2013

San Francisco's Embaradero Promenade: An In-depth Look at How Design Elements Along the Waterfront Affect User Behavior

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An aerial photograph of San Francisco's Embarcadero Promenade, showing the waterfront and the city grid. The image is overlaid with a large, stylized 'X' shape formed by two intersecting diagonal lines. The text is positioned on the left side of the image.

SAN FRANCISCO'S EMBARCADERO PROMENADE:

AN IN-DEPTH LOOK AT HOW DESIGN
ELEMENTS ALONG THE WATERFRONT
AFFECT USER BEHAVIOR

JACQUELINE VANCE
DECEMBER 2013

SAN FRANCISCO'S EMBARCADERO PROMENADE:

AN IN-DEPTH LOOK AT HOW DESIGN
ELEMENTS ALONG THE WATERFRONT
AFFECT USER BEHAVIOR

A Planning Report
Presented to
The Faculty of the Department of
Urban and Regional Planning

San Jose State University

In Partial Fulfillment
of the Requirements for the Degree
Master of Urban Planning

By Jacqueline Vance
December 2013

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Table of Contents

List of Figures	iii
List of Tables	v
1. INTRODUCTION TO RESEARCH PROJECT	7
1.1. Overview of the Embarcadero Promenade.....	8
1.2. Relevance of Studying a Waterfront Promenade	8
1.3. Expected Outcomes of the Research.....	10
1.4. Description of Research Methodology.....	10
1.5. Report Organization	14
2. A HISTORY OF SAN FRANCISCO'S WATERFRONT	17
2.1. The Historical Transformation of the Waterfront	18
2.2. Creating the Embarcadero Promenade	20
3. RELATIONSHIPS BETWEEN DESIGN ELEMENTS AND USER BEHAVIOR	25
3.1. How Aspects of Urban Design Can Positively Influence User Behaviors Within a Public Space	26
3.2. How Aspects of Urban Design Can Negatively Influence User Behaviors Within a Public Space	28
4. POSITIVE ASPECTS OF THE EMBARCADERO PROMENADE	33
4.1. How Observations of User Behavior Can Inform Positive Effects of Urban Design	34
4.2. Positive Experiences of Users of the Embarcadero Promenade.....	50
4.3. Thoughts on Successful Urban Design From a Landscape Architect's Point of View.....	51
4.4. Accomplishments of the Embarcadero Promenade	53
5. NEGATIVE ASPECTS OF THE EMBARCADERO PROMENADE	55
5.1. How Observations of User Behavior Can Inform Negative Effects of Urban Design.....	56
5.2. Negative Experiences of Users of the Embarcadero Promenade	68
5.3. Thoughts on Poor Urban Design From a Landscape Architect's Point of View	69
5.4. Lessons Learned from the Embarcadero Promenade.....	70
6. THE FUTURE OF THE EMBARCADERO PROMENADE.....	73
6.1. Overall Synthesis of Findings.....	74
6.2. Suggested Improvements for the Promenade	74
6.3. Final Thoughts	77
6.4. Limitations of the Research.....	78
 Bibliography	 81
Appendix A. Snapshot of the EAPRS Instrument	85
Appendix B. Snapshot of the BRAT Instrument.....	87
Appendix C. Site Survey Tool for Observation of Design Aspects	89
Appendix D. Interview Questionnaire for Landscape Architects.....	93
Appendix E. Interview Questionnaire for Promenade Users.....	95
Appendix F. Sample Observation Maps of User Behavior	97

