

SOCIAL INTERFACE AT RIVER'S EDGE

Dr. David J. Reed

At a time when the fate of American cities is questioned and the urban poor are subjected to the worst concentration of nearly every kind of environmental problem, it is significant that increased efforts are presently focusing on the needs and potentials of water resources in metropolitan areas.

Great cities of the world have capitalized on the total values of urban water, including the recreational, environmental, cultural and commercial benefits. Yet, American cities have been characterized by blighted or unproductive waterfronts, frequently shutting off the water's edge to urban residents. In 1971 more than 100 cities were involved in programs to renew and enhance waterfront areas. Among the more notable projects were the Jefferson National Expansion Memorial in St. Louis, the civic and convention center on the riverfront in Detroit, the new sports complex in Cincinnati, Penn's Landing in Philadelphia and the redevelopment of Baltimore's Inner Harbor.

At the White House Conference on Natural Beauty in 1965, Carl Feiss assessed the experience of Americans in waterfront development:

In all great cities of the world and in many small ones, from Peking or Stockholm to Viterbo, wherever water could be made available it has been used in the city planning process for utility and enjoyment. In the United States only three major cities have made superlative use of their urban water resources for beauty and recreation. They are: Chicago, with its magnificent Lake Michigan waterfront parks; Minneapolis, with its wonderful chain of in-city lakes, and San Antonio, with its delightful downtown river.

Curiously, although these examples have existed for years, their influence has been minimal.

Cities of world-wide fame have looked upon urban water resources in a different light. M.M. Said has attributed Europeans as having viewed the river as the most significant element in structuring the physical pattern of urban design. Said's comparative analysis of American and European cities illustrates the difference in roles of the river within the two continents:

Typical European City

1. Railroads do not thread through city, end as terminals
2. City develops with equivalent potentials on both sides of river
3. Greater number of bridges allows for dynamic use of both riverbanks
4. Significant avenues not intercepted by river, but run concurrently with complementing vistas
5. Impact of waterfront reaches farthest inland

Typical American City

1. Railroads dominate waterfront
2. City develops more on one side than other
3. River is considered as a barrier
4. Grid patterned streets usually conflicting with river bends
5. Little or no expression of Central Business District on waterfront

Yet, stepped-up efforts in water pollution abatement, accelerated flood control projects and the focus of urban renewal and other federally funded programs on blighted waterfronts, appear to be factors underlying a growing interest in redevelopment programs.

There is evidence that central city problems can be improved by deliberate development of urban water resources for recreation uses and provision of esthetic features along a waterway. Most of the current waterfront development plans view the water's edge as the pivotal planning element, serving as the open space zone unifying all the elements of general land use plans. Although not all-encompassing in terms of the total land use of waterfront areas, studies focusing on recreation and esthetic development should stimulate overall comprehensive planning and better use of water resources.

The purpose of this study was to examine what is reported to be one of the most outstanding urban river developments in the United States—that of the San Antonio River Walk (Paseo del Rio), San Antonio, Texas. By utilizing methods of both landscape analysis and social survey research, it was believed that insight into the relationship between the design of the development and its use by visitors could be obtained. Furthermore, the result of such an investigation could be analyzed for possible application to other urban waterfront situations.

