost estimate for the boardwalk project of \$1,000,000 is a reasonable figure for the preferred boardwalk concept and that should be investigated in more detail within the upcoming design and engineering phase of the project.



ALTERNATIVE A

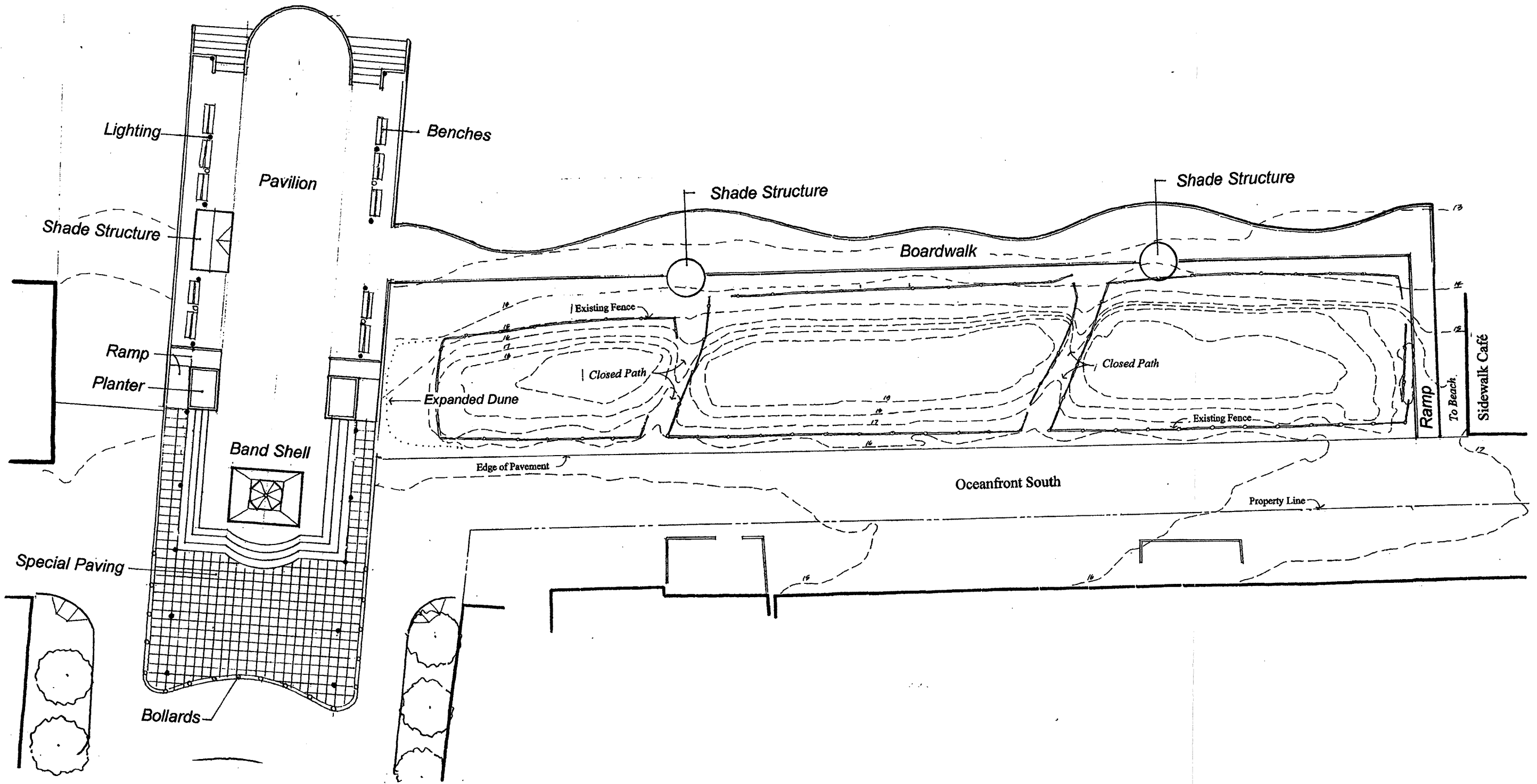


ALTERNATIVE B

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Figure 3-1
Boardwalk Alternatives

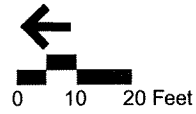
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Salisbury, Massachusetts