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List of Figures

Figure 1.1.	The Embarcadero Promenade Stretches From Fisherman's Wharf to AT&T Ballpark.....	8
Figure 1.2.	Three Study Areas of the Embarcadero Promenade	11
Figure 1.3.	Promenade and Plaza at Pier 7 in the Northeast Waterfront Subarea	12
Figure 1.4.	Promenade at Rincon Park in the Ferry Building Subarea	12
Figure 1.5.	Promenade at Brannan Street Wharf in the South Beach/China Basin Subarea	12
Figure 1.6.	Map Used to Record User Behavior at Brannan Street Wharf.....	13
Figure 2.1.	Original (blue) and Current (white) Shorelines of San Francisco.....	18
Figure 2.2.	San Francisco Bay in July 1849	19
Figure 2.3.	Yerba Buena Cove in 1850 Looking North Towards Telegraph Hill	19
Figure 2.4.	The Embarcadero Freeway Separated Port From City, 1960.....	20
Figure 2.5.	The Embarcadero Promenade in 1992 (left), and in 2003 (right).....	21
Figure 2.6.	Planters Must Have a Simple Form and Use Sturdy Materials	22
Figure 3.1.	Stairs Are a Popular Seating Choice in this New York City Plaza	26
Figure 3.2.	"Metropol Parasol" by Jürgen Mayer H. in Spain	27
Figure 3.3.	Waterfront Promenade at Sunset in Penang, Malaysia.....	27
Figure 3.4.	Children Climbing Wave Sculpture on the Halifax Waterfront.....	28
Figure 3.5.	The Poorly Designed City Hall Plaza in Boston, Massachusetts	29
Figure 3.6.	Place de la Concorde in Paris, France Demonstrates Poor Spatial Structure	29
Figure 3.7.	Dark Spaces Behind a Bus Stop in Delhi, India	30
Figure 4.1.	Wooden-Slatted Seating Blocks at Pier 7 Plaza and Embarcadero Promenade.....	34
Figure 4.2.	Large Concrete Seating Forms at Rincon Park.....	36
Figure 4.3.	Concrete Seat Blocks of Art Ribbon, Rincon Park.....	36
Figure 4.4.	Concrete Wave Wall Along the Promenade at Brannan Street Wharf.....	38
Figure 4.5.	Tidal Columns Show Height of the Tides, with America's Cup Boat in Background.....	38
Figure 4.6.	People Utilizing Wooden-Slatted Block Seating at Pier 7	40
Figure 4.7.	Safe and Family-Oriented Atmosphere Along the Promenade at Pier 7	40
Figure 4.8.	Promenade Users Walking and Socializing at Rincon Park.....	42
Figure 4.9.	Runners Traveling Alongside and Atop the Art Ribbon Concrete Blocks.....	43
Figure 4.10.	People Sitting on Art Ribbon Concrete Blocks and Leaning Against Railing.....	43
Figure 4.11.	15-Minute Snapshot of User Behavior at Brannan Street Wharf	45
Figure 4.12.	Promenade Users Walk and Run Along the Art Ribbon at Brannan Street Wharf.....	46
Figure 4.13.	Brannan Street Wharf Picnic Benches	46
Figure 4.14.	Runner Following the Art Ribbon along the Embarcadero Promenade.....	50
Figure 4.15.	Scenic Views of the Ferry Building and the Bay at Rincon Park	52
Figure 4.16.	People Experiencing the Water's Edge South of the Agriculture Building.....	52
Figure 5.1.	Signs of Wear and Tear on Wooden-Slatted Seating Blocks	56
Figure 5.2.	Graffiti on Art Ribbon Seating	58
Figure 5.3.	Skateboarders Cause Damage on Concrete Wall at Brannan Street Wharf.....	60
Figure 5.4.	Pedestrians Traveling on the Promenade and Through the Plaza.....	62
Figure 5.5.	Utilizing Public Art as Shade	64
Figure 5.6.	Promenade Pedestrian Flow of Brannan Street Wharf	66
Figure 5.7.	The Art Ribbon with Working Glass Block Lights, Early 2000s.....	68
Figure 5.8.	Undamaged Art Ribbon at Pier 26, 2011.....	68
Figure 5.9.	Damaged Art Ribbon at Pier 26, 2013	68
Figure 5.10.	Black and White Interpretive Column on the Embarcadero Promenade	69
Figure 6.1.	Encourage Pedi Cabs to Use Bike Lane Instead of Promenade	75
Figure 6.2.	An Example of a Waterfront Walkway Separating Various Uses - San Diego County, California.....	76
Figure 6.3.	Repair the Art Ribbon to Improve Aesthetics.....	76
Figure 6.4.	Large Scale Public Art at Rincon Park.....	77
Figure 6.5.	The New Exploratorium Increases Promenade Traffic	78

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Table 1.1.	Design Aspects for Observation.....	12
Table 1.2.	Symbols Used to Record User Behavior	13
Table 1.3.	The Liveliness Index.....	14
Table 4.1.	Positive Site Design Findings at Pier 7	35
Table 4.2.	Positive Site Design Findings at Rincon Park.....	37
Table 4.3.	Positive Site Design Findings at Brannan Street Wharf	39
Table 4.4.	Positive User Behavior Observation Findings at Pier 7.....	41
Table 4.5.	Positive User Behavior Observation Findings at Rincon Park.....	44
Table 4.6.	Positive User Behavior Observation Findings at Brannan Street Wharf	47
Table 4.7.	Liveliness Index Data	49
Table 5.1.	Negative Site Design Findings at Pier 7.....	57
Table 5.2.	Negative Site Design Findings at Rincon Park.....	59
Table 5.3.	Negative Site Design Findings at Brannan Street Wharf.....	61
Table 5.4.	Negative User Behavior Observation Findings at Pier 7	63
Table 5.5.	Negative User Behavior Observation Findings at Rincon Park.....	65
Table 5.6.	Negative User Behavior Observation Findings at Brannan Street Wharf.....	67

1

INTRODUCTION TO RESEARCH PROJECT

- 1.1** Overview of the Embarcadero Promenade
- 1.2** Relevance of Studying a Waterfront Promenade
- 1.3** Expected Outcomes of the Research
- 1.4** Description of Research Methodology
- 1.5** Report Organization

This research project will observe user behavior at three sites along San Francisco's Embarcadero Promenade in an attempt to better understand how urban design elements (e.g. seating or public art) can positively or negatively affect how people use a public space. The specific question that this research will attempt to address is:

What aspects of physical design in three key areas along the Embarcadero Promenade influence user behavior within this linear public space and how is that behavior positively or negatively affected?