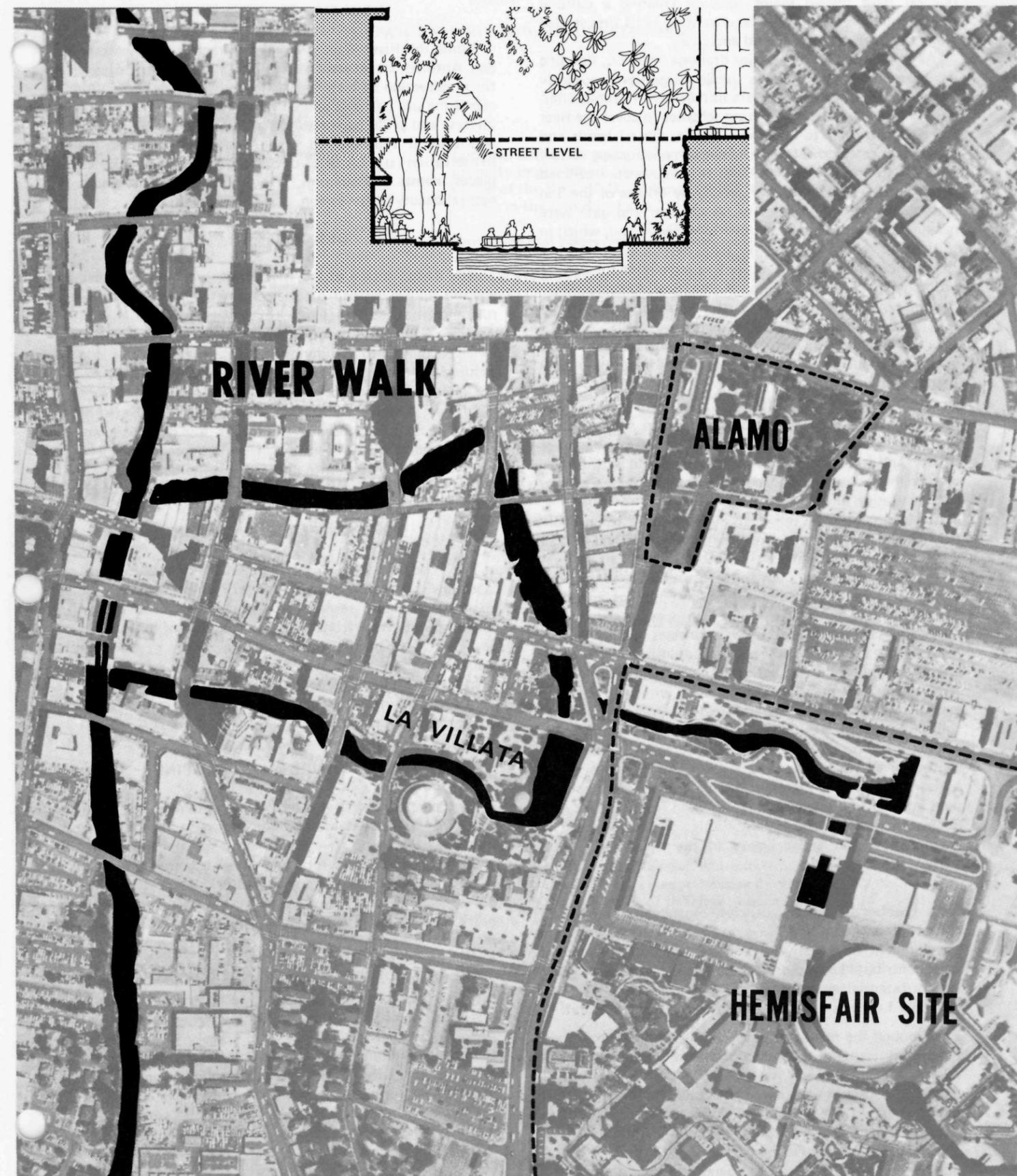
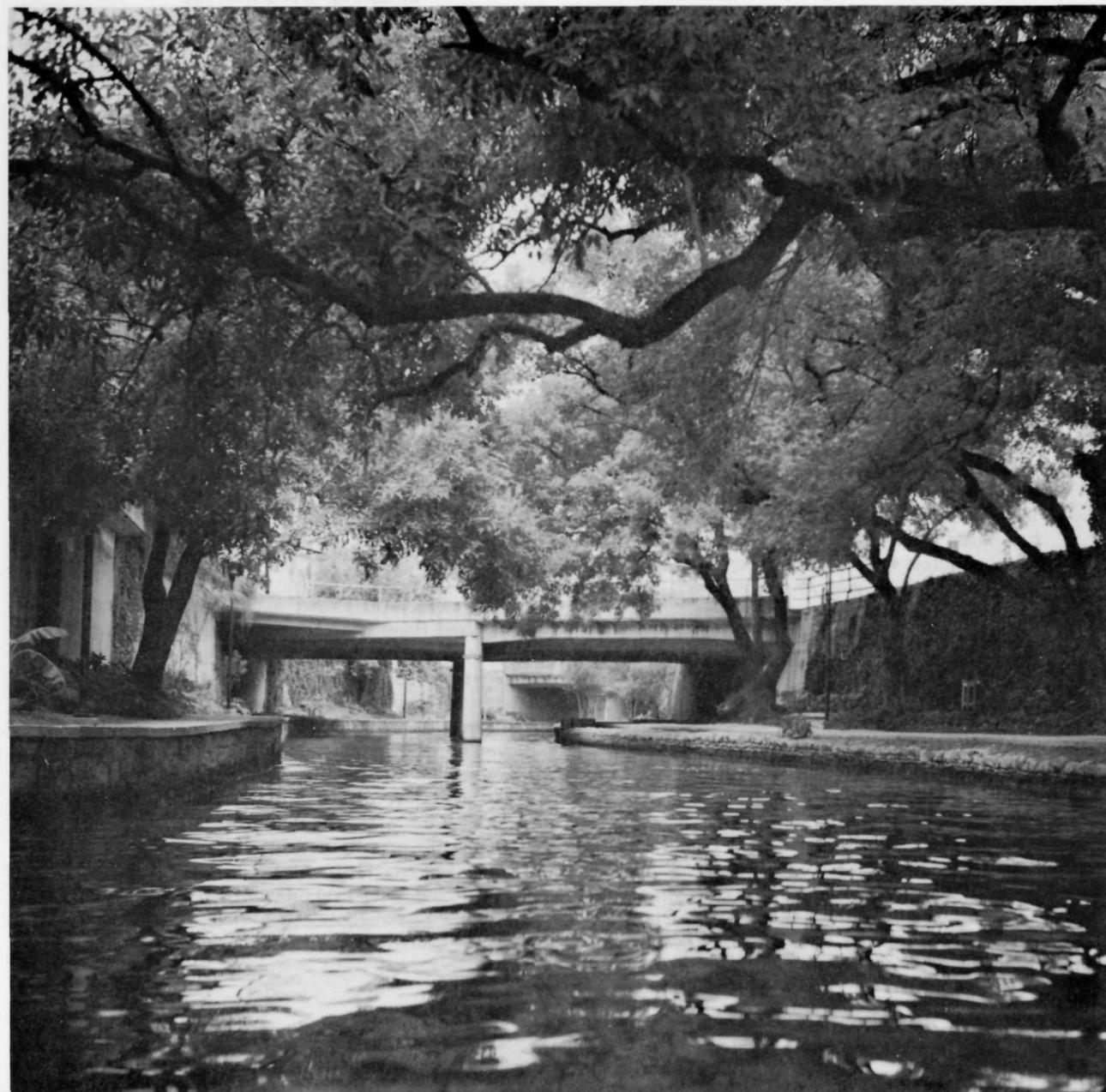
Located in the heart of the City, this riverfront park attracts over 2.3 million visitors a year. Formerly a slough that periodically overflowed nearby districts, the River Walk is a demonstration in stream renewal, accomplished through the efforts of numerous public agencies and private enterprise over a period of 40 years.