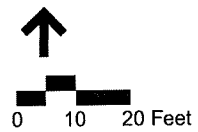
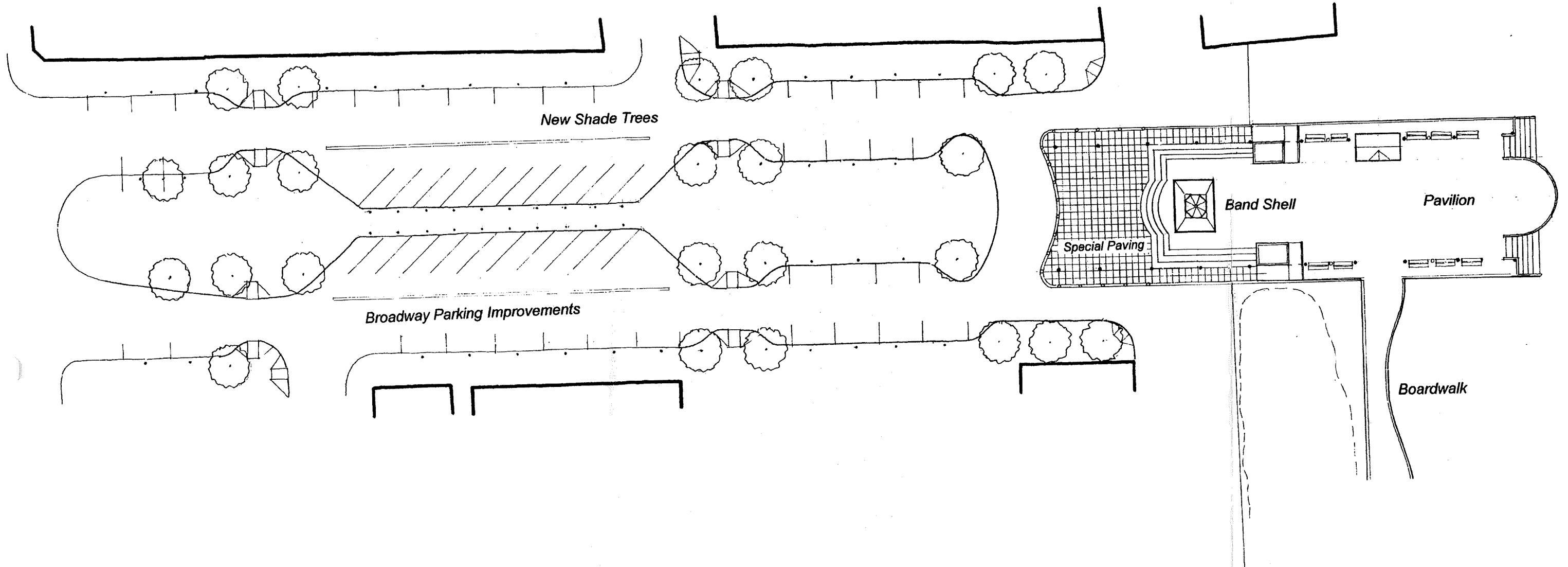


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Figure 3-2
Preferred Boardwalk Concept

