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Charleston Waterfront Park
Master Plan

Charleston, S.C. Dept. of Planning

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Charleston Waterfront Park
Master Plan
Charleston, South Carolina

U.S. DEPARTMENT OF COMMERCE NOAA
COASTAL SERVICES CENTER
2234 SOUTH HOBSON AVENUE
CHARLESTON, SC 29405-2413

Joseph P. Riley, Jr., Mayor, City of Charleston

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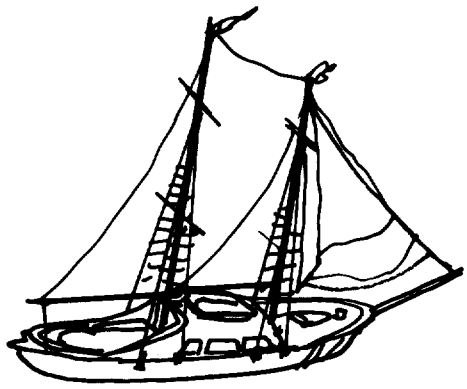
September 1980



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South Carolina Historical Society
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South Carolina State Ports Authority
South Carolina Water Resources Commission
South Carolina Wildlife and Marine Resources
Tourism Management Committee
U.S. Army Corps of Engineers
U.S. Fish and Wildlife Service
U.S. National Park Service Properties

Three public meetings and numerous work sessions with abutters and property owners with an interest in the outcome of the master plan for Charleston Waterfront Park were held.

The design process was an open, public process. The parties mentioned above commented on desired program elements and on numerous and widely varying alternatives. The plan selected best reconciles the sometimes competing concerns of public and private interests. The following master plan sets forth the intent of the City of Charleston for this portion of the Cooper River waterfront.

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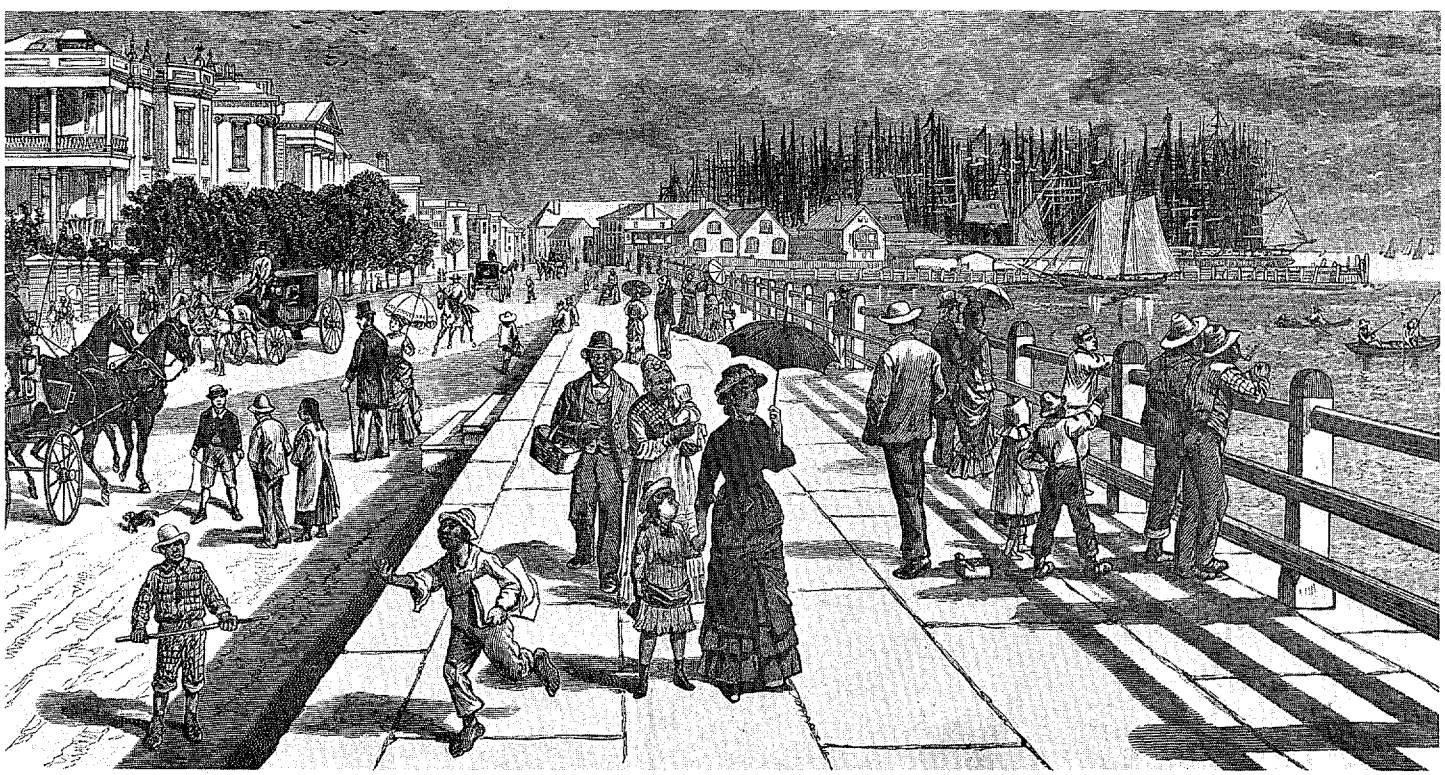

Courtesy: South Carolina Historical Society

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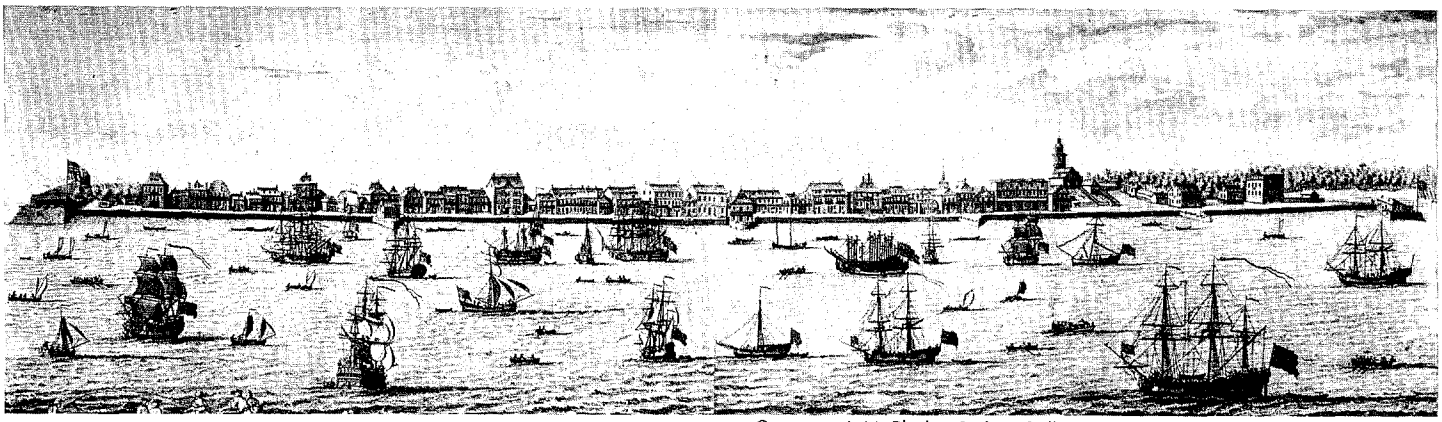

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I. Issues and Considerations

This report contains a description of the master plan and urban design guidelines for two related areas on the southeastern edge of the Charleston peninsula, Charleston Waterfront Park and the blocks immediately to the east of the park. The construction of this open space and the improvements to the sidewalks and streets leading to it will increase dramatically the public's access to the Cooper River.

In the past, Charleston's dense shipping activities and water dependent industries along the Cooper River waterfront left little room for public recreation. Consequently, the peninsula's sole waterfront promenade, the Battery, and historic waterfront park, White Point Gardens, have been heavily used. The rest of the Cooper River waterfront, now used by the State Ports Authority and private concerns, is often hidden from sight and has been unavailable for public "leisure" use and access to the water.

The city recognized that the provision of additional open space along the waterfront would serve tourists as well as residents, and that the design of the park should proceed within the context of an integrated effort. Accordingly, it hired an independent consulting firm to prepare a **Tourism Impact and Management Plan**. Recognizing the current overuse of the Battery area, and its effect on permanent residents of the Old and Historic District, the consultant recommended that tourist-related activities be focused in other areas, especially on the eastern section of the peninsula in the vicinity of the waterfront park. As a result of this study, the National Park Service agreed to relocate their planned Fort Sumter tour boat facility to the wharf at the end of Cumberland Street. City Council is limiting the number and types of activities allowed on the Battery and in White Point Gardens. The City hired Sasaki Associates, Inc., and the associated consultants listed in the Acknowledgements section of this report to plan the park and the redevelopment of the blocks adjacent to it as vital components of the city and this tourist management strategy. Not only will the park fulfill the residents' pressing need for additional open space in the densely developed downtown, but it will also give tourists an alternative to White Point Gardens and the Battery.

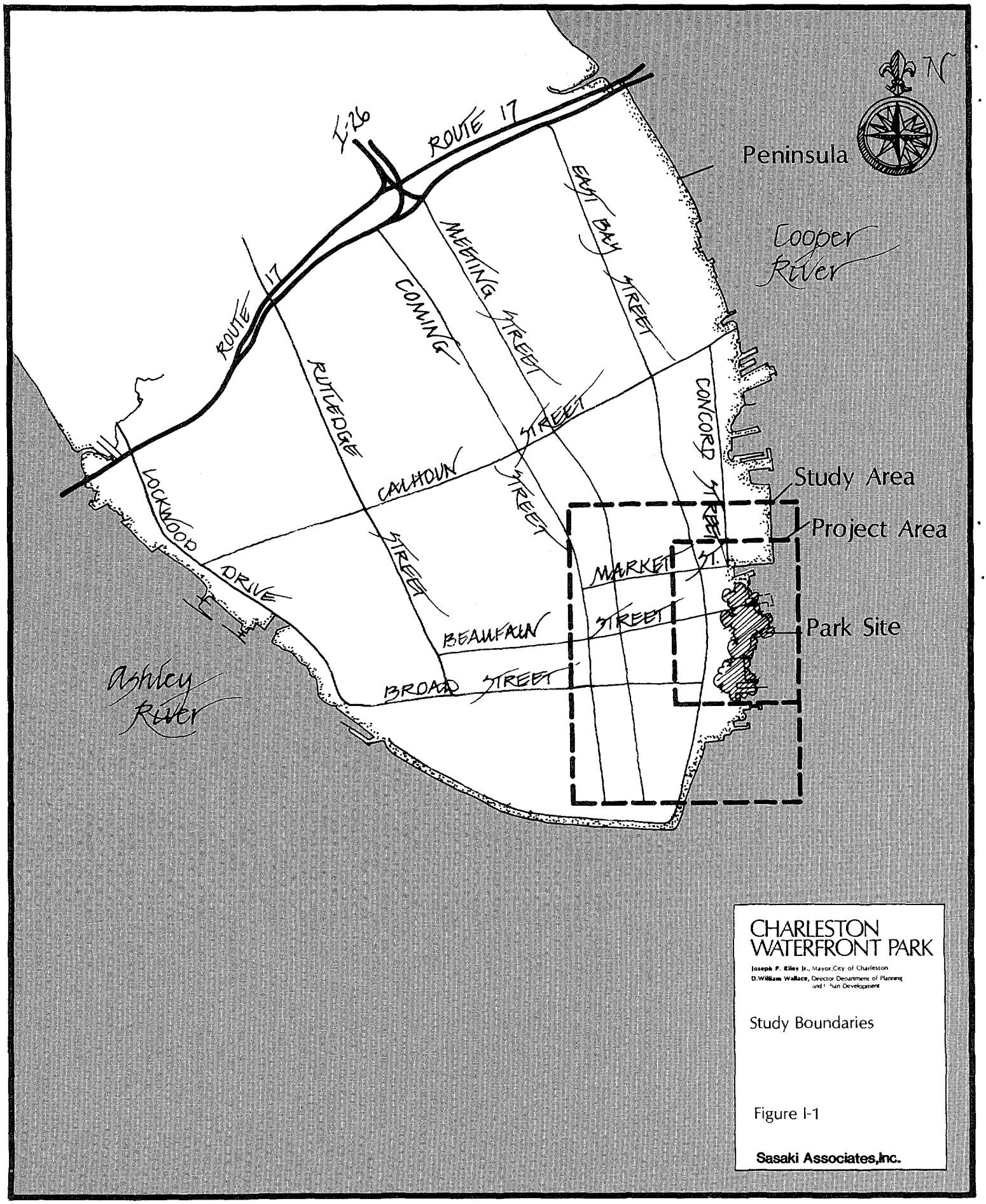
The city also recognized that access to the park, both vehicular and pedestrian was important to the successful function of this open space and its graceful integration into its surroundings. As a result, transportation became an essential element in this plan. Charleston's dense building pattern occurs within the context of a grid pattern of streets. The houses with their porches and gardens front directly on the sidewalks and often line extremely narrow streets. Although these streets were not constructed to accommodate twentieth century traffic, they are an integral part of Charleston's charm. The houses, porches and gardens set up a pleasing rhythm of linear openings which supports the geometry and small scale of the street system. Streetscape, circulation and parking improvements must be consistent with this historic vernacular. At the same time, they must contribute to the successful function of the waterfront park, the city's tourism management strategy, and to a coherent transportation management plan. Streetscape improvements should also catalyze rehabilitation in the project area's key development parcels.

The city was concerned that development of these vacant properties be consistent with Charleston's architectural rhythm and scale. The massing, height, setbacks, and building materials of new construction should reinforce the existing pattern. The city included urban design guidelines as part of this work effort to insure that new buildings fit in with Charleston's historic design forms and relate appropriately to the waterfront.

Project Objectives

The following list presents the objectives for the Charleston Waterfront Park area:

- To assure direct public access to the Cooper River.
- To improve and enhance pedestrian connections between the downtown, the park, and the Cooper River.
- To accommodate residents and visitors through sensitive design.
- To encourage an appreciation of Charleston's maritime history.
- To recognize and plan for navigational requirements adjacent to the park.
- To preserve and enhance environmental conditions in the vicinity of the park.
- To minimize vehicular traffic adjacent to the park.
- To provide adequate parking to meet the demand generated by the park, the Fort Sumter tour boat facility and the South Carolina State Ports Authority Maritime Office Building.
- To encourage development in the vicinity of the park which is consistent with Charleston's historic


I-26
ROUTE 17
ROUTE 17
EAST BAY STREET
MEETING STREET
COMING STREET
RUTLEDGE STREET
CONCORD STREET
CALHOUN STREET
LOCKWOOD DRIVE
MARKET ST.
BEAUFAIN STREET
BROAD STREET
Peninsula
Cooper River
Ashley River
Study Area
Project Area
Park Site
N
CHARLESTON WATERFRONT PARK
Joseph P. Riley Jr., Mayor, City of Charleston
D. William Wallace, Director Department of Planning and Urban Development
Study Boundaries
Figure I-1
Sasaki Associates, Inc.

design forms and with the park's waterfront location.

In Chapter I, we begin our discussion with a review of historical, environmental and engineering considerations relevant to the park and project area. Chapter II provides a summary of the master plan. We return to the park's context in Chapter III and examine existing conditions on the peninsula and opportunities and constraints in the Study Area. This discussion is the basis for the park design and the logic behind the circulation and parking plan and the urban design guidelines outlined in Chapters IV and V.

Project Area

Location

The waterfront park site is located in the Old and Historic District, and is within walking distance of Market and Broad Streets. The park property, shown on Figure I-1, Study Boundaries, was acquired by the City of Charleston in 1979. It lies along the edge of three distinct parts of downtown Charleston: the restored residential area containing some of the finest examples of eighteenth and nineteenth century domestic architecture in the United States, a commercial area which includes restaurants and offices located in restored warehouses left over from the era of the cotton and rice trade, and another more intensely developed commercial area to the north which encompasses the shops along Market Street and the South Carolina State Ports Authority cruise ship terminal.

The master plan includes recommendations for the Project Area bounded by the blocks on the north side of Market Street, East Bay Street, South Adger's Wharf Street to the south and extending east into the Cooper River to the pierhead line. These recommendations cover park design, circulation, parking and urban design guidelines for critical development parcels.

History

Thus far, there has been little recognition of Charleston's past importance as a port and economic center in the 18th and early 19th centuries*. The waterfront park site is in the vicinity of what was once a lively landscape of wharves and ships. (See Figure I-2)

Early development on the Charleston peninsula was contained within fortified walls on the west bank of the Cooper River. Edward Crisp prepared the earliest recorded survey in 1704. The fortified wall in this map is now the eastern edge of East Bay Street (See Figure I-3) A dense building pattern evolved and continued throughout the 18th and 19th centuries, leaving little open space. As the peninsula was filled and expanded over time, this pattern was repeated in each successive wharfscape. The Cooper River waterfront was no exception. (See Figure I-4)

Beginning in the 1700's, a significant portion of America's cotton and rice trade was conducted in the port of Charleston. Over the years, trade in these and other commodities made Charleston one of the South's and the nation's leading ports, and, accordingly, during the 18th and 19th centuries, a large number of warehouses, offices and residences sprang up along the west bank of the Cooper River. The 19th century engraving from Harper's Weekly (Figure I-5) shows horses and carts carrying cotton to the ships.

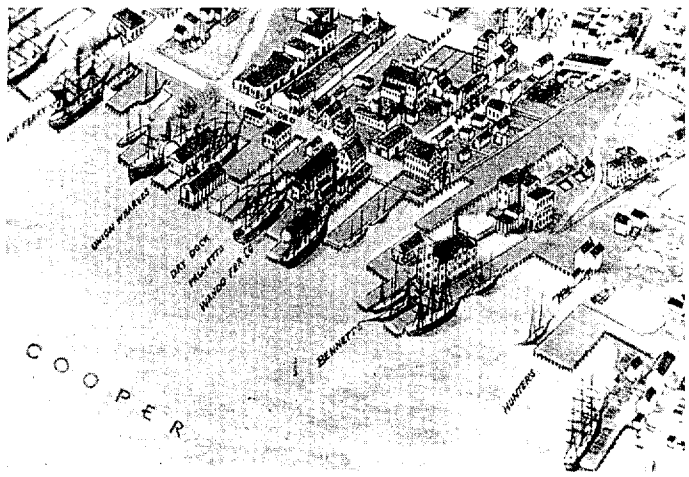


Figure I-2, A Lively Landscape of Wharves and Ships, 1872
Reproduced from a lithograph in the Library of Congress

After the Civil War, buyers began to purchase cotton at inland markets and use new and existing rail lines and traditional waterways to ship it via a northern route to New York or Boston. In 1886, an earthquake struck the Charleston peninsula. The areas of fill along the shore and in former stream beds "liquified" much faster than natural areas. Consequently, the structures in these locations were severely damaged. However, some merchants rebuilt and remained fairly active until early in the 20th century when the introduction of larger ships resulted in most port traffic shifting northward. The historic docks decayed and disappeared, leaving only the buildings on the waterfront.

Although some commission and forwarding merchants and freight insurers still do business in the area, many owners and tenants abandoned their buildings. In recent years, however, offices and restaurants have been moving into the area. Most of the historic area has been restored south of Calhoun Street, but some revitalization is still needed in the Cooper River waterfront district. Numerous vacant lots still exist which, at the present time, are used for parking cars, detracting from the area's appearance and slowing rehabilitation.

Redevelopment Opportunities

The redevelopment of these vacant lots presents a tremendous opportunity for the people of Charleston. First, the park site, when developed, will provide sorely needed public open space in the downtown and public access to the Cooper River. Second, streetscape improvements such as widened sidewalks and new street trees in the Project Area will enhance the walking experience be-

*This information is based upon the National Register of Historic Places Inventory – Nomination Form, *Factors and Commission Merchants Historic District* prepared by the City of Charleston.

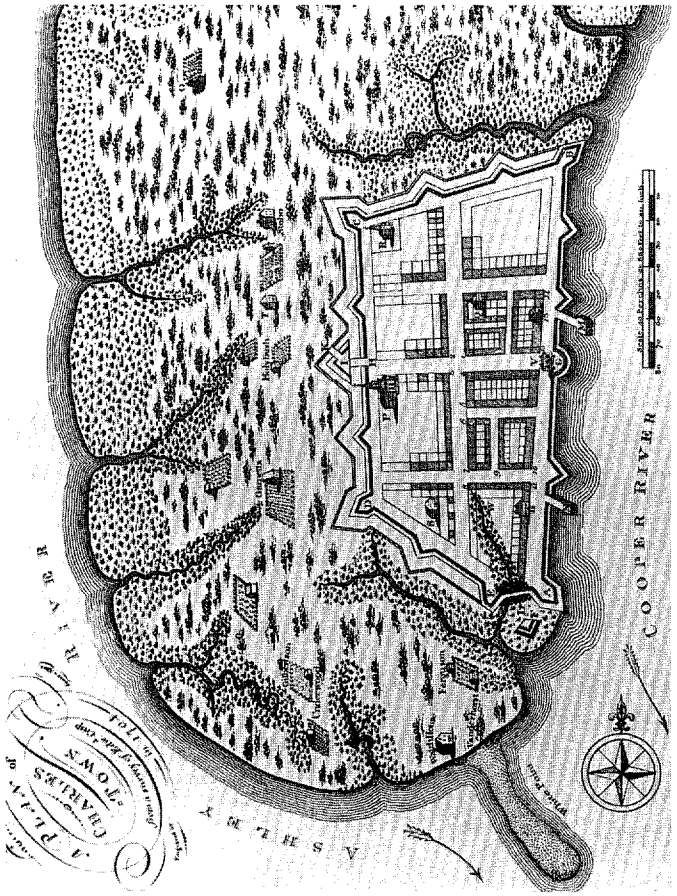


Figure I-3, Edward Crisp Survey, 1704

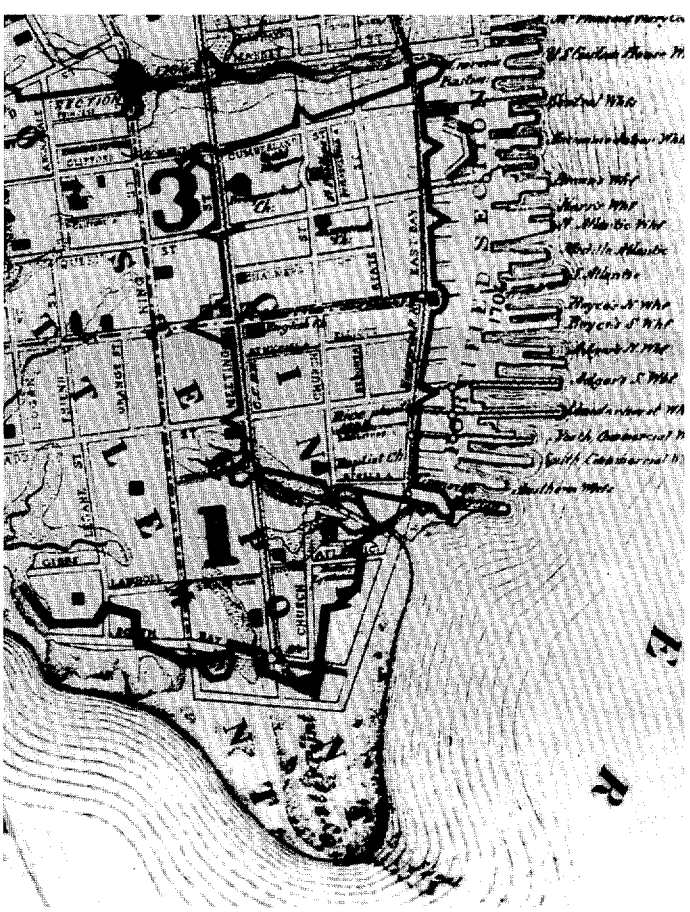


Figure I-4, Map of Charleston, August 1883

tween the planned hotel on Meeting Street, the Market Street shops, the Customs House, the National Park Service's Fort Sumter tour boat facility and the park, and will reinforce the city's pleasant walking environment. Third, the vacant properties adjacent to the park site can be developed to reinforce the area's current small scale residential and commercial character.

Park Site

The park site has approximately 1280 feet of frontage along Concord Street between the South Carolina State Ports Authority Maritime Office Building and Adger's Wharf Park. The property includes 12 acres of land and water (See Figure I-6). It commands views of the Cooper River, Charleston Harbor and the entrance from the Atlantic Ocean, Castle Pinckney, the U.S.S. Yorktown at Patriot's Point and Fort Sumter (See Figure I-7, Long Distance Views).

Offshore stand the partially charred remains of pilings. They supported the wharves of Tidewater Terminals, Inc. until they were destroyed by fire in June of 1955 (See Figure I-8). Tidal flats, low salt marsh and high marsh constitute the park site's eastern periphery (See Figure I-9). Water from a storm sewer flows out from under Concord Street in a small channel in the southern half of the marsh at the termination of Exchange Street. Five parking areas are constructed over fill along the waterside of Concord Street. The fill consists of sand, rock, brick, gravel and trash.

Environmental Considerations

The park's location on the tidal, salt water portion of the Cooper River is both an opportunity and a constraint. The river adds tremendous interest to the park. Boats of all sizes pass by on their way in and out of the harbor. Many species of birds pause in the water offshore. The marine environment provides a habitat for molluscs, shellfish and fish. At the same time, tides, flooding, storms and the salt marsh add a certain complexity to the development of

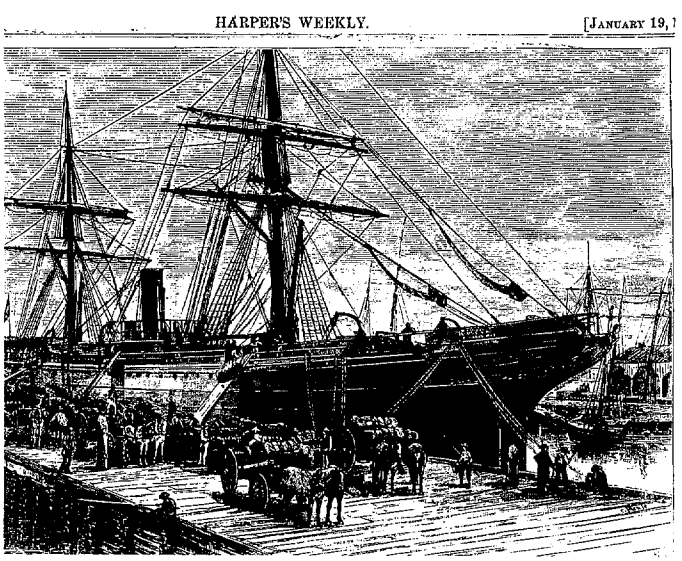
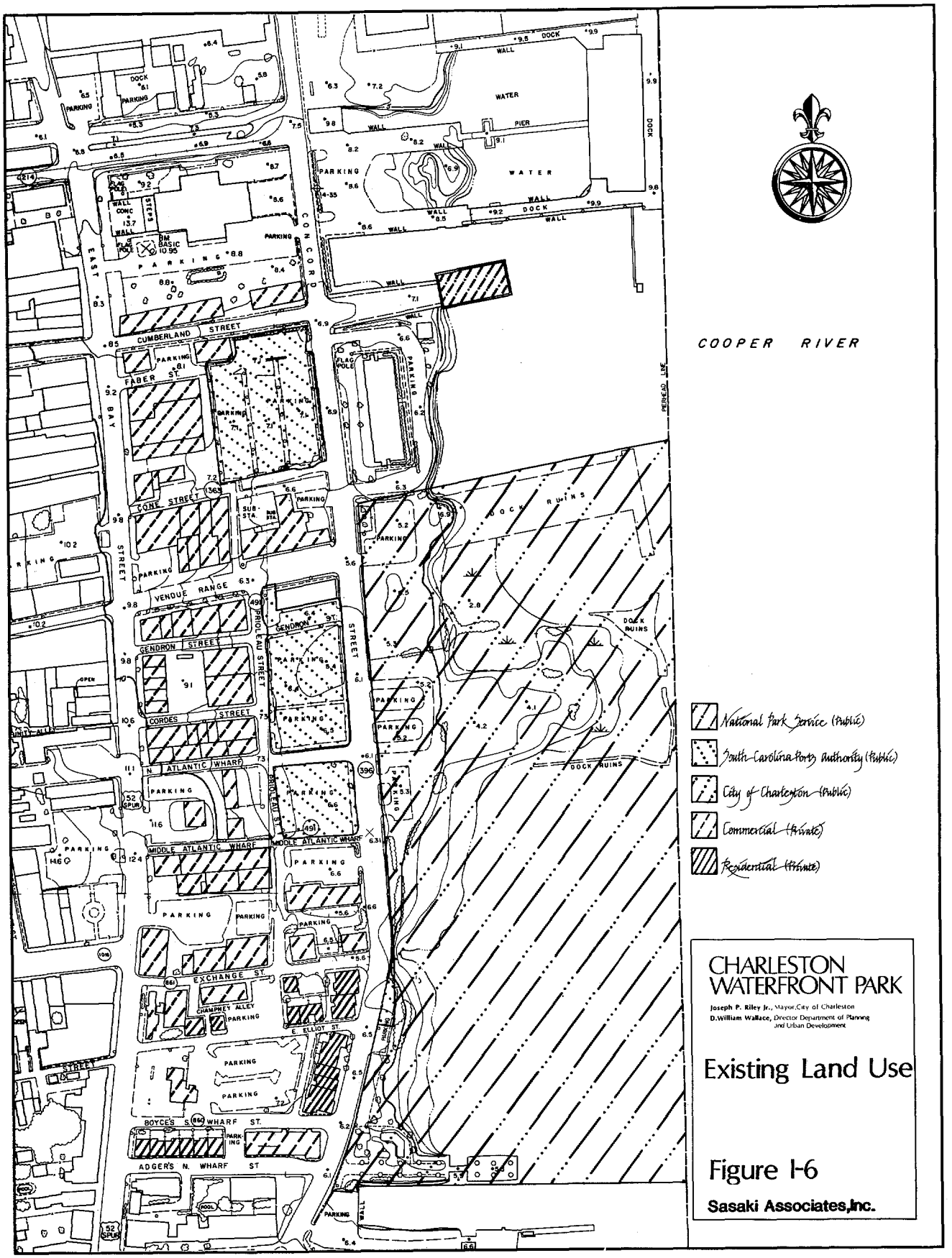


Figure I-5, Loading Cotton at Charleston, S.C. (Harper's Weekly), late 19th century


COOPER RIVER
National Park Service (Public)
South Carolina Port Authority (Public)
City of Charleston (Public)
Commercial (Private)
Residential (Private)
CHARLESTON WATERFRONT PARK
Joseph P. Riley Jr., Mayor, City of Charleston
D. William Wallace, Director Department of Planning and Urban Development
Existing Land Use
Figure I-6
Sasaki Associates, Inc.
CUMBERLAND STREET
FABER ST.
CONE STREET
VENDUE RANGE
GENDRON STREET
CORDES STREET
N. ATLANTIC WHARF
MIDDLE ATLANTIC WHARF
EXCHANGE ST.
CHAMPNEY ALLEY
ELLIOT ST.
BOYCE'S S. WHARF ST.
ADGER'S N. WHARF ST
EAST BAY STREET
PRIOLEAU STREET
COOPER
WATER
PIER
DOCK
WALL
PARKING
DOCK RUINS
PERIMEAD LINE

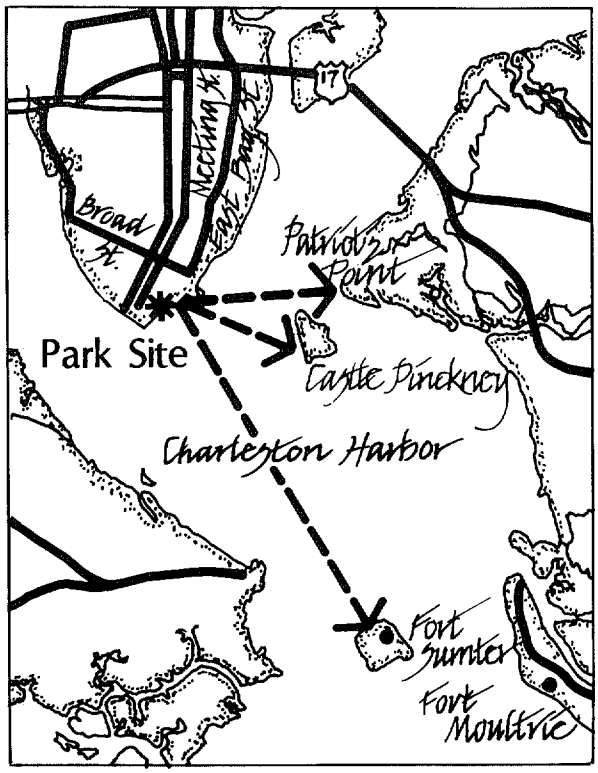


Figure I-7, Long Distance Views

the park. Only 3.7 acres are above the extent of spring high tide.

Tides, Flooding, Storms

At present, the highest land in the park is at 6.5 feet NGVD (National Geodetic Vertical Datum) and most of the land is at an elevation of 5.3. The site is extremely susceptible to flooding. Water heights under different storm conditions and tides range between an average high tide of 3.7 to a 25 year flood of 7.0. In Appendix A, The Tide and Flood Levels table, the Flood Levels map and the accompanying sections show the projected extent of different flood levels on the project area. Almost the entire park site is inundated by a 10 year frequency flood at an elevation of 5.8. Plant material and park construction must be able to coexist with somewhat formidable coastal forces: hurricanes, flooding, salt spray and wind. Raising the level of certain portions of the park will reduce the frequency of flooding and increase the likelihood of plant material survival.