The San Antonio River is the principal drainage basin for the city, with its origins in the Olmos Flood Control Basin during wet seasons, and pumping wells located in Brackenridge Park during dry periods. The wells are near the site of the springs which originally fed the river. Mean annual flow

is 52.9 cfs. The river winds through the heart of the city, passing within blocks of the Alamo, the Spanish Governor's Palace, a recently zoned historic district, historic San Fernando Cathedral, and La Villita, a restored Mexican community. Farther from downtown but within easy reach, are four 18th Century Spanish missions. An extension of the river bend was constructed in 1968 to link the site of San Antonio's World Fair (HemisFair) with the River Walk. The river valley is generally flat, with gentle slopes and broad flood plains. The developed and beautified portion of the river, known as the Paseo del Rio (River Walk), occurs largely along an old river bend in downtown San Antonio, and along a ribbon portion of the river for one mile north of the bend.

The river is 25 to 30 feet below street level, creating a distinct environmental corridor. The channel is lined with a retaining wall but has a natural bottom, is four feet deep and from 30 to 50 feet wide.

Spanish and Mexican influence has been a predominant feature of the culture and history of both San Antonio and the river. Architecture and art, fiestas and celebrations, and



religion have played major roles in creating a cultural "flavor" in the city. The Franciscans in 1718 first settled along the river, then spring-fed and clear.

As in most cities with major drainage channels, flooding has been a major problem on the San Antonio River. Early in the 1900's flood studies were initiated with various alternatives investigated, ranging from schemes to cover the river for a storm sewer to straightening the natural bends and improving water flow. Officials favored constructing cut-off channels to improve capacity and to preserve the tree-lined bend of the river, largely influenced by efforts of the San Antonio Conservation Society. A channel and gate were installed to bypass the large downtown river bend, which in turn protected bank areas for park development. An upstream flood retention structure was later built for further protection. Through efforts of the San Antonio River Authority, U. S. Army Corps of Engineers, San Antonio Park and Recreation Department, the Urban Renewal Agency, and the San Antonio Conservation Society, flood proofing, beautification and restoration efforts have continued over the years.

Credit for much of the charm and visual effect of the River Walk lies with early efforts of the San Antonio Conservation Society, dedicated to preserving the natural beauty and historical values of the river, and with a river improvement project sponsored by the Works Progress Administration in 1938.

Development over the years has produced a navigable river bounded by tree-covered walkways, grass and a wide variety of plant material; arched bridges, street-level entranceways, boat landings and street furniture with detail in architectural design; renovation of buildings and sites which formerly oriented the rear of properties toward the river; and construction of new businesses. Today hotels, night clubs, sidewalk cafes, an outdoor river theater, craft and gift shops, and art galleries provide opportunities for a wide variety of recreational pursuits, all within an environmental setting enhanced by architecture, landscaping, night lighting and cultural events.