Salisbury Beach Boardwalk
Feasibility Study
Salisbury, Massachusetts

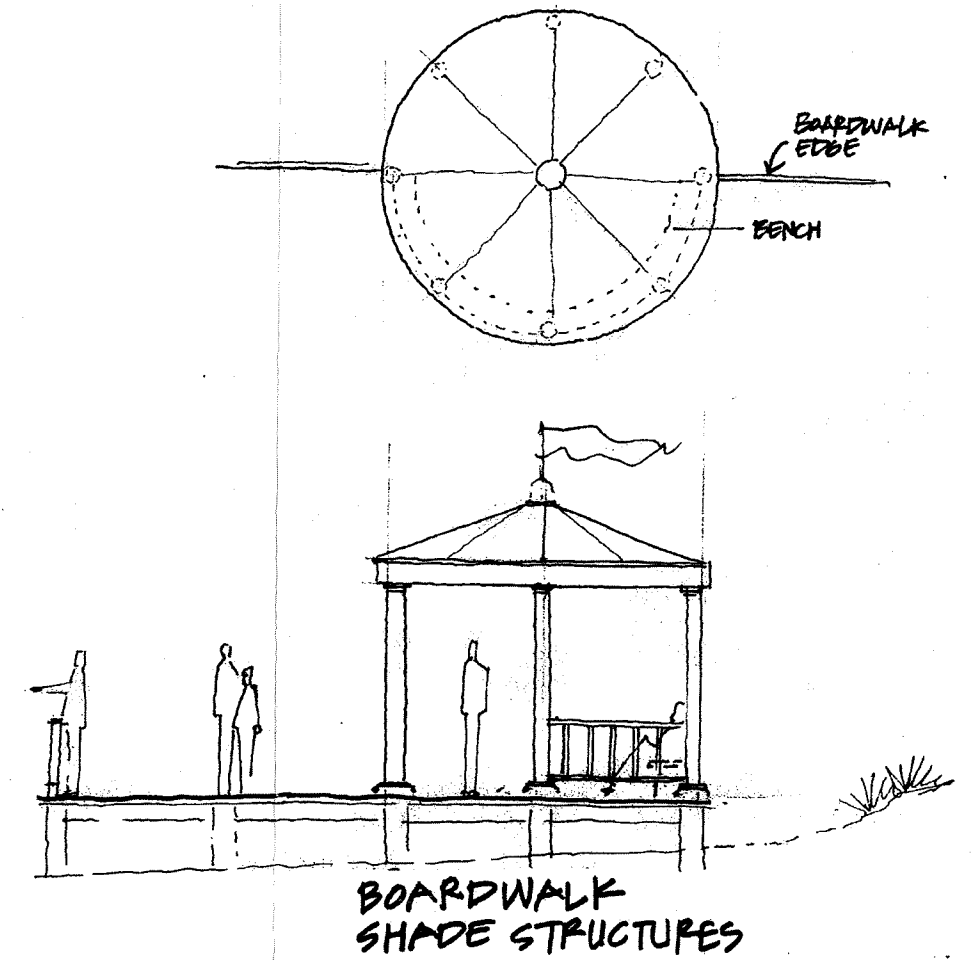