Recommendations will also be provided, suggesting possible opportunities to improve the Embarcadero Promenade as a successful public space.

1.1. Overview of the Embarcadero Promenade

The Embarcadero Promenade is a major linear walkway along San Francisco's eastern waterfront, and stretches from Pier 45 in Fisherman's Wharf to the AT&T Ballpark in China Basin (Figure 1.1).

The promenade is managed and maintained by the Port of San Francisco, and spans a little less than half of its jurisdiction while providing a meaningful link between various neighborhoods along San Francisco's bayside waterfront. This multiuse pathway and the adjacent Embarcadero Roadway "were constructed between 1993 and 2000 as part of the Waterfront Transportation Projects, a \$700 million public effort by city, state and federal agencies that replaced the Embarcadero Freeway and the Beltline Railroad

with a multi-modal urban boulevard."¹ Today, the Embarcadero Promenade and its adjoining public spaces provide roughly three linear miles and 16 acres of open space for the public's enjoyment of the San Francisco Bay.

The promenade boasts an extensive mix of uses such as leisure, physical activity, and transportation. Cyclists cannot only ride their bikes on the adjacent Embarcadero Roadway, but can also ride along the promenade itself, providing a sense of security for non-experienced cyclists. The linear construction of the promenade promotes the multi-modal transportation of people up and down the waterfront. The design of a public space can influence daily physical activity, and there is a continuing need for further research to identify the specific design elements that could increase the likelihood a space will be used for activity and its overall attractiveness to residents.²

1.2. Relevance of Studying a Waterfront Promenade

The unique behaviors of people that occur within public spaces can be an unexplainable phenomenon at times. The spontaneous encounters and planned activities within these spaces can often be an intangible asset, where the interactions between people and their environment support life in many cities. Public

1. Port of San Francisco, *Embarcadero Promenade Design Criteria*, San Francisco, Port of San Francisco, Planning & Development Division, January 2011, 4.

2. Takemi Sugiyama et al., "Associations between Recreational Walking and Attractiveness, Size, and Proximity of Neighborhood Open Spaces," *American Journal of Public Health* 100, no. 9 (September 2010): 1755-56.

Figure 1.1. The Embarcadero Promenade Stretches From Fisherman's Wharf to AT&T Ballpark

Source: Basemap from Port of San Francisco, *Embarcadero Promenade Design Criteria*, San Francisco, Port of San Francisco, Planning & Development Division, January 2011, 4, with annotations added by author.

spaces are an extremely important resource for people to network and feel a sense of belonging; cities would not function to their full potential if these public spaces were not provided as a platform for daily life. The public realm is a shared space where values and experiences can be made, and a place that offers opportunities that are not possible in our everyday personal lives.

Public spaces also allow people to meet expectedly or unexpectedly. People can experience the sights and sounds of their surroundings passively. It gives people a sense of place, and lets them know they belong to a community. A sense of place can include feeling dependent or attached to a specific place, identifying with the space and feeling a sense of belonging, or responding to the unique landscape of a particular place.³ These public spaces are the backbone of various communities and often subconsciously build strong neighborhood ties.

Specifically, the urban form of public spaces can create a unique place for various opportunities. A waterfront location like the Embarcadero Promenade can “deliver economic, social, and environmental sustainability.”⁴ Aspects of urban design can also affect the way a person behaves within a space, both positively or negatively. Even design characteristics of storefronts along a street, such as shelter or seating, can support use.⁵

Successful design elements are strongly correlated to user behavior and the frequency a space is used; the environment *does* in fact influence the social behavior of people.⁶ There must also be an appropriate balance of design, architecture, and use of the space to make it an integrated part of the community.⁷ In particular, the

Embarcadero Promenade in San Francisco serves many unique purposes. The promenade acts as a linear public space that links many neighborhoods together and provides a transportation route for walkers, joggers, and bicyclists. It also serves as a string of open spaces where people can congregate and interact, either with each other or with the space itself. In addition, each of these open spaces has their own unique identity.