A city ordinance controls the character of development of the River Walk area, and a Commission serves in an advisory capacity to maintain the integrity of architecture, signs and lighting arrangements. The San Antonio Park and Recreation Department is responsible for the landscaping, maintenance, and enhancement of the River Walk easement.

A number of public agencies, organizations and individual landowners and developers have participated in development of the River Walk. All levels of government have contributed to the project. Commercial investment has been substantial, estimated at nearly \$12 million.

Table 1 depicts the involvement by each organization.

Although the main objective of this study was to obtain behavioral response to a designed and developed urban riverfront, this response was believed best understood if placed in context of the major characteristics of this special environment. These included vicinity relationships; design theme and detail; identification of environmental sub-units; architecture and landscaping; access and signing; water quality and control; history, legend and lore; and maintenance system and control.

VICINITY RELATIONSHIPS

While the River Walk is a major attraction in downtown San Antonio, street-level attractions and a keen sensitivity for preservation of historical and cultural values have influenced the use patterns and development of the river. Civic interest and pride have resulted in the judicious restoration and tasteful redecoration of innumerable dwellings, the preservation of historic documents, pictures, objects, places, names and customs, and protection of indigenous natural beauty of the region.

DESIGN THEME

The design theme of the River Walk is based on a heritage and culture dating from the century of Spanish Colonial rule and from the time when Texas was an integral part of Mexico. Adobe and stone buildings, using indigenous materials common to builders with different traditions and adapted to local conditions and climate, have characterized the region. Maintenance of this charm and atmosphere of "Old San Antonio" has been a basic goal of riverfront enhancement. The design elements of the river park are simple, unobtrusive and restful. New structures have been carefully coordinated with the old, maintaining the basic theme and enhancing the visual identity of the riverfront.

ENVIRONMENTAL SUB-UNITS

The Wisconsin Waterfront Renewal Study (1968) advocated environmental sub-units for providing a "mixture of functions and uses responsible for creating much of the interest of the waterfront". The design concept for Mission Bay Park (San Diego) also prescribes a variety in shoreline development to meet the diverse interests of visitors. Whether by design or by coincidence the San Antonio River Walk succeeds in achieving a harmonious contrast between sub-environmental settings.

ARCHITECTURE & LANDSCAPING

The channelized river serves as the dominant feature of the River Walk, bordered by wide walkways and landscape material. Maximum riverfront access is a major design element. Native stone retaining walls, textured walkways with paving patterns and arched footbridges create a physical appearance that provides a delicate balance of continuity, accent, sense of space, and human scale. Boat landings and the river terrace link the river, walkway and waterfront development.

No attempt has been made to regiment architecture to the extent of prohibiting modern technological styling or materials which would be in sympathy with early San Antonio architecture. The City Library, Chamber of Commerce building, and recent commercial development reflect a sensitivity to the character established in the early days of riverfront development.

Plants and trees which flower more or less continuously during warm weather provide masses of color.

Establishing ground cover and bank stabilization are major programs which draw the park together, allowing for interesting and meaningful variety. Terraced and raised

TABLE 1
PARTICIPATORS IN RIVER WALK DEVELOPMENT

<u>AGENCY OR ORGANIZATION</u>	<u>NATURE OF INVOLVEMENT</u>
★PRIVATE AND CIVIC	
Landowners and Developers	Lodging, dining, shopping and entertainment; water taxis; property improvement and renovation in keeping with the theme of the River Walk; parking facilities. Over 70 landowners in the Riverbend area.
Conservation Society	Environmental preservation, restoration and promotion, with emphasis on maintaining the integrity of Old San Antonio's beauty, charm and historical values; headquarters located in Casa Villita, an early stone house.
Chamber of Commerce	Promotion and tourism research and development; construction of headquarters and tourist information center on the River Walk.
River Walk Commission	Advisory committee responsible for reviewing plans for construction, repair, alteration, modification and painting of buildings; to assure these plans assist in maintaining the charm and atmosphere of Old San Antonio.
River Walk Association	Composed of managers and owners of River Walk businesses; sponsors and promotes special events on the River Walk; publishes <i>Paseo del Rio Showboat</i> , a monthly tourist guide featuring personalities, events and information on businesses and their specialties; assists in coordinating development and entertainment.
Kiwanis Club	Sponsors, promotes and organizes talent for Arneson River Theater performances, "Fiesta Noche del Rio."
★PUBLIC	
Federal Works Progress Administration	Provided labor funds for initial improvements on the River Walk during the Depression. Much of the charm and visual effect of the river development originated from this era.
Corps of Engineers	Channel improvements to assist in flood prevention.
Housing and Urban Development	Urban renewal funds have been used to develop and improve the San Antonio River including construction of the Civic Center and river extension (2/3's federally financed); approval has been given to the San Antonio Urban Renewal agency for preparation of a comprehensive development plan for a substantial reach of the river outside the River Walk area.
State San Antonio River Authority	Jurisdiction over the entire river basin; acts on behalf of local interests in arranging Federal participation in water resource projects; monitors water quality.
Water Quality Board	Enforcement agency responsible for State's water resources.
County Bexar	Cooperates with federal and local agencies in floodproofing, urban renewal projects and other urban development efforts.
Alamo Area Council of Governments	Regional planning organization with members of political subdivisions coordinating plans to assure orderly growth and development.