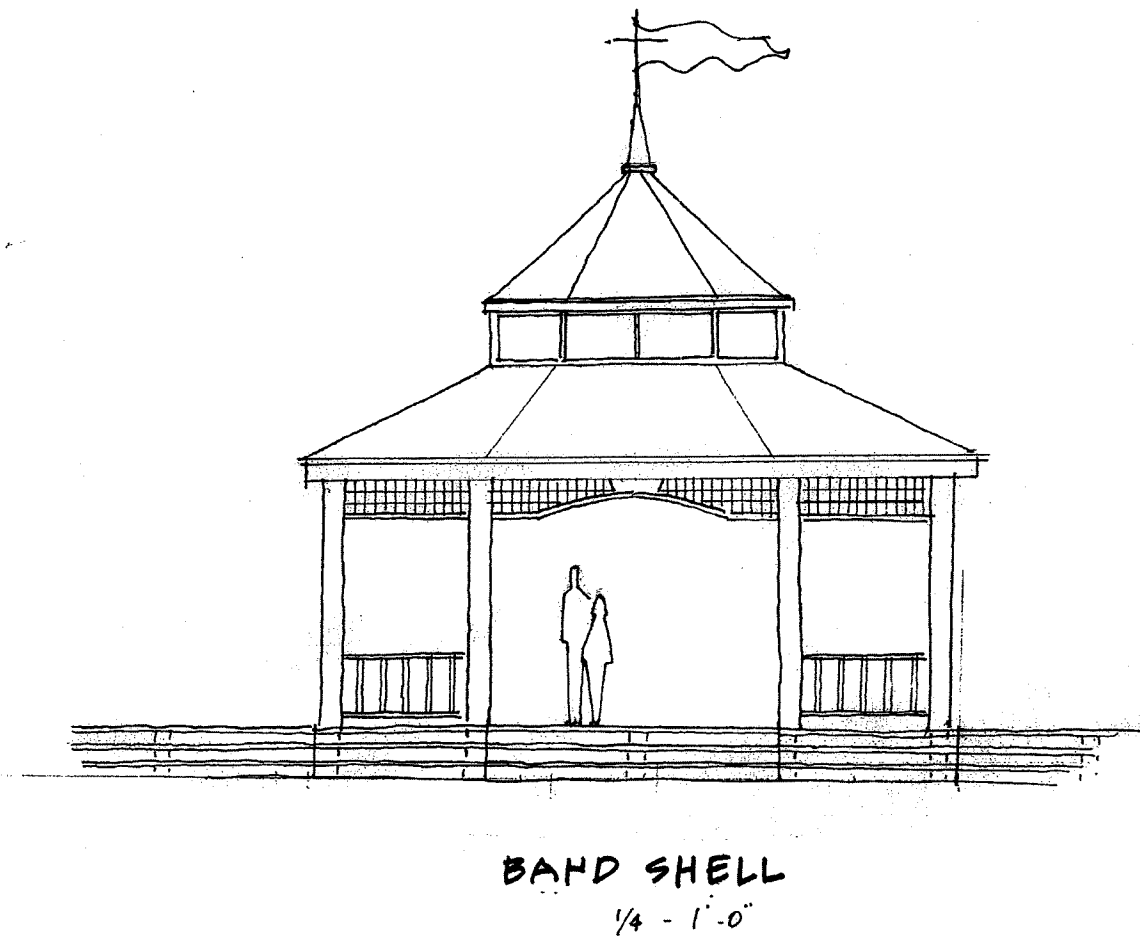
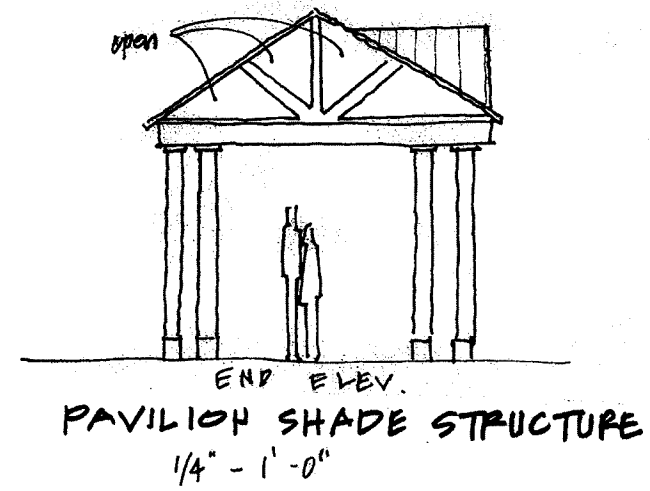
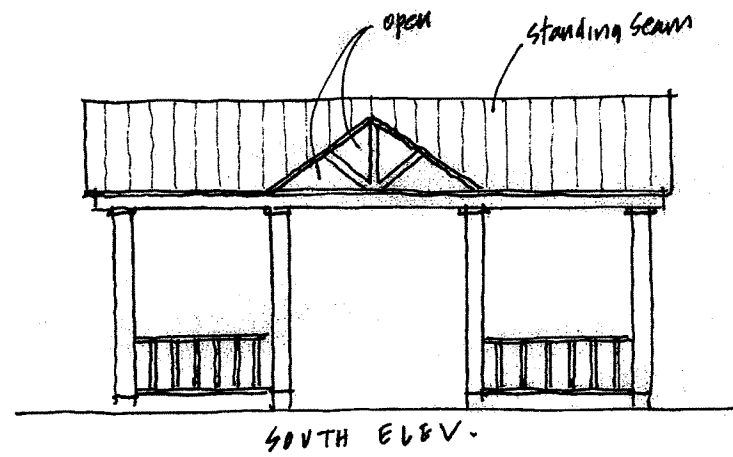