Marsh, Existing Flora and Fauna

Only 3.7 acres of the park can be considered upland, which, in this case, is land at an elevation above the extent of spring high tide. The majority of this acreage is subject to the 10 year flood. The rest of the site consists of approximately one acre of high marsh, three and a half acres of low marsh, almost four acres of tidal flat, and several acres of open water.

All coastal saltmarshes (334,500 acres) in the state are under the jurisdiction of the South Carolina Coastal Council (SCCC) and the U.S. Army Corps of Engineers. These ecologically fragile areas are very productive components of the marine food web. Saltmarsh cordgrass, the dominant vegetation in the marsh, is a highly productive plant that, upon its death and decay, provides detritus to the marine environment. Detritus, the breakdown product of the plant after bacterial decomposition, is a major food source for marine zooplankton (minute animals and larval stages of fish and shellfish) and adult shellfish and fish. Saltmarshes also provide shelter and nursery areas for fish and shellfish, making their presence valuable to the recreational and commercial fishing industries. Both birds and mammals frequent saltmarshes for food and shelter. Many species of marine birds nest in saltmarshes.

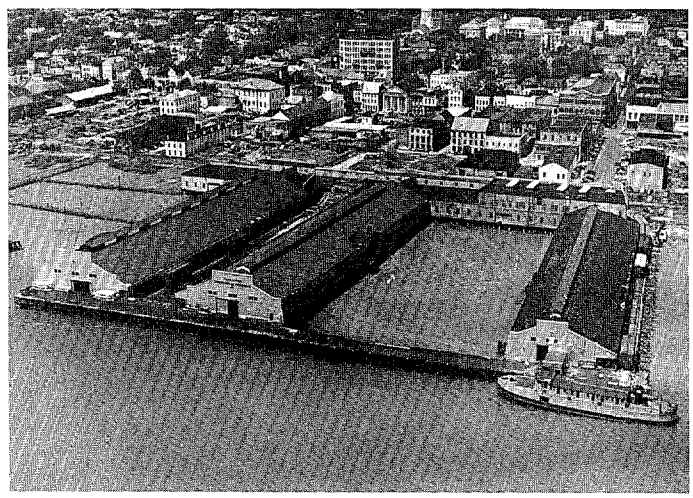


Figure I-8, Tidewater Terminals

Saltmarshes function as buffers between adjacent upland areas and the ocean. During coastal storms, saltmarshes absorb and dissipate the energy of waves, preventing storm damage to the uplands. They also function as tidal buffers, slowing and absorbing incoming tidewater and releasing it at slower rates, thus reducing coastal erosion. Stormwater runoff from developed areas is filtered by adjacent saltmarshes. These living filters absorb nutrients and break down pollutants thus decreasing the impact of the runoff on coastal waters.

Although extensive saltmarsh exists nearby, one of the few remaining pieces of saltmarsh on the Charleston peninsula is present on the park site. Any dredging or filling within these marsh areas will necessitate a joint application to the South Carolina Coastal Council and the U.S. Army Corps of Engineers. See Appendix A for additional information about the marsh and permitting procedure.

Engineering Considerations

Geology/Soils/Foundations

As is common with many city harbors along the eastern coast of the United States, Charleston Harbor is located in a river estuary and contains thick deposits of highly compressible, low-strength, organic clay. Two critical design issues arise from such poor soil conditions: slope stability and settlement potential. Consequently, subsurface and geotechnical data are especially important to the successful development of the park master plan.

These three steps are necessary to incorporate geotechnical input into a waterfront project of this magnitude:

1) obtaining all existing subsurface boring, geologic and testing data in or adjacent to the park site to develop a general overview of the existing soil and

Figure I-9, Existing View of Park

foundation conditions. (This information is useful in identifying major park design issues, cost implications, and physical site constraints);

2) initiating a program of pilot borings and tests after the preferred park design program is established and when detailed design and cost estimates are necessary (The resulting data test the geotechnical feasibility and cost implications of such specific engineering features as retaining walls, riprap and bulkheading), and
3) conducting a program of design borings at the exact location of individual structural elements prior to final design and completion of construction documents.

The first step is already complete. Borings and geologic data suggest that the area consists of four major soil units: fill, organic clay, sand, and marl (Cooper Formation). (See Appendix B) The preliminary subsurface data indicate the presence of thick deposits of highly compressible low-strength, organic clay characteristic of river estuaries. The two critical design issues, slope stability and settlement potential, are important considerations in the development of the park design, specifically in the feasibility of filling, bulkheading and/or rip rap.

To resolve these design issues, a pilot boring program was implemented in May 1980 to conduct an initial field investigation, sampling and lab testing program. The following recommendations and conclusions are based on the preliminary analysis (Step 1) and the initial pilot study results and are subject to change as more data become available:

- Construct all heavy structures on piles and drive to depths in excess of 50 feet.
- Minimize hard surfaces to reduce maintenance costs for settlement damage in fill areas.
- Minimize filling to reduce excessive settlements.
- Provide graded edges to the shore to reduce both settlement and slope failure potential.
- Use vertical edges to reduce erosion and soil loading and enhance slope stability.
- Conduct supplemental borings prior to final design.

Water/Sewer/Storm Drainage

The current water system consists of cast iron piping installed in the 1880's and cleaned and relined in the 1930's. The pressures in the lines range from 30 psi in the summer to 45 psi in the winter. The criteria for a water supply system should be the minimum pressures needed for adequate fire suppression. Depending on the pressure needs for operation of the irrigation system, a standpipe or reservoir system with a pump may be required. Complementary development may require greater pressures.

The Department of Health and Environmental Control in Columbia regulates permitting of major sewer and water line extensions and issues water quality certificates for 404 permitting. This agency is concerned with water quality during and after construction.

Water quality certification will be granted or denied within 15 days after public notice is made in local newspapers by the South Carolina Coastal Council and the U.S. Army Corps of Engineers.

The sewer system was installed in the 1930's and can

accommodate new development without difficulty.

During high tides and intense rainfall, low areas such as the Project Area are prone to flooding. The current storm drainage system has difficulty in such situations. However, storm drainage in the park can be adequately handled. 12-inch and 24-inch storm drains are available along Market Street for use in complementary development.

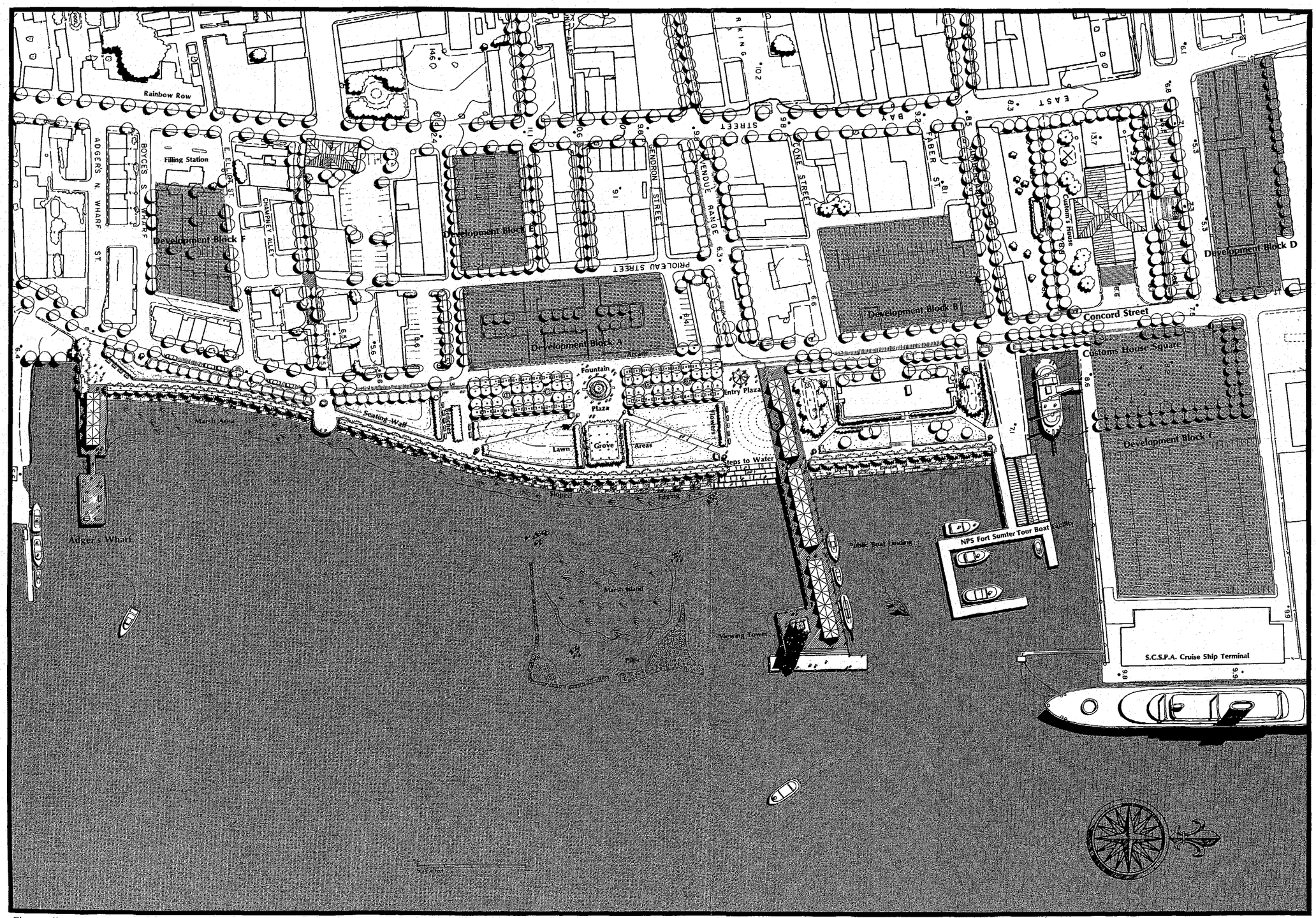


Figure II-1, Master Plan, Charleston Waterfront Park

Figure II-2, Vendue Wharf

II. Master Plan Summary

To find a form for the park which would be appropriate to the geometry of its setting, the design team looked at the form of both the historic and the existing context – the water's edge and the city itself. Before the peninsula was settled, it was bordered by marsh. As Charleston grew, its residents filled the marshes, made land and built wharves. Old maps of the park area, some of which were in Chapter I, show wharves extending into the Cooper River like an asymmetrical, castellated castle wall. Further south, the Battery consisted of a series of tangents containing the curves of the lower peninsula.

After Tidewater Terminals burned, dredging ceased, sedimentation raised the level of the river bottom and the marsh began to re-establish itself at the base of the pilings and along the shore. It now forms a loose curvilinear band and a rectilinear projection between the upland portion of the park site and the Cooper River.

In plan, the Battery, the marsh and the few remaining wharves provide the existing form along the water's edge. East-west streets connect the Cooper River waterfront to the peninsula's grid of streets.

In elevation, the peninsula is low and flat. The old warehouses, wharves and the Battery were built a few feet above the elevation of high tide. Today, the park site offers two basic elevational differences, the marsh and the upland area. In the past, the different elevations of wharf and building offered a variety of views of the river and Charleston's rooftops and steeples.

Major formal elements in the design of the park are a curvilinear, yet geometrical edge, a new wharf extending out into the Cooper River, and the marsh, preserved and reshaped to establish a form closer to that usually occurring in nature. These forms reflect the historical precedents described above. In addition, the path system of the park ties into the east-west connections to the city and to the north-south connection to the Battery. Features at different elevations are provided to give the park visitor the opportunity to view the city and the river from the same variety of vantage points available on the waterfront in the past.

The master plan for Charleston Waterfront Park is presented in Figure II-1. The upland portion of the park site is expanded somewhat and filled to an elevation above that of the 25-year flood level. The high marsh is lowered to the elevation of the low marsh, the low marsh is extended in a linear band almost the entire length of the park, and a channel separates this band from the "marsh island".

The curvilinear edge of the park and the marsh is reinforced to withstand natural forces. Banks of oyster shells, "oyster rakes" stabilize the edge of the marsh and water.

Park Elements

The park has seven elements: Vendue Wharf, the wide bosque/lawn, the linear lawn, Concord Street promenade, Adger's Wharf, the palmetto path, and the marsh.

Vendue Wharf

Vendue Wharf and the adjacent plaza constitute the most important entrance to the park and its northern boundary (See Figure II-2). The pedestrian on Queen/Vendue Range will first become aware of the waterfront park when he sees a tower silhouetted against the Cooper River. Steps and a ramp will take him up from Concord Street to the plaza and the wharf. The plaza offers an opportunity for performances by small groups of musicians or actors, but does not look like an empty stage when performances are not in progress. Steps lead the visitor down to the water on the eastern edge of the plaza. The bottom step is 10"–12" above the level of the average high tide to avoid the accumulation of mud and growth of barnacles. The river bottom adjacent to the lowest step can be covered with old oyster shells so that it can be walked on with bare feet and present an aesthetic edge.

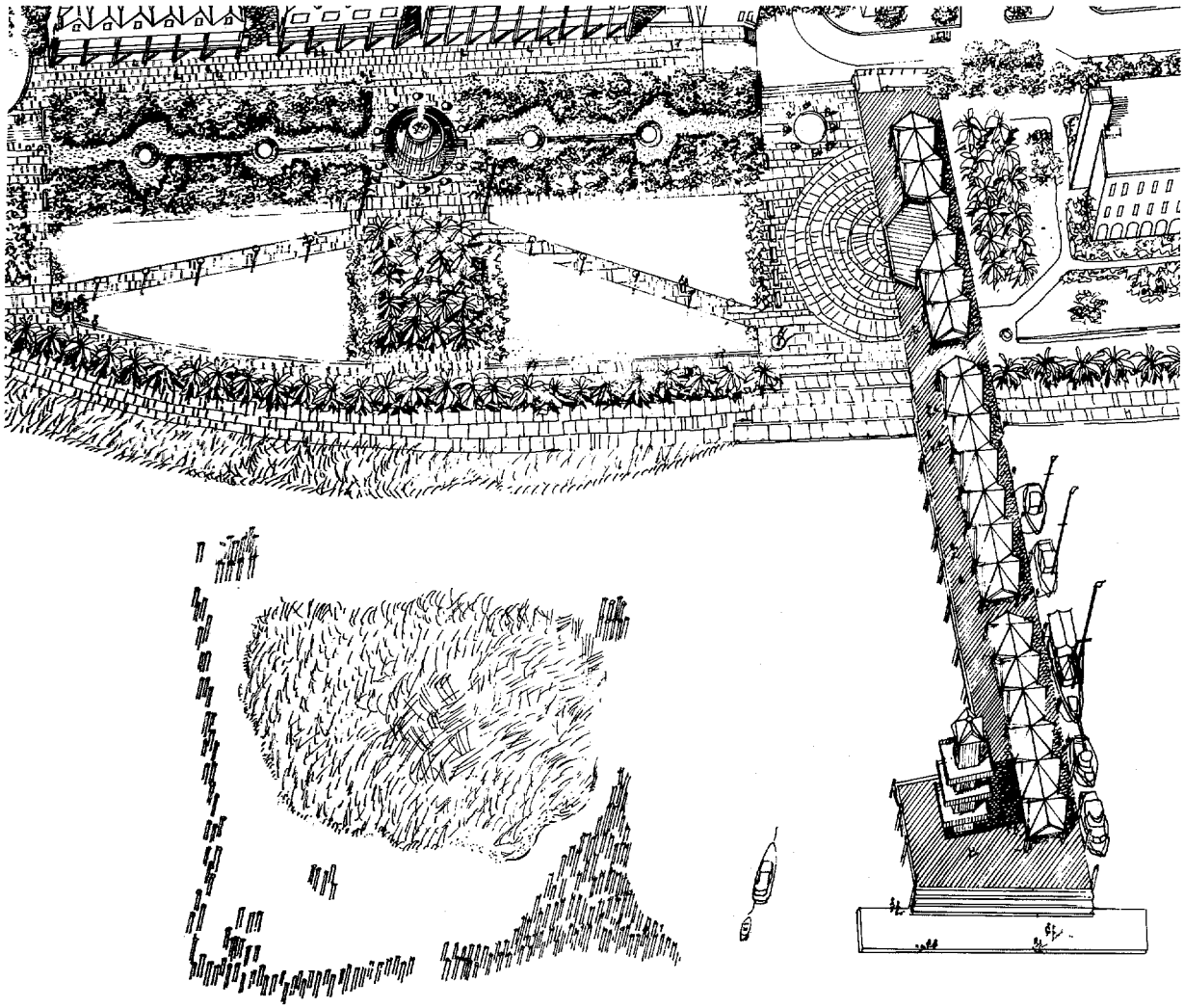


Figure II-3, Bosque/Lawn

Vendue Wharf offers several different kinds of opportunities to enjoy the river. The shelters on the wharf provide shade, benches and swings. They line up with the buildings on the northern edge of Vendue Range and extend the east-west axis of the street out into the river. At the wharf's end, wooden steps descend to a deck which serves as a water walk, fishing pier and protective breakwater for boats moored in the NPS "water room" to the north. Owners of small pleasure craft can moor their boats along the northern face of Vendue Wharf on an hourly basis while they eat a meal or tour downtown.

Bosque/Lawn

When the pedestrian enters the park via the steps at the end of Vendue Range, he has a choice between walking out along the wharf or passing into the bosque (See Figure II-3). A series of five pools partially connected by a narrow water channel runs below the trees and contributes to a sense of coolness and shade in the bosque. Two rows of benches border the pools. A visitor, standing by the central fountain, has a view of the Cooper River, filtered first through a grove of trees and then a line of palmettos, over the marsh and past the piles.

The bosque, lawns and palmetto promenade provide a transition from east to west between the small scale, formal spaces of the Charleston grid pattern of streets and the wide, flat, curvilinear Cooper River. The pedestrian leaves the narrowness of Cordes Street, passes through the more spaciously proportioned bosque, and arrives at the open lawns. The line of palmettos along the western edge of the promenade is the last vertical element before the river engages the complete attention of the park visitor. This part of the park ends along the axis of Exchange Street, the second most important park entrance.

Concord Street Promenade

A promenade raised above the existing Concord Street right-of-way runs the length of the park, extending northward past the Ports Authority Maritime Office Building (See Figure II-4). Its width increases adjacent to the development parcel fronting on the park between Vendue Range and Middle Atlantic Wharf Streets. Traffic on Concord Street is rerouted along Prioleau Street around the future development parcels. Consequently, the park area can extend inland across a segment of the existing right-of-way.

Closing this portion of Concord Street and raising it several feet above its existing elevation accomplishes several things. It strengthens the Concord Street pedestrian promenade, separates cars from pedestrians, and tightens the relationship between the city and the park. The elimination of the automobile adjacent to the bosque/lawn

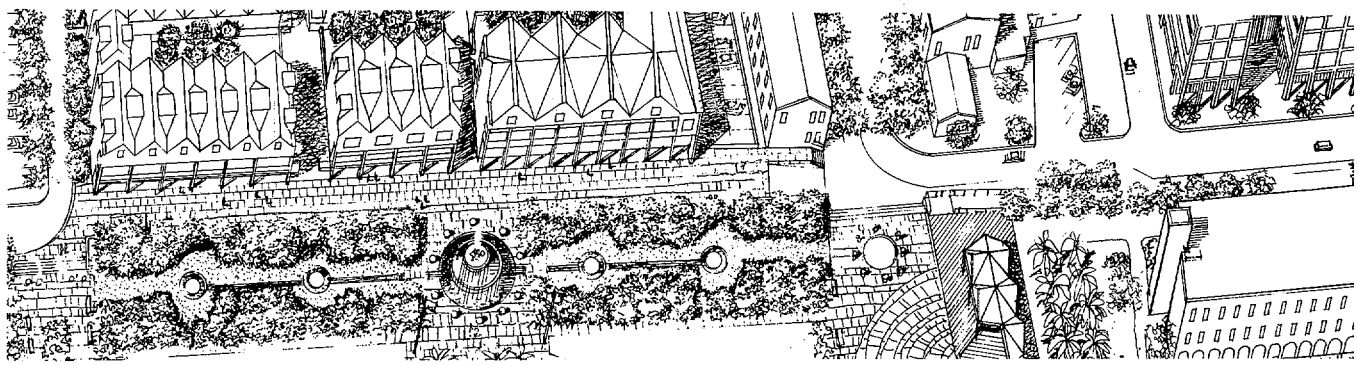


Figure II-4, Concord Street Promenade

contributes to an atmosphere of peace and quiet in the park. It also raises the visitor's eye level and, in this way, improves the angle of his view across the river. Emergency access is preserved along the Concord Street right-of-way by ramps at either end.

Linear Lawn

To the south, across Concord Street from the residential neighborhood, the park consists of a narrow linear lawn and a path parallel to Concord Street (See Figure II-5). This part of the park can accommodate only a limited number of people. Its reduced scale is appropriate to the small scale of the houses and streets in its vicinity. Concord Street is narrowed and open to vehicular traffic along this portion of the park to provide convenient vehicular access at a residential scale for the neighborhood. On-street parking is provided on the eastern side of the street.

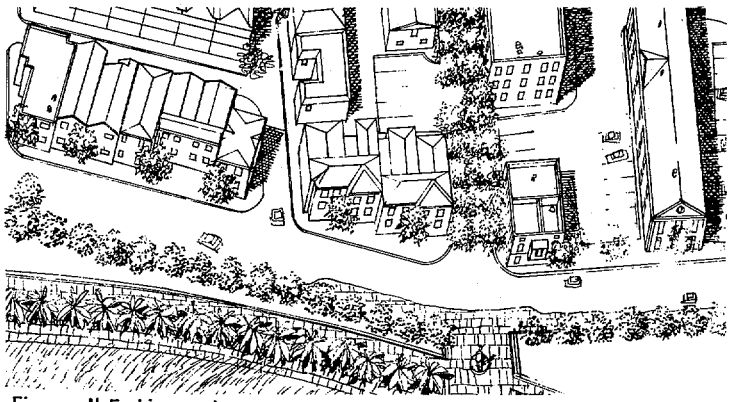


Figure II-5, Linear Lawn

Adger's Wharf

On Adger's Wharf, an open shelter deck provides shade and recreation space for the adjacent residential neighborhood (See Figure II-6). The rest of the wharf is paved. Old fashioned porch swings in the shelter provide a desirable way to pause and enjoy the view. This is the southern edge of the park, a vantage point for a northern view of river, marsh, and park. This area is considerably less public than the bosque/lawn. It is a space for quiet uninterrupted observation of the river.

Palmetto Path

A path lined with palmettos on its water side connects

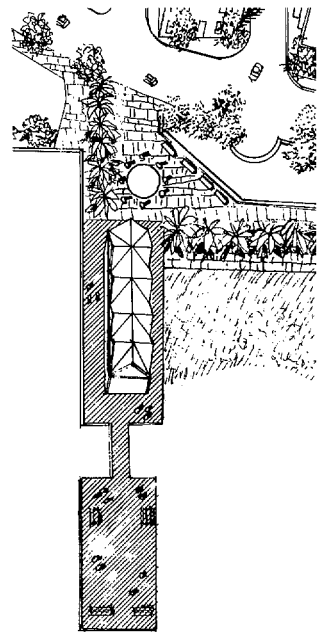


Figure II-6, Adger's Wharf

Adger's to Vendue Wharf (See Figure II-7). The architectural use of the palmettos is intended to add visual strength to the park edge. The pedestrian is offered a variety of views as he moves north, first narrow marsh in the foreground, then extensive marsh and pilings in the distance, and finally Vendue Wharf and the observation tower. The widely spaced palmettos with their narrow form will allow wide views of the river. The views change with the tides, presence of shore birds, boats and fishermen, weather and seasons.

Palmettos are able to tolerate more salt spray than most tree species and can be transplanted at a relatively large size. These two qualities reduce the chances of missing or unevenly sized trees over the years.

Marsh

The marsh runs in a narrow strip from the south to the north. A channel separates a marsh island from the mainland (See Figure II-8). The marsh will attract shorebirds such as gulls, ducks, terns and will provide a habitat for molluscs. The adjacent tidal flat hosts snails, clams and crabs (see Appendix A for information about the marsh).

The natural saltmarsh environment and its fragile nature are respected in the park design. The marsh will add interest to the park and can be used as an educational re-

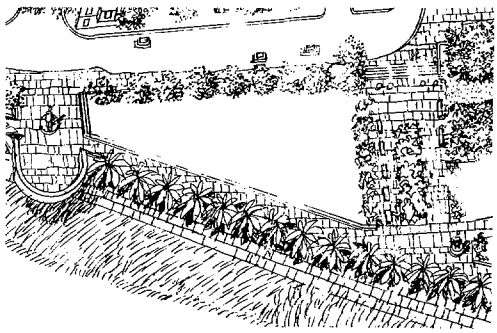


Figure II-7, Palmetto Path

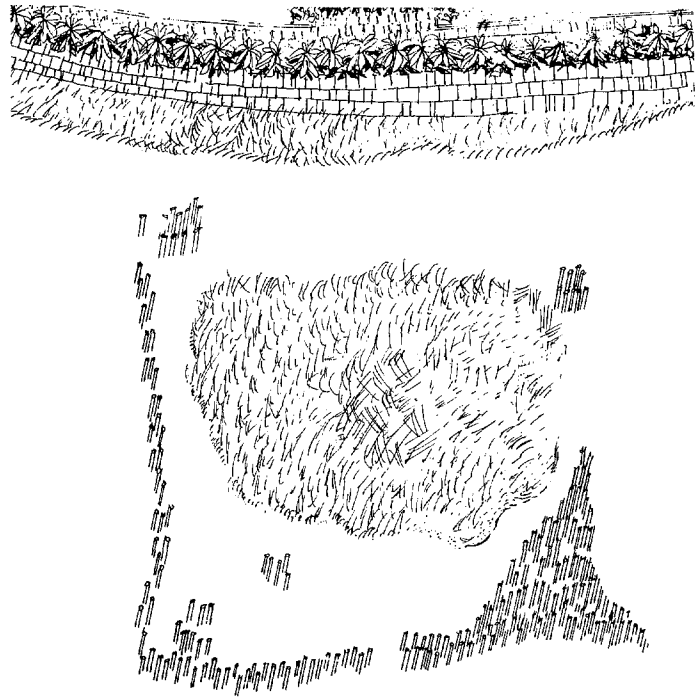


Figure II-8, Marsh

source for visitors. The proximity of the marsh to the proposed fishing pier should enhance fishing and, at the same time, enforce the fact that saltmarsh production is important to fisheries. Some of the vertical pilings will be retained to attract birds. The horizontal members will be removed.

The following three sections illustrate the design concepts in a schematic way (See Figures II-9, II-10, and II-11).

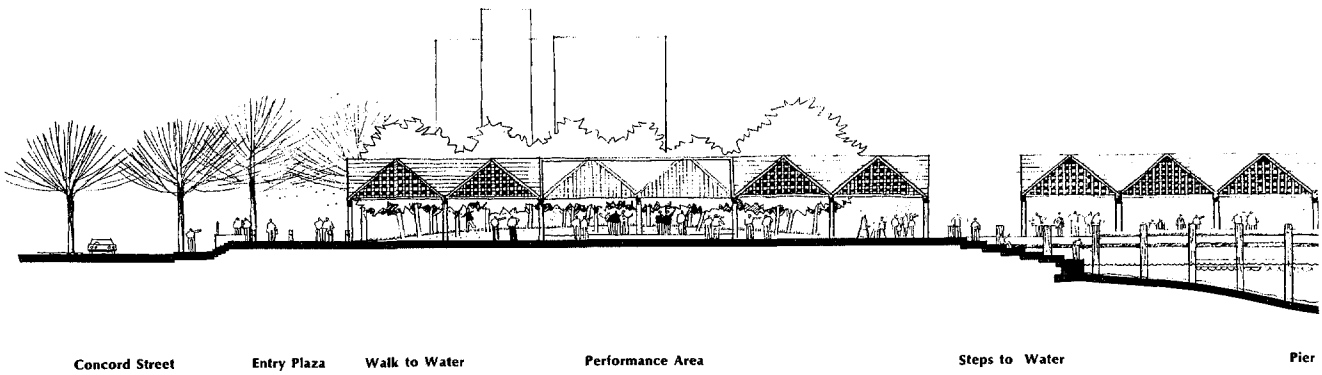


Figure II-9, Section A-A – Vendue Wharf

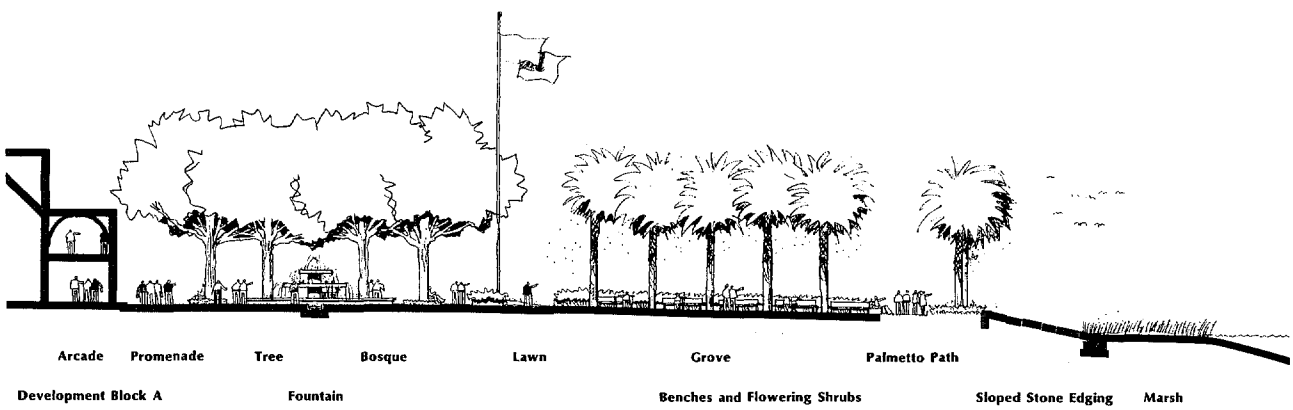


Figure II-10, Section B-B – Bosque/Lawn

Construction Sequence

The park will be constructed in steps over a period of several years with major completion occurring in 1983. Dedication can occur during the Spoleto Festival to honor the 150th anniversary of the incorporation of Charleston. An appropriate addition to this celebration would be the arrival of the "tall ships".

The following table catalogues the costs for the five steps in the construction sequence and the total cost for the completed park. Figure II-12 Construction Sequence, illustrates the portions of the park built in each step.

The figures used are based on 1980 costs. Given the schematic nature of the design, the estimate is rough and will be refined in the next phase of the work. Costs do not cover the realignment of Concord Street, streetscape improvements for east-west streets, or the relocation of utilities.

February 1981–February 1982

Initial dredging should occur prior to construction of Vendue Wharf. In addition, the preloading necessary to stabilize the site should begin at the outset of the project. The material used to pre-load will be moved and re-used during the construction sequence in approximately six month intervals. The longer the area has to pre-consolidate the more stable all the rigid surfaces will be within the park. Once the area is pre-loaded, the surface can be used for temporary parking while settlement is taking place. For simplicity's sake, the costs for pre-loading are all included under step 1.

February 1982–April 1982

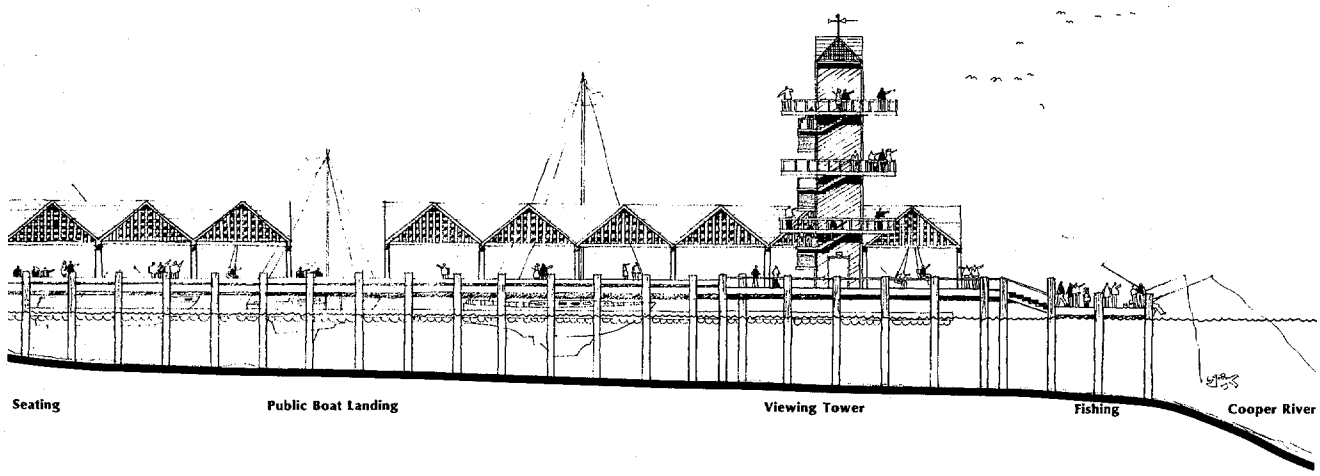
Construction of Vendue Wharf should proceed next, accompanied by a second dredging.

January 1982–January 1983

After the pre-loading operation is complete, the edge can be constructed. The southern portion of the park, Adger's Wharf and the linear lawn can be developed.

January 1983–June 1983

The relocation of Concord Street and the surface improvements can be accomplished now that the edge and the southern portion of the park are complete. The work will begin with the application of lightweight fill to the site.