Table 1 continues on page 7.



**City of San Antonio
Water Board**

Parks and Recreation

Planning

Library

Public Health

Converted to a downtown park and River Walk entrance a parcel of land formerly given over to utilitarian purposes.

Landscaping, lighting and beautification; enforcement (park rangers) and maintenance of the entire River Walk area; oversees operation of La Villita and use of River Walk easement.

Comprehensive urban planning; integrating River Walk and proposed expansion with downtown area development and future needs.

Main library constructed on the river, with stairways providing linkage.

Enforcement of requirements for public health and safety.

WATER CONTROL

The flood control shut-off channel and gate serve two functions. They not only provide a by-pass for flood water, thus protecting riverfront development along the horseshoe bend, but a constant level of water can be maintained by the gate system during periods of low flow. An additional gate can be closed at the entrance to the Riverbend to prevent flood waters from reaching the old river channel.

Water quality of the San Antonio River in the downtown area varies considerably, due to highly variable flows. It has a high bacterial count but the only major pollutant is urban run-off. The water is highly turbid after periods of rainfall. The river water meets state requirements as far as dissolved oxygen and biochemical oxygen demand.

HISTORIC FEATURES

The San Antonio River is steeped in legend and history, not unlike most American communities that were dependent on waterways for water supply and a transport system. Although often located in obscure places and apparently unnoticed by most visitors, there are a number of historical plaques and notations erected by several local groups and organizations.

CITY RELATIONSHIP

Despite the fact that the river is considerably below street-level, the cityscape is not always obscured from view. In a few locations, large downtown buildings are visible and a distinct contrast is offered between the serenity of the River Walk and the activity of the central city. One is also cognizant of the location of the river in the heart of the city during the evening hours.

The Parks and Maintenance Recreation Department of the City of San Antonio is charged with the responsibility of maintaining the river, public walkway and landscaping. Maintenance is performed seven days a week. Riverfront owners are required to maintain the public easement leased to them for business purposes. The budget for the River Walk was \$119,000 in 1971. Full time employees numbered 10 and three seasonal employees were assigned to the

planter beds and different levels of movement create a variety in visual expression and three-dimensional unity. Varying density of plant material and contrasting foliage textures and colors are responsible for creating personalities and pervasive moods along the River Walk which are easily articulated by the user. Plans are underway to develop an interpretive program designed to inform the visitors of the diverse plant material represented on the riverfront.

ACCESS

Linkage between waterfront and city is an integral aspect of the River Walk development. Approximately 44 stairways provide access to the river. Formerly surplus public land, the City Water Board's River Walk entrance (Paseo del Rio Plaza) is the most extensive development, and has been designated the main entrance to the river. Most of the entrance-ways occur at bridge crossings, although a few elaborate entry areas have been developed at other locations. A sense of location and human scale are afforded the user through the physical access system. Few access structures are alike, achieving variety in style and yet adhering to the basic theme of the river.

SIGNING

Street-level information signs directing visitors to the River Walk are almost nonexistent. There are two theories which have been advocated by designers and park officials to support this policy. Some theorize that entry to the development should be an adventure in itself, and the visitor on foot should derive some pleasure in exploring the downtown area and its linkage with the waterfront. Other maintain there is a crass proliferation of signing in the downtown area, and River Walk signboards would merely add to the chaos.

Two years after the ordinance was passed creating the River Walk Commission and establishing development standards, it was amended to provide for restrictions relating to signs along the riverfront. Governed by the existing regulations of the Building Code of the City, the restrictions include only one sign per business and limitations on surface area and illumination.

park. Maintenance headquarters are located in the marina parking garage, constructed at the termination point of the river extension.