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Figure 3-3
Preferred Boardwalk Plaza

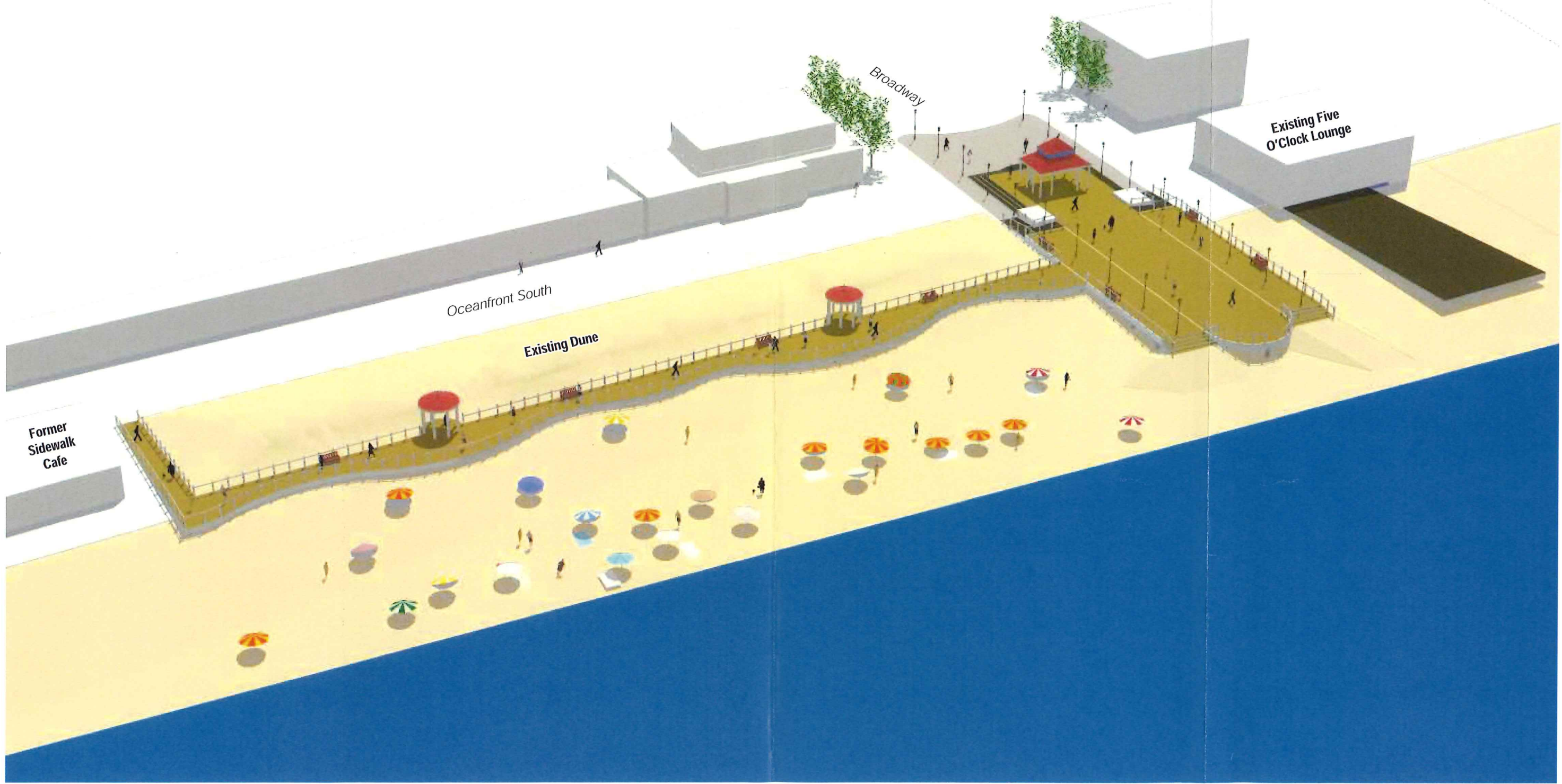
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Feasibility Study
Salisbury, Massachusetts



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Figure 3-4
Details of the Preferred Boardwalk