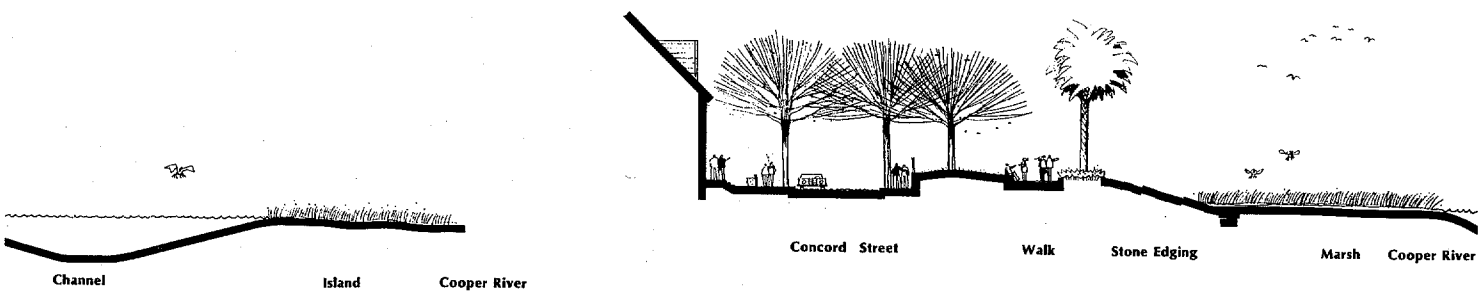


Figure II-11, Section C-C – Linear Lawn

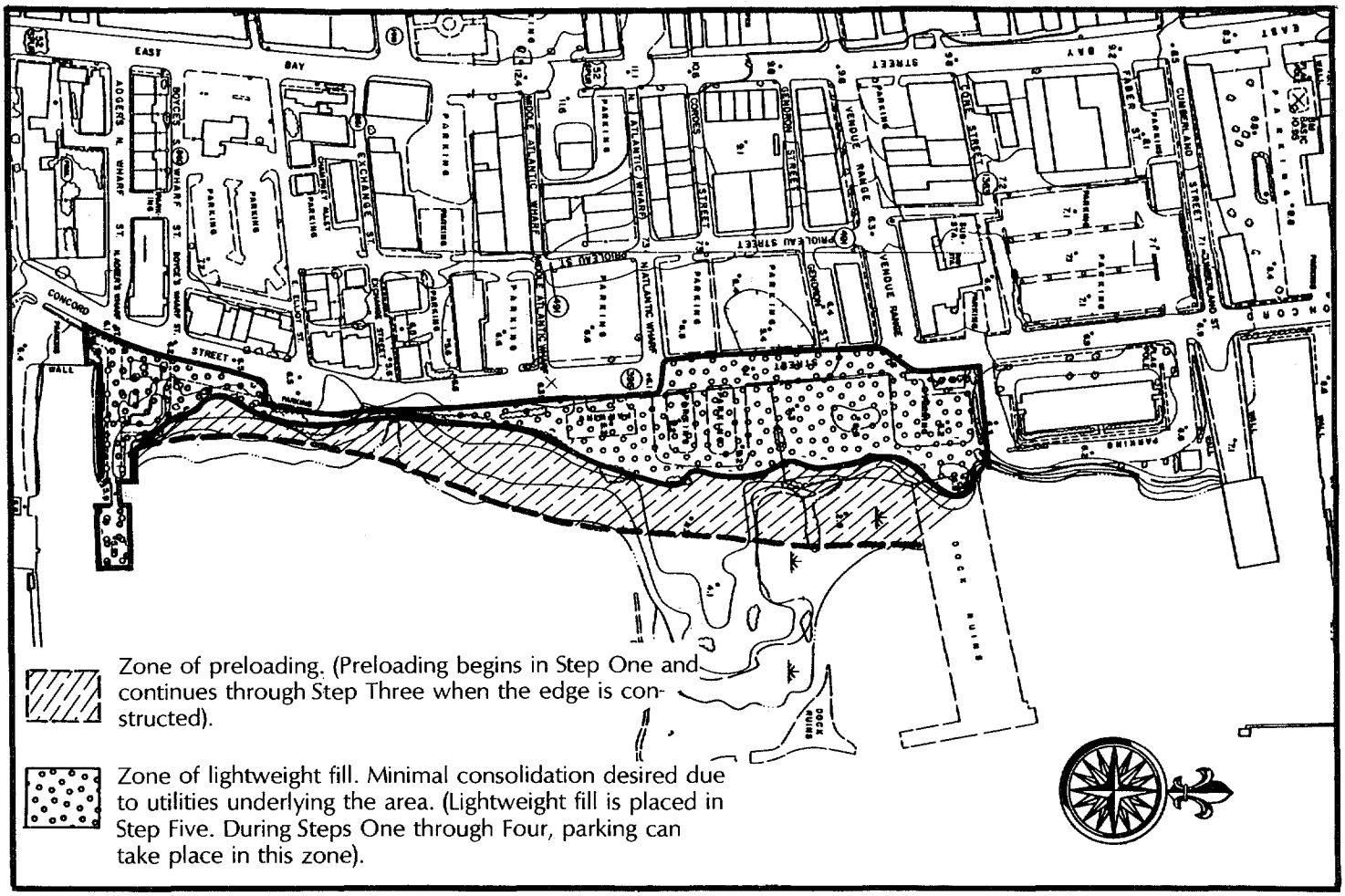


Figure II-12a. Construction Sequence – Probable Fill and Preloading Schedule.

TABLE II-1
CONSTRUCTION SEQUENCE
Charleston Waterfront Park Master Plan

PARK IMPROVEMENTS:	Completed Park
Dredging and Pile Removal	277,250
Preloading Surcharge	926,880
Edge Treatment	336,000
Wharf Development	1,536,990
Steps	165,000
Salt Marsh Revegetation	20,000
Concord Street Edge Development	292,250
Street Planting and Rehabilitation	495,000
Pedestrian Walks, Lighting, Site Furniture, etc.	2,177,200
Viewpoints, Amphitheaters, Fountains, Sculpture	470,000
Architecture	1,080,000
Planting and Irrigation	262,480
Subtotal	8,039,050
30 Percent Contingency and Fees	2,411,715
TOTAL	10,450,765

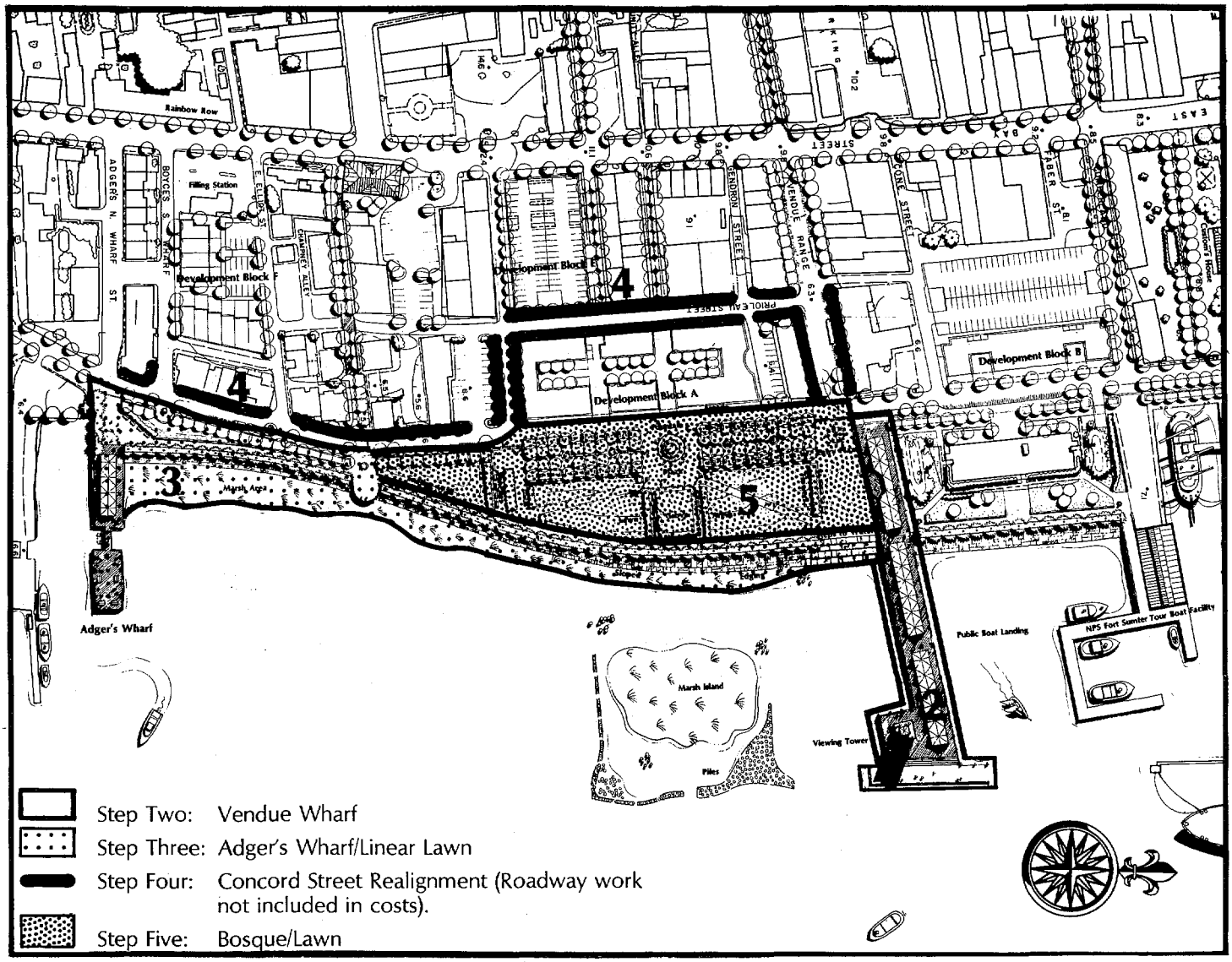


Figure II-12b. Construction Sequence, Probable Schedule for Park Elements.

1 Dredging/ Preloading	2 Vendue Wharf	3 Adger's Wharf/ Linear Lawn	4 Concord Street Realignment	5 Bosque/ Lawn
227,250	50,000			
610,380				316,500
		336,000		
	1,536,990			
		165,000		
		20,000		
	15,750	155,750		120,750
		–	495,000	–
		562,500		1,614,700
		210,000		260,000
	930,000	150,000		–
		155,030		107,450
837,630	2,532,740	1,754,280	495,000	2,419,400
251,289	759,822	526,284	148,500	725,820
1,088,919	3,292,562	2,280,564	643,500	3,145,220

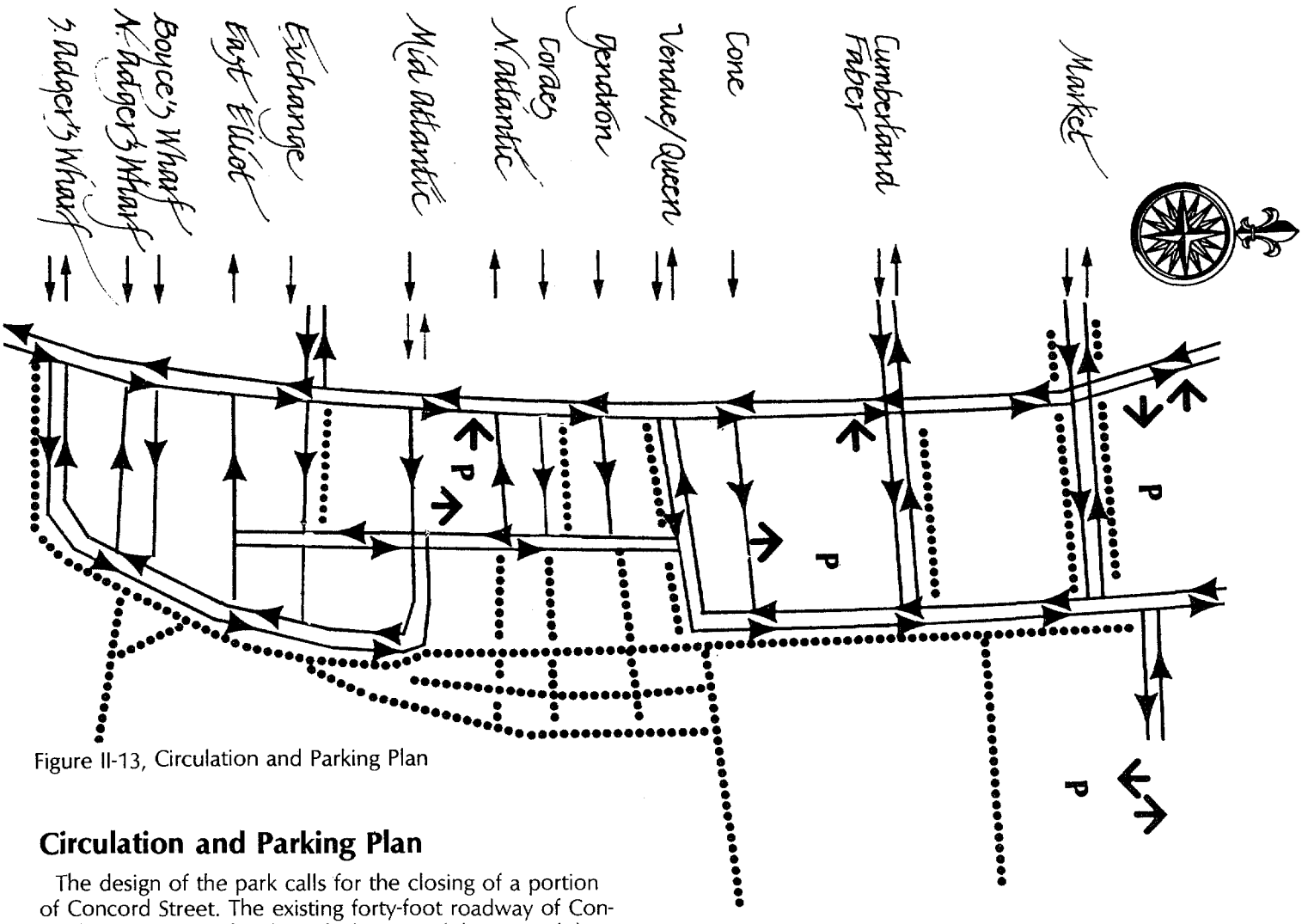


Figure II-13, Circulation and Parking Plan

Circulation and Parking Plan

The design of the park calls for the closing of a portion of Concord Street. The existing forty-foot roadway of Concord Street is out-of-scale with the rest of this part of the peninsula and with the proposed park. In order to improve the transition from the city's dense building pattern to the open river, and to minimize vehicular traffic adjacent to the park, Concord Street will be narrowed and paved in a special way from South Adger's Wharf to Middle Atlantic Wharf, closed from Middle Atlantic Wharf to Vendue Range and narrowed from Vendue Range to Market Street. Prioleau Street will be widened and realigned to carry the traffic from Concord Street to Vendue Range. New development along Prioleau Street's eastern frontage (Development Block A) will be arcaded to provide an attractive, protected pedestrian environment.

In order to improve existing pedestrian links and to encourage foot traffic between the downtown and the park, three streets (Market, Queen/Vendue Range and Broad/Exchange) are designated as the most important pedestrian links from the downtown city center to the park. Landscaping the intersections of East Bay with these three east/west gateway streets will provide visual clues to the park's existence. Segments of Cordes and North Atlantic Streets can become pedestrian walkways closed to traffic.

In order to minimize vehicular traffic adjacent to the park, four parking facilities are suggested for the project area. The construction of the park and the development of the existing parking lots will eliminate off-street parking and displace some of the on-street parking spaces. The parking structures will accommodate replacement parking and respond partially to future parking demand (See Figure II-13 for a diagram of the Circulation and Parking Plan).

Pedestrian
Parking Access
P Parking
Direction of Traffic Flow

Specific recommendations for circulation and parking improvements in the Project Area are discussed in Chapter IV, Circulation and Parking Plan.

Critical Development Parcels

The six important development parcels in the project area are shown on the master plan (See Figure II-1). Some have potential for residential use, others for commercial or parking, and some for combinations of all three. They are shown on the illustrative plan. Objectives for their use and specific design guidelines for their development are discussed in Chapter V, Urban Design Guidelines.

Courtesy: South Carolina Historical Society

III. The Park and the Peninsula

Existing Conditions on the Peninsula

The architectural and urban design character of the Charleston peninsula – from the larger order of the whole three-dimensional system to the specific details of the individual parts of the system, the buildings and streets, and gardens – forms a powerful existing context. This setting should control (to a greater extent than changing architectural fashion) the design of new buildings, the waterfront park, and other open spaces in its vicinity. Charleston is a place where jarring new scales, trendy design gimmicks, inappropriate materials, unorthodox site disposition, massing or landscape treatments seem "out-of-place". Like Bath, England, and Savannah, Georgia, the tip of this peninsula is one of the world's most valuable and sophisticated lived-in urban environments. New buildings and places here must be undertaken with extreme caution. Not only is architectural excellence important, but also an overriding urban design view is necessary – an understanding not just of buildings and history, but of their relationship to one another, of everything together, how Charleston looks and works, and how it can, in increments, evolve, change and yet retain its charm.

In order to produce a master plan and urban design guidelines appropriate to Charleston, we reviewed the park's position in the peninsula. We looked at the disposition and function of existing roadways, transit routes, open spaces and street treatments of the downtown area south of Route 17. We investigated the projects currently underway and in the planning stages. In the area within the immediate vicinity of the proposed park, existing parking and goods movements were evaluated. In this chapter, we summarize our findings about existing conditions and contemplated improvements, comment on the impact of park-related development, circulation and parking improvements on the rest of downtown, and suggest opportunities for future changes.

Circulation and Parking Systems

The existing roadway network within the peninsula area forms a strong grid pattern running parallel and perpendicular to the length of the peninsula. U.S. Route 17, located in the northern half of the peninsula, is the primary route providing access to the city from the east and west. Interstate 26 which terminates at Route 17 provides access to Columbia as well as Interstate 20 and 95.

Principal north/south roadways, Meeting, King, Comings/Phillip, Ashley/Rutledge, Lockwood Drive, East Bay, and Morrison Drive, provide access to the downtown proper. Lockwood Drive and East Bay Street connect U.S. Route 17 to the peninsula along the eastern and western waterfronts. East Bay Street, adjacent to the Project Area, accommodates a high north-south truck/goods movement demand generated by the shipping and industrial uses along the Cooper River waterfront. Major east/west roadways include: Cannon/Spring, Beaufain/Wentworth, Calhoun, and Broad.

Typically, in an urban area, the roadway network can be stratified into three categories of roadways: primary, secondary, and tertiary. Figure III-1, Roadway Network, illustrates the configuration of these arterials, collectors and local streets on the Charleston peninsula. In accordance with their ranking, they handle varying volumes of traffic. Many of the roadways classified as primary are inadequate in terms of pavement width and carrying capacity. Therefore, one-way couplets have been created. Secondary, or collector roadways, appear to be lacking throughout the entire network. In essence, travel in and out of the peninsula area is made directly between the primary and tertiary roadway system.

While no major roadway improvements are scheduled for construction within the near future, a number of minor improvements are under consideration. Proposed for improvement as a pedestrian/transit roadway from which automobile traffic is to be excluded is a section of King Street between Calhoun and Market Street. The Meeting-King Street corridor is under study by a traffic consultant retained by the city.

Mass transit in the City of Charleston is provided by the South Carolina Electric and Gas Company (SCE&G). This system primarily services regional travel between the Charleston peninsula and the outlying urban community. The network of ten radially oriented routes focuses on the central area with service concentrated on a few primary roadways (East Bay, Meeting, King and Broad Streets) in the vicinity of the site. This route system has not changed significantly in the past few years.

A shuttle service, known as DASH, is operated by the City of Charleston through the Department of Traffic and Transportation. This system provides an internal loop within the peninsula and adds to the flexibility of the public transit system. It traverses Meeting and Market Streets in the vicinity of the site.

Sightseeing and tour buses accommodate much of the demand created by tourists. Horse-drawn carriages provide another means of sightseeing for a relatively small number of people. Carriages are stored on Hayne Street in the block bounded by Market, Church, Pinckney and Meeting Streets.

It has been estimated that approximately 12,000 to 15,000 tourists visit the downtown on an average summer weekday. Most of the tourist attractions lie south of Calhoun Street in the restored residential area and the city center, an area with a year-round population of approximately 10,000 persons. The number of tourists in comparison to the native population is large.

The Cooper River waterfront, located within the boundaries of this tourist area, is serviced, to some extent, by the existing transit system. The existing SCE&G bus system provides service on East Bay Street, a short walk from the proposed park. The DASH shuttle presently stops at the intersection of East Bay and Market Streets. Sightseeing vehicles and tour buses naturally traverse the site on Concord Street.

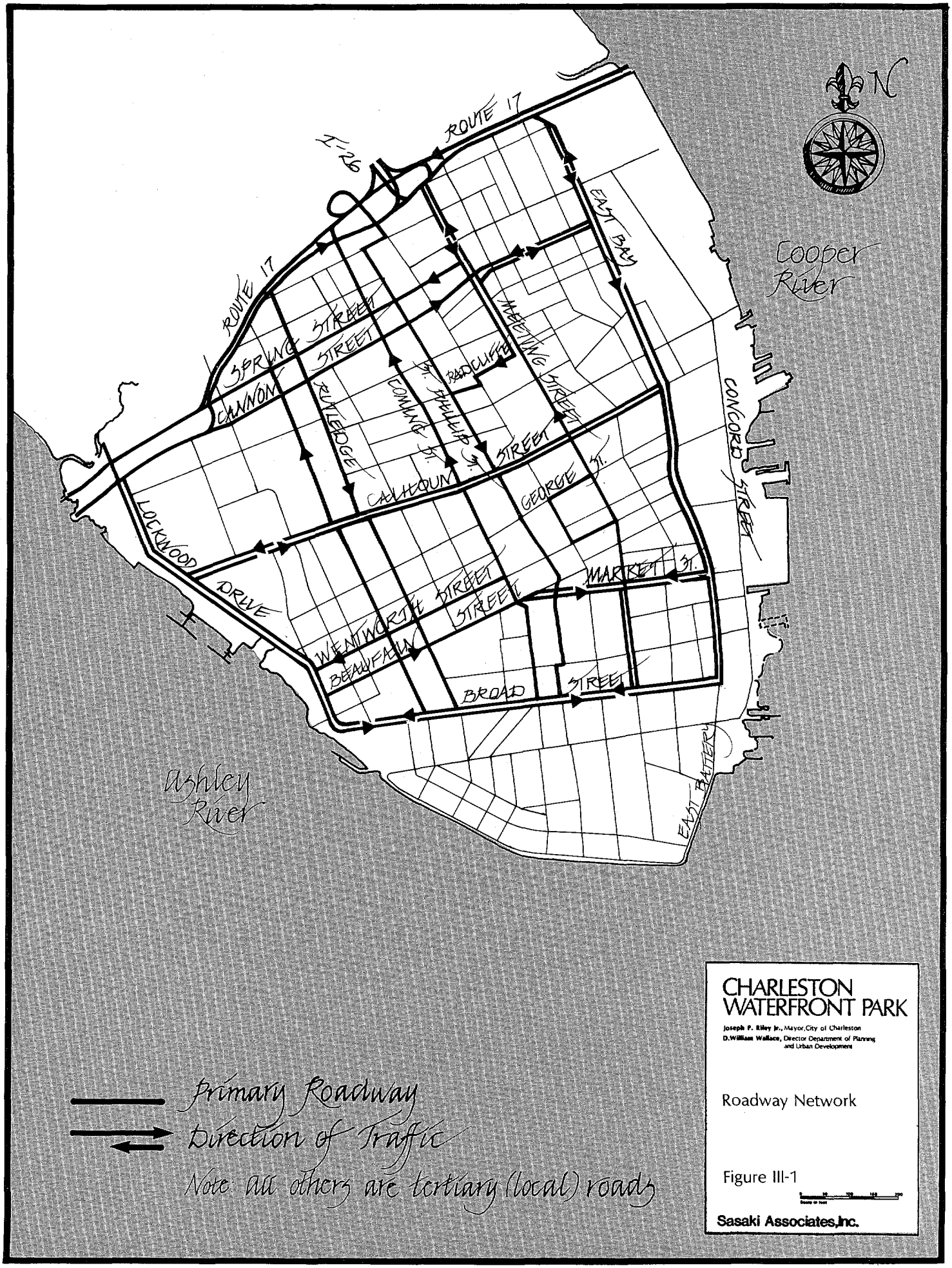
The City has engaged a traffic consultant, to prepare a central area transit study. This study, now in its draft form, contains major transit improvement recommendations.

In conjunction with the transit study, two separate surveys were completed and internal travel data were compiled. The report indicates that a high percentage of the travel desires of the primary and secondary internal travel markets terminate on the Cooper River Waterfront. There is some question as to the interpretation of this desire in that the waterfront area is one of the major automobile parking facilities (mode transfer point) in the city. It is assumed that the traffic consultant was charged with only the evaluation of the year-round transit system. As such, a critical element has not been interfaced with the system – tourist demands. With an anticipated increase in tourism and the future impact of the supply and cost of fuel, a detailed study and analysis of tourist demands becomes essential.

Parking demands and supplies appear to be a major problem throughout the central area. In order to meet some of the demands, a municipal garage is being constructed at the intersection of Meeting Street and Cumberland Street. While this facility will satisfy some of the existing demand, it cannot provide for future demand resulting from the renovation and construction of facilities which either provide new employment or attract additional tourists in the Project Area.

Within the Project Area, one of the predominant land uses is parking for both public and private facilities. Numerous field observations indicate that the major portion of parkers during the non-tourist season absorb nearly all available space. Furthermore, the final destination of the parkers appears to be one to two blocks west of East Bay Street. Naturally, any improvements here not only must accommodate increased demands for parking, but also must provide for replacement facilities.

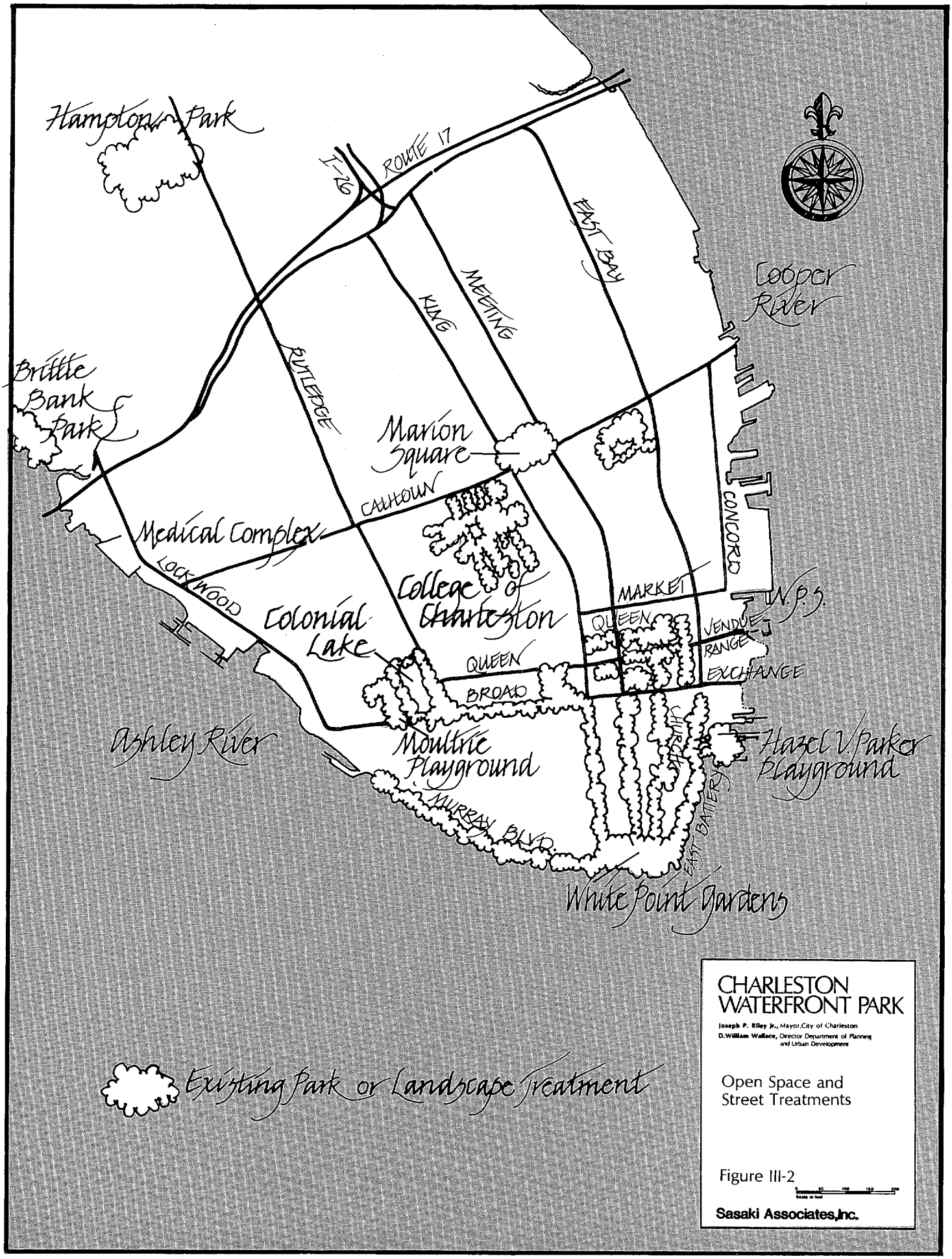
Owing to the physical construction of the residential and non-residential buildings in the Project Area, the movement of goods and solid waste removal takes place on nearly every roadway. Plans to enhance the walking experience by widening sidewalks, planting street trees, narrowing roadways and closing streets to vehicular traffic, must include provisions for goods movement and solid waste removal.


N
ROUTE 17
I-26
ROUTE 17
EAST BAY
Cooper River
SPRING STREET
STREET
CANNON
RUTLEDGE
COMING ST.
ST. PHILIP ST.
RADCLIFFE
MEETING STREET
CONCORD STREET
CALHOUN
STREET
GEORGE ST.
LOCKWOOD
DRIVE
MARKET ST.
WENTWORTH STREET
STREET
BEAUFAIN
BROAD
STREET
EAST BATTERY
Ashley River
Primary Roadway
Direction of Traffic
Note: all others are tertiary (local) roads
CHARLESTON WATERFRONT PARK
Joseph P. Riley Jr., Mayor, City of Charleston
D. William Wallace, Director Department of Planning and Urban Development
Roadway Network
Figure III-1
Sasaki Associates, Inc.

Open Space and Street Treatments

There are few public open spaces on the Charleston peninsula. Marion Square, the Hazel Parker Playground, White Point Gardens, the Battery, Moultrie Park and the Colonial Lake must satisfy the recreation needs of the 10,000 peninsula residents south of Calhoun Street, Charlestonians from outlying areas and the seasonal influx of tourists.

Although Charleston is famous for its gardens, its roadways are, for the most part, devoid of vegetation. Portions of East Bay, Church, Meeting, King Streets, and the Battery are notable exceptions. Figure III-2, Open Space and Street Treatments, illustrates existing conditions.

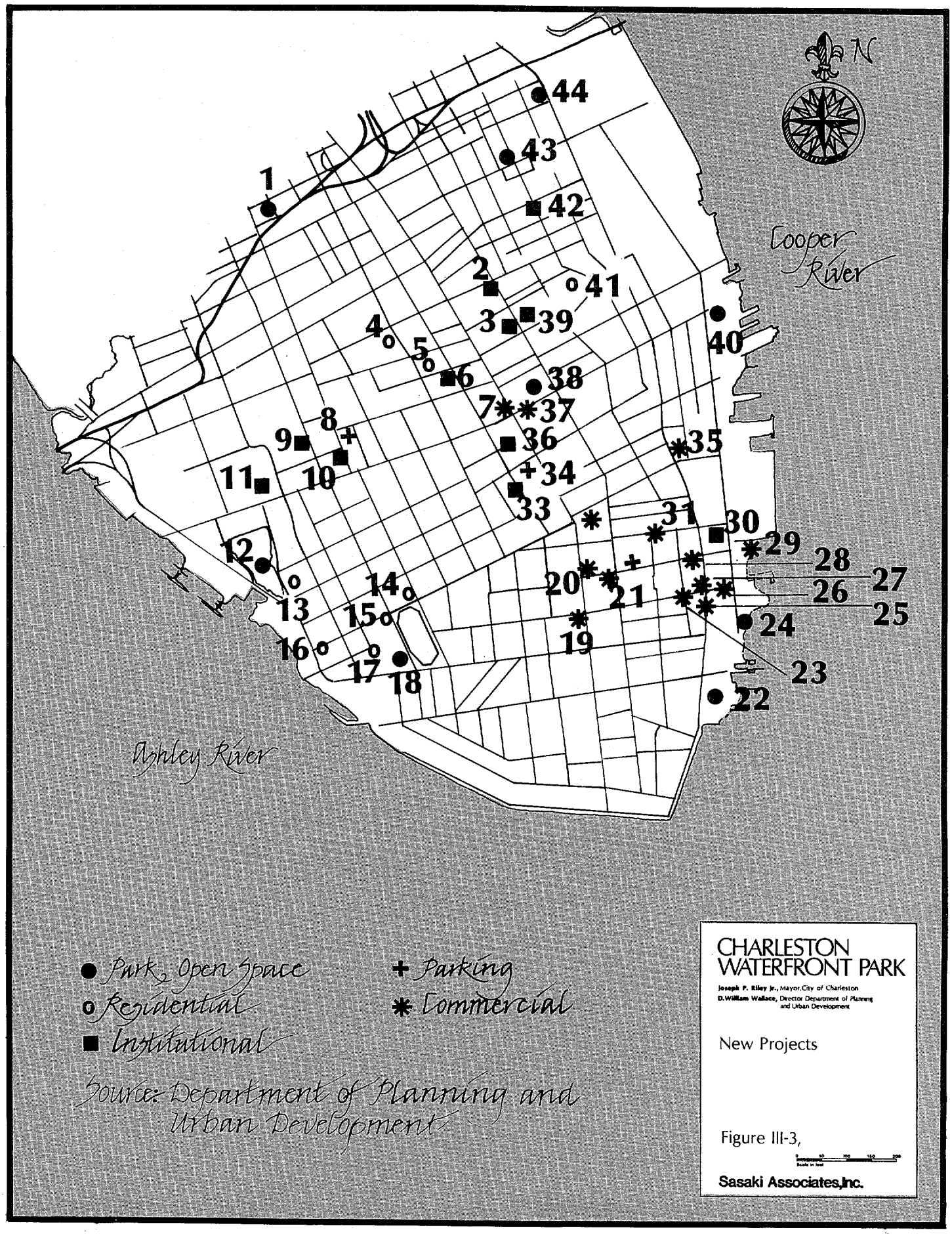

Hampton Park
I-26
ROUTE 17
EAST BAY
MEETING
KING
RUTLEDGE
Cooper River
Brittle Bank Park
Marion Square
CALHOUN
CONCORD
Medical Complex
LOCKWOOD
College of Charleston
MARKET
W.P.S.
QUEEN
VENDUE RANGE
Colonial Lake
QUEEN
EXCHANGE
BROAD
Ashley River
Moultrie Playground
CHURCH
Hazel V. Parker Playground
MURRAY BLVD.
EAST BATTERY
White Point Gardens
Existing Park or Landscape Treatment
CHARLESTON WATERFRONT PARK
Joseph P. Riley Jr., Mayor, City of Charleston
D. William Wallace, Director Department of Planning and Urban Development
Open Space and Street Treatments
Figure III-2
Sasaki Associates, Inc.