VISITOR USE AND IMAGES

To obtain visitor response to the River Walk, a full year interview survey was conducted, with the results of the study based on 720 respondents. These results revealed a single encompassing conclusion—the River Walk design and development are evoking an unusually strong positive response. This response is consistent over a wide range of ages, incomes, and occupations of visitors. At the same time they make diverse leisure uses of the area. Some find solitude and others find excitement and gregariousness. Some shop and others do not. Some prefer to walk and others like the specially designed sightseeing barges. A wide range of personal satisfactions appear to be coming from a relatively small development.

Three phases of the user study are included in this discussion, which illustrate the perceptions and opinions of the visitor.

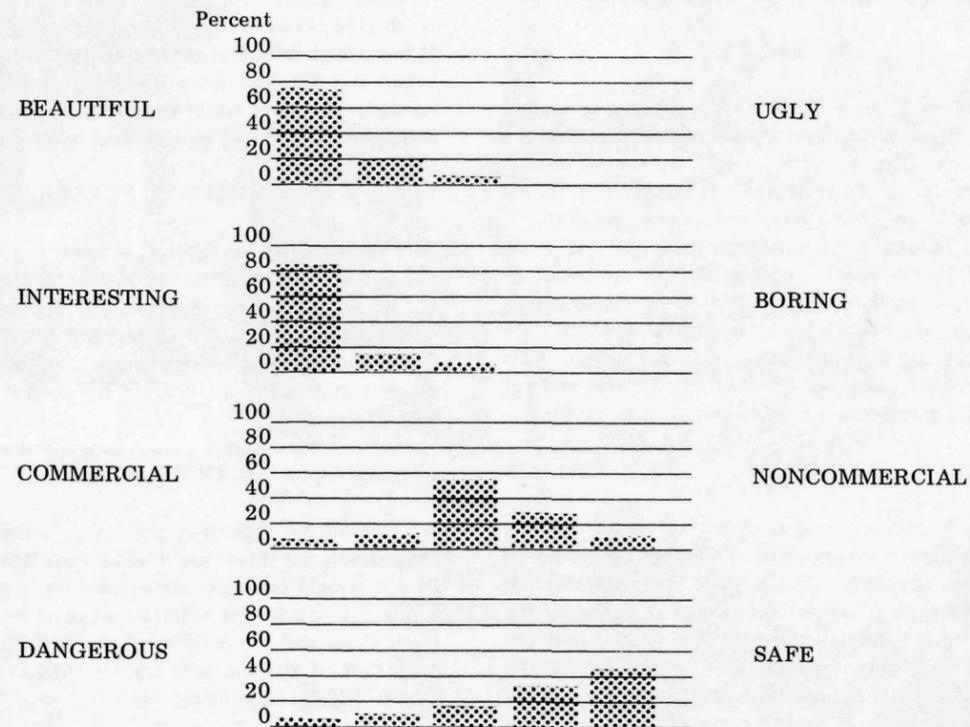
USERS' PERCEPTION

A five point scale was used as a method for determining the perception of users with respect to several aspects of the River Walk. This portion of the survey produced results concerning the basic attributes of the River Walk as viewed by the visitor. The respondent was asked to indicate a point on a scale representing eight attributes and their antonyms. Prior to the exercise the respondent was told that his response should best represent his true feelings, with no right or wrong answers.

Table 2 illustrates the sampled visitors' reaction to the beauty, interest, commercial nature and safety of the River Walk. Respondents clearly indicated the River Walk as beautiful and interesting, noncommercial and safe.

TABLE 2

VISITOR REACTION TO RIVER WALK CHARACTERISTICS



Boat landing and sightseeing barge at Paseo del Rio Plaza.