Specifically, studying the Embarcadero Promenade and relating its design to its uses has not been comprehensively explored through research to date. Looking at the specific design elements (e.g., seating, public art, landscaping) along the promenade that affect behavior is essential to understand how these elements can be successful or unsuccessful. Even the potential of a space as a destination will be determined by the facilities and design elements along it that display activity, and decide where people like to congregate.⁸

Although any type of public space is important to people within cities, a promenade can provide a feasible way to connect people with each other over a larger area. San Francisco has been known as one of the top examples of successful waterfront urban design, and has been admired by other places trying to reconnect their city and waterfront, “San Francisco’s waterfront is also thought by some authors to be the most sophisticated form of urban design in America.”⁹ Therefore, the research proposed here is examining the forefront of urban waterfront design.

Several other places around the world have implemented the design of waterfront promenades to rehabilitate life within a city. For instance, Manila’s Baywalk in the Philippines transformed a dark and shadowy waterfront with many social problems into a highly used public space. Thoughtfully designed public spaces such as the Baywalk provide a “stage upon which the drama of civic life unfolds.”¹⁰ A promenade can truly be a place for people to congregate, interact with each other, and use the space for whatever

3. Jeffrey A. Walsh, *The Value of Place Meaning: Practical Applications for the Future*, Vol. 35, 44.

4. Susan Oakley, “The Role of Urban Governance in Re-Constructing Place, Economic Function and Social Relations in Urban Waterfront Regeneration: The Case of Port Adelaide, South Australia,” *Space & Polity* 11, no. 3 (December 2007): 281.

5. Vikas Mehta and Jennifer K. Bosson, “Third Places and the Social Life of Streets,” *Environment and Behavior* 42, no. 6 (2010): 780.

6. Duoduo Chen, “Shared Outdoor Spaces and Community Life: Assessing the Relationship between Design and Social Interaction,” Master’s Thesis, University of Guelph (Canada), 2006.

7. Alexandra Bitusikova, “Transformations of a City Centre in the Light of Ideologies: The Case of Banska Bystrica, Slovakia,” *International Journal of Urban & Regional Research* 22, no. 4 (December 1998): 614-615.

8. Christopher Alexander et al., *A Pattern Language: Towns, Building, Construction*. (New York: Oxford University Press, 1977), 172-73.

9. Pedro Ressano Garcia, “The Role of the Port Authority and the Municipality in Port Transformation: Barcelona, San Francisco and Lisbon,” *Planning Perspectives* 23, no. 1 (January 2008): 53.

10. Jose Edgardo Abaya Gomez Jr., “Waterfront Design without Policy? The Actual Uses of Manila’s Baywalk,” *Cities* 25, no. 2 (April 2008): 89.

purposes they see fit, such as a place to read or a spot to meet up with a friend for a walk.

In the urban planning realm, public spaces play a significant role in current and future efforts. Studying these places can lend a hand when identifying the next location of a public space in a community. They can also help planners decide what areas of their city may benefit from such a space, perhaps where crime or disconnected neighborhoods are present. Identifying the specific design elements of a waterfront promenade, such as the Embarcadero Promenade, can aid in the land use decision-making process while encouraging the implementation and design of a promenade that fosters physical activity and improves the health of many people's lives.¹¹ Also, new zoning policies could be a possible implication of studying user behavior in public spaces, like no longer allowing alcohol-serving establishments near a certain area that has repeated drinking-related problems.

There are many reasons why this proposed research is of great importance to planners, urban designers, and all people who use public spaces. By understanding the link between these public spaces and user behavior, planning and design professionals can apply this research in future urban promenade design efforts. The research will assist in the creation of successful linear public spaces where all users and their activities are accommodated. Hopefully, other communities can look to this research and apply it to their own projects as they see fit, paying attention to what areas can potentially benefit from good urban design.

1.3. Expected Outcomes of the Research

Through specifically designed methodology and tailored survey and observation instruments, it is anticipated that the research will find that the presence of design elements along the Embarcadero Promenade (e.g. seating or shade) directly influence user behavior within the space (e.g. where people tend to cluster or what areas are avoided by users). The specific methodologies are outlined in Section 1.4.

It has been suggested that people tend to sit near traffic along a main pedestrian path, and also enjoy choices for seating such as in the sun, shade, with a

group, or alone.¹² People will act differently based upon the options they are given within a space, and those people have natural tendencies of where, how, and what activities they tend to engage in as a result of the physical environment.

The positive aspects between design characteristics and user behavior highlights some of the liveliest areas along a street with ample seating.¹³ On the other hand, certain design elements can negatively affect user behavior within a public space. Fearing for personal safety tends to be a large deterrent in the use of these spaces, where poor lighting or closed-off areas largely contribute to an uneasy feeling (especially for women). Ultimately, the design of a space should not compromise safety due to design ideals that do not adequately address these concerns. After all, "Of what use is a beautifully designed setting if no one dares to use it?"¹⁴

1.4. Description of Research Methodology

Three methods were used to study the link between urban design elements and user behavior: a literature review, site design and user behavior observations, and interviews.