Notes for New Projects Map

1. Proposed Redesign Mitchell Playground
2. Montessori School
3. Tourist Information Center
4. 180 Dwelling Units with Commercial
5. Historic Charleston Rehabilitation Project
6. Charleston Public Works Commission
7. Renovation of Francis Marion Hotel
8. St. Francis Xavier Hospital Parking Deck
9. MUSC Children's Hospital
10. St. Francis Xavier Hospital Tower Addition
11. Roper Hospital Ancillary Addition
12. Proposed Old Marina Park
13. New Harleston – A Project of Limehouse Properties
14. Renovation of Berkley Arms Condominium
15. Renovation of Baker Hospital to Condominium
16. Possible Rezoning and Projects Request
17. Apartment Tower
18. Moultrie Playground
19. Existing King & Queen Office Building
20. Possible Demolition & New Construction to Match Existing
21. Meeting Street Bank Building
22. Hazel V. Parker Playground
23. Possible Zoning Residential/New 300-Seat Restaurant
24. Park Site
25. Historic McCrady's Tavern (now called Long Room) Proposed Renovation
26. Existing Vendue Inn and Potential Inn
27. Office Space Renovation
28. Proposed Lodge Alley Market & Residence
29. National Park Service Fort Sumter Tour Boat Facility
30. Customs House – Possible Conversion to Federal Court
31. Existing Market Square
32. Charleston Center
33. Classroom Building
34. Municipal Parking Garage
35. Harris-Teeter Super Markets, Inc. East Bay Plaza
36. College of Charleston Fine Arts Building
37. Renovated Marion Square Market Center
38. Marion Square Restoration
39. The Charleston Museum
40. Dockside Condominium
41. Historic Charleston Infill Pilot Project
42. New Park Site
43. Proposed Mall Playground
44. East Side Community Center

New Projects

In the last ten years, Charleston has experienced a renaissance. Figure III-3 locates new park, residential, institutional and commercial projects underway or proposed in the peninsula.


N
Cooper River
Ashley River
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33
34
35
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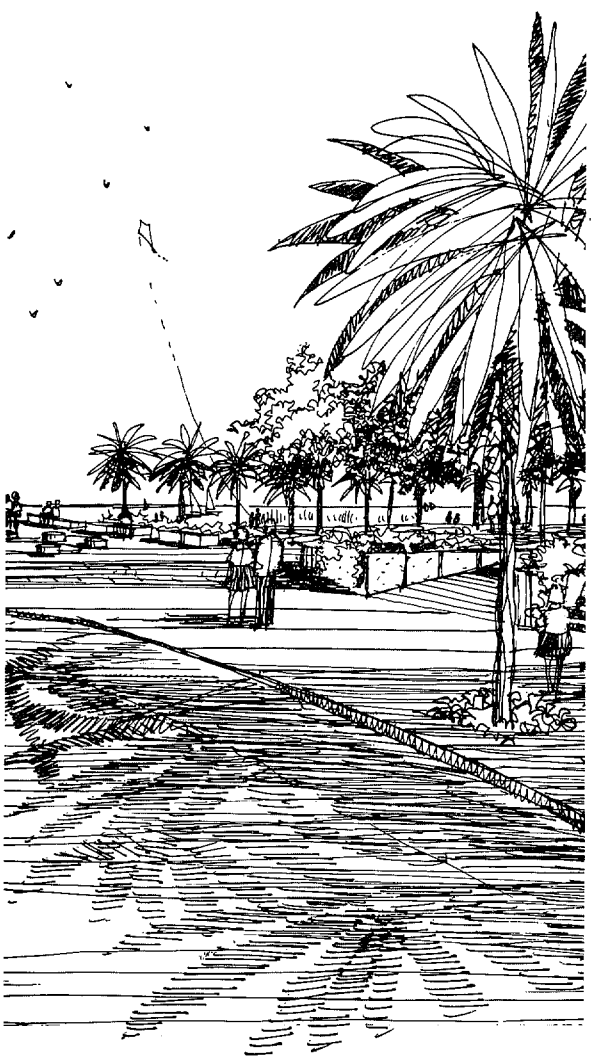
44
● Park, Open Space
o Residential
■ Institutional
+ Parking
✱ Commercial
Source: Department of Planning and Urban Development
CHARLESTON WATERFRONT PARK
Joseph P. Riley Jr., Mayor, City of Charleston
D. William Wallace, Director Department of Planning and Urban Development
New Projects
Figure III-3,
Scale in feet
Sasaki Associates, Inc.

Urban Design Framework

The following analysis of the urban design framework (see Figure III-4) summarizes our conclusions about the above-mentioned existing conditions. It provides the basis for determining appropriate access (transit, vehicular and pedestrian) to the park and for generating urban design guidelines for new development in its vicinity.

The park site's location along the edge of three distinct parts of downtown Charleston (the restored residential area which holds some of the finest examples of eighteenth and nineteenth century domestic architecture in the United States, a commercial area which includes restaurants and offices located in restored warehouses left over from the era of the cotton and rice trade, and another more intensely developed commercial area to the north which encompasses the shops along Market Street and the NPS tour boat facility) is an important functional opportunity. The existing interrelationships between these three areas and the park itself can be strengthened to solidify them as separate, but integrated units which can contribute to the success of this part of Charleston.

Strengthening the pedestrian and transit functions of Market Street can tighten the connection between the proposed Charleston Center, the NPS tour boat facility and the northern terminus of the park. A mass transit system with stops near the park and other points of interest combined with parking areas located north and east of the residential area and city center can encourage people to leave their cars and enjoy Charleston's small scale architectural details on foot. The park can provide another destination for tourists, offer an alternative to White Point Gardens and the Battery, and relieve pressure on the residential neighborhoods. Many of the narrow, intimately scaled, east-west streets in the vicinity of the project area have potential as pedestrian oriented connections to the city center and the restored residential area. The proposed park is within walking distance of many businesses and institutions and can serve as a pleasant place to bring a lunch. Its location to the immediate north of the Hazel V. Parker playground and the Battery presents the opportunity to continue the waterfront promenade initiated in the nineteenth century with the construction of the Battery.



KEY FOR URBAN DESIGN FRAMEWORK MAP

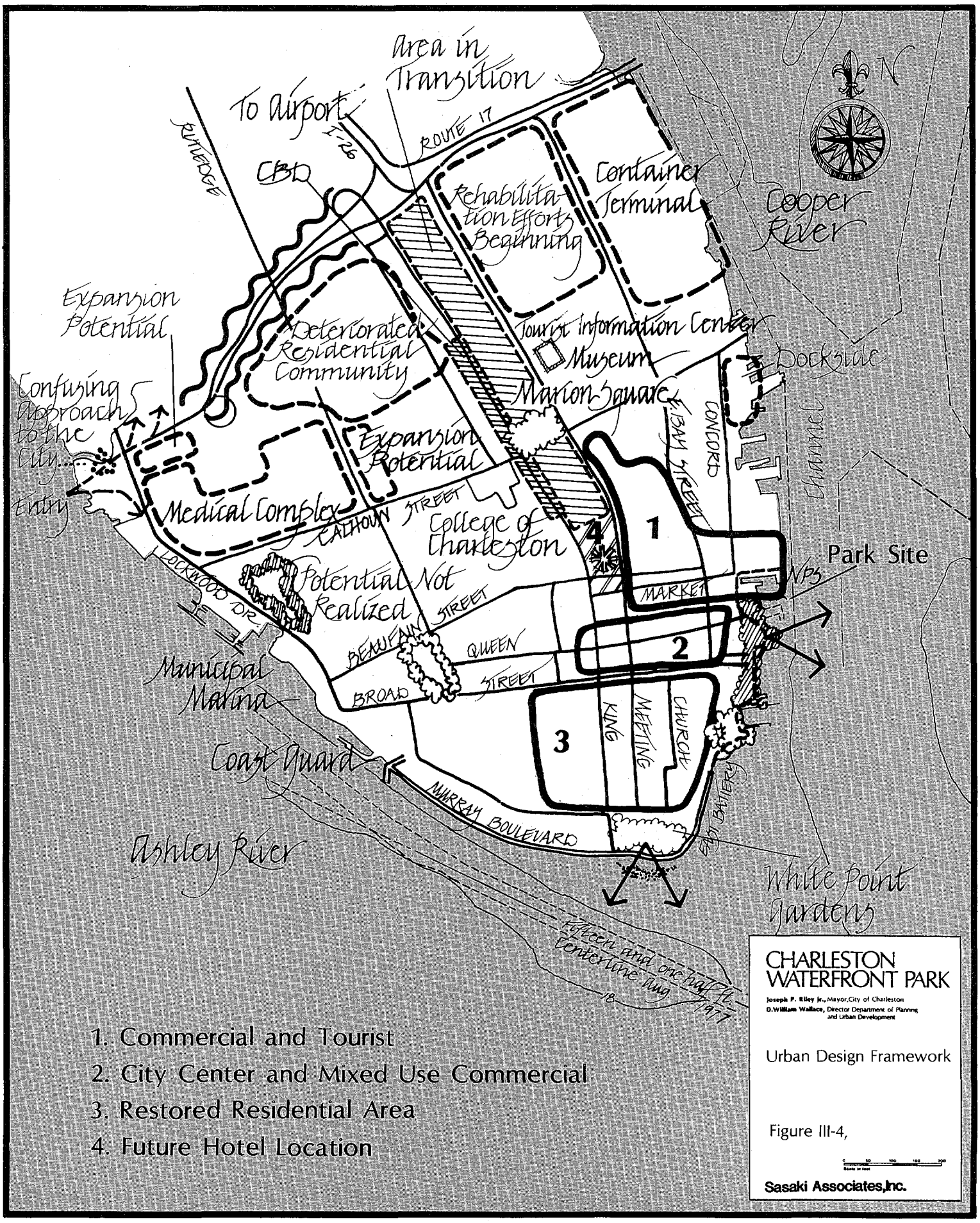
Existing Park

Potential Park

Existing Public Access to the Water

Potential Public Access to the Water

Views



1. Commercial and Tourist
2. City Center and Mixed Use Commercial
3. Restored Residential Area
4. Future Hotel Location

CHARLESTON WATERFRONT PARK

Joseph P. Riley Jr., Mayor, City of Charleston
D. William Wallace, Director Department of Planning and Urban Development

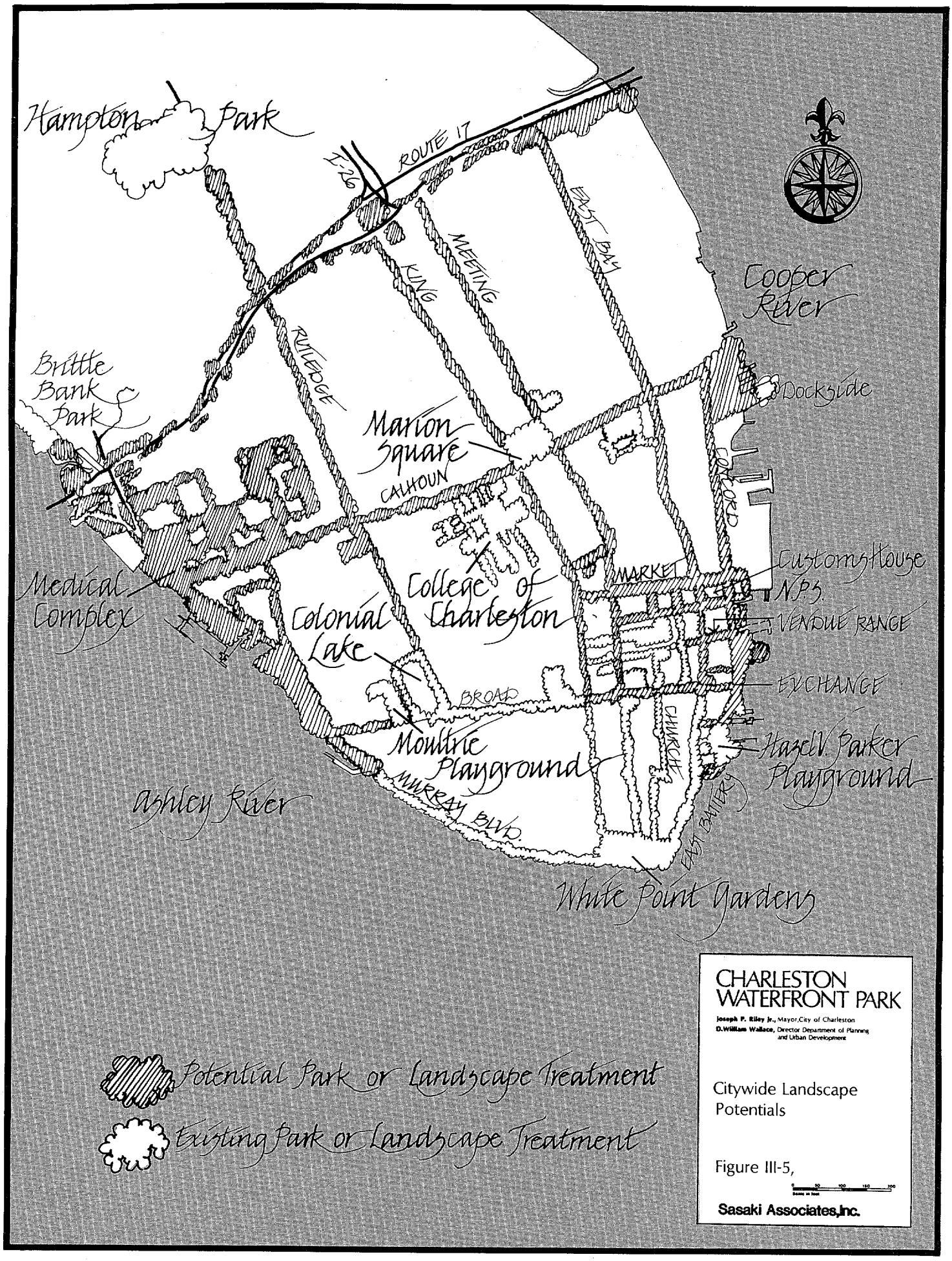
Urban Design Framework

Figure III-4,

Sasaki Associates, Inc.

Citywide Landscape Potentials

Figure III-5 illustrates citywide landscape potentials. New street trees are suggested along principal north/south roadways, Meeting, King, East Bay and Rutledge in the city center, and around major institutions and landmarks such as the Medical Complex and the Customs House. Fulfilling these landscape potentials will require a long-term effort by the City of Charleston and other interested groups. A landscape vocabulary for the city is suggested in Chapter V and Appendix C.



CHARLESTON WATERFRONT PARK

Joseph P. Riley Jr., Mayor, City of Charleston
D. William Wallace, Director Department of Planning and Urban Development

Citywide Landscape Potentials

Figure III-5,

Sasaki Associates, Inc.

Opportunities and Constraints in the Study Area
(See Figure III-6)

The width of Concord Street is out of scale with the rest of this part of the peninsula. Because of its width and traffic volume capacity, it can be classified as either a secondary or primary roadway. However, a roadblock north of the cruise ship terminal produces a dead end. That section of Concord Street between Market Street and South Adger's Wharf, functions as a local road to residential units in the southern portion, parking lots in the mid-section (waterfront park area) and limited use activity in the northern section. This limited demand and the limited future demand present an opportunity for an alternative roadway which will enhance the use of the park and its surrounding environment.

Concord Street has the potential to serve as an attractive transition from the small spaces formed by courtyards, gardens, and narrow cobbled streets to the wide, expansive view of the Cooper River. It can continue to be the connection between Market Street and the commercial activities to the north and to provide access to the neighborhood to the south.

Market Street, Queen/Vendue Range and Broad/Exchange Streets can become the gateway streets to the Cooper River. Market Street links the waterfront to the downtown's commercial and tourist area, Queen/Vendue Range Street constitutes the interface of this area and the city center, and Broad/Exchange Street divides the city center from the restored residential area. Cumberland, Gendron, Cordes, North Atlantic Wharf and Middle Atlantic Wharf Streets between East Bay and Concord Streets have potential as visual and pedestrian connections to the Cooper River. East Bay and Concord Streets connect these three areas to each other.

East Bay Street can be improved as a north-south vehicular transit and pedestrian connection. It also can serve as a feeder road for parking areas. Prioleau Street can be improved as a pedestrian and vehicular connection. Signs with pedestrian information should accompany these improvements.

With the development of the Project Area, there is an opportunity to restrict transit vehicles of the regional and tour bus type to the limits of East Bay Street and Market Streets at the NPS Fort Sumter tour boat facility and to establish pull-offs at appropriate locations. Small shuttle buses as well as large tour buses can be used in this area with transfer points at designated pedestrian links and/or parking facilities at East Bay. The Tourism Management Committee can limit the size of tour vehicles so that they are consistent with the visual integrity of the streetscape. The actual routing and stop locations for horse and carriages will be determined upon finalization of all roadway facilities within the immediate area of the park.

The tourist travel (both pedestrian and tour buses) along Market Street from Meeting to Concord Streets provides an opportunity to create a transit mall on the southern leg of Market Street between East Bay and Concord Streets. The treatment of the northern leg of Market Street, will depend on the service needs of the businesses there.

Construction of the park and spin-off development will eliminate the five off-street parking areas presently located on the park site and will also displace some on-street parking on Concord Street. As additional buildings are renovated and constructed in the park's vicinity, the demand for parking will increase. Both replacement parking and future parking demand must be considered.

The most recent average daily traffic counts for the city-wide network were compiled in 1975, but the major portion of these counts were taken during the off-peak tourist season. With an estimated 12,000 to 15,000 daily tourists in the peak season, traffic volume, as well as demands on parking, will increase substantially. It has been reported that traffic volumes increase by 30 to 35 percent during the height of the tourist season. The quantification of the parking demand, based on estimated traffic volume increase, cannot be done without additional study.

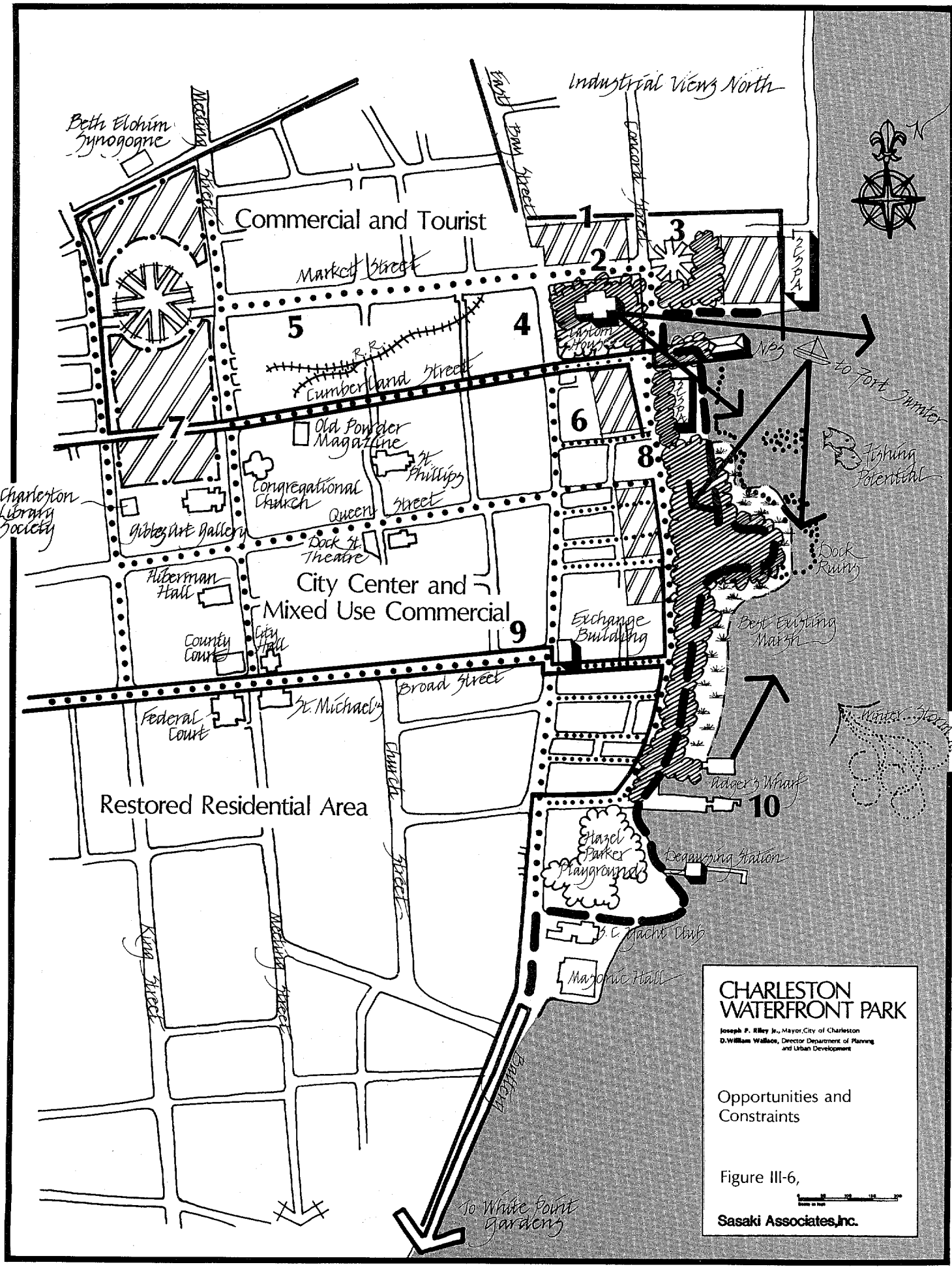
The roadway network appears to break down at the junction of tertiary roadways and parking facilities. These facilities should feed into either the primary or secondary roadways. Instead, the majority of existing parking facilities are adjacent to tertiary roadways. Consequently, cars entering and leaving these areas clog the traffic on the narrow streets. It would be difficult and unwise to upgrade the tertiary roadways to the secondary level. Therefore, new parking facilities should be located on the primary roadway network and, in the vicinity of the park, should front on East Bay Street.

Notes for Opportunities and Constraints Map

1. Potential for block development to define North Market Street edge.
2. Potential space for horse carriages.
3. Focal point for Market Street and directing link to park.
4. Opportunity to establish appropriate landscape setting for Customs House grounds.
5. Opportunity to establish redevelopment along Market Street.
6. Proposal for parking garage.
7. Future hotel location.
8. Width of Concord Street out of scale with human scale of Charleston street grid.
9. Street with architecturally significant, well-defined historic scale.
10. Constant activity at Pilot Boat House improves security.

KEY

- Potential Development Parcel
- Potential Park or Landscape Treatment
- Existing Park
- Potential for Major Pedestrian-Oriented Street
- Potential for Minor Pedestrian-Oriented Street
- Existing Public Access to the Water
- Potential Public Access to the Water
- Views
- Marsh


Industrial Views North
Beth Elohim Synogogne
Meeting Street
East Bay Street
Concord Street
Commercial and Tourist
Market Street
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7
8
9
10
R.R.
Cumberland Street
Custom House
NPS
to Fort Sumter
Old Powder Magazine
St. Phillips
Congregational Church
Queen Street
Charleston Library Society
Gibbes Art Gallery
Dock St. Theatre
Fishing Potential
Dock Ruins
Hiberman Hall
City Center and Mixed Use Commercial
County Court
City Hall
Exchange Building
Best Existing Marsh
Broad Street
Federal Court
St. Michael's
Winter Storm Winds
Church Street
Adger's Wharf
Restored Residential Area
Hazel Parker Playground
Degaussing Station
S.C. Yacht Club
Masonic Hall
King Street
Meeting Street
Battery
To White Point Gardens
CHARLESTON WATERFRONT PARK
Joseph P. Riley Jr., Mayor, City of Charleston
D. William Wallace, Director Department of Planning and Urban Development
Opportunities and Constraints
Figure III-6,
Sasaki Associates, Inc.

IV. Circulation and Parking Plan

The activities proposed for the Cooper River are designed to strengthen and relate to the activities in the downtown. Tourist activities, such as the carriage drop-off area, the NPS Fort Sumter tour boat facility, and tour bus parking, are located primarily in the vicinity of Market Street. Vendue Wharf, the bosque/ lawn and the widest portion of the Concord Street promenade, all park elements equipped to accommodate the largest number of people, are closest to the Vendue Range entrance. The linear lawn and Adger's Wharf, the most intimate features of the park, respond directly to the restored residential neighborhood to the south.

The land use objectives described in Chapter V are intended to reinforce these existing patterns. Circulation and parking are essential to the successful function of the Project Area. In this section, we outline circulation and parking strategies and recommendations for their implementation.

Circulation

The design of the park calls for the redesign of Concord Street between Middle Atlantic Wharf Street and Vendue Range and the elimination of traffic in this stretch of the street, except for fire and emergency vehicles, bicycles and pedestrians. The proposed redevelopment of the critical development sites within the Project Area and the proposals to construct a series of major parking structures on these sites will also require some modifications to the street system. Sidewalk improvements on certain east/ west streets between East Bay and Concord Streets will enhance the pedestrian environment. Figure II-12, Circulation and Parking Plan, indicates the proposed concept for circulation in the Project Area.

Parking

The undeveloped sites in the Project Area perform an important role. They provide low cost parking within easy walking distance of the existing center of the professional office area around Broad Street and along East Bay. In addition, the parking spaces are used by patrons of restaurants and inns in the locality. During the tourist season the parking that is not used by local commercial activities is taken up by tourists.

In the interviews with local commercial businessmen and in the survey carried out to determine the market potential of the development sites, many people emphasized the importance of the parking in the area in supporting commercial activities in downtown Charleston.

Construction of the park and the development of the existing parking lots will ultimately eliminate the off-street parking areas and will also displace on-street parking, depending on the treatment selected for the street improvements. As additional buildings are renovated and constructed in the park's vicinity, the demand for parking will increase. To ease the transition, parking is provided during the construction of the park. Both replacement parking and future parking demand must be consolidated.

Figure II-1, Master Plan, Charleston Waterfront Park, illustrates potential locations for new parking structures which could be built as part of the overall redevelopment strategy for the district. The proposed parking structures are generally served from two sides with entrances from and exits to East Bay Street, in order to prevent back-ups on the tertiary streets. The number of existing parking spaces, both on- and off-street, is listed in Table IV-1. During our field survey in February, we estimated an 85 percent occupancy of parking spaces in the immediate area of the park. With the seasonal increase caused by tourism, it is clear that the demand exceeds the supply.

Table IV-2 indicates that the potential exists to double the total number of parking spaces in the area through the redevelopment of certain key sites within the districts.

This potential should be compared to the estimated demand for parking generated by the development of the park and the National Park Service Fort Sumter tour boat facility, and the various development sites.

Table IV-1 Parking Provision Within the Project Area*

	On Site	On Street	Total
Existing Parking	485	957	1,441
Projected After Redevelopment	2,226	698	2,924

Table IV-2 Projected Parking Provision in Redevelopment Sites

Site	Proposed Parking Provision
A	30 (120 if developed multi-storey)
B	422
C	1,082
D	77
E	350-486**

*Existing parking to be replaced in redevelopment of site.
**See parking alternative for joint development of parking on blocks A and E.

Recommendations

The following is a summary of the improvements recommended for east-west streets in the project area. Figures IV-1 through IV-9 illustrate these improvements.