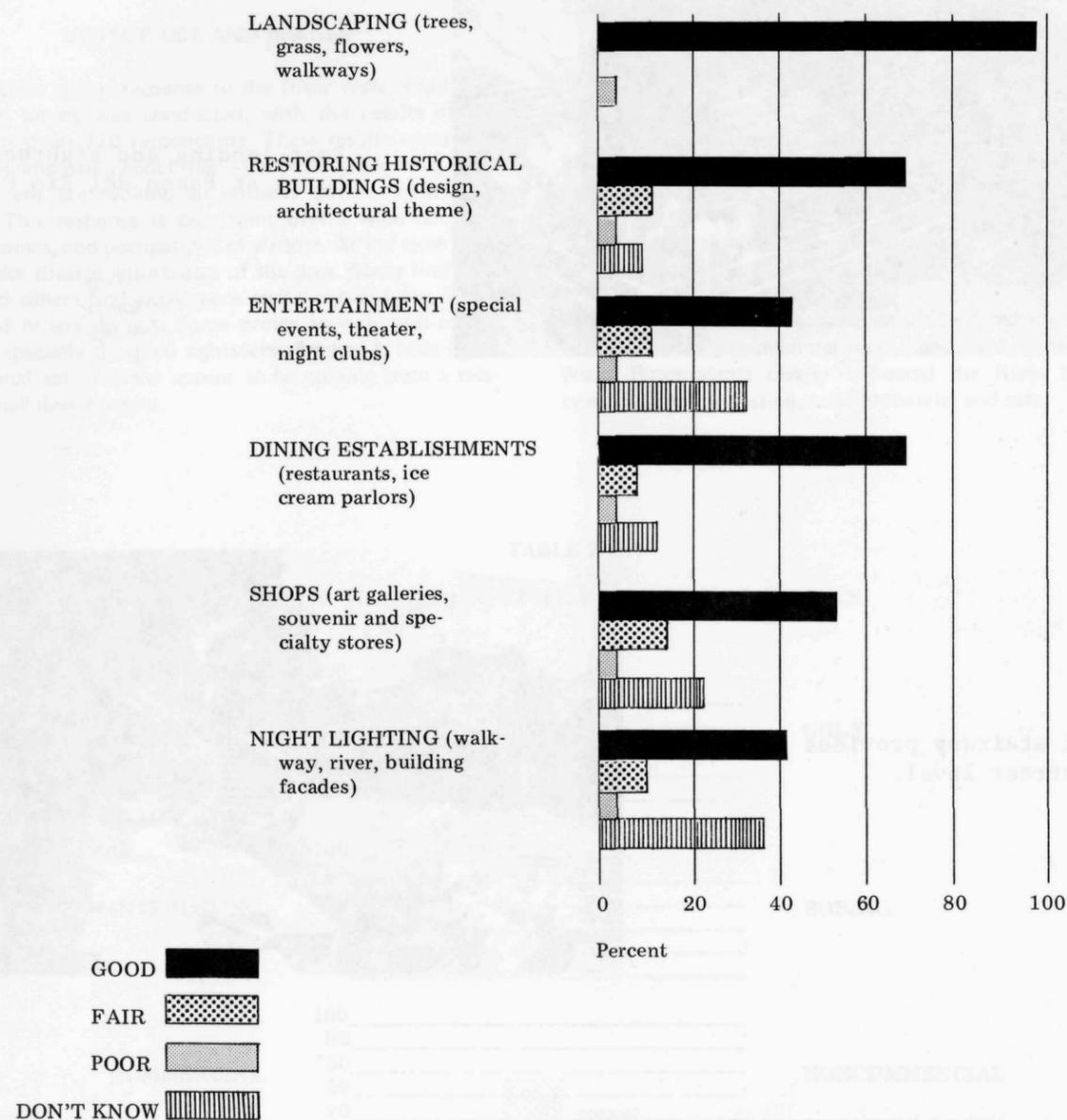
Spiral stairway provides access from street level.



Sightseeing on foot is enjoyed by all age groups.

TABLE 3

RESPONSE OF VISITORS TO SIX FACTORS



COMMITMENT TO RIVER BEAUTIFICATION AND DEVELOPMENT

A major question sought from the visitors concerned their support for a hypothetical bond issue to support River Walk development. In order to prevent the stimulation of local concern over a possible imminent issue, the question was couched in general terms: "If another city in the United States wanted to develop a river, similar to the way San Antonio has done, how would you vote concerning a river development bond issue if you were a resident of that city?" The results for the visitor population are shown in Table 4. No aspect of the study was a greater surprise than to learn that even though taxes might have to be raised, a massive 73.5 percent would favor such a bond issue. This must be testimony to the validity of such a civic improvement.

It therefore appears that the designers, managers, owners and officials have been successful in creating an environmental setting with esthetic appeal conducive to human enjoyment.

QUALITY OF ENVIRONMENTAL ELEMENTS

Six features of the River Walk were identified for the respondent and he was asked to rate each in terms of how well the developers had met his expectations. Table 3 illustrates that the users viewed the landscaping as the most outstanding feature of the River Walk. Dining establishments and the historical restoration program also received high ratings.

TABLE 4

Visitors' opinion of support of hypothetical bond issue (In percent)

	Total	Residents	Suburbanites	Nonresidents
For issue, even if would raise taxes	73.5	63.9	80.9	76.6
For issue, if would not raise taxes	16.5	25.0	11.5	13.7
Against issue, if would raise taxes	2.2	4.4	0.0	1.4
Against issue, even if would not raise taxes	4.4	1.7	3.8	5.4
Undecided	3.4	5.0	3.8	2.9
	100.0	100.0	100.0	100.0

CONCLUSIONS

Comparing results of the environmental analysis and user survey, it becomes readily apparent that visitors to the San Antonio River Walk respond quite favorably to the artistic, esthetic and functional treatment of the downtown river development as a major civic focal point. The following specific conclusions represent a synthesis of findings resulting from this study of an urban river park system, applying user research techniques, current environmental design principles and site observations.