1.4.1. Literature Review

A literature review was performed to analyze the common themes that emerged in current and past literature on various design, social, and placemaking aspects of public spaces. The three main themes were: 1) urban design elements that may contribute to the successful or unsuccessful design of public spaces; 2) understanding how social interactions and social status play a role in public spaces; and 3) placemaking as an approach to the design and planning of public spaces. This review plays a role in answering the research question by applying literature in the field of urban design to understand how elements influence user behavior in public spaces. The most relevant findings

12. William H. Whyte, *The Social Life of Small Urban Spaces* (New York: Project for Public Spaces, 2001; original 1980), 28.

13. Vikas Mehta, "Look Closely and You Will See, Listen Carefully and You Will Hear: Urban Design and Social Interaction on Streets," *Journal of Urban Design* 14, no. 1 (2009): 44-46.

14. Clare Cooper Marcus and Carolyn Francis, *People Places: Design Guidelines for Urban Open Space* (New York: Van Nostrand Reinhold, 1998), 8.

11. Elizabeth Macdonald, "Urban Waterfront Promenades and Physical Activity by Older Adults: The Case of Vancouver," *Journal of Architectural and Planning Research* 24, no. 3 (Autumn 2007): 182.

from the literature review are presented in Chapter 3.

The data sources for the literature review varied but are primarily composed of peer-reviewed journal articles, other major academic journal articles, and theses/dissertations. The themes were analyzed using a table that detailed the main findings of each piece of literature and the methods, limitations, and weaknesses of each. This provided an effective comparison between the various literature sources.

1.4.2. Site Design and User Behavior Observations

By collecting site design information at the three study sites, a record can be obtained of the design elements that are present within each space. In order to study user behavior within a public space and subsequently analyze its relationship with the design elements, it is essential to observe these behaviors firsthand. Observations essentially allow the questions of who, what, where, when, and how to be answered.

Site Selection

The promenade spans four “subareas” within the Port of San Francisco’s jurisdiction as outlined in their *Waterfront Land Use Plan*. A subset of the Embarcadero Promenade was studied, looking at only three of the four subareas of the promenade, including the Northeast Waterfront subarea, the Ferry Building subarea, and the South Beach/China Basin subarea. The fourth subarea, Fisherman’s Wharf, was not included as a study area for two reasons. First, the Fisherman’s Wharf subarea has a very high concentration of tourists and tourist interactions, which is not the aim of the research. Second, the time and resources that it would take to accurately observe user behavior occurring in this area, due to extremely high traffic volumes, would extend beyond a single researcher’s ability.

Due to the time constraints of this research, one specific site was observed in each of the three subareas studied (Figure 1.2):

- 1) Embarcadero Promenade and plaza at Pier 7 (Northeast Waterfront Subarea)
- 2) Embarcadero Promenade at Rincon Park (Ferry Building Subarea)
- 3) Embarcadero Promenade at Brannan Street Wharf (South Beach/China Basin Subarea)

Data Collection Methods

The particular methodology used is unique to this research, although several resources were drawn from to create comprehensive observation tools. Mehta’s research study was heavily drawn from, which utilized direct observation and behavioral mapping to study the link between urban design and user behavior along streets.¹⁵ In addition, two assessment tools were considered in the development of an instrument to record urban design elements at each study site: the Environmental Assessment of Public Recreation Spaces (EAPRS), and the Bedimo-Rung Assessment Tool (BRAT).¹⁶ The EAPRS (Appendix A) attempted to

15. Mehta, 29-64.

16. Brian E. Saelens et al., “Measuring Physical Environments of Parks and Playgrounds: EAPRS Instrument Development and Inter-Rated Reliability,” *Journal of Physical Activity and Health* 3, no. 1 (2006): S190-S207; Ariane L. Bedimo-Rung et al., “Development of a Direct Observation Instrument to Measure Environmental Characteristics of Parks for Physical Activity,” *Journal of Physical Activity and Health* 3, no. 1 (2006): S176-S189.

Figure 1.2. Three Study Areas of the Embarcadero Promenade

Source: Basemap from ArcGIS Online, with annotations added by author.

Figure 1.3. Promenade and Plaza at Pier 7 in the Northeast Waterfront Subarea

Source: Author.

Figure 1.4. Promenade at Rincon Park in the Ferry Building Subarea

Source: Author.

Figure 1.5. Promenade at Brannan Street Wharf in the South Beach/China Basin Subarea

Source: Author.

evaluate five main categories of public recreation areas: 1) trails/paths, 2) specific uses, 3) water-related, 4) amenities, and 5) play elements and their qualities. The BRAT (Appendix B) looked to measure five areas of park environmental characteristics, including: 1) Features, 2) Condition, 3) Access, 4) Aesthetics, and 5) Safety.