- **South and North Adger's Wharf** – No recommended roadway improvements.
- **South Boyce's Wharf** – No recommended roadway improvements. Plant a single row of trees on the north side of the street.
- **East Elliott Street** – No recommended roadway improvements. Plant a single row of trees on the south side of the street.
- **Exchange Street** – No recommended roadway improvements. Plant street trees on both sides of the street.
- **Middle Atlantic Wharf** – Realign this roadway segment between East Bay and Prioleau to provide a minimum 6′ sidewalk on the south side. Roadway width should approximate 16′ and the one-way eastbound traffic direction should be maintained. Middle Atlantic Wharf from Prioleau Street to Concord Street should be realigned and widened to 22′ providing travel in both directions. Prohibit on-street parking. Plant a single row of trees on both sides of the street between Concord and Prioleau and a single row on the north side between Prioleau and East Bay.
- **North Atlantic Wharf** – Abandon this segment of roadway between Prioleau Street and Concord Street. Maintain the segment between East Bay and Prioleau Street in width and direction of travel.
- **Cordes Street** – No recommended roadway improvements. Plant a single row of trees on both sides of the street.
- **Gendron Street** – Convert the two-way segment between East Bay and Prioleau Street to a one-way segment eastbound. The segment between Prioleau Street and Concord Street can be abandoned if necessary.
- **Vendue Range Street** – Redesign Vendue Range as a two-way facility with on street parking and adequate pedestrian zones. Minimum width should approximate 24′ to 26′ depending on the type of

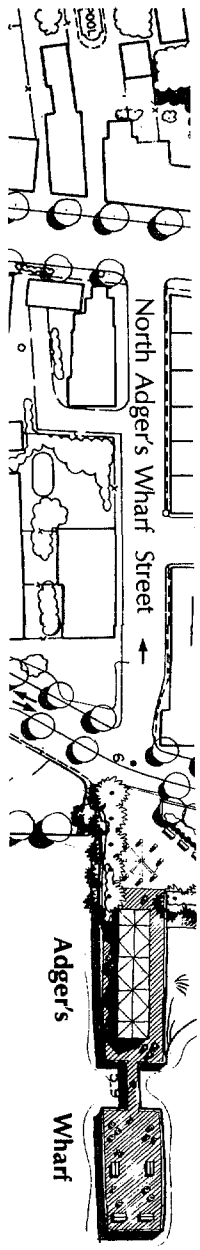


Figure IV-1

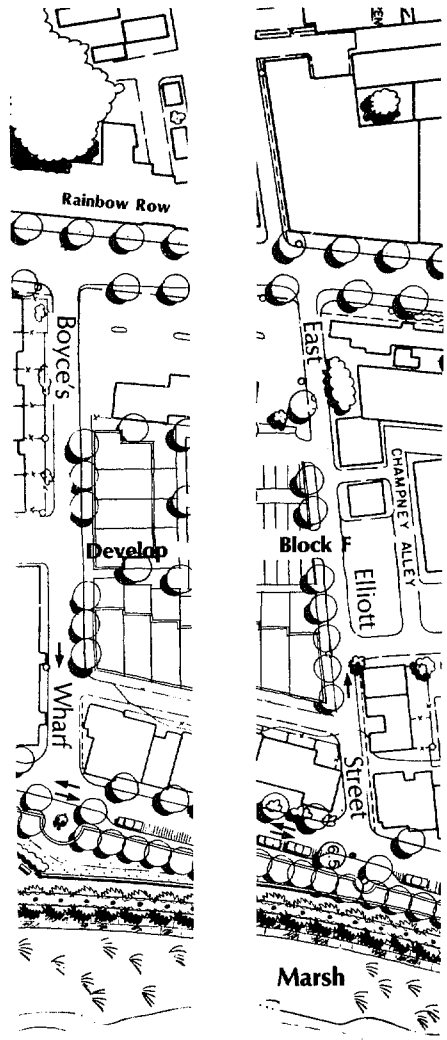


Figure IV-2

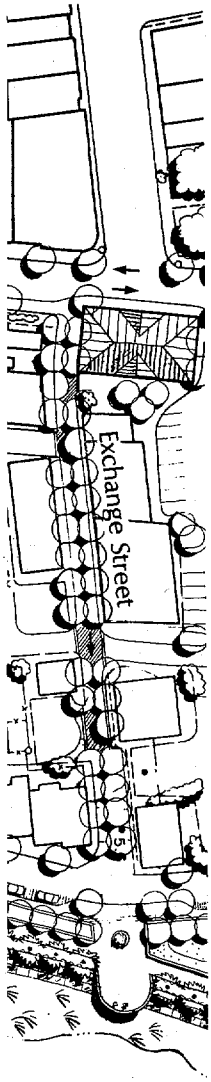


Figure IV-3

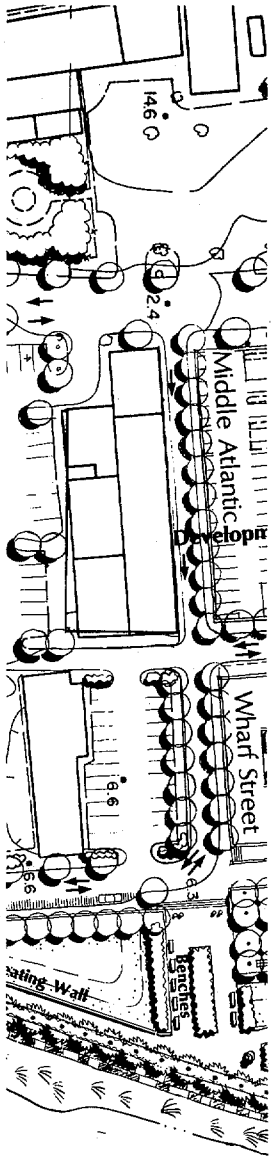


Figure IV-4

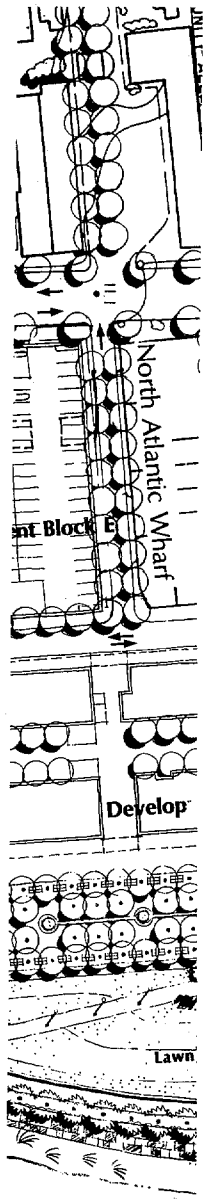
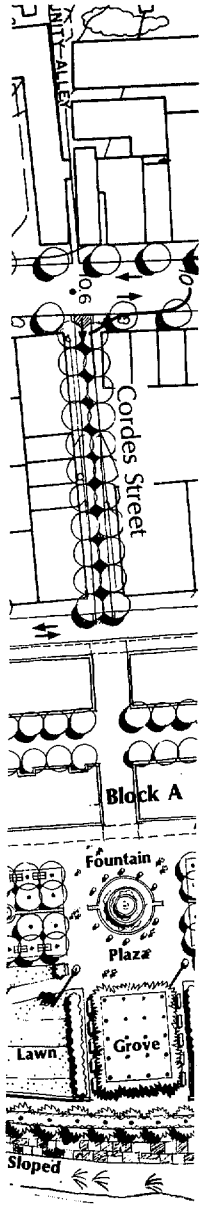
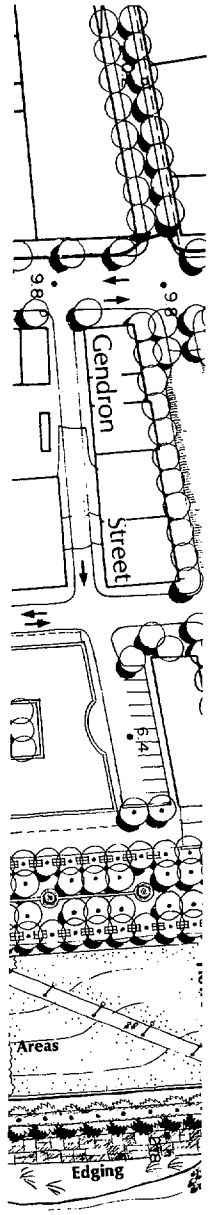


Figure IV-5





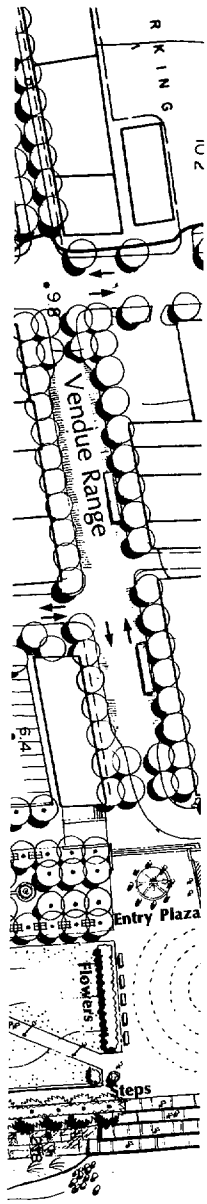


Figure IV-6

parking selected. Expand the sidewalk at each end. Plant a single row of trees on both sides of the street with a double row at each corner at each end.

- **Cone Street** – Prohibit on street parking on the segment between East Bay and the Ports Authority parking lot. Maintain the "cut-in" parking on the north side. Use Cone Street to provide direct access to the proposed parking facility placement on the Ports Authority lot. The street direction of travel should be one-way eastbound directly into the facility. Contine Cone Street in the southerly direction to the intersection at Vendue Range and Prioleau Street as a one-way southbound street and prohibit parking on the roadway segment to provide egress from the proposed parking garage.
- **Faber Street** – Reconstruct Faber Street to provide one-way westbound egress from the proposed parking facility. Maintain the parking lot on the north side and provide access from Cumberland Street.
- **Cumberland Street** – No recommended roadway improvements. Plant a single row of trees on each side of the street.
- **Market Street** – Depending on the final disposition of a transit mall, maintain Market Street on the south side as a transit mall and provide two-way directional flow for automobile travel on the north-side. Provide some short-term parking in the segment between East Bay and Concord Street. In addition, provide adequate transit as well as horse and carriage stops. Plant a single row of trees on each side of South Market street.

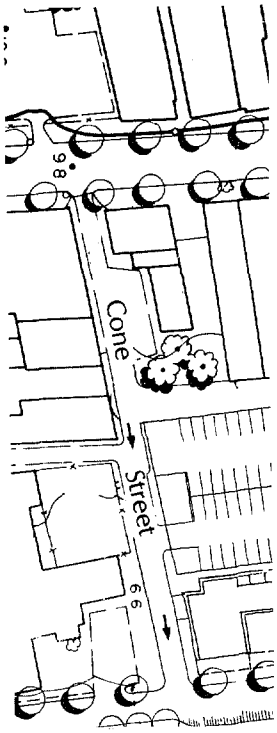


Figure IV-7

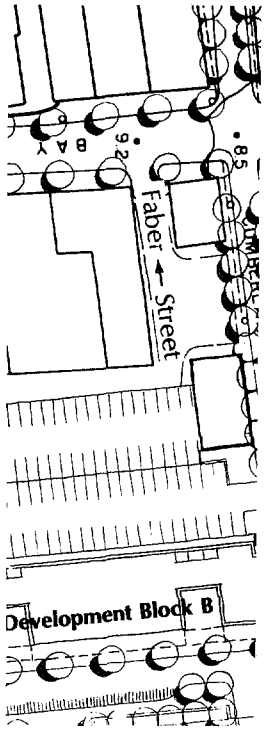
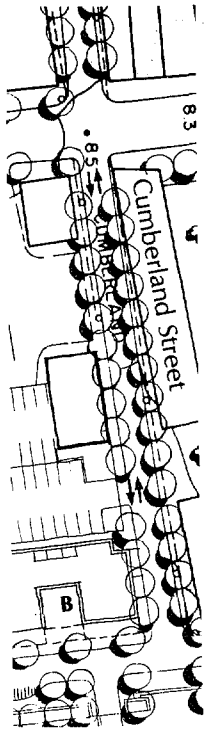


Figure IV-8



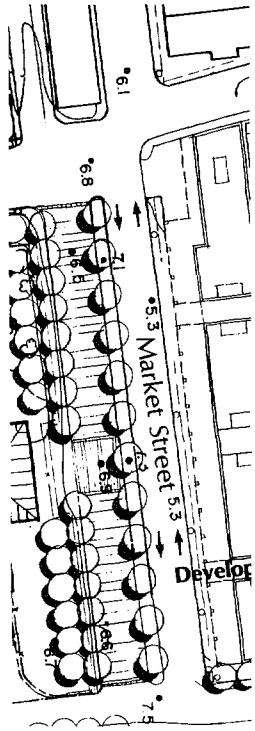


Figure IV-9

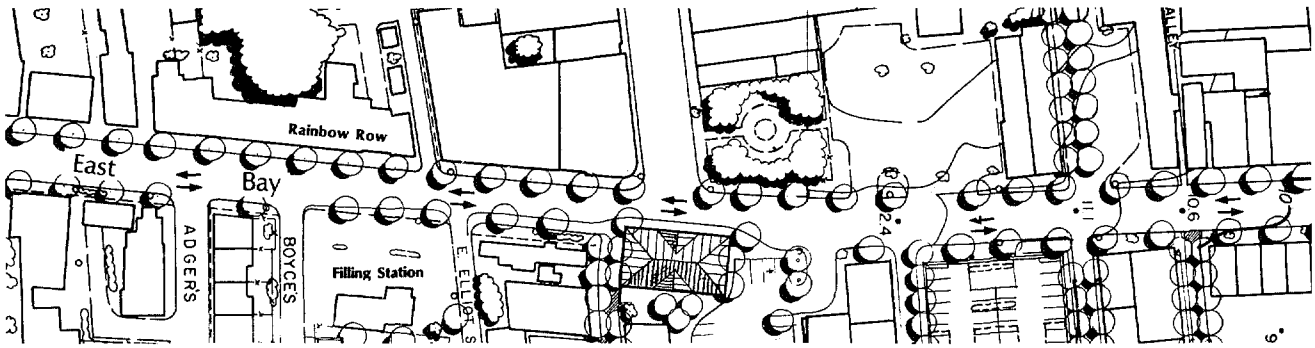


Figure IV-10

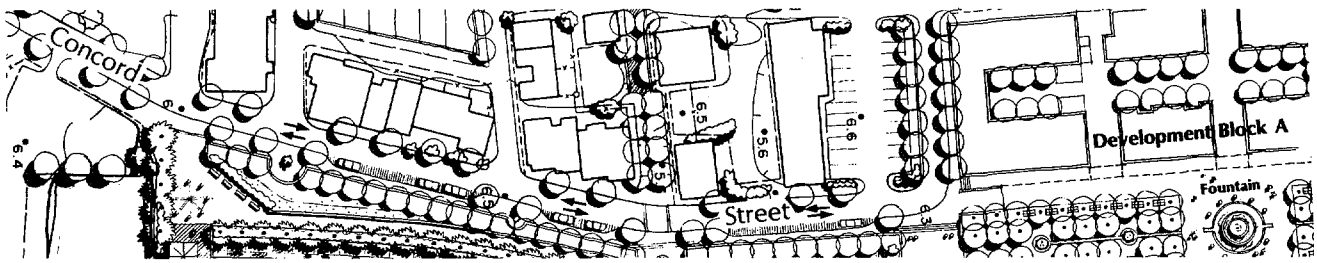


Figure IV-12

The following is a summary of the improvements recommended for the north-south streets in the project area. Figures IV-10 through IV-12 illustrate these improvements.

- **East Bay Street** – Maintain East Bay Street in its current state with the following exceptions. Remove parking on the east side between East Elliott and Exchange Street and widen the sidewalk. Similarly, remove parking from the Exchange Building to Middle Atlantic Wharf. In addition, relocate the municipal parking lot entrance approximately 50′ north. On the sidewalks from Middle Atlantic Wharf to Cumberland Street, plant a single row of trees on both sides. Locate three bus stops on the east side of East Bay between Exchange and Cumberland Streets. Locate them on the departure side of major intersecting pedestrian links such as Exchange Street, Cordes Street, and Vendue Range.
- **Prioleau Street** – Realign Prioleau Street and construct it to a minimum 22′ in width, and provide for travel in two directions. In addition, extend it south from Exchange Street to Elliott Street. Prioleau Street will serve as a kind of interior arcaded court for automobile and pedestrian arrival. It will require special design to serve this function (See Chapter V, Urban Design Guidelines).
- **Concord Street** – Abandon Concord Street from Vendue Range to Middle Atlantic Wharf. Landscape the west side of the segment south of Middle Atlantic Wharf in order to provide a shield between the parked vehicles on the eastern side of the street and the houses. Provide spot parking on the east side in order to provide viewing locations for persons occupying their vehicle (handicapped/elderly). Develop the northern part of Concord Street to accommodate the demand placed on the system by park users as well as tour boat users.

Figure IV-11

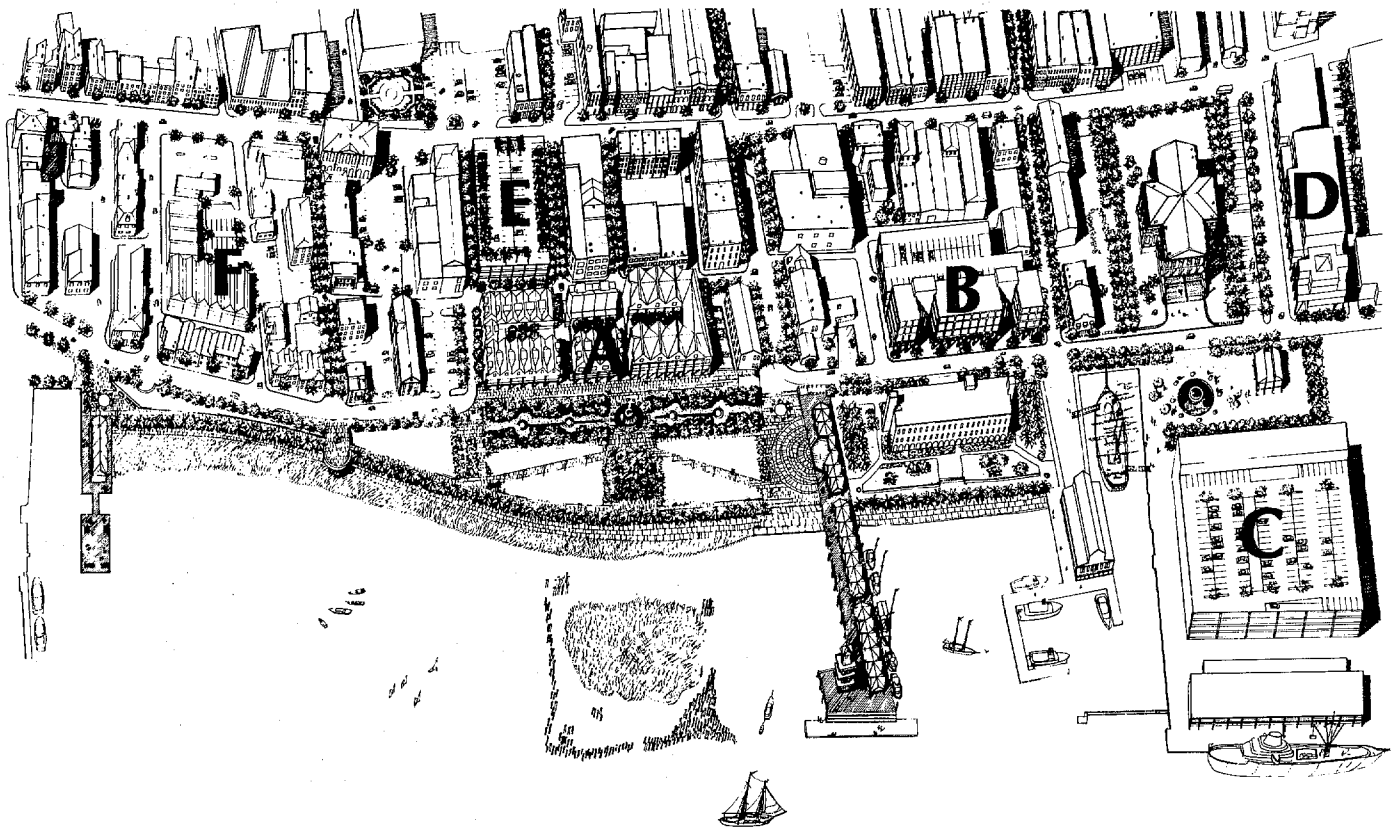


Figure V-1

V. Urban Design Guidelines

The proposed park will substantially change the quality, nature, and use of the surrounding area. Therefore we recommend that the Project Area be designated as a Special District (See Figure V-1, Cooper River Special District Plan) with specific planning and urban design controls, designed both to protect its fragile qualities and to shape its future growth.

This special district could be in the form of an overlay to the proposed new downtown zoning ordinance and could serve as an excellent "testing ground" for special zoning and development controls elsewhere in Charleston. While we have used the proposed zoning regulations of the draft zoning as a guideline in our evaluation of specific development parcels, our preliminary urban design study of the area – including realistic development options, existing architectural character and land use objectives – indicates that these need revision and sharpening. In such a sensitive precinct, design controls which are site specific, dictating, for example, the location and scale of certain urban design and architectural elements, may well have to be added to the more typical and general regulations if a superior design for the park frontage is to be achieved over time. Unfortunately, zoning ordinances have never been a guarantee of three-dimensional design quality and the art of writing successful design controls is still in its infancy in this country.

Given the indeterminate nature and schedule of urban development, a realistic recognition of changing conditions, the controls are flexible in that they derive from general land use and transportation objectives, and specific in that they seek to reinforce certain existing and preferred physical orders. The goal is a harmonious, functional, and attractive new precinct, well integrated into and drawing inspiration from the best parts of the historic peninsula on which it is located. Obviously, as specific proposals arise, the guidelines will have to undergo more detailed study and refinement than is possible at the master plan stage so that they apply to the situation.

The Cooper River Special District

Any special district plan for the Project Area must recognize the following planning/development issues:

- the structural (land use and transportation) relationship of the area to the city as a whole;
- the development potential and density of the area itself;
- land use relationships, both existing and future, within the area;
- pedestrian and vehicular circulation systems within and around the area including parking;
- the character and scale of the area's existing and proposed architecture and open space systems;
- public sentiment.

The special district which results from an analysis of these issues is most logically a low-rise, mixed-use area with office, commercial and tourist activities and major active public open spaces in the north around Market Street, and residential and more passive open space use to the south, echoing existing conditions. It is divided into a number of sub-areas:

Customs House Square – One of Charleston's most exciting urban design potentials is the "Market Street corridor" with tourist and tourist-related commercial uses along an automobile and pedestrian transit street, starting at the Head Market Building and culminating in a (yet to

be designed) square in front of the SCSPA Cruise Ship Terminal.

Market Street, as it now stands, is incomplete and needs extension, possibly a continuation of the low, open buildings for another block east, or merely the proper landscaping of this space, to accommodate carriages and vendors. It is recommended that the eastern axis of the street be culminated by a new structure or gate – possibly a tourist information pavilion – built on the foundation of a lovely building that once stood here and serving as a foil to the historic Market Building on Market Street to the west. These two buildings would define or "bookend" the tourist oriented market precinct in a very pleasing way.

By controlling the frontage, scale and character of any building on the parcel at the northeast end of Market Street and recognizing the pivotal nature of the Concord/Market Street intersection, and by formalizing with landscaping the shape and edge of the plaza in front of the terminal and the south and west "walls" behind the Customs House, a great "urban room" can be created. This room would turn pedestrian flow southwards towards the Fort Sumter tour boat facility, while anchoring and completing the tourist corridor running from the proposed Charleston Center to the Customs House. It is an important spatial pivot with the Customs House standing free in a great landscaped urban space – a major event in the Charleston grid that announces in both land use and three-dimensional terms the beginning of the concentrated historical district and the desired modal shift from auto and buses to foot, from more active tourist/commercial uses to more passive residential/office ones to the south. In this sense, Customs House Square is as important as the new waterfront park.

The Ports Authority Maritime Office Building and National Park Service Fort Sumter Tour Boat Facility – To the south of the new Customs House precinct is a transition area which will contain the National Park Service tour boat facility, new port-related offices, and supporting parking to both. A new landscaped eastern edge along Concord Street will connect the park to the Market Street corridor. After the parking facility is developed, the western side of the Ports Authority site can be converted from a parking area to a lawn and an extension of the park's palmetto path. This path can link the tour boat facility with the park.

Development Parcel Adjacent to Park (Development Block A) – The empty site, bounded by Gendron, Concord, Middle Atlantic and Prioleau, is the development key to the entire precinct, not only offering an opportunity for desirable new development, but also providing both a new backdrop for the park as seen from the water's edge, and an introduction into the park from the existing city to the west. Obviously, the character, use, and detailed design of this site (Development Block A) are of the utmost importance, for more than anything else they will affect the park. The urban design concept for Development Block A includes an arcaded frontage on the buildings facing the park, extending the width of the sidewalk into the right-of-way (similar to the portico of St. Phillips) with the main formal body of the new park occurring opposite this frontage – an intricate tapestry of trees, flowers, paving and water.

Buildings here are three to four stories, U-shaped courtyard types with continuous frontages along the park and Prioleau Street – a layout which provides an outlook on both public and private gardens interconnected by "alleys". Prioleau Street will also be arcaded and is intended to contain supporting quality retail facilities, appropriate to the residential neighborhood south of Broad Street. Vendue Range, Gendron, Cordes, North Atlantic, Mid Atlantic, and Exchange Street are to be landscaped to enhance pedestrian movement from East Bay Street through this redeveloped precinct – increasing the sense that the park extends back from the river into the city along corridors which become increasingly pedestrian in character as they near the water. While these new blocks may contain some small inn, restaurant and cultural uses, as well as related parking, they are seen also as an important transition to the more purely residential area to the south and should be designed to fit in with the outstanding residential scale and character that have made Charleston famous.

Middle Atlantic Wharf to Adger's Wharf – To the south, the urban design plan envisions a predominantly residential neighborhood with the adjacent park little more than a landscaped esplanade (Citywide and tourist activities are drained away to the north). The planning intention here is that this lower end of Concord Street remain much as it is today, but with a greatly upgraded edge and improved residential streetscape. A group of townhouses is shown on Development Block F to illustrate a possible reinforcement of the existing residential character.

Adger's Wharf to the Battery – Though excluded from the recommended Special District, in time it may be appropriate to study how the proposed park might be more formally connected to the High Battery to the south – either outboard at the water's edge, inboard through the park south of Adger's Wharf, or along Concord Street. Certainly at the scale of the peninsula, the new park will be a continuation of a narrow landscaped strip which runs all the way around the peninsula, theoretically from the Coast Guard Station on the Ashley to the SCSPA Cruise Ship Terminal on the Cooper. This system should be recognized and fully articulated and exploited, for its potential continuity is rare among American cities.

Urban Design Intentions and Character.

The urban design intentions for this Special District are to:

- reinforce the existing east-west grid pattern and its penetration to the river by
  - maintaining and enhancing east/west visual and circulation corridors,
  - creating new architectural spaces which reinforce this east/west focus,
  - injecting the grid pattern into the park;
- reinforce the eastern edge of this grid and its north-south axis by
  - giving Concord Street a penetrable but hard architectural edge on its eastern side, from Adger's Wharf to Market Street,
  - narrowing and/or closing Concord Street to bring it more into the scale and character of its

neighborhood (i.e., it should be the edge of a park, not an arterial roadway,
  - extending the center line of the narrowed Concord Street as an open space corridor north-south through the new park (even though the street is closed) to give continuity;
- reinforce continuity, scale and rhythm of the east-west and north-south streets by
  - introducing build-to-lot-line requirements,
  - limiting the dimensions of north/south building faces (in keeping with the general Charleston practice),
  - mandating arcades along certain important high traffic or special purpose pedestrian routes,
  - encouraging (through models) the use of pitched roofs, porches, window and door trim and openings in scale with older buildings,
  - using the existing "Barbadian" color palette,
  - making narrow, deep gardens and courts,
  - designing sympathetic street landscaping, sidewalks and furnishings,
  - placing all utilities underground and eliminating high, modern street lamps,
  - controlling, but not eliminating, street and commercial signage;
- identify those few places where special "object" (rather than "background") buildings might be appropriately placed;
- be easily understood and applied (which probably requires a more detailed Special District Study resulting in a manual or small handbook).

Clearly it is an existing architectural character which the urban design plan addresses:

- **the lot** – narrow frontage and deep;
- **the Charleston house** – formal, narrow, with side garden entry, slim relatively high street facade, side porch oriented towards the garden and prevailing breezes, (See Figure V-2) sloped roof, richness of door and window detail, Barbadian/Italian color palette;
- **the public building** – formal, generally symmetrical, located usually at a corner or at the end of a street to act as a pivot; front facade often porticoed; massive, heavy, dense masonry buildings with pitched roofs, often with a lantern or roof skylight to admit light to the interior, and in the case of churches with lofty spires to announce themselves on the skyline;
- **the street** – relatively narrow, straight; buildings built to a lot-line (few setbacks); nearly uniform height (except for major buildings); rich sidewalk treatment; the street as a formal "front door" rather than only a movement corridor;
- **the alley** – very narrow secondary pedestrian system at right angles to larger street grid; hard walls and floor; a literal penetration of building mass; sometimes spanned with bridges;
- **the garden** – parallel to the long axis of the house – a "front yard" but on the side generally abutting a long porch; semi-public to view from the street but usually behind a fence; lush planting;
- **the park** – usually formal in shape and edge treatment (i.e., low masonry wall topped by iron fence), accessible at limited points through gates or, as at the Battery, at entry paths; large trees providing high shade canopy, relatively few bushes and shrubs; when next to the water, a hard formal edge;
- **height** – most buildings three to four stories within an overall protruding canopy of large trees; only silhouettes of major buildings penetrate this height plane (e.g., steeples, Customs House); where other buildings protrude a great loss of harmony (the 35-55 foot limit should remain sacrosanct for all but key institutional buildings).

Land Use Objectives

In general, the land use objectives which lie behind the urban design plan are the reinforcement of existing patterns and trends (See Figure V-3).

Commercial and Tourist (office, retail, restaurant, inn) – Locate commercial in the north of the district with tourist-oriented activities along the Market Street corridor and office uses following the existing movement from Broad Street north along East Bay.

Commercial/Residential/Cultural – Emphasize the zone from Vendue Range to Middle Atlantic Wharf Street as a major transition zone between commercial and residential precincts with the northern part of this site used for high quality inn/restaurant/gallery uses, and the southern part for luxury housing. Prioleau Street is seen as an ideal location for small, "quality" shops (i.e., gourmet wine and food, antiques, etc.) serving the residential area south of Broad and near the front door of a possible small inn. A major structured parking garage here will serve both the new development and some east Broad Street demand.

Residential – Emphasize area south of Middle Atlantic Wharf as primarily residential, interspersed with recently renovated office and support commercial uses. Any major

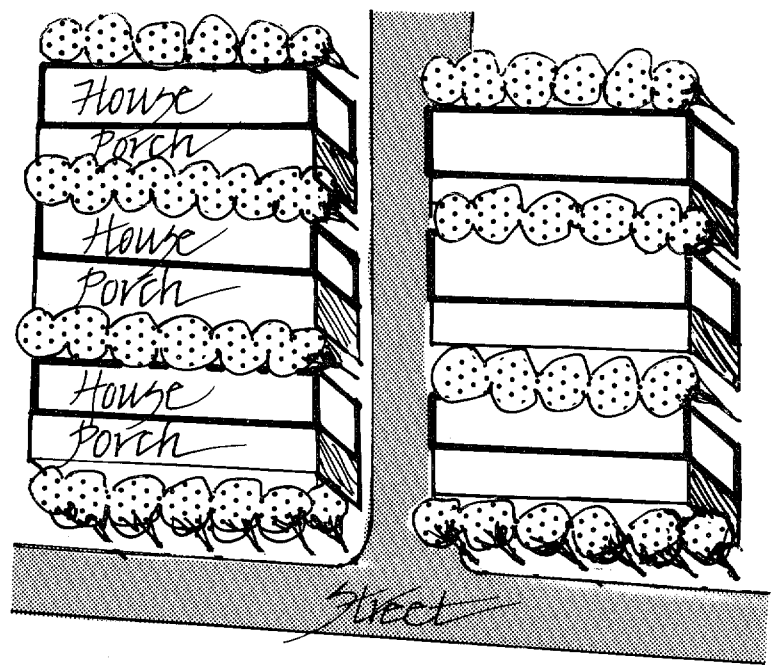


Figure V-2, The Charleston House and Lot

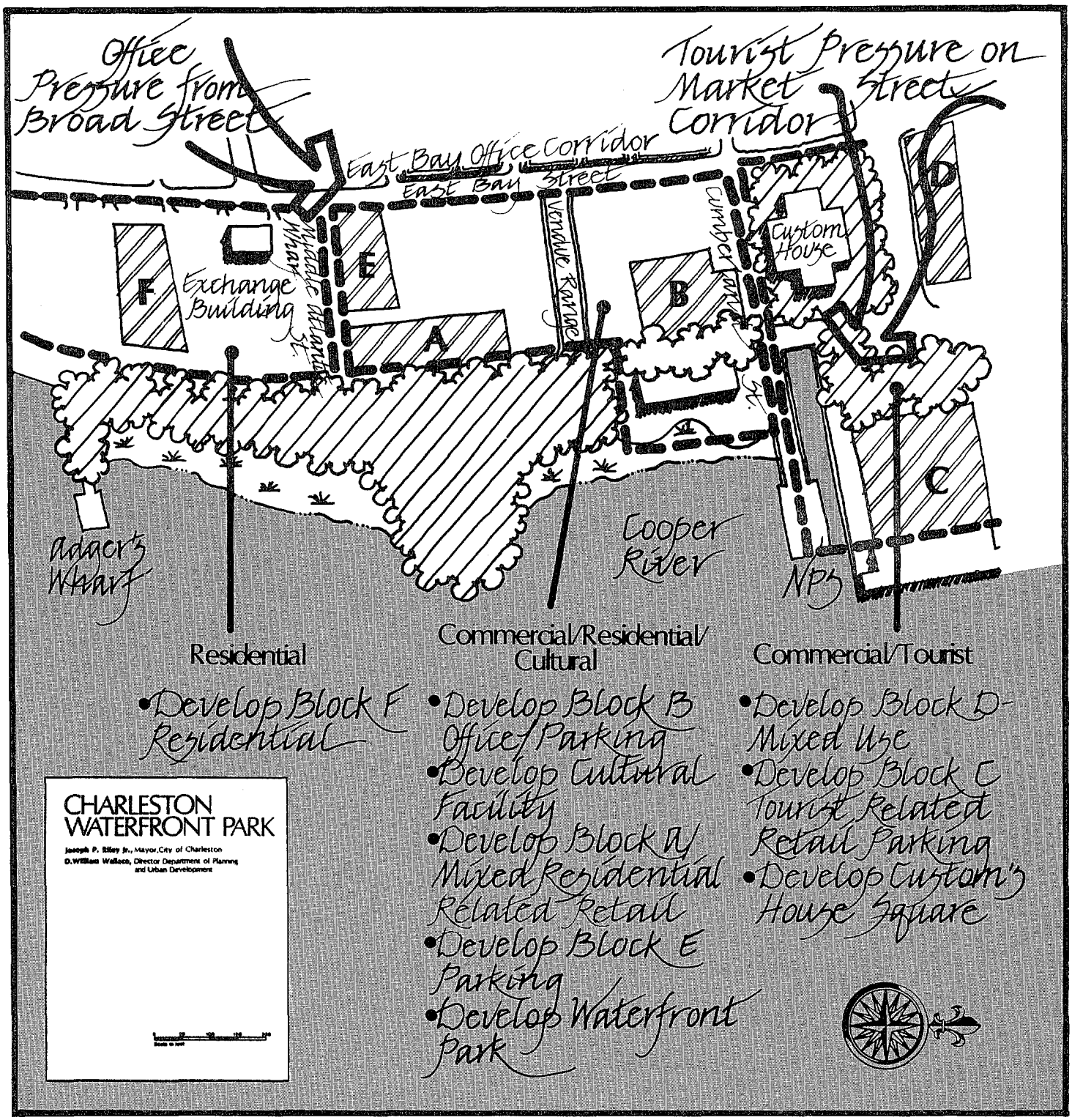


Figure V-3, Land Use Objectives, Cooper River Park Special District

new development here should be residential.

The land use objectives, then, aim at the further enhancement of three of Charleston's most valuable assets: her historic, high-quality, in-town residential precincts; her tourism, and her dynamic and economically important port industry. The park itself provides a way to thread these interests together in an attractive way. The existence of a number of development parcels in prime nearby locations offers an unexcelled opportunity to further develop the existing assets.

Critical Development Parcels

There are a number of critical development parcels within the special district. Specific design guidelines have been prepared for each site (See Figures V-4 through V-9).*

*Detailed guidelines have not been prepared for Block F.

1) **Blocks A and E** – mixed residential/hotel/cultural selected retail uses;
2) **Block B** – Ports Authority related offices/ground floor commercial/parking;
3) **Block C** – parking/tourist related retail;
4) **Block D** – offices/tourist related retail/motel.
5) **Block E** – residential

Tables V-1 through V-5 summarize the development potential of parcels A through E.

Design Controls

The drawings illustrate various recommended urban design controls. Density requirements (or Floor Area Ratio, FAR) set forth in the draft zoning ordinance (September, 1979) were used as a general guide for development in the special district barring more detailed study. However, in order to accommodate the expected long-term parking requirements for the area, those sites which provide a substantial amount of parking in garages or at grade level go above the suggested development potential for the site of 2.4 FAR (See Tables V-1 through V-5).* Finally, parking ratios for each site will be established by the city pending completion of current, on-going transportation and zoning studies. Additionally, an overall height control policy (see Figure V-10) supports the existing 35- to 55-foot recommended maximums.