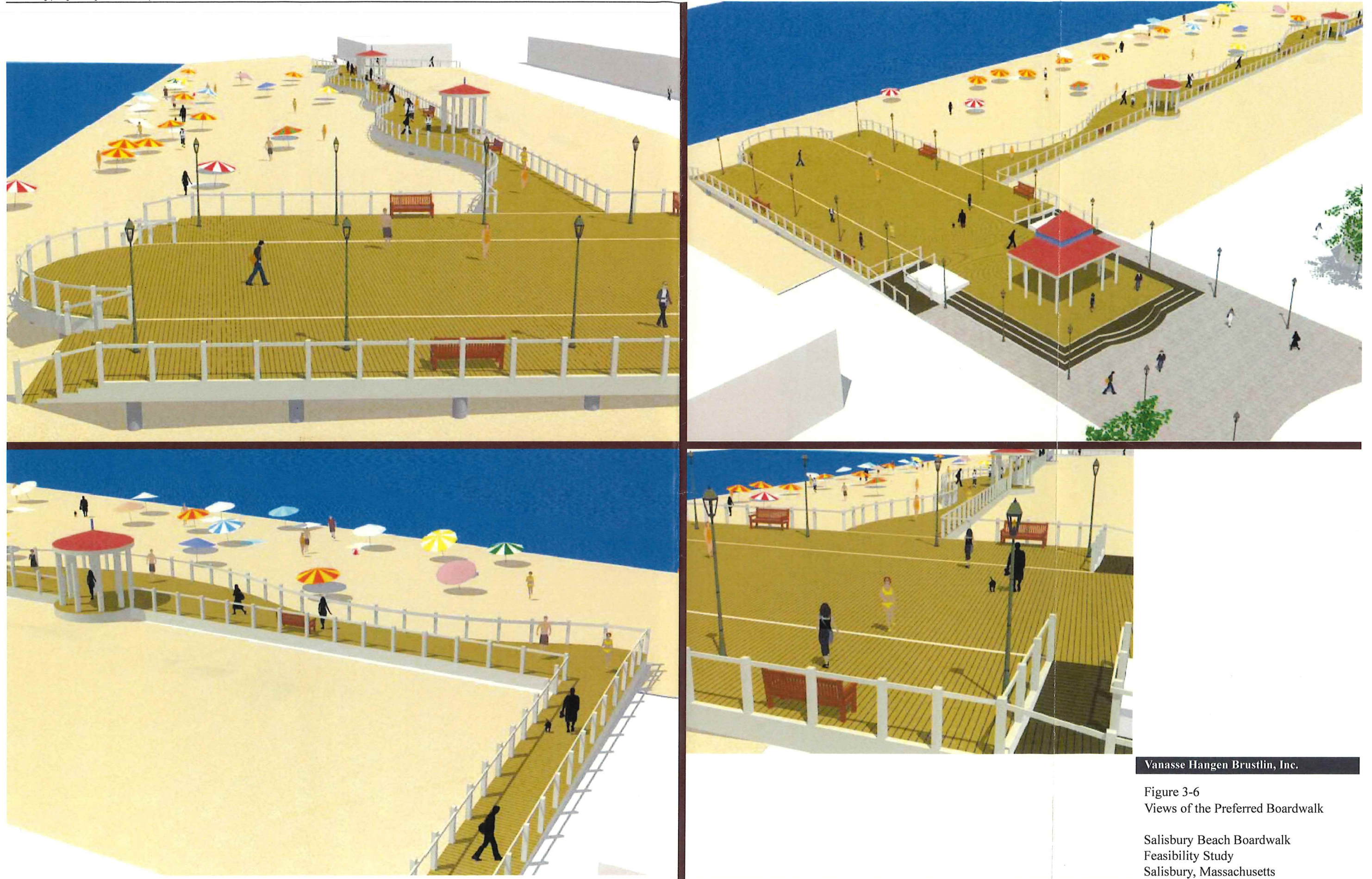
Salisbury Beach Boardwalk
Feasibility Study
Salisbury, Massachusetts



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Figure 3-5
Aerial View of the Preferred Boardwalk

Salisbury Beach Boardwalk
Feasibility Study
Salisbury, Massachusetts



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Figure 3-6
Views of the Preferred Boardwalk

Salisbury Beach Boardwalk
Feasibility Study
Salisbury, Massachusetts

4

Implementation

The implementation of the boardwalk project requires coordination of town and state officials as the project is designed, engineered and permitted through various agencies. The success of the boardwalk also requires attention to the state budgeting process to assure funds are allocated to the project through DCR. Furthermore, the Town of Salisbury and its immediate stakeholders have shown great commitment to improving the Salisbury Beach Center and should continue to seek public/private partnerships to make the revitalization of Salisbury Beach a community-building success.

This section describes the following next steps towards the implementation of the boardwalk project:

- Design and engineering
- Environmental permitting
- Public/private partnerships
- Funding sources

Design and Engineering

The Department of Conservation and Recreation (DCR) has been appropriated funding for the next step in the boardwalk project. The selection of a consultant to begin the final design and engineering of the boardwalk project would commence in 2007. During this phase, permitting efforts by the consultant with the state and town should be completed. Salisbury town officials would be an active stakeholder during the lift of the contract in order to assure the goals and concepts described in this study are reflected in the final engineered plans of the boardwalk project. Additional stakeholders such as the Coalition for Salisbury Revitalization and the Salisbury Chamber of Commerce should be consulted throughout the design and engineering phase as well.

Environmental Permitting

In considering the feasibility of the proposed boardwalk construction, an analysis of the likely requirements for review and approval by relevant local, state and federal regulatory programs was conducted. This analysis included the following assumptions and is based on the conceptual designs presented in this study:

- The boardwalk is located on a barrier beach as defined by the Massachusetts Wetlands Protection Act (M.G.L. Chapter 131, Section 40) and its implementing regulations (310 CMR 10.00) and as mapped by the Massachusetts Office of Coastal Zone Management.
- The boardwalk will be constructed within the state-regulated coastal resource areas including Coastal Beach, Coastal Dune, Land Subject to Coastal Storm Flowage and possibly Coastal Bank.
- The boardwalk will be constructed within the aerial footprint of a velocity zone (V2) as defined by the most recently issued Federal Emergency Management Agency Flood Insurance Rate Map for the Town of Salisbury.
The boardwalk will be constructed landward of the existing spring high tide line as defined by the National Oceanic and Atmospheric Administration and confirmed by actual ground survey completed during Summer 2006.
- The boardwalk will be constructed entirely within state-owned property controlled by the Massachusetts Department of Conservation and Recreation.
- The boardwalk will be constructed so as to avoid shading existing vegetation within the existing sacrificial dunes located between Oceanfront South and the beach.