The data collected during non-participant direct observations at the three areas were the site design elements (e.g. presence of seating, landscaping, lighting) and user behavior (e.g. sitting, talking, reading). To collect this data, a site survey tool (Appendix C) was used to document all design elements

within the space. Each site was visited to document the various design aspects present, and then a map was created for each space with their relevant design elements. The design aspects that were documented are listed in Table 1.1.

Once the maps were created, they were used to document user behavior at the three study sites. An example of a map used for user behavior observations at Brannan Street Wharf is provided in Figure 1.6. To capture the behaviors of people using the Embarcadero Promenade, each of the three sites were visited twice, including one weekday around lunchtime and one weekend day in the afternoon. The visits occurred

Table 1.1. Design Aspects for Observation

Design Aspect	Specific Factors for Observation
Seating	Presence of seating, material, condition, comfort, cleanliness, and seat width
Lighting	Presence and spacing of lighting
Signage	Interpretive and/or wayfinding and condition
Coverage/Shade	Presence of shading from trees or overhangs
Landscaping	Shrubs, planters, flowers, grass and overall cleanliness of landscaping
Scale	Size of space/area, width of promenade
Public Art	Presence of public art features and condition
General Aesthetics	Cleanliness, condition, perceived safety, surrounding land uses

Source: Author.

Figure 1.6. Map Used to Record User Behavior at Brannan Street Wharf

Source: Site Plan image from Port of San Francisco, with annotations added by author.

during days with reasonable weather, but not including days experiencing rain or extremely high temperatures. Each observation session lasted one hour, and documented how people use the space and what types of activities they were doing while visiting. This was then mapped with letters representing different behaviors. The letters used are shown in Table 1.2, and were documented directly on the site map to show the locations of various behaviors.

In addition to collecting user behavior information, an index was used to determine the liveliness of each study area. The Liveliness Index (Table 1.3) was created by Vikas Mehta to measure the amount of activity and duration of stay in a particular area of a street.¹⁷

The index assigns a score to each person using the site, based on five categories of the duration of stay, which can be added together at the end of a 15-minute observation session (conducted separately after the one-hour observation session mentioned above) to determine the overall score. For instance, a person who uses the space for less than one minute (perhaps just

Table 1.2. Symbols Used to Record User Behavior

Symbol	Description
St	Standing
S	Sitting
L	Lying/sleeping
W	Walking/walking pet
Rn	Running
B	Bicycling
Sk	Skateboarding or rollerblading
T	Coversing
Pr	Pushing a stroller
E	Eating/drinking
R	Reading
M	Using mobile technology
Sm	Smoking
O	Other

Source: Adapted from Vikas Mehta, "Look Closely and You Will See, Listen Carefully and You Will Hear: Urban Design and Social Interaction on Streets," *Journal of Urban Design* 14, no. 1 (2009): 34.

17. Mehta, 39.

Table 1.3. The Liveliness Index

Duration of Stay	Assigned Score
15 seconds to <1 minute	1
1 minute to <5 minutes	3
5 minutes to <10 minutes	7.5
10 minutes to <15 minutes	12.5
>15 minutes	15

Source: Adapted from Vikas Mehta, "Look Closely and You Will See, Listen Carefully and You Will Hear: Urban Design and Social Interaction on Streets," *Journal of Urban Design* 14, no. 1 (2009): 34.

passing through) receives a score of 1, but a person who stays for 15 minutes or longer receives a score of 15.

1.4.3. Interviews

Five interviews were conducted to assess attitudes towards the Embarcadero Promenade, from both a landscape architect's point of view and from the view of a promenade user. Two interviews were conducted with landscape architects who played a role in the design of the Embarcadero Promenade, and three interviews were conducted with people who use the Embarcadero Promenade. The duration of each interview varied, typically lasting between 30 to 60 minutes. They took place between the months of June and August 2013 and followed a pre-determined set of questions (Appendices D and E).

By interviewing landscape architects, insider information and knowledge can aid in understanding the research. This helps answer the research question by understanding the intent behind the urban design elements along the Embarcadero Promenade, and understanding the reasons behind their design.

By interviewing various users of the promenade, information can be gathered about how people experience the space and their attitudes towards it. Interviews can provide the answer to *why* people behave the way they do in a space and afford insight into how people prefer to use the space, feelings they may have associated with it, how the design elements contribute to their behavior, or other useful details. This supplements the observations and answers the research question by further understanding how the design of a public space influences how people act

within it. This information is vital to understanding the effects a space can have on people and their behavior.