It is recommended that a simple but vigorous design review procedure be followed with respect to all new development in the special district to ensure compliance with the design controls and the urban design intents. This implies a thorough review of schematic design of all buildings and encourages the selection of the very best architects, landscape architects, and engineers in all work both public and private.

At the same time, no set of design controls should be totally inflexible. Discretion and sophistication on the part of reviewing agencies are necessary. If private developers use quality, professional designers, they will quite often hit upon solutions superior to those recommended in the plan. Changing the plan can be as important as adopting it. Certainly some "reward" (faster service, easier approval) should be found for those who put forward high quality schemes. Once such a reward system is established, better development will follow.

As yet Charleston has not received in her new projects the level of quality she deserves. There is opportunity for this in the Cooper River Special District.

*Not applicable to Block C and E which are primarily parking garages.

Table V-1, Development Block A — Development Potential

PLOT AREA 52,017 s.f.
FAR 2.4 (City Zoning Study)*
DEVELOPMENT POTENTIAL 124,840 s.f.

USE	GROUND FLOOR	SECOND FLOOR	THIRD FLOOR	FOURTH FLOOR	FIFTH FLOOR	TOTALS	% OF DEV.
RETAIL	9,295 s.f.					9,295	7.4
HOTEL	8,625	15,620	17,020.5	17,020.5		58,286.5	47.0
PARKING	6,030					6,030	4.8
RESIDENTIAL	11,425.5	25,093.5	14,697	1,860		53,076	42.5
OPEN SPACE	16,641 32% Plot Area						

Minus Parking —	120,657.5
Total Gross Floor Area:	126,687.5
Actual FAR of Model:	2.43

PARKING	REQUIRED			
COMM/RETAIL	1/400	169	ACTUAL NUMBER PROPOSED IN THE DEVELOPMENT PLANS	30
OFFICE	1/800	N.A.	+ EXCESS/ — DEFICIENCIES	— 166
RESIDENTIAL	1/dwelling unit	27		
TOTAL		196		

*Phase 2 Report Charleston Zoning Ordinance Revision, HLW/Partnership, September 1979. FAR is an abbreviation of Floor Area Ratio.

KEY for DEVELOPMENT BLOCKS A–E
In Figures V-4 – V-8

Mandatory Controls

Required Build to Plane

Arcade Building Plane Above Ground Floor

Porches Above Arcade

Special Roof Profile

Existing/New Building Alignment

Retail and/or Commercial Frontage

Green Buffer

Plaza and/or Recommended Open Space Location

Pedestrian Walkway

View Corridor

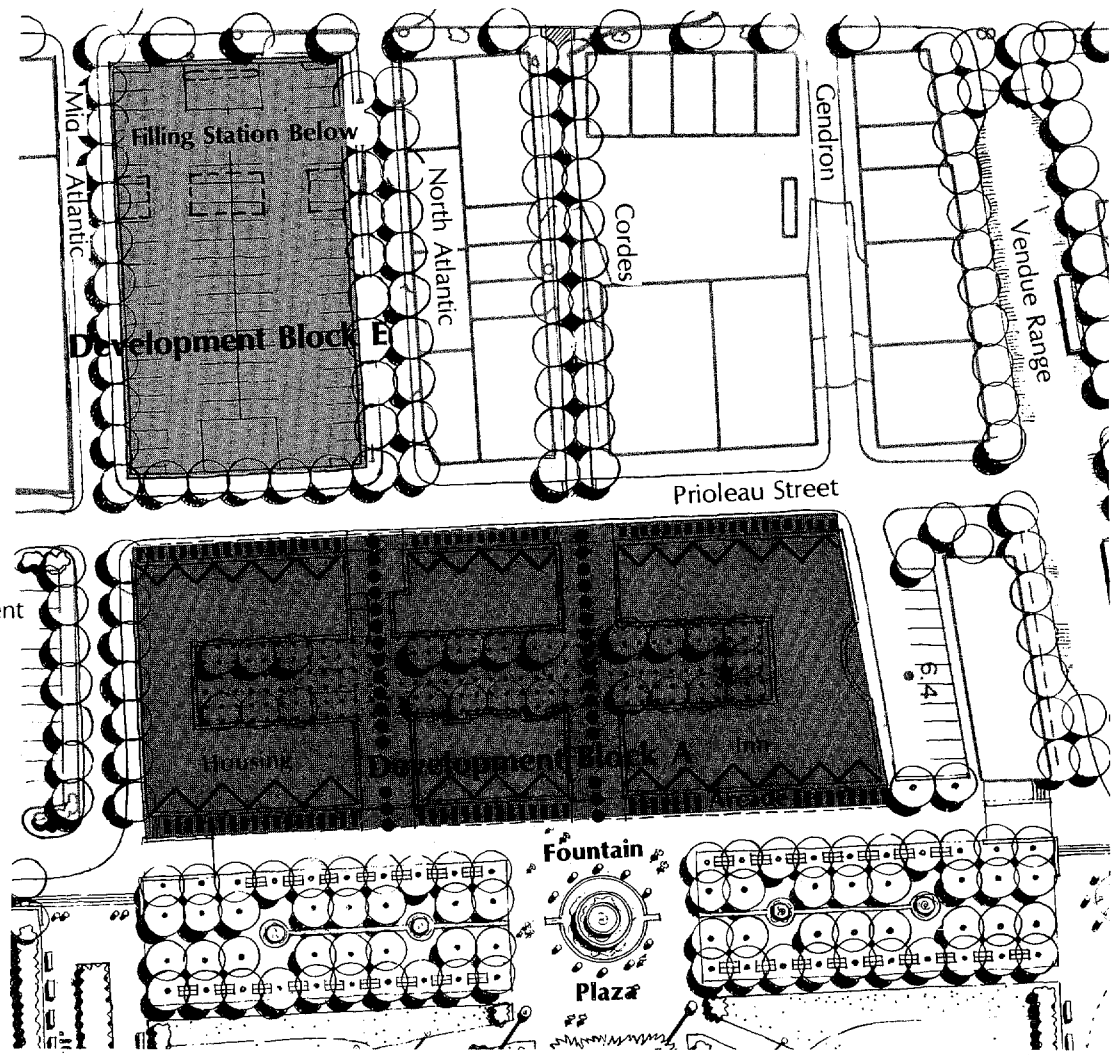


Figure V-4, Development Blocks "A" and "E"

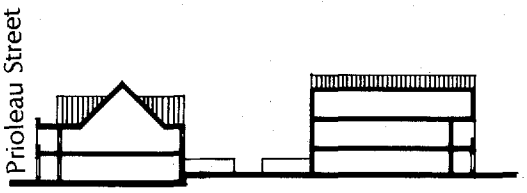
Table V-2, Development Block E – Development Potential

PLOT AREA 27,412 s.f.
FAR 2.4 (City Zoning Study)
DEVELOPMENT POTENTIAL 54,825 s.f.

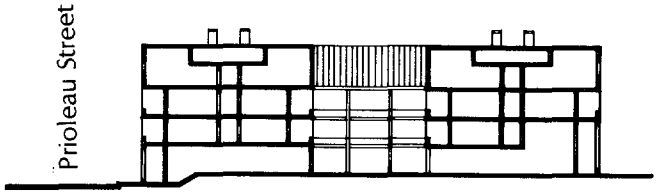
USE	GROUND FLOOR	SECOND FLOOR	THIRD FLOOR	FOURTH FLOOR	FIFTH FLOOR	TOTALS	% OF DEV.
RETAIL							
PARKING	27,412	27,412	27,412	27,412	27,412	137,060	2.4
COMMERCIAL							
RESIDENTIAL							
OPEN SPACE							

Total Gross Floor Area: 137,036
Actual FAR of Model: 5.0

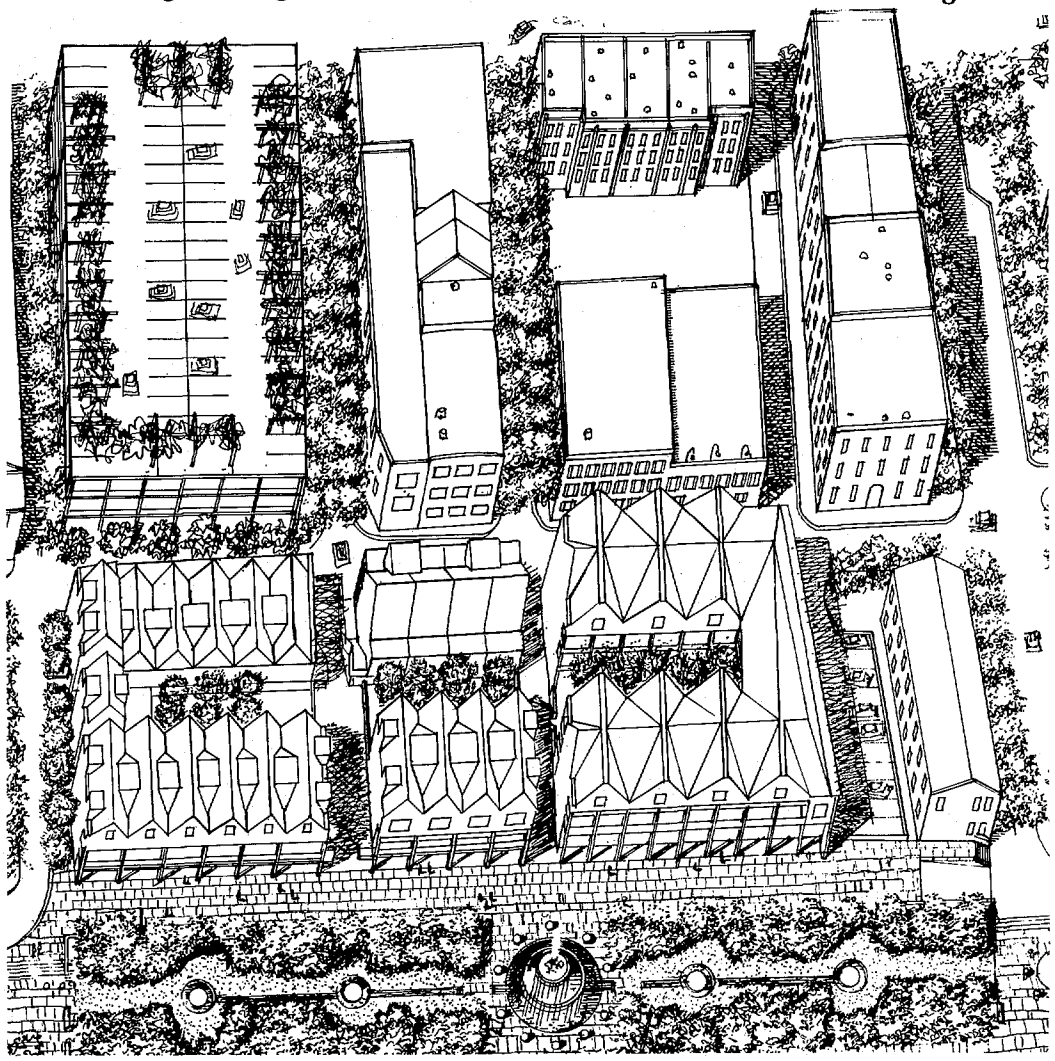
PARKING	REQUIRED			
COMM/RETAIL	1/400	N.A.	ACTUAL NUMBER PROPOSED IN THE DEVELOPMENT PLANS	350
OFFICE	1/800	N.A.	+ EXCESS/ – DEFICIENCIES	N.A.
RESIDENTIAL	1/dwelling unit	N.A.		
TOTAL		N.A.		



Section through Housing



Section through Inn



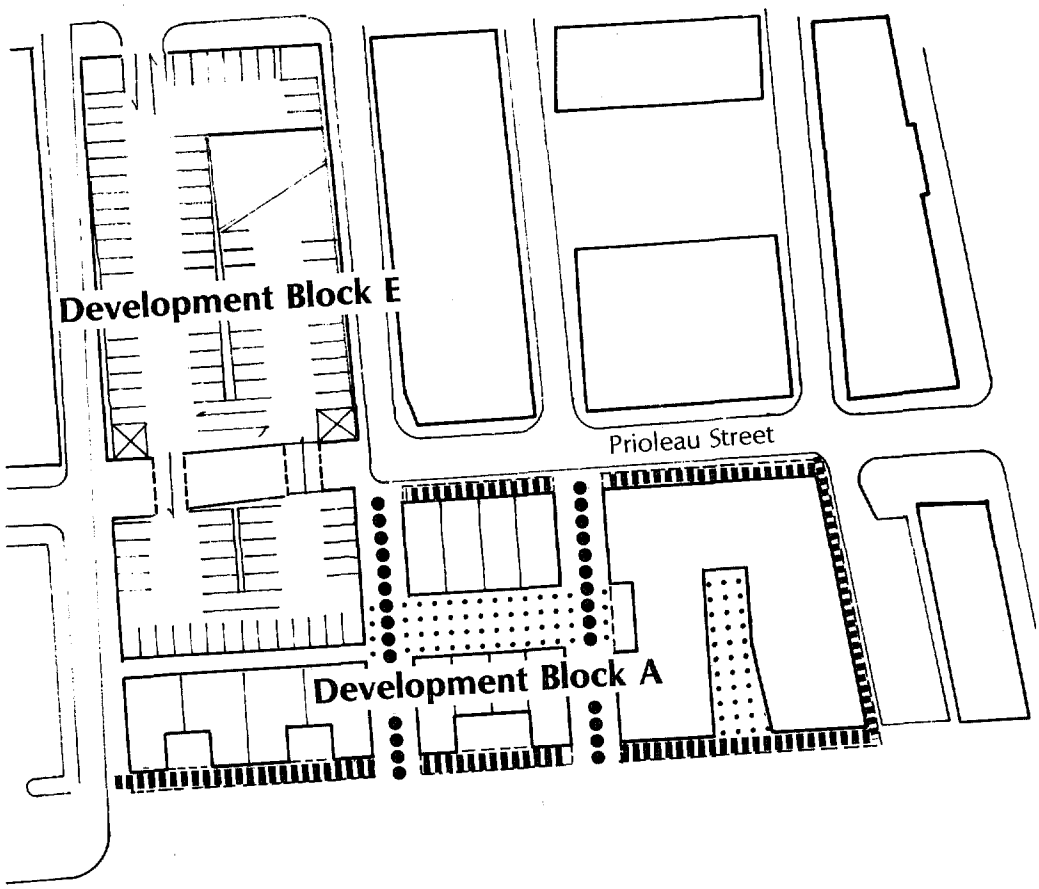


Figure V-5, Development Blocks "A" and "E" — Alternate

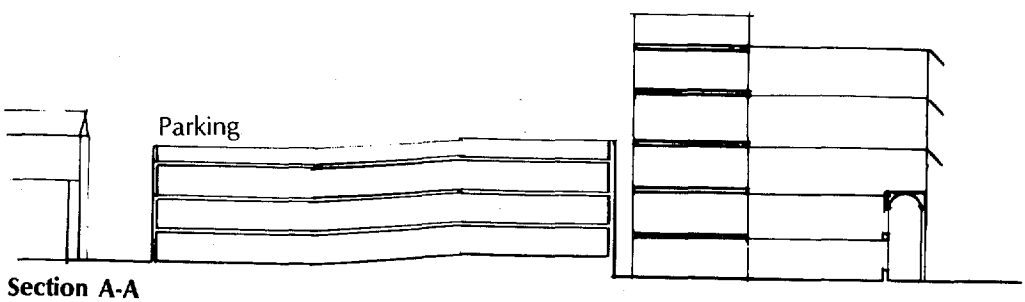
Table V-3, Development Block B – Development Potential

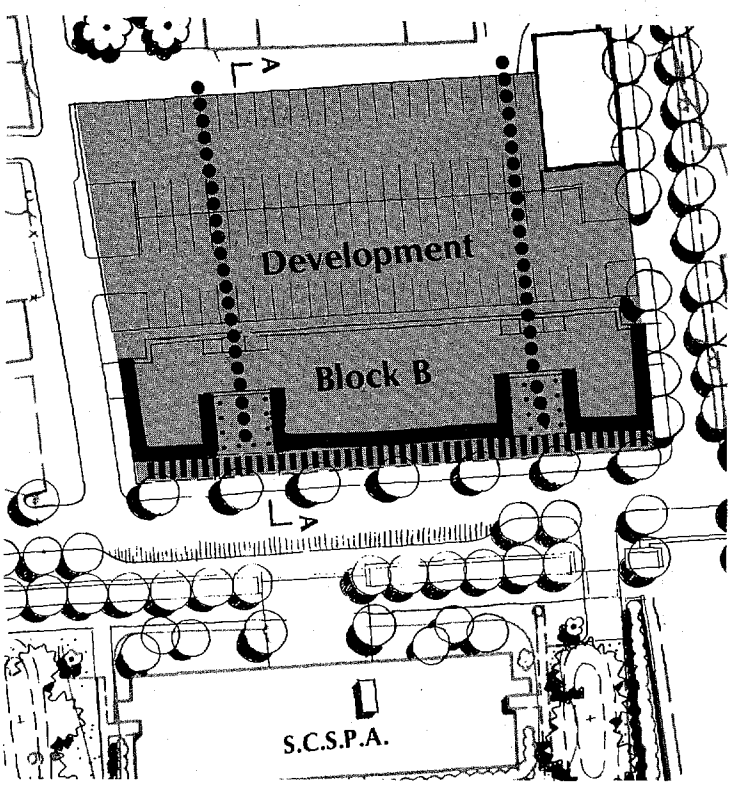
PLOT AREA 53,970 s.f.
FAR 2.4 (City Zoning Study)
DEVELOPMENT POTENTIAL 129,528 s.f.

USE	GROUND FLOOR	SECOND FLOOR	THIRD FLOOR	FOURTH FLOOR	FIFTH FLOOR	TOTALS	% OF DEV.
RETAIL	11,550 s.f.					11,550	8.9
				Roof			
PARKING	33,600	33,600	33,600	33,600		134,400	
COMMERCIAL	3,970	15,520	17,820	17,820	17,820	72,950	56.3
RESIDENTIAL							
OPEN SPACE	3,750 6.9% Plot Area						

Minus Parking –	84,500
Total Gross Floor Area:	218,900
Actual FAR of Model:	4.05

PARKING	REQUIRED			
COMM/RETAIL	1/400	29	ACTUAL NUMBER PROPOSED IN THE DEVELOPMENT PLANS	432
OFFICE	1/800	91	+ EXCESS/ – DEFICIENCIES	+ 312
RESIDENTIAL	1/dwelling unit	N.A.		
TOTAL		120		





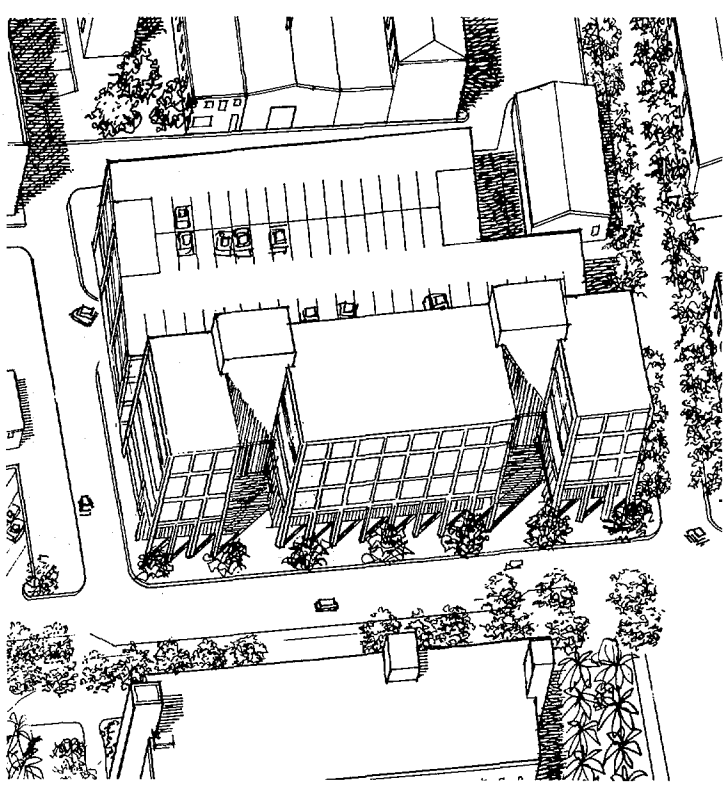


Figure V-6, Development Block "B"

Table V-4, Development Block C – Development Potential

PLOT AREA 164,640 s.f.
FAR 2.4 (City Zoning Study)
DEVELOPMENT POTENTIAL 395,136 s.f.

USE	GROUND FLOOR	SECOND FLOOR	THIRD FLOOR	FOURTH FLOOR	FIFTH FLOOR	TOTALS	% OF DEV.
RETAIL	10,402 s.f.					10,402	2.6
					Roof		
PARKING	75,525.5	85,927.5	88,777.5	88,777.5	88,777.5	427,785.5	
COMMERCIAL							
RESIDENTIAL							
OPEN SPACE	78,712 47.8% Plot Area						

Total Gross Floor Area: 438,188
Actual FAR of Model: 2.66

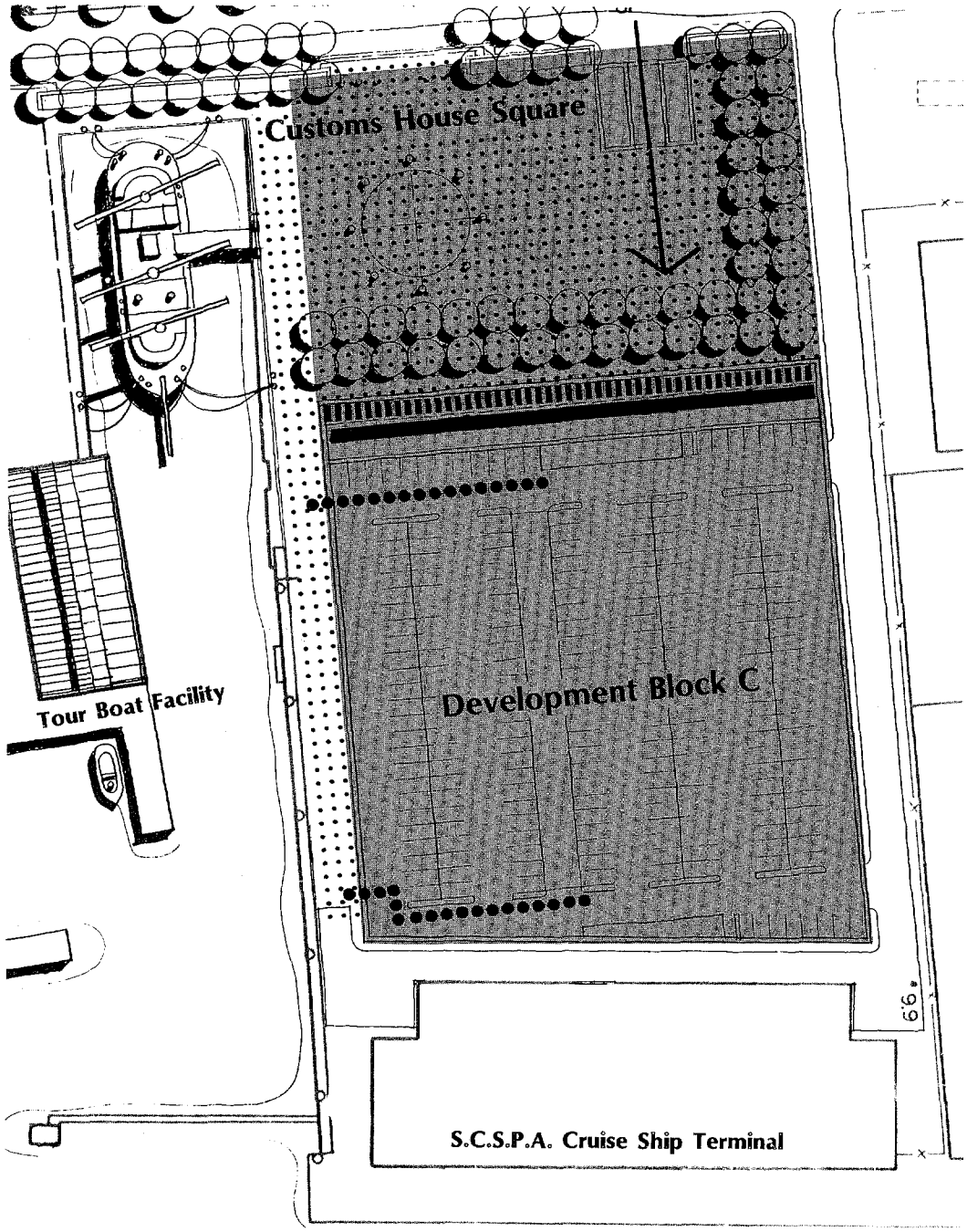
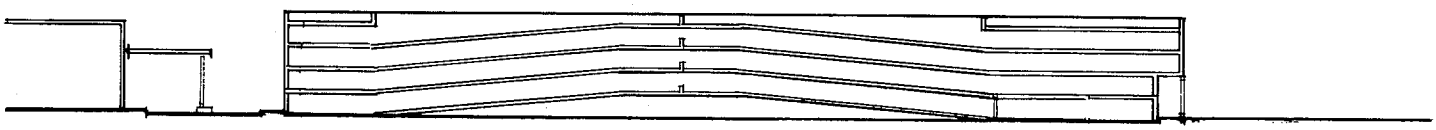


Figure V-7, Development Block "C"

PARKING	REQUIRED			
COMM/RETAIL	1/400	26	ACTUAL NUMBER PROPOSED IN THE DEVELOPMENT PLANS	1,082
OFFICE	1/800	N.A.	+ EXCESS/ – DEFICIENCIES	+ 1,056
RESIDENTIAL	1/dwelling unit	N.A.		
TOTAL		26		



Typical Section Through Parking

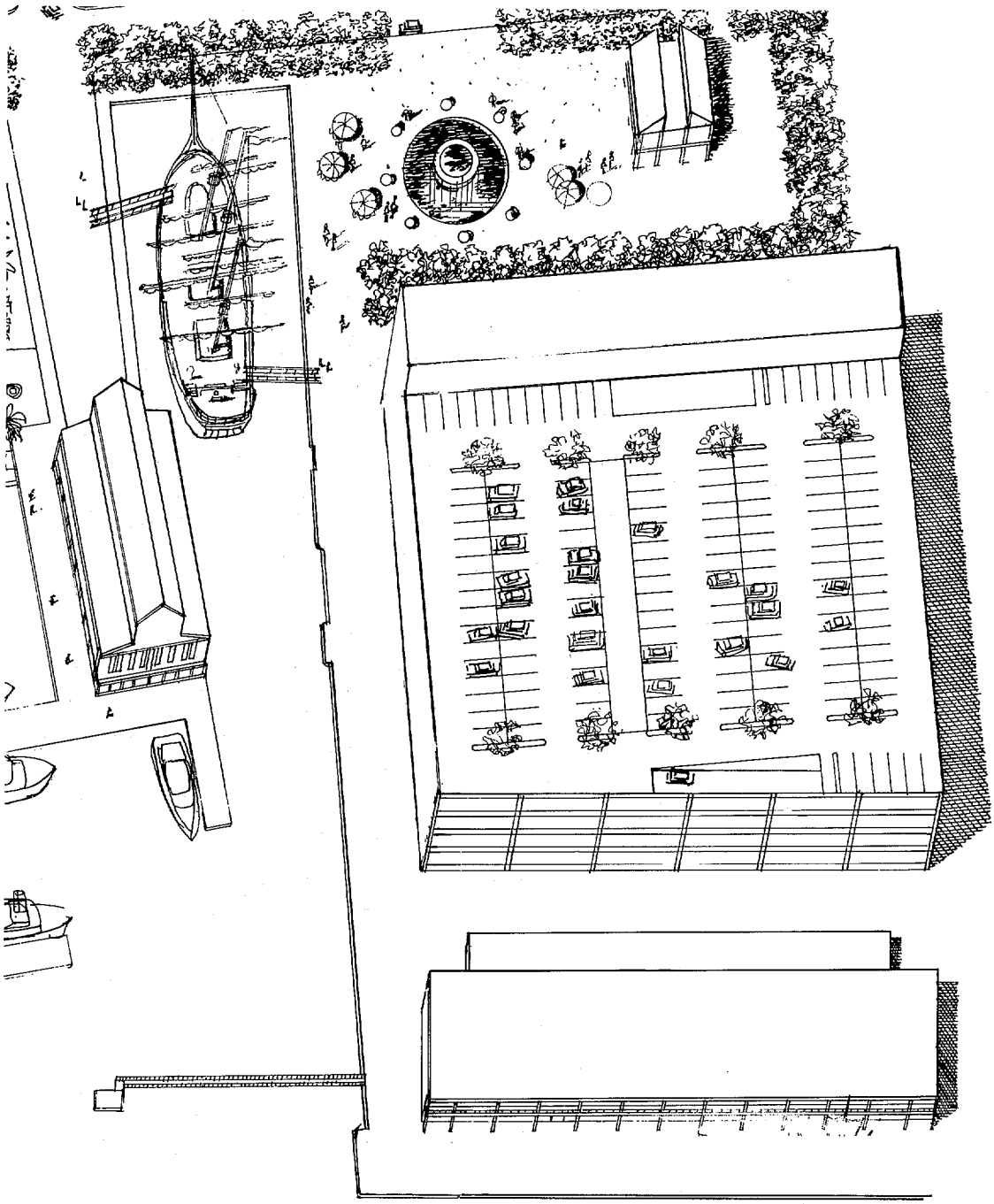


Table V-5, Development Block D – Development Potential

PLOT AREA 51,450 s.f.
FAR 2.4 (City Zoning Study)
DEVELOPMENT POTENTIAL 123,480 s.f.