The following describes the potentially applicable jurisdiction under local, state and federal environmental regulations:

■ Massachusetts Environmental Policy Act (MEPA)

The Massachusetts Environmental Policy Act (MEPA, M.G.L. Chapter 30, Section 61 – 62H) establishes a public review process whereby projects requiring state agency actions or financial assistance are reviewed in one (or a series of) document(s) describing the potential environmental impacts and mitigation. For applicable projects, a final certificate issued by the Secretary of Environmental Affairs is required prior to state agency action on the project.

The proposed boardwalk will require MEPA review because the Department of Conservation and Recreation is presumed to be the proponent and the project will require financial assistance as defined by the MEPA regulations at 301 CMR 11.02. These state agency triggers notwithstanding, the project would likely only require

▼
¹ Federal Emergency Management Agency Flood Insurance Rate Map; Community Panel 250 103 0005D, Revised July 2, 1992.

MEPA review if the project required a Superseding Order of Conditions under the Massachusetts Wetlands Protection Act.

The project will require the filing of an Environmental Notification Form (ENF) followed by a 30-day public review period. At the end of this review period, the Secretary for Environmental Affairs will issue a decision on the need for an Environmental Impact Report (EIR) and the scope of such a report, if required. The state agency action and financial assistance indicates the typical need for a broad scope of environmental review. An EIR, if required, would potentially need to examine all aspects of the project that are likely to cause environmental impacts.

If an EIR is required, the report would be required to examine the project's potential to cause environmental impacts and include a detailed consideration of potential mitigation measures to avoid, minimize or mitigate these impacts. The EIR would also include detailed responses to public and agency comments received on the ENF.

At the conclusion of the MEPA process, the Secretary for Environmental Affairs would issue a Certificate documenting the project's compliance with MEPA and authorize state agencies to act on the project.

Massachusetts Wetlands Protection Act

The Massachusetts Wetlands Protection Act (M.G.L. Chapter 131, Section 40) and its implementing regulations (310 CMR 10.00) establish jurisdiction over all work within inland (i.e. freshwater) and coastal wetland resource areas. There are no inland wetland resources in the vicinity of the site, but as stated above, the project is located at the edge of Salisbury Beach and within the following coastal resources:

- Barrier Beach
- Coastal Beach
- Coastal Dune
- Coastal Bank
- Land Subject to Coastal Storm Flowage, and
- The 100-foot buffer zone to Coastal Bank and Coastal Beach

The regulations establish specific performance standards for work in each of these resource areas designed to protect the unique public interests protected by these coastal resources.

The boardwalk construction would require the filing of a Notice of Intent with the Salisbury Conservation Commission. The Notice of intent would by regulation include a detailed description of how the project would be constructed in compliance the applicable performance standards for each resource area. While each of the coastal resource areas listed above have specific performance standards, there is considerable overlap both in jurisdiction and specific criteria governing the work.

In summary, the proposed project shall not:

Inhibit the natural movement of sand or water by either wind or wave action;

- Destabilize existing dunes;
- Inhibit the natural ability of existing dunes to erode in response to coastal beach conditions;
- Disturb vegetative cover so as to destabilize the dune;
- Inhibit the ability of the dune to migrate landward;
- Cause any modification to a dune resulting in an increase the potential for storm or flood damage;
- Reduce the capacity of the site to provide bird nesting habitat.

A review of the concept plans prepared as part of this study indicate that the proposed boardwalk can be designed to comply with these performance standards by at a minimum:

- Elevating the structure above the existing beach so that the lowest horizontal structural member is above the velocity zone and a minimum of two feet above the existing sand.
- Constructing the boardwalk in such a manner that the design will not result in the shading of any existing dune vegetation and to include sufficient spacing between planks sufficient to allow the passage of sunlight, but not to inhibit, where designated and appropriate, handicapped access.
- Constructing the boardwalk on widely-spaced cylindrical pilings to reduce the vertical face of the structure opposing wave action thereby reducing the wave energy deflected.