1.5. Report Organization

The report is divided into six chapters including this introduction. Chapter 2 provides a brief historical context of San Francisco's waterfront, and how the Embarcadero Promenade was originally conceptualized and designed. Chapter 3 informs the generalized relationships that exist between urban design elements and user behavior, and how they can positively or negatively influence this behavior. Chapters 4 and 5 discuss these positive and negative aspects of the Embarcadero Promenade as a result of the conducted research, including key findings from each method of research. Finally, Chapter 6 presents a discussion of the overall findings of the research and suggested improvements that could be made to the Embarcadero Promenade.

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2

A HISTORY OF SAN FRANCISCO'S WATERFRONT

2.1 The Historical
Transformation of the
Waterfront

2.2 Creating the Embarcadero
Promenade

San Francisco did not always have a beautiful, clean, world-class waterfront environment. It was originally a working waterfront reserved for laborers and ship builders, and for the export and import of various goods. This chapter provides a brief historical context of the waterfront and its transformation to what it is today, including the pre-Gold Rush era, industrialization post-Gold Rush, and the recent age of revitalization efforts. The conception and creation of the Embarcadero Promenade is also outlined in this chapter.

2.1. The Historical Transformation of the Waterfront

Previously, San Francisco's eastern shoreline took on a more natural shape that accommodated primarily maritime uses. It was not until the late 1800s that industrial fill was placed in the San Francisco Bay to alter the shoreline for shipping and trading activities. During the late nineteenth and early twentieth century the shoreline was further transformed, via constructing the seawall, to adjust to current needs and eventually gave way to a grander waterfront with many commercial and recreational uses (Figure 2.1). The following three sections provide a brief history and some of the major challenges to reach a new and improved waterfront.

2.1.1. Pre Gold Rush (Before 1850s): San Francisco's Original Landscape

Before Europeans arrived in San Francisco Bay, the Ohlone Indians fished in their canoes and utilized the shoreline for gathering clams and other foods. Europeans first discovered San Francisco Bay in 1769 while searching for the Port of Monterey, California.¹⁸ Throughout the early 1800s, this bay was known as a desirable natural harbor located in the Pacific. It was not until the Mexican-American War that the United States seized the area from Mexico.

Before the gold rush arrived in California, San Francisco's waterfront saw its first signs of development under the Mexican regime beginning in

1835 as the town of Yerba Buena.¹⁹ Once the gold rush arrived, many of the ships that imported and exported goods were abandoned in the tidal flats along the shores, many of which are hidden today under San Francisco streets.

During the gold rush, from 1848 through the 1850s, San Francisco Bay soon became a popular seaport for transportation and shipping. With booming business, housing became more abundant with structures

19. San Francisco Trains, "Chapter II: The First Harbor Master and the First Landing Place," San Francisco Trains, http://www.sanfranciscotrains.org/port_history_ch2.html (accessed November 3, 2013).

Figure 2.1. Original (blue) and Current (white) Shorelines of San Francisco

Source: The Madrina Group, "Education," The Madrina Group, <http://www.madrinagroup.org/education/html> (accessed May 12, 2013).

18. K. Malletto, "The Discovery of San Francisco Bay (1542-1769): Historical Essay," Found SF, [http://www.foundsf.org/index.php?title=The_Discovery_of_San_Francisco_Bay\(1542-1769\)](http://www.foundsf.org/index.php?title=The_Discovery_of_San_Francisco_Bay(1542-1769)) (accessed November 3, 2013).

Figure 2.2. San Francisco Bay in July 1849

Source: George Henry Burgess, *San Francisco in July, 1849*, 1891, Oakland Museum of California.

ranging from fully built houses to tents and makeshift shelters (Figure 2.2). California officially became part of the United States in 1850, with San Francisco offering one of the largest ports in the American West at the time.

2.1.2. Post Gold Rush (1850s to 1980s): Industrialization of the Waterfront

In the mid nineteenth century, San Francisco began to rapidly build wharves along the shoreline to support increasing business, with many disputes occurring

Figure 2.3. Yerba Buena Cove in 1850 Looking North Towards Telegraph Hill

Source: FoundSF, "Yerba Buena Cove," FoundSF, http://www.foundsf.org/index.php?title=Yerba_Buena_Cove (accessed May 8, 2013).

over waterside lots and docking rights. Yerba Buena Cove (Figure 2.3), roughly the area surrounding the current Ferry Building, was a central hub for trading activity and was eventually filled to support growing operations. Structures built upon this early bay fill would frequently collapse into the bay, and were also subject to recurrent fires.