USE	GROUND FLOOR	SECOND FLOOR	THIRD FLOOR	FOURTH FLOOR	FIFTH FLOOR	TOTALS	% OF DEV.
RETAIL	18,582 s.f.					18,582	15
PARKING	22,240					22,240	
COMMERCIAL		34,740	35,940	16,650	16,650	103,980	84.2
RESIDENTIAL							
OPEN SPACE	10,387			Setbacks above 35 feet			
	20% of Plot Area			19,290	19,290		

Minus Parking –	122,562
Total Gross Floor Area:	144,802
Actual FAR of Model:	2.81

PARKING	REQUIRED			
COMM/RETAIL	1/400	46	ACTUAL NUMBER PROPOSED IN THE DEVELOPMENT PLANS	77
OFFICE	1/800	130	+ EXCESS/ – DEFICIENCIES	– 99
RESIDENTIAL	1/dwelling unit	N.A.		
TOTAL		176		

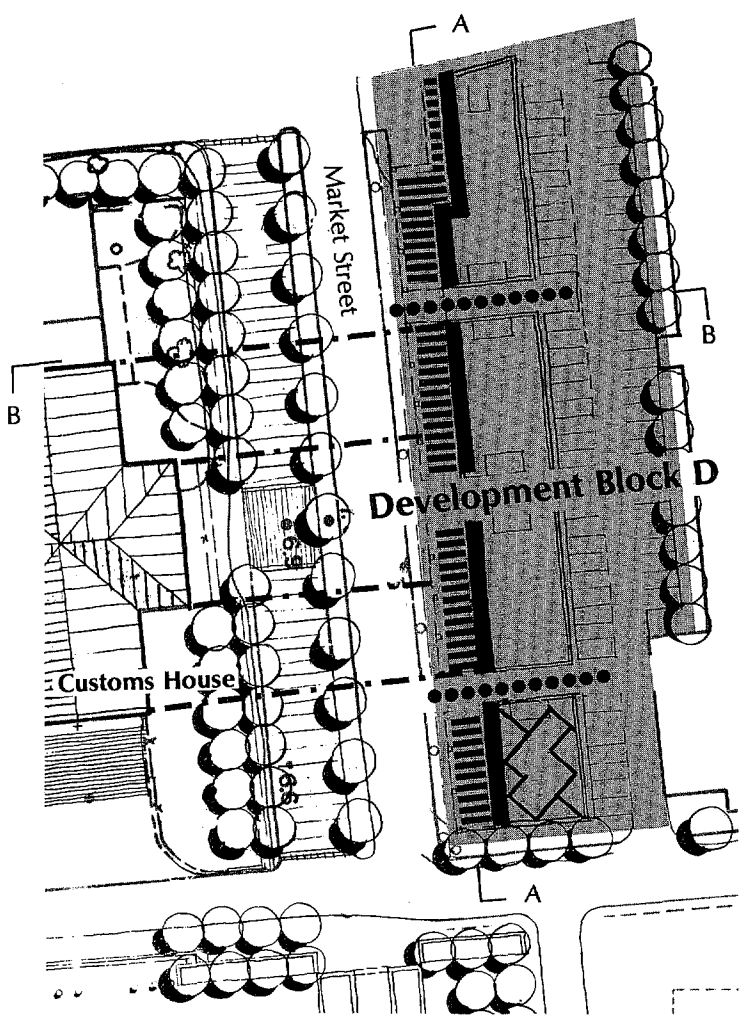
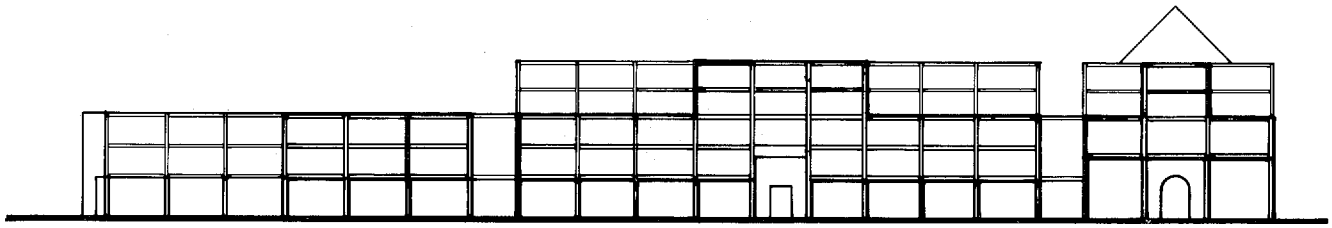
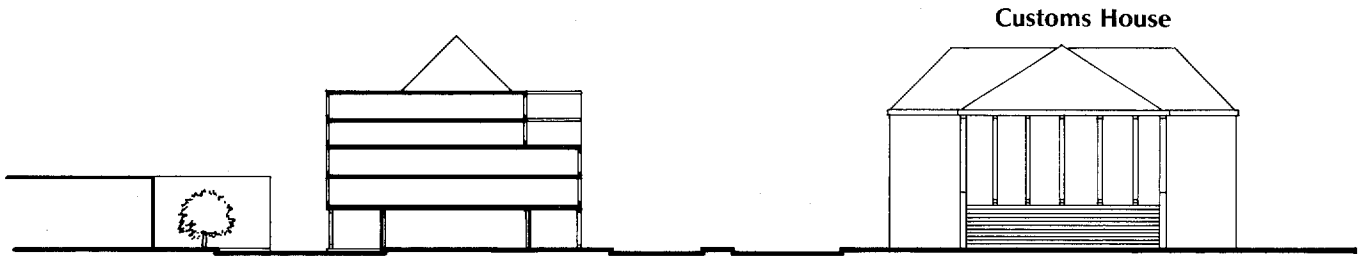


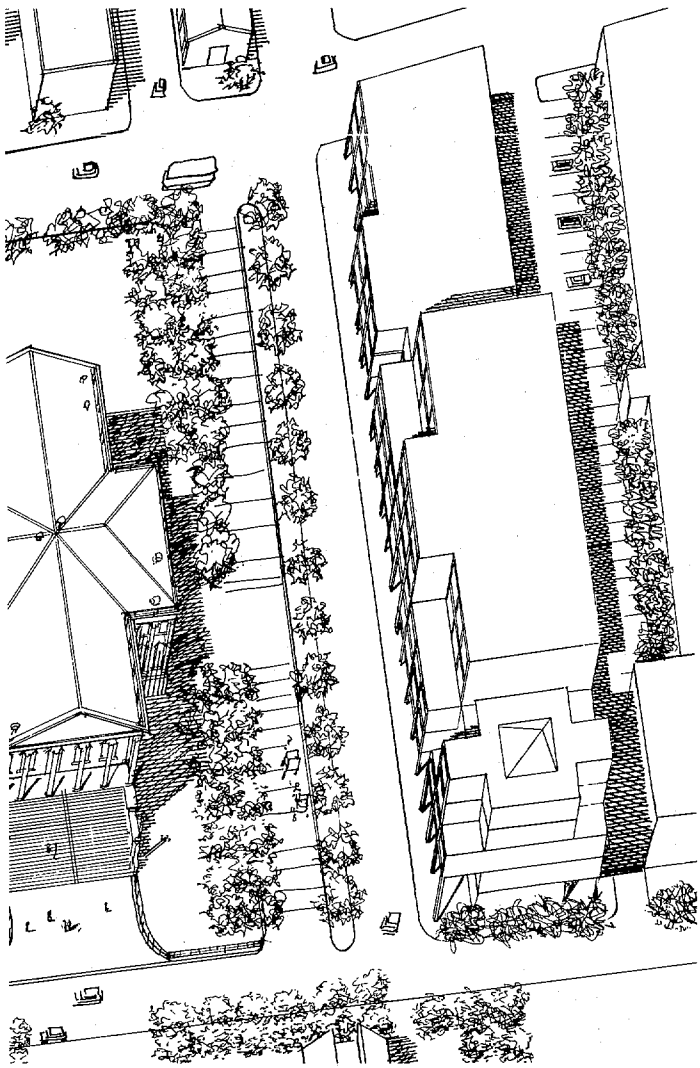
Figure V-8, Development Block "D"

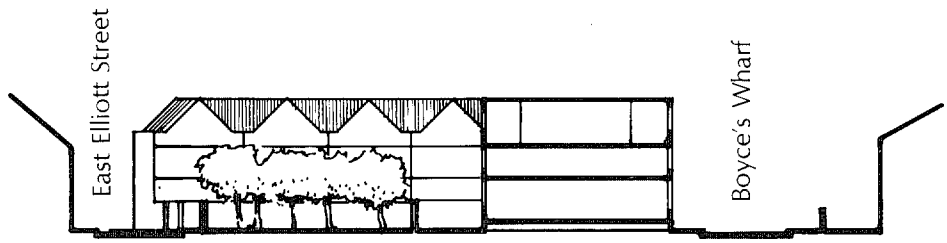


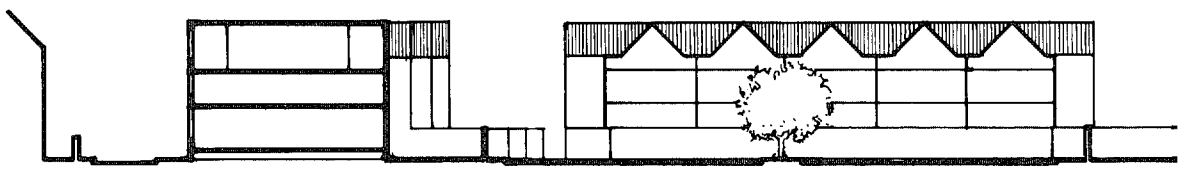
Section A-A



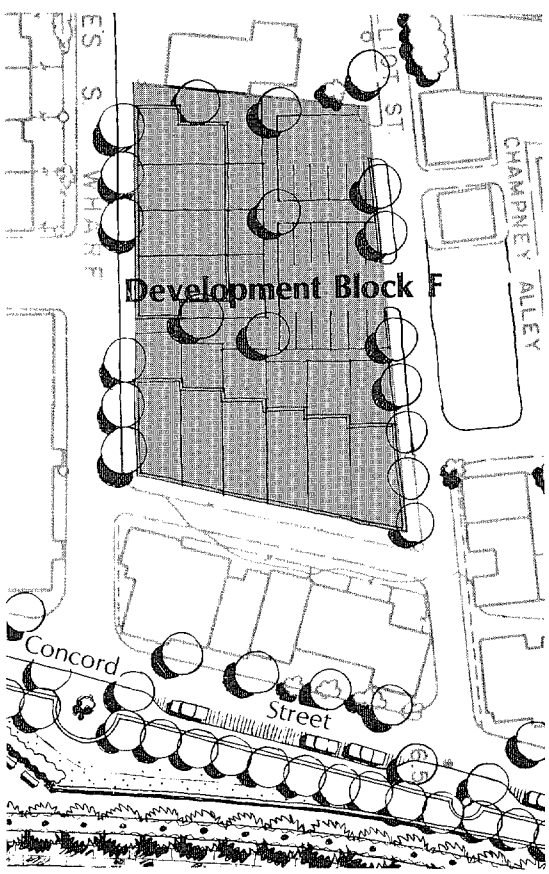
Section B-B







Longitudinal Section



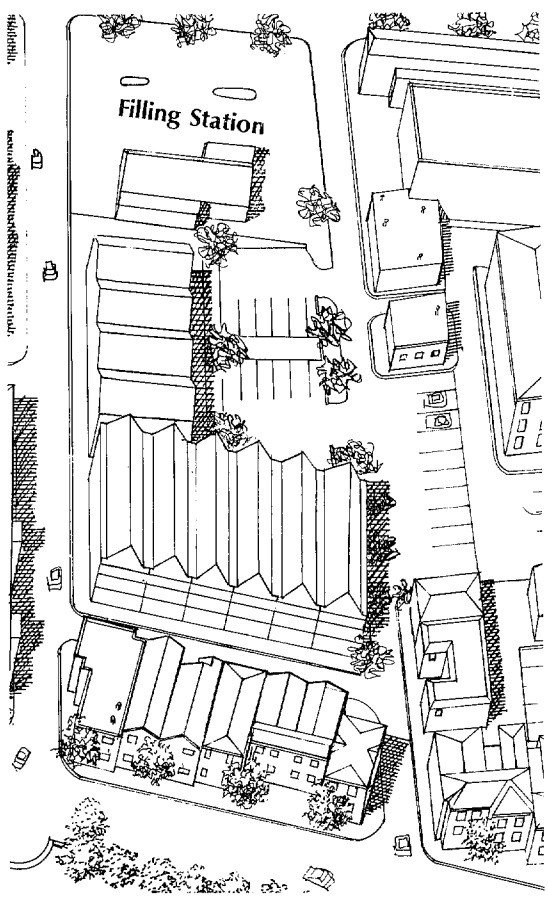


Figure V-9, Development Block F

*Detailed guidelines have not been prepared for Block F.

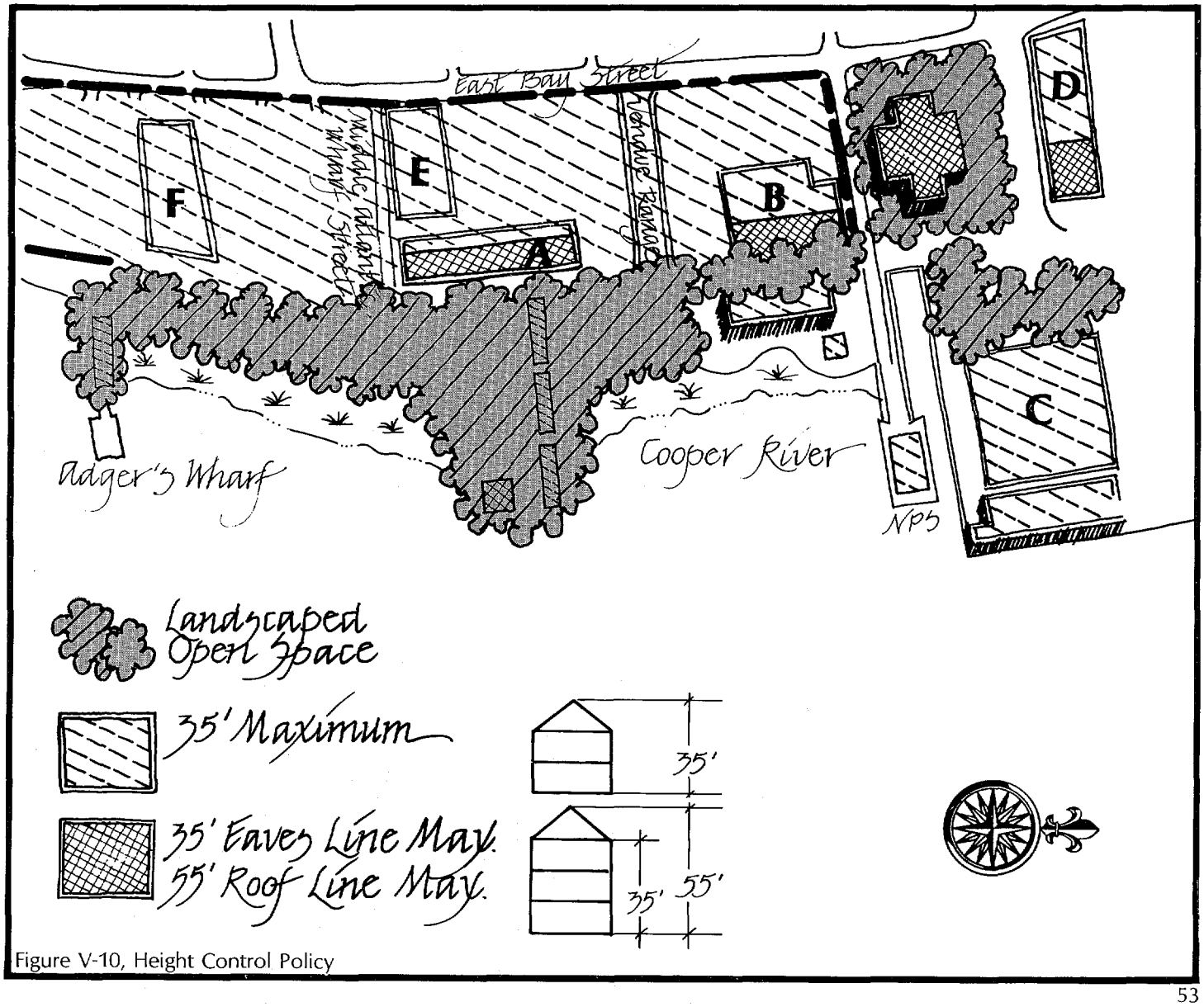


Figure V-10, Height Control Policy

Landscape Vocabulary

Plant Material

There are many environmental stresses present on the shores of the peninsula which predispose plant materials to decline and eventual death*. Adjacent to the Cooper River, soils are generally high in excess soluble salts and alkaline in pH. They also have particular problems related to their water holding capacity.

Excess soluble salts result from inundation of soils with saline or brackish water, in this case. The term soluble salts reflects the amount of dissolved salts (Na^{+}, Ca^{++}, Mg^{++}, etc.) in a soil. The levels which cause injury in sandy soils are considerably less than in organic soils. An organic soil type can potentially hold more water; therefore, the salts are more diluted than in a sandy soil. In order to minimize the problems associated with excess soluble salts, we propose the following recommendations:

- At time of planting, add organic matter to improve the nutrient and water holding capacity,
- Add gypsum or other limestone materials to improve the cation exchange capacity of the soil and reduce the uptake of sodium,
- Avoid fertilizers with high salt levels of chlorine, sodium, and sulfate,
- Monitor soluble salt levels with soil and water testing.
- Water plant materials thoroughly to leach salts from the root zone,
- Provide good drainage to prevent build up of salts in the root zone,
- Use salt tolerant ornamentals,
- Use salt tolerant screen plantings to reduce the injury to more sensitive plants inland and
- Syringe the foliage with non-saline water.

Associated with soil related problems is a similar salinity problem – salt injury from spray. Potentially, the more hazardous problem is related to soil salinity, yet injuries from spray reduce the ornamental value of landscape plantings. Salt spray injury is characterized by scorched, dry, often "burn-like" foliage. Injury symptoms are generally more severe on the water facing portions of plants. As injury progresses, complete defoliation occurs. We are using the following three salt tolerant categories of plants:

- **Salt Tolerant** – plants highly resistant to salt drift which can be used in exposed environments.
- **Moderately Salt Tolerant** – plants which tolerate some salt spray, but grow best when protected by buildings, fences, or plantings or salt tolerant species.
- **Slightly Salt Tolerant** – plants with poor salt tolerance which should be used away from exposed areas and protected by buildings, fences, or plantings of salt tolerant and moderately salt tolerant species.

These species have been further divided into the following classifications: Trees, Palms, Shrubs, and Dwarf Shrubs, Vines and Ground Covers and are listed in Appendix C including the plant materials most suitable for use in the waterfront park.

Street Furniture, Signs and Graphics

The proposed Cooper River Special District will have streetscape improvements which will involve a complicated set of physical and aesthetic improvements that produce extensive economic and social impacts. The coordinated actions of the public and private sectors and strong support of the community are necessary to implementation. Such actions throughout the entire area will, out of necessity, be phased over the next decade.

Potential street furnishings in the Project Area include postal boxes, newspaper vendors, waste receptacles, flag poles, transit information graphics, traffic control graphics, benches and lights. Their design and material should be in keeping with the period architecture and the spirit of the urban design guidelines set forth in this report. The specific design and locations of street furnishings will be determined in the next phase of park design.

*Barrick, William E., **Salt Tolerant Plants for Florida Landscapes,** Report Number 28, State University System of Florida, Sea Grant College Program, July, 1979, is the source for this section.

Appendices

Appendix A — Environmental Considerations

1. Tides, Flooding and Storms

Table A-1, Charleston Tide Analysis 5/8/80*
0.00 NGVD**
– 2.1 Mean Low Tide (local) 1980+

Tide Tables – 1980

Highest Tide in Each Month***

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
6.1	6.1	6.3	6.5	6.7	6.5	6.2	6.1	6.6	7.1	6.9	6.5

7.1 Annual High Tide
6.5 Monthly High Tide
5.8 Average High Tide

Lowest Tide in Each Month***

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
– 1.2	– 1.4	– 1.3	– 1.2	– 1.1	– 1.0	– 0.8	– 0.7	– 0.8	– 0.9	– 1.1	– 1.2

– 1.4 Annual Low Tide
– 1.1 Monthly Low Tide
+ 0.3 Average Low Tide

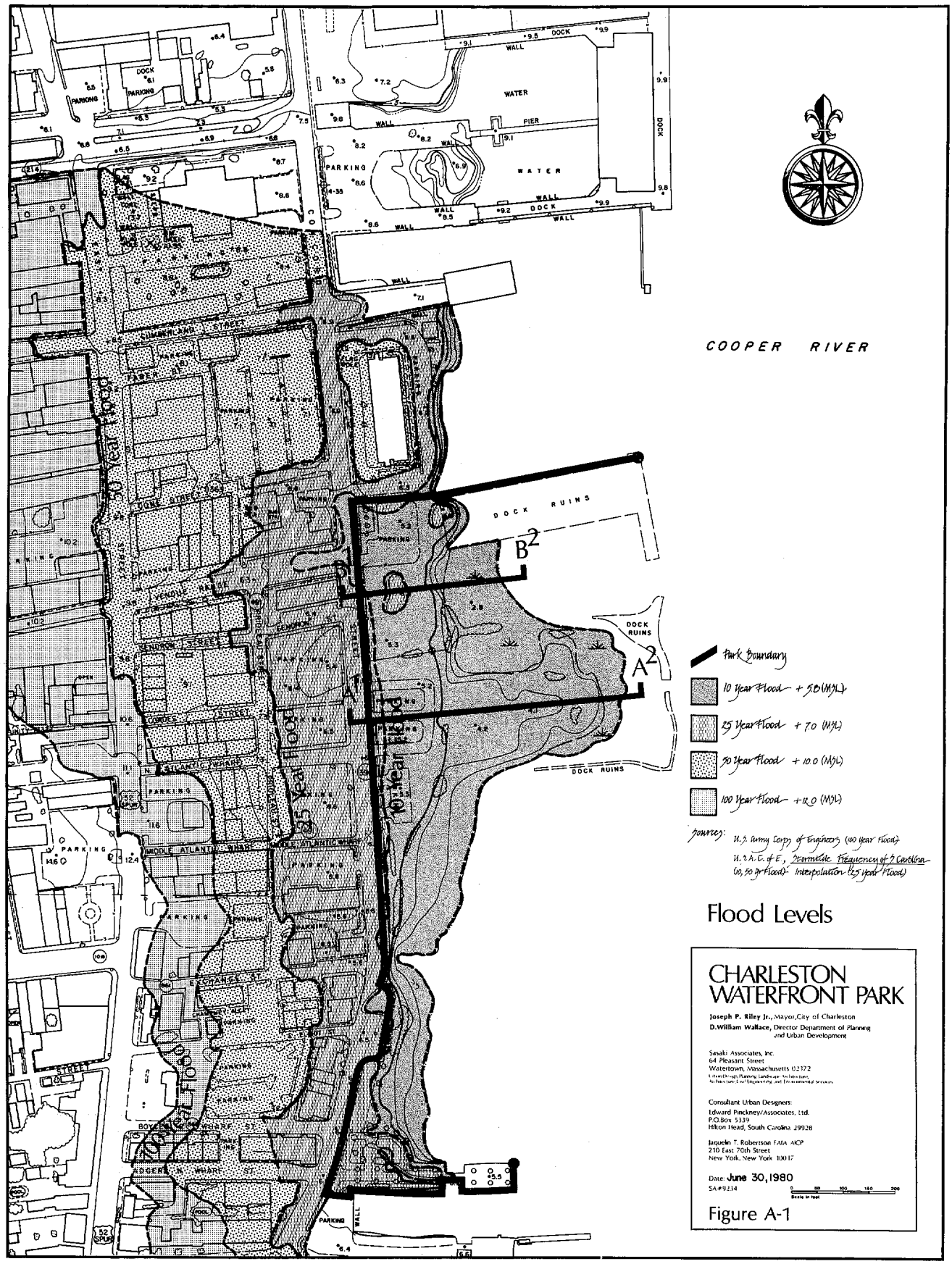
Average Tide Range = 5.5′

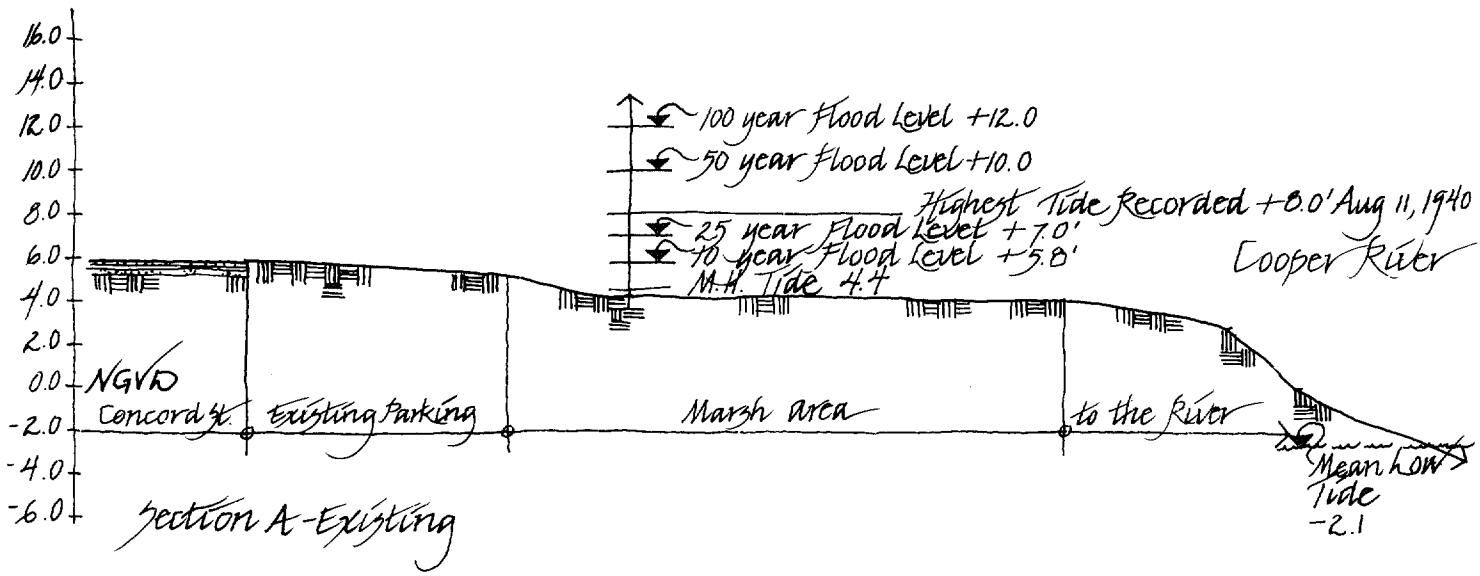
*This analysis is the basis for Tidal and Flood Levels Table.
**National Geodetic Vertical Datum of 1929 (NGVD) refers to geodetic surface determined at selected leveling nets in the contiguous United States. Zero on this reference surface is close to but not identical with :local mean sea level". The land elevations on the city's topographical maps refer to this datum.
***Subtract 2.1 from all tidal heights so that they correspond to elevations on the city's topographic maps.

Table A-2, Tide and Flood Levels

No. of Times per year	Tide or Flood	Elevation	Notes
1/500	500 year flood	+ 16.4	U.S. Army Corps of Engineers
1/100	100 year flood	+ 12.0	U.S. Army Corps of Engineers
1/50	50 year flood	+ 10.0	U.S. Army Corps of Engineers
1/25	25 year flood	+ 7.0	U.S. Army Corps of Engineers
1/10	10 year flood	+ 5.8	U.S. Army Corps of Engineers
1	Annual (Extreme) High Tide	+ 5.0	Analysis
6	Spring High Tide	+ 4.7	Analysis
12	Monthly High Tide	+ 4.4	Analysis
720	Average High Tide	+ 3.7	Analysis
–	NGVD =	0.0	City Topo Map Datum
720	Average Low Tide	– 1.8	Analysis
–	*Mean Low Tide (Local)	– 2.1	Used for Tidal reference
12	Monthly Low Tide	– 3.2	Analysis
1	Annual (Extreme) Low Tide	– 3.5	Analysis

*As per U.S.G.S. – Office of Oceanography/NOS/NOAA Tides & Water Levels Divisions.


COOPER RIVER
WATER
PIER
WALL
DOCK
PARKING
DOCK RUINS
A1
A2
B1
B2
50 Year Flood
25 Year Flood
10 Year Flood
100 Year Flood
Park Boundary
10 Year Flood + 5.0 (MSL)
25 Year Flood + 7.0 (MSL)
50 Year Flood + 10.0 (MSL)
100 Year Flood + 12.0 (MSL)
Source: U.S. Army Corps of Engineers (100 year Flood)
U.S.A.C. of E, Coastal Frequency of S. Carolina (10, 50 yr Flood) - Interpolation (25 year Flood)
Flood Levels
CHARLESTON WATERFRONT PARK
Joseph P. Riley Jr., Mayor, City of Charleston
D. William Wallace, Director Department of Planning and Urban Development
Sasaki Associates, Inc.
64 Pleasant Street
Watertown, Massachusetts 02172
Consultant Urban Designers:
Edward Pinckney/Associates, Ltd.
P.O. Box 5339
Hilton Head, South Carolina 29928
Jaquelin T. Robertson FAIA AICP
210 East 70th Street
New York, New York 10017
Date: June 30, 1980
SA#9234
Scale in feet
Figure A-1



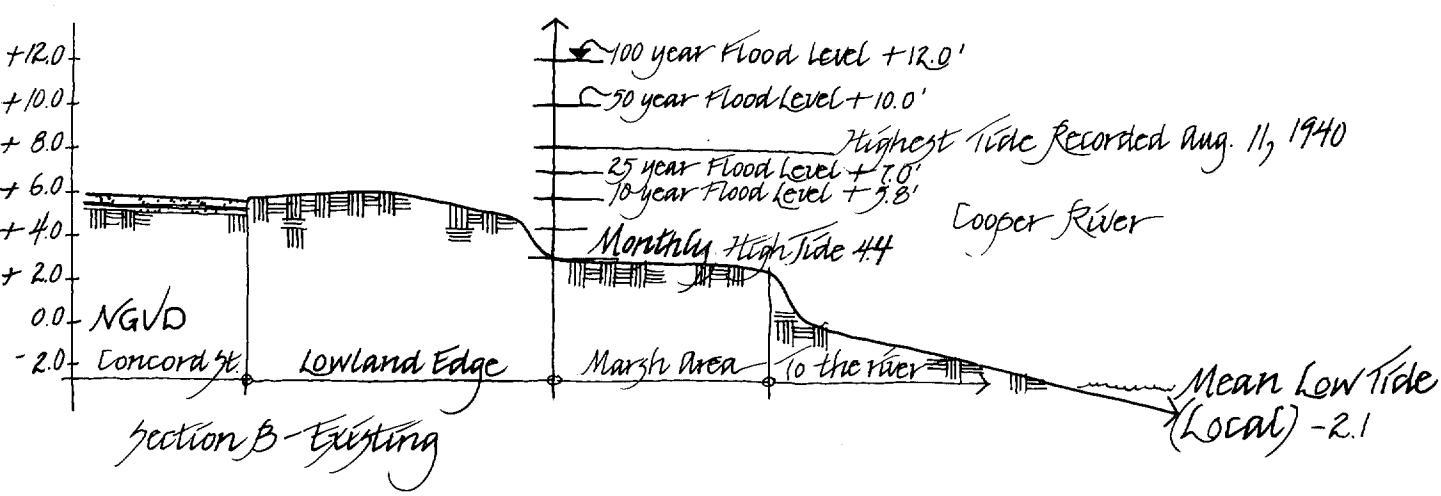


Figure A-2, Sections Showing Flood Levels

2. Marsh, Existing Flora and Fauna

Figure A-3, Marsh Assessment delineates the boundaries of the tidal flat, the low marsh, the high marsh and the upland on the park site. The upland is higher than the elevation of the spring high tide, hosts terrestrial vegetation, and is outside the jurisdiction of the South Carolina Coastal Council (SCCC).

The Generalized Marsh Profile illustrates species of vegetation and fauna which commonly occur in South Carolina salt marshes. The two profiles show the vegetation actually found in two areas of the park site.

The high marsh is land below the spring high tide elevation, hosts such high marsh vegetation as sea oxeye, groundsel tree, sea lavender, and coastal salt grass, provides a habitat for fiddler crabs and is considered a "Critical Area" by the SCCC. The council may be willing to permit some development in this area. The vegetation is growing in fill composed of a mixture of tires, bricks and soils.

The low marsh is land below the elevation of mean high tide, includes such vegetation as saltmarsh cordgrass, provides a habitat for mussels and oysters, and is a SCCC "Critical Area" of high productivity. The general policy of the Council is not to allow development in the low marsh. The only acceptable justification for intrusion into the marsh is public benefit. The negative impact resulting from destruction of the marsh would have to be weighed against the public benefit gained from access to and open space along the waterfront.

The tidal flat is land between the low marsh and the elevation of mean low tide, provides a habitat for snails, clams and crabs and is not a SCCC "Critical Area". A permit for wharf development in the tidal flat can probably be obtained. At present, the South Carolina Department of Health and Environmental Control has closed this portion of the Cooper River for shellfishing because of poor water quality.

Appendix B Soil Considerations

Step One: Existing Subsurface Boring, Geologic and Testing Data Adjacent to the Park Site.

1) Adger's Wharf, at the southern end of the park site, by Soil Consultants, Inc., 1979 (6 borings);
2) Proposed parking garage complex, between Vendue Range, Middle Atlantic Wharf, Prioleau and Concord Streets, by Soil Consultants, Inc., 1964 (2 borings);
3) S.C. State Ports Authority Office Building, off Concord Street, by Soil Consultants, Inc., 1971 (5 borings);
4) S.C. State Ports Authority Passenger Terminal, by Soil Consultants, Inc., 1971 (7 borings);

These boring logs and reports indicate that the area probably consists of four major soil units: fill, organic clay, sand, and marl (Cooper Formation). A brief description of the units follows. In addition, the location and thickness of the four units are illustrated in graphic form.

Fill – This material consists primarily of rock, brick, coal, English rock cobbles, slag, some wood in a matrix of gravel, sand and clay. Thickness of this unit varies from 8 to 23 feet and is generally loose. The material will handle light structures provided the fill is compacted, contains no organics, and has a minimum of two feet of gravel subbase. It is recommended that structures be designed to provide internal support should small voids develop in the fill beneath the structure.

Organic Clay – This material consists of an unconsolidated, saturated organic clay or silt. It appears to have extremely low strength and a penetration resistance* of zero. Thickness varies from 15 to 49 feet based on the existing boring logs. Presumptive bearing capacity is zero while the estimated shear strength of the soil is 20 to 50 pounds per square foot. Settlement potential in this material is excessive.

Sand – Below the clay layer is a zone of calcareous fine to medium sand. The material is firm and has a presumptive bearing capacity of 1/2 to 2 tons per square foot. Thickness varies from 3 to 25 feet.

Marl – The lowest soil unit consists of a thick stiff to firm greenish brown calcareous clayey silt (locally called marl and is part of the Cooper Formation). Many of the buildings in Charleston are founded in this soil unit as it is the most suitable bearing material in the soil profile.

*Penetration Resistance is the number of blows per foot a 2-inch outside diameter Split Spoon Sampler is driven 12 inches with a 140-pound weight freely falling 30 inches.

The preliminary subsurface data indicate the presence of thick deposits of highly compressible low-strength, organic clay characteristic of river estuaries. The two critical design issues, slope stability and settlement potential, are important considerations in the development of the park design, specifically in the feasibility of filling, bulkheading and/or rip rap.