The San Antonio River Walk has achieved distinctiveness as an art form, organic in design and visual expression. Users describe this park character as tied to the heritage of the San Antonio area, influenced primarily by landscape treatment and architecture. They feel that there is a high degree of balance between the park-like setting and business enterprise, and receive greatest satisfaction from the serenity and beauty of the area.

Environmental sub-units that are integrated into a whole, provide variety in human experiences. Areas for repose and solitude contrast with activity-centered development. The elderly, tourists, conventioners, young people, families, downtown businessmen and employees, and servicemen are some of the users who come together and gain pleasure from the various environmental settings.

Nearby attractions, including both commercial and historical developments, complement the River Walk and form the basis for a viable attraction cluster in mid-town San Antonio. Civic efforts have succeeded in enhancing, preserving and perpetuating the cultural amenities of the entire metropolitan region.

Linkage between the physical, social, historical and cultural values of mid-town San Antonio and the San Antonio River Walk has been accomplished, but a large proportion of users (4 out of 6) favored more fusing of city and riverfront.

Decisions to maximize the water's edge by a system of walkways, provide water access by special tour boat, focus attention on the channelized river, and exclude the automobile and personal pleasure craft appear to be sound and effective.

DESIGNING THE URBAN RIVERFRONT

Renewed interest in the design and re-design of urban waterfronts has created a sense of urgency in developing workable principles and planning criteria, especially those that respond to the ultimate challenge of stimulating the social, economic and physical fabric of the city. It appears that the *state of the art* in waterfront planning and design in general may be progressing at a rate slower than physical development and redevelopment action programs. Moreover, the economic and political systems in America have tended to favor urban land uses which are single purpose, maximize economic returns, are functionally expedient and lacking in amenity benefits.

Hopefully, a changing public attitude toward environmental esthetics will create a new awareness of the true value of the water's edge as a resource for achieving both social and economic benefits. Specifically, public agencies, commercial owners and businessmen have the opportunity to work in a synergistic fashion, in true concert, to achieve a better total product for the urban dweller.

The following postulates result from user response, environmental design assessment and observations of the author:

Environmental sub-units: Amenity and recreation development is best confined to environmental sub-units or attraction clusters with a delicate mix of public and commercial uses and an appropriate density which emphasizes landscape qualities. The most suitable location for this development in riverine cities is within oxbow areas permitting flood waters to bypass extensive shoreline development, assuming cut-off channels are constructed. This does not preclude the desirability of public access along the linear portion of rivers.

Riverfront design theme: Image identity and character are desired elements of the riverfront achieved by distinctly water-oriented schemes that capitalize on the intrinsic features of the river valley, represented usually by heritage and historical values, classic architecture, and other indigenous features which are responsible for the captivating personality of this geographical area.

Relationship with central business district: Inasmuch as the most active portion of the riverfront was (and often still is) the heart of the city, the proximity to the Central Business District presents an opportunity to foster improvement of the most valuable area of the city. Linked with the cultural, historical, social and business setting amid landmarks of importance, the impact of even a small land and water area can be striking.

Linkage: Just as it is important to wed physical site and structure to achieve organic architecture, the interlocking of water and land is a capstone principle of riverfront design. More than mere "provision of visual and physical access," a marriage must be accomplished at the water's edge, connecting the waterfront and city by means of a seam.

Landscape and architectural enhancement: Buildings, landscape material and street furniture are the essential elements for creating a distinct riverfront character. River valleys are unique micro-climatic zones, often suitable for establishing a greater variety of plant material than is found in the hinterland. Harmonious colors, finishes, design features, furnishings and displays should be selected, espe-

cially as they are appropriate to a waterfront environment and reflect the historic image of the region.

Balance of human use opportunities: A balance and variety of active and passive recreation can provide sources of inspiration, stimulation, refreshment, beauty and delight, thereby enriching human experience on the urban riverfront.

Integrity of new development: The strength of unity within existing park-business complexes should be maintained by careful design and implementation of new development. Pressures for expansion of successful nodes or redevelopment of adjacent urban riverfront areas requires attention to esthetic goals for the entire waterfront and the desirability of a variety of scales.

Administration: Skillful use of public agencies and funds, civic organizations, and business enterprise is required to successfully accomplish riverfront redevelopment. *Genuine public interest and support are needed to implement design standards, pass bond issues, and allocate the necessary funds for maintenance and enforcement of public lands.*



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guideline

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