In the late nineteenth and early twentieth century, the waterfront continued to grow rapidly in trade and commerce and became an industrial hub with numerous railroad terminals and finger piers. The Port of San Francisco was established in 1863, and a seawall was constructed over a fifty year period to extend the shoreline for maritime operations. The waterfront was one of the liveliest areas of the city. It was "the city's 'guest room' accommodating, at the beginning of the twentieth century, all the ships carrying people and goods from distant worlds."²⁰

When World War II arrived, San Francisco became a military center for troops and their supplies and equipment, particularly ship construction and repair. In the middle of the twentieth century, the Port was known as "the West Coast's premier cargo port."²¹ Years later, the Port of Oakland began to welcome container ships and took over the vast majority of cargo business

20. Garcia, 57.

21. Port of San Francisco, "History," Port of San Francisco, <http://www.sfport.com/index.aspx?page=135> (accessed May 11, 2013).

Figure 2.4. The Embarcadero Freeway Separated Port From City, 1960

Source: Tom Vanderbilt, "Unbuilt Highways," Slate Magazine, http://www.slate.com/articles/life/transport/features/2010/unbuilt_highways/san_francisco_the_embarcadero_freeway.html (accessed May 12, 2013).

in San Francisco. San Francisco was still an important economic area of California and was increasingly bustling; the city quickly outgrew its roads and needed an alternative to quickly transport people.

A decision was made to construct a raised freeway along San Francisco's waterfront in 1956, but not without an uproar from city residents. The proposed freeway would significantly compromise the connection to the waterfront, and only provide access to select parts of the city. Community leaders and protesters halted the freeway from completion in the 1960s when the city experienced a strong freeway revolt. It was not until later that the freeway was actually completed.

In 1965, legislation was passed to form the San Francisco Bay Conservation and Development Commission (BCDC) as a temporary state agency. The agency was authorized to issue permits and control development within a 100-foot band of shoreline along the San Francisco Bay. This agency has played a large role in the development of San Francisco's shoreline and has helped preserve the waterfront views we have today.

In the 1980s, when the San Francisco Department of City Planning published a report on the waterfront, a more comprehensive planning approach started connecting the Port and the downtown area. This

report set the stage for the consideration of water views, comprehensive zoning, and public access areas. By this time the Embarcadero Freeway was already in place and despite the city's new efforts, the waterfront quickly evolved into a heavily used automobile thoroughfare with a high-rise freeway that blocked off the city from the bay and created a segregated waterfront (Figure 2.4).

The freeway was eventually removed as a result of damage from the Loma Prieta Earthquake of 1989, which symbolized a new start for San Francisco's waterfront where transportation, open space, and urban design could collectively and successfully coexist. The earthquake played a significant role in knocking down the barriers that separated the Port from the city.

2.1.3. 1990s to Today: Waterfront Revitalization Efforts

During the last years of the twentieth century, the Port of San Francisco was continuing to lose an increasing amount of their shipping business to the rapidly growing Port of Oakland. Despite the Port of San Francisco's efforts to regain some of their shipping business, a major shift began to occur--public use of the waterfront and profitable development opportunities. This shift to beautify the waterfront and make a more accessible place for the public signified a new era for San Francisco.

The revitalization of the waterfront took many years and still continues today. Although the area has experienced many struggles, it is an example of an evolution towards a place for the public to enjoy the natural beauty of the bay and to take part in leisure and recreational opportunities. "Through events, art and recreation, the city re-established its connection to the water and succeeded in removing the existing barriers. Here, the public have learned to enjoy the landscape and meet at the waterfront in what is a privileged public space."²²

2.2. Creating the Embarcadero Promenade

The promenade is located within the *Embarcadero Waterfront National Register Historic District*, which includes many piers, pier sheds, bulkhead buildings, wharves, and the seawall. It is an important setting

22. Garcia, 62.

Figure 2.5. The Embarcadero Promenade in 1992 (left), and in 2003 (right)

Source: RIL: Regenerating Intermediate Landscapes, "10 Urban Infrastructure Regeneration Projects," RIL: Regenerating Intermediate Landscapes, <http://www.intermediatelandscapes.com/2012/03/22/10-urban-infrastructure-regeneration-projects> (accessed May 13, 2013).

for the historic character of this waterfront. Since the Port of San Francisco's inception 150 years ago, the waterfront has provided transportation and access for maritime operations and other commercial uses. Today, it is an urban waterfront that continues to foster these uses, but also encourages the public's enjoyment of San Francisco Bay.

2.2.1. The Conception of a New Waterfront

The Embarcadero represents the connection between port and city, with main city streets providing access to and from the shoreline. The City of San Francisco has had a vision to establish this reconnection since the 1980s and the removal of the Embarcadero Freeway. When the promenade and adjacent roadway were transformed in the 1990s and 2000s, specific design guidelines were needed to comprehensively design the waterfront and address public concerns. In 1997, the Port Commission adopted the *Waterfront Land Use Plan* that addressed these concerns and envisioned a new waterfront landscape. Later that year, the *Waterfront Design and Access* element was created as part of the plan to specifically address the design of the waterfront.

2.2.2. Design Criteria Guiding the Formation of the Embarcadero