While observing these design criteria will increase the project's likelihood of approval under the Act, the Salisbury Conservation Commission must determine at a public hearing that the project has been designed to comply with the applicable standards.

The successful permitting of the Boardwalk under the Act would be facilitated by the continued involvement of the Salisbury Conservation Commission and the Massachusetts DEP, Bureau of Resource Protection in the project's design and implementation to ensure concurrence on the project's compliance with the applicable performance standards.

Massachusetts General Law Chapter 91

The Massachusetts General Law Chapter 91 is the modern codification of the historic public trust doctrine which reserves for all citizens of the Commonwealth the rights to access tidal waters for lawful purposes (traditionally to fish, fowl and navigate). The law is administered by the Massachusetts DEP Waterways Program through the Waterways Regulations (310 CMR 9.00) which asserts jurisdiction over activities within lands subject to tidal action up to and including the historic mean high water mark.

As discussed above, while the proposed boardwalk would be located on the beach in an area subject to wave action during large storm events, this study does not contemplate locating the structure over the water. Accordingly, as described above, the proposed boardwalk will be located landward of the mean high water mark and is therefore outside of the geographic jurisdiction of Chapter 91. No filings are anticipated with the Waterways Regulation Program based on the current concept design.

U.S. Army Corps of Engineers (ACOE)

The Army Corps of Engineers regulates activities in waters of the United States and their adjacent wetlands through Section 10 of the Rivers and Harbors Act and Section 404 of the Federal Clean Water Act. Permits under these programs are issued by the New England District either under a Programmatic General Permit for Massachusetts or an Individual Permit.

The ACOE jurisdiction within coastal waters extends landward to the spring high tide line averaged over an 18 year tidal period. This elevation at Salisbury Beach is approximately 5.1 feet above mean sea level (NGVD)². Based on the existing conditions survey completed in Summer 2006 the proposed boardwalk will be landward of this elevation and will therefore not be subject to ACOE jurisdiction.

Coastal Zone Management – Federal Consistency Review

This program is administered by the Massachusetts Coastal Zone Management Program (MCZMP) under the authority of the Secretary for Environmental Affairs. Consistency review is required for projects located in the coastal zone which require a federal permit and are of a scale likely to affect the coastal zone. The MCZMP relies closely on the MEPA thresholds in determining the need for individual consistency review.

Projects requiring consistency review must be shown to comply with federal coastal zone policies designed to protect coastal habitats, water quality, specially protected areas, ocean resources, avoid construction in flood prone and flood velocity zones and promote growth management.

The proposed boardwalk is not anticipated to require a federal permit and would therefore not require a formal federal consistency review. However, the MCZMP is expected to participate in the public review of the project during the MEPA process and to participate in an advisory role during the Salisbury Conservation

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² NOAA Tidal EPOCH Reference

Commission's review of the project under the Massachusetts Wetlands Protection Act. As the CZM regulations do require the issuance of a permit, or even a federal consistency review for the proposed boardwalk, CZM's participation in the project is expected to be advisory only.

Public/Private Partnerships

The future design and implementation of the boardwalk project should include opportunities for public/private partnerships. The appropriation of public funds for design, engineering and future construction of the boardwalk project represents a significant public investment in revitalizing the beach center. Any opportunity by private stakeholders to contribute to the boardwalk project to enhance the investment such as private donations into a fund to plan and promote beachfront events or festivals, or for specific improvements such as commemorative plaques on benches, should be encouraged.

Funding Sources

The Department of Conservation and Recreation has recommended appropriating \$100,000 towards design and engineering services for the boardwalk project.

However, to implement some of the additional capital improvements suggested in the boardwalk project and adjacent public realm improvements, a variety of funding sources should be explored including state and a federal grant and loan programs. A brief list of various potential public funding sources is provided below:

- Seaport Bond Bill
- Massachusetts Department of Conservation and Recreation, Rivers and Harbors Grant Program
- Massachusetts Department of Conservation and Recreation, Coastal Access Grants Program
- Massachusetts Division of Conservation Services of the Executive Office of Environmental Affairs (several grant programs), Urban Self Help Program
- Massachusetts Community Development Action Grant
- Chapter 121A Urban Redevelopment Corporations
- Chapter 121B Urban Renewal
- Massachusetts Development Economic Development Financing
- Massachusetts Development Predevelopment Assistance Programs
- TEA-21: Surface Transportation Program (STP)
- Chapter 90 Funding
- Public Works Economic Development Funds
- Office of Commonwealth Development Smart Growth Technical Assistance