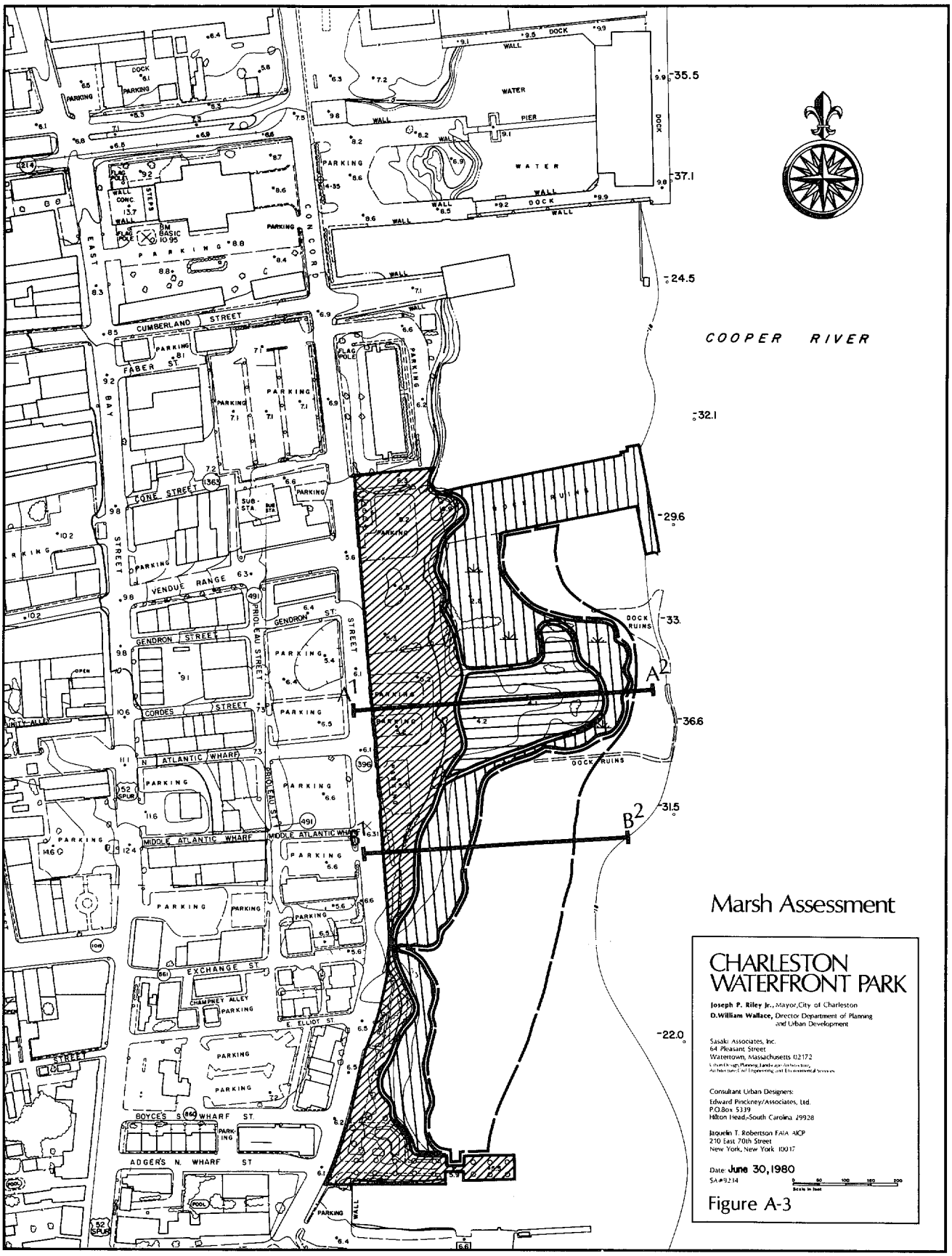
Step Two: Pilot Borings and Tests

To resolve these design issues, a pilot boring program was implemented in May 1980 to conduct an initial field investigation, sampling and lab testing program. This pilot study is in progress. The results will provide recommendations on foundation design. Elements in the alternatives to be discussed will include proposals for 2 to 5 feet of fill, small retaining walls (less than 5 feet in height), decorative stairs and decorative rigid pavements, and other features, such as walls, fountains, etc. Also to be considered within these alternatives will be sheet pile bulkhead containment of fills and open structures, piers and docks constructed in deeper waters.

Three cross-section lines have been positioned in strategic locations for the step two pilot boring program for the park site (See Figure B-3). At the time of this writing, borings Bl to B4 and B8 are on file at Sasaki Associates, Inc. The results of the investigation confirm the general subsurface soil conditions observed in the preliminary analysis (Step 1).

Throughout this step two investigation and analysis, the selected park design alternatives will be analyzed in terms of settlement, slope failure potential and foundation bearing capacity. The implications of geotechnical conditions will be examined and utilized to develop cost-effective resolutions to the foundation problems.

The following summary provides resolutions to pertinent design issues.


COOPER RIVER
Marsh Assessment
CHARLESTON WATERFRONT PARK
Joseph P. Riley Jr., Mayor, City of Charleston
D.William Wallace, Director Department of Planning and Urban Development
Sasaki Associates, Inc.
64 Pleasant Street
Watertown, Massachusetts 02172
Consultant Urban Designers:
Edward Pinckney/Associates, Ltd.
P.O.Box 5339
Hilton Head, South Carolina 29928
Jaquelin T. Robertson FAIA AICP
210 East 70th Street
New York, New York 10017
Date: June 30, 1980
SA#9214
Scale in feet
Figure A-3
CUMBERLAND STREET
FABER ST.
CONE STREET
VENDUE RANGE
GENDRON STREET
CORDES STREET
N. ATLANTIC WHARF
MIDDLE ATLANTIC WHARF
EXCHANGE ST.
CHAMPNEY ALLEY
E. ELLIOT ST.
BOYCE'S S. WHARF ST.
ADGER'S N. WHARF ST.
EAST BAY STREET
CONCORD STREET
PRIOLEAU STREET
DOCK RUINS
WATER
PIER
WALL
PARKING
A1
A2
B1
B2
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37.1
24.5
32.1
29.6
33.
36.6
31.5
22.0

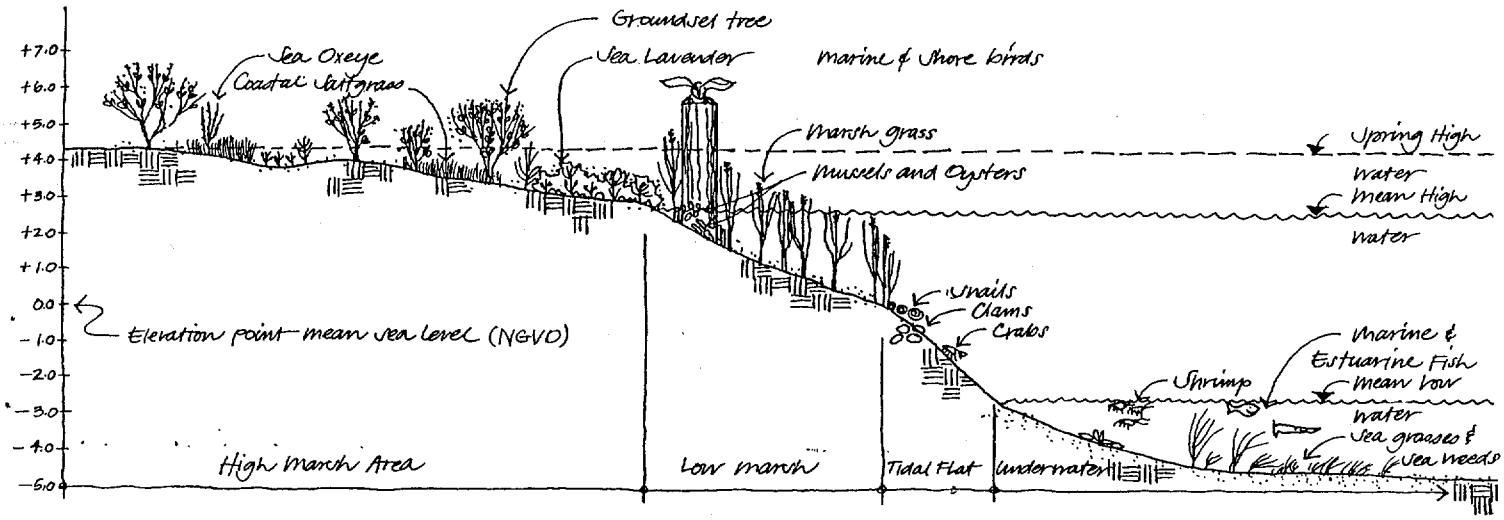


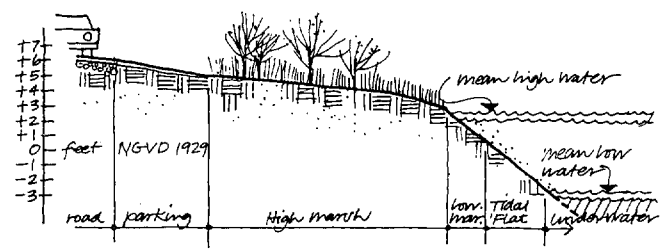
Figure A-4, Generalized Marsh Profile

Upland ~ Land higher than elevation of spring high tide; terrestrial vegetation. Outside S.C. Coastal Council Jurisdiction (S.C.C.C.) ~ 370 acres

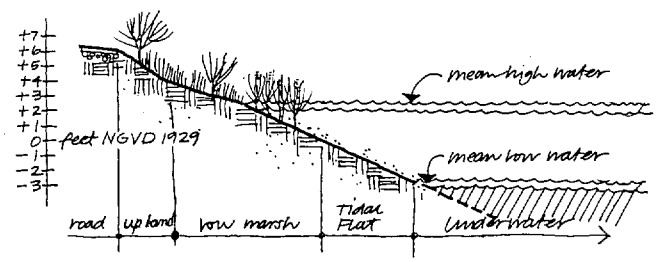
High Marsh ~ Land below elevation of Spring High Tide; High Marsh vegetation present, but of low productivity. Inside S.C.C.C. Critical Area; Development probably permitable. ~100 acres

Low Marsh ~ Land below elevation of mean high water; low marsh vegetation (spartina), high productivity. S.C.C.C. Critical area, devel. probably not permitable. ~352 acres

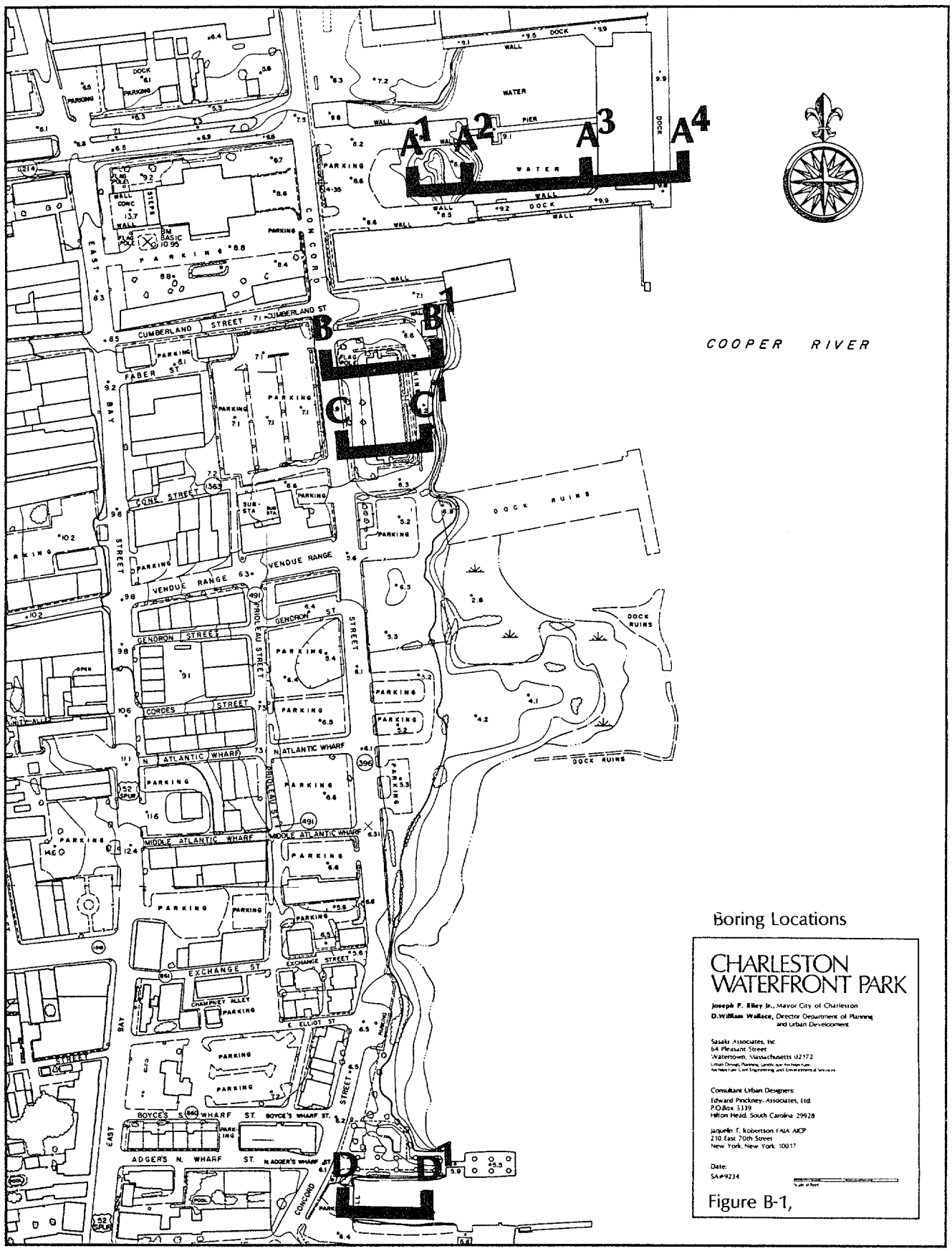
Tidal Flat ~ Land between low marsh and elevation of mean low water. Outside S.C.C.C. Critical Area, development probably permitable. ~390 acres



MARSH PROFILE A_1-A_2



MARSH PROFILE B_1-B_2



Boring Locations

CHARLESTON WATERFRONT PARK

Joseph P. Riley Jr., Mayor City of Charleston
D.William Wallace, Director Department of Planning and Urban Development

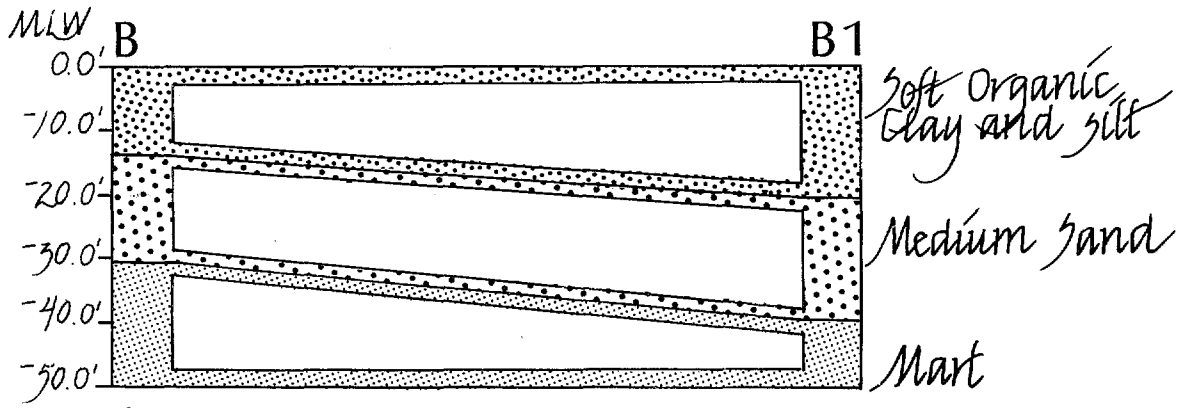
Sasaki Associates, Inc
64 Pleasant Street
Watertown, Massachusetts 02172
Urban Design, Planning, Landscape Architecture, Architecture, Civil Engineering and Environmental Services

Consultant Urban Designers:
Edward Pinckney Associates, Ltd
P.O.Box 5339
Hilton Head, South Carolina 29928

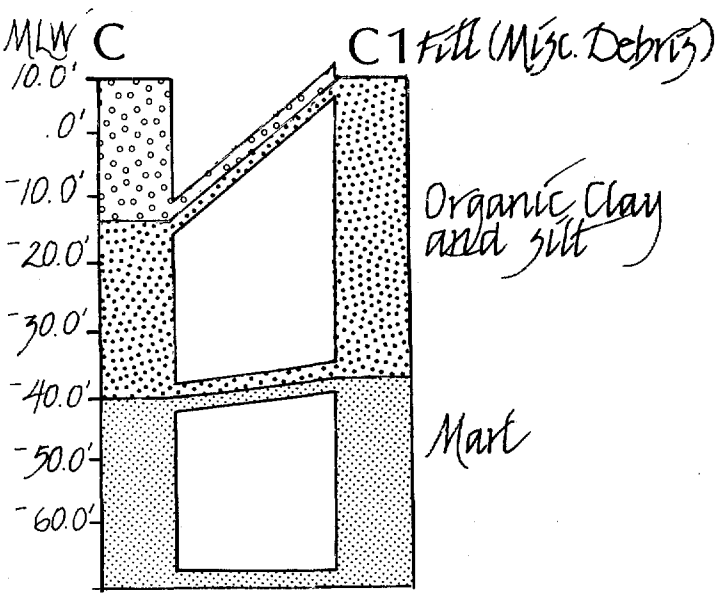
Jaquelin T. Robertson FAIA AICP
210 East 70th Street
New York, New York 10017

Date:
SA#9234

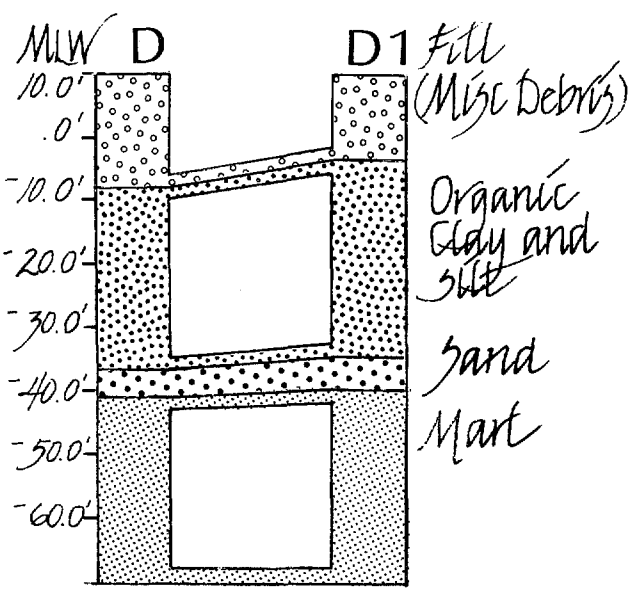
Figure B-1,



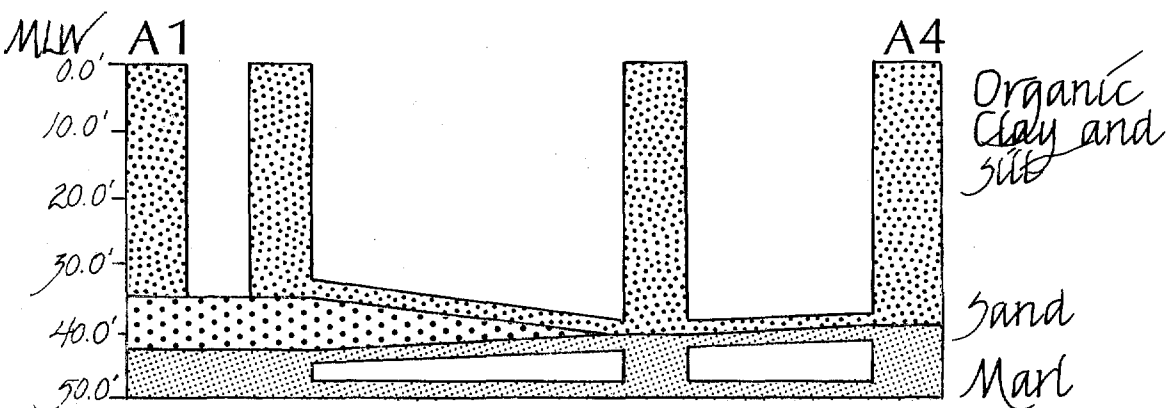
Boring 1
Source: Borings by Soil Consultants May 3, 1979



Boring 2
Source: Cummings & McCrady
April 27, 1971



Boring 3
Source: Cummings & McCrady
April 27, 1971



Boring 4
Source: Soil Consultants, June 1, 1971

Figure B-2, Borings 1–4

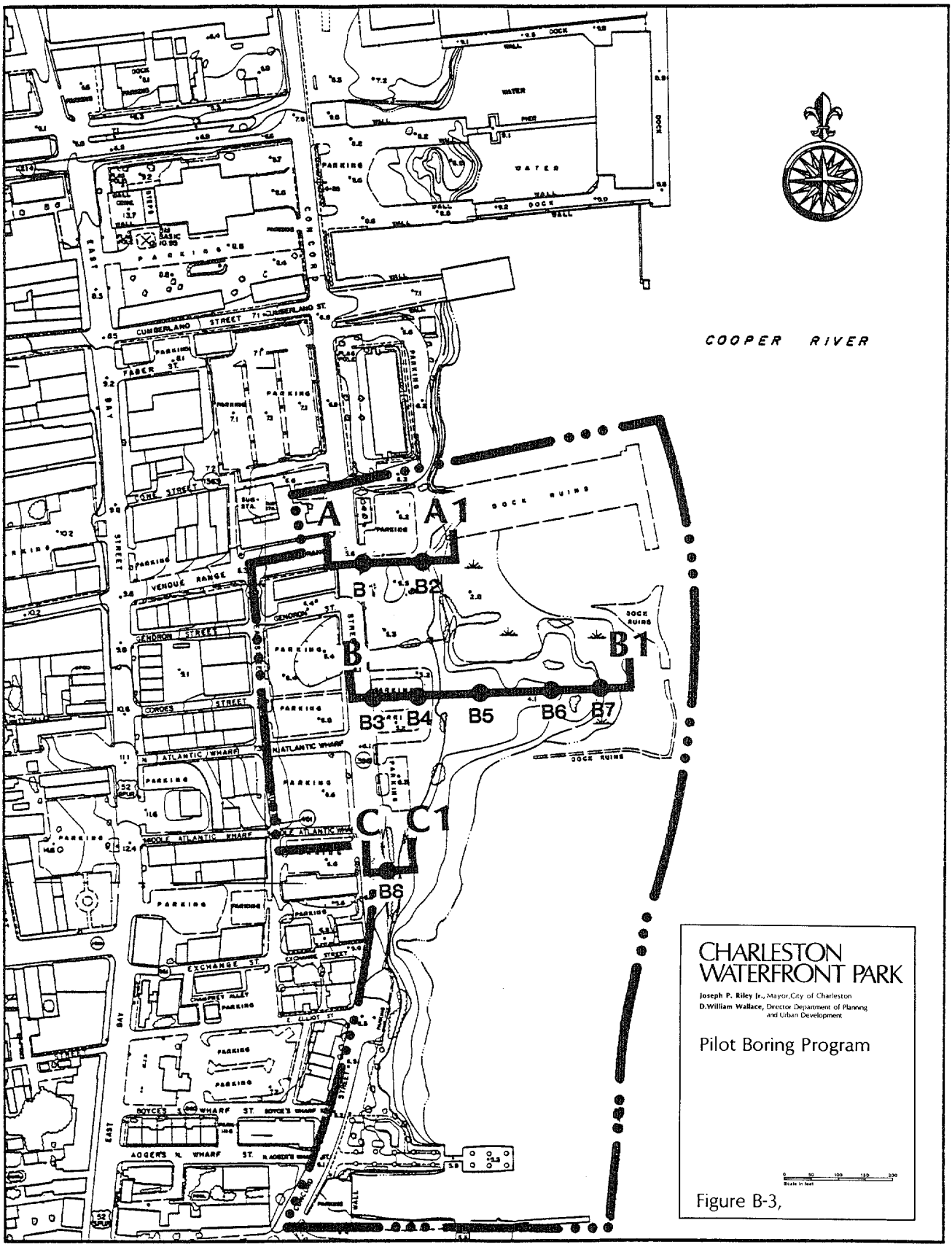

COOPER RIVER
A
A1
B
B1
B2
B3
B4
B5
B6
B7
B8
C
C1
CHARLESTON
WATERFRONT PARK
Joseph P. Riley Jr., Mayor, City of Charleston
D. William Wallace, Director Department of Planning and Urban Development
Pilot Boring Program
Scale in feet

Figure B-3,

Design Issues and Resolutions

- Borings completed to date confirm the existence of fill and soft compressible silt to elevation −40 (msl) in Borings B1, B2, B3, and B4.
- Cooper Formation below the silt is known to be several hundred feet thick.
- Cooper Formation shear strength estimated to be 2500 psf; most structures in Charleston founded in this material.
- Recommended penetration depth in Cooper Formation is 10–15 feet.
- Shear strength of compressible soft silt estimated to be about 400 psf. at mid-depth. The strength generally increases with depth.
- Cv for silt is 2–5 ft.^{2}/year in areas where silt is not overlain by any existing fill.
- Settlement potential of the site is as follows:
  - In areas where fill exists over the soft silt, we can expect 8 to 10 inches of uniform settlement. Three to four feet of surcharge will be necessary to minimize post construction settlements. (One to two inches of differential settlement)
  - In areas where fill does not exist over soft silt, we can expect 2.5 to 3 feet of settlement to complete 100 percent consolidation over a 96 year period.
- Settlement of silt in areas where there is no existing fill overburden can be accelerated by providing "wick" drains and sand layer plus a surcharge of 5 to 6 feet of fill. Time rate of consolidation can be somewhat controlled by spacing of the drains. Recommended spacing is somewhere between 3 to 7 feet on center.
- Settlement platforms and other instrumentation is recommended to monitor progress of consolidation.
- Minimal consolidation is desired in areas overlying utilities. It is recommended that lightweight fill be utilized along with lightweight concrete slab. Paving stone may be placed over the slab. The slab will be designed to bridge 3-foot voids (approximately an 8-inch slab with #6 rebars each way) should they form in the underlying fill material. Limit of lightweight fill will be at the edge of existing shoreline.
- Relocating utilities may be necessary.
- A 3:1 slope should be considered for edge treatment using a precast interlocking concrete panel, overlying a graded filter with filter cloth and either standard or lightweight fill.
- The steps located next to the pier must be constructed on piles.
- The foundation and trough areas must also be founded on piles.
- All piles must be concrete and be a minimum of 70 feet in length. Piles may be larger than 70 for the proposed wharf if the bearing material (Cooper Formation) increases in depth toward the centerline of the Cooper River. This provides a minimum of 15 feet of penetration into the Cooper Formation, nine feet of exposed length in the wharf, assuming a 40-ton pile, and rectangular 14-inch concrete pile. Local contractors are capable of driving 70-foot piles without splicing.
- Recommended slope in the channel between the shore and marsh island is 5 horizontal to 1 vertical. This corresponds to a channel width of 90 feet. Borings indicate that channel excavation may still be in fill and not soft silt material.
- Recommended slopes for dredging in the compressible soft silts below the watersheet is 10 horizontal to 1 vertical.
- Surcharging is necessary in all areas where existing fill does not lie directly over silt prior to construction to provide adequate bearing capacity and slope stability for sloped edge protection and to minimize settlement potential of fill.

Appendix C—Landscape Vocabulary

For The Charleston S.C. Area**
Salt Tolerant Trees

Species	Type	Height
Callistemon citrinus Bottlebrush	Evergreen	20′
Ficus carica Edible fig	Evergreen	30′
Ilex vomitoria* Yaupon	Evergreen	5-15′
Juniperus silicicola Southern Redcedar	Evergreen	50′
Magnolia gradiflora Southern Magnolia	Evergreen	60′
Myrica cerifera Wax Myrtle	Evergreen	25′
Pinus elliotii Slash Pine	Evergreen	100′
Pinus thunbergiana* Japanese Black Pine	Evergreen	130′
Quercus virginiana Live Oak	Evergreen	60′

Moderately Salt Tolerant Trees

Eriobotrya japonica Loquat	Evergreen	25′
Ilex cassine* Cassine	Evergreen	40′
Koelreuteria elegans Goldenrain Tree	Deciduous	60′
Ligustrum lucidum Glossy Privet	Evergreen	30′
Liquidambar styraciflua Sweet Gum	Deciduous	120′
Parkinsonia aculeata* Jerusalem Thorn	Deciduous	20′
Persea borbonia Florida Bay	Evergreen	40′
Platanus occidentalis Eastern Sycamore	Deciduous	150′
Platycladus orientalis Arborvitae	Evergreen	40′
Podocarpus nagi Broadleaf Podocarpus	Evergreen	90′
Quercus laurifolia Laurel Oak	Semi-Evergreen	60′

*Recommended for use in the waterfront park area of Charleston, others for use further inland.

Barrick, William E., **Salt Tolerant Plants for Florida Landscapes, Report Number 28, State University System of Florida, Sea Grant College Program, July 1979 is the source for this material.

Species	Type	Height
Quercus nigra Water Oak	Semi-Evergreen	80′
Robinia pseudoacacia Black locust	Deciduous	80′
Sapium sebiferum* Chinese Tallow Tree	Deciduous	40′
Slightly Salt Tolerant Trees		
Cinnamomum camphora Camphor Tree	Evergreen	100′
Populus alba Poplar	Deciduous	90′
Prunus caroliniana Cherry Laurel	Evergreen	40′
Salix spp. Willow	Deciduous	Var
Taxodium distichum Cypress	Deciduous	150′
Ulmus parvifolia Chinese Elm	Deciduous	50′
Ulmus pumila Siberian Elm	Deciduous	25′
Salt Tolerant Palms		
Sabal palmetto* Cabbage Palm	Evergreen	90′
Serenoa repens Saw Palmetto	Evergreen	6′
Washingtonia robusta Washington Palm	Evergreen	60′
Moderately Salt Tolerant Palms		
Butia capitata Pindo Palm	Evergreen	20′
Chamaerops humilis European Fan Palm	Evergreen	15′
Slightly Salt Tolerant Palms		
Cycas revoluta Japonese Sago Palm	Evergreen	10′
Fatsia japonica* Japanese Fatsia	Evergreen	20′
Feijoa sellowiana Pineapple Guava	Evergreen	18′

*Recommended for use in the waterfront park area of Charleston, others for use further inland.

Species	Type	Height
Salt Tolerant Shrubs		
Agave americana Century Plant	Evergreen	5′
Baccharis halimifolia Sea Myrtle or Groundsel Tree	Evergreen	12′
Cortaderia selloana Pampas Grass	Evergreen	10′
Elaeagnus pungens Thorny Elaeagnus	Evergreen	15′
Lantana camara Yellow Sage	Evergreen	4′
Nerium oleander Oleander	Evergreen	20′
Pittosporum tobira Pittosporum	Evergreen	18′
Uniola paniculata Sea Oats	Evergreen	8′
Yucca aloifolia* Spanish Bayonet	Evergreen	25′
Yucca smalliana Adam's Needle	Evergreen	2′
Moderately Salt Tolerant Shrubs		
Bambusa spp. Bamboo	Evergreen	Var
Callicarpa americana Beautyberry	Deciduous	6′
Callistemon rigidus Bottlebrush	Evergreen	15′
Ilex cornuta "Burfordii" Chinese Holly	Evergreen	20′
Ilex glabra Gallberry	Evergreen	10′
Jasminum floridum Jasmine	Evergreen	4′
Juniperus chinensis 'Hertzii' Hertzii Juniper	Evergreen	5′
Juniperus chinensis 'Pfitzerana' Pfitzer Juniper	Evergreen	6′
Justicia brandegeana Shrimp Plant	Evergreen	3′
Lagerstroemia indicia Cape Myrtle	Deciduous	20′

*Recommended for use in the waterfront park area of Charleston, others for use further inland.

Species	Type	Height
Ligustrum japonicum Wax Leaf Privet	Evergreen	10′
Ligustrum vulgare Common Privet	Deciduous	15′
Mahonia bealei Oregon Grape	Evergreen	7′
Malvaviscus arboreus* Wax Mallow	Evergreen	10′
Podocarpus macrophyllus* Southern Yew	Evergreen	45′
Pyracantha koidsumii Fire Thorn	Evergreen	12′
Raphiolepis indicia Indian Hawthorn	Evergreen	5′
Rosa spp. Rose	Variable	Var
Severinia buxifolia Chinese Box Orange	Evergreen	6′
Viburnum odoratissimum Sweet Viburnum	Evergreen	20′
Viburnum suspensum Sandankawa Viburnum	Evergreen	6′
Vitex trifolia 'Variegata' Chaste Tree	Evergreen	20′
Slightly Salt Tolerant Shrubs		
Camellia japonica Camellia	Evergreen	45′
Camellia sasanqua Sasanqua Camellia	Evergreen	15′
Gardenia jasminoides Common Gardenia	Evergreen	6′
Juniperus chinensis Juniper	Evergreen	Var
Osmanthus fragrans Fragrant Olive	Evergreen	30′
Rhododendron indicium Azalea	Evergreen	6′
Salt Tolerant Vines, Ground Covers and Dwarf Shrubs		
Cynodon dactylon Bermuda Grass	Evergreen	16″
Ficus pumila* Creeping Fig	Evergreen	6″

*Recommended for use in the waterfront park area of Charleston, others for use further inland.

Species	Type	Height
Hedera canariensis* Algerian Ivy	Evergreen	6″
Hedera helix* English Ivy	Evergreen	3″
Hemerocallis spp.* Daylily	Evergreen	3′
Juniperus conferta* Shore Juniper	Evergreen	18″
Liriope spicata* Creeping Liriope	Evergreen	10″
Ophiopogon japonicus* Dwarf-Lily-Turf	Evergreen	10″
Osmunda regalis* Royal Fern	Deciduous	6′
Parthenocissus quinquefolia Virginia Creeper	Deciduous	6″
Stenotaphrum secondatum St. Augustine Grass	Evergreen	6″
Zamia integrifolia Coontie	Evergreen	2′
Zoysia japonica Korean Grass	Evergreen	9″
Moderately Salt Tolerant Vines, Ground Covers & Dwarf Shrubs		
Agapanthus africansus African Lily	Evergreen	2′
Aspidistra elatior Cast-Iron Plant	Evergreen	3′
Ilex cornuta 'Rotunda' Dwarf Chinese Holly	Evergreen	3′
Liriope muscari* Lily-Turf	Evergreen	1′
Lonicera japonica Japanese Honeysuckle	Evergreen	Var
Trachelosperum jasminoides Confederate Jasmine	Evergreen	Var
Slightly Salt Tolerant Vines, Ground Covers & Dwarf Shrubs		
Buxus spp. Boxwood	Evergreen	Var
Campsis radicans Trumpet Vine	Deciduous	Var
Eremochloa ophiuroides Centipede Grass	Evergreen	4′

*Recommended for use in the waterfront park area of Charleston, others for use further inland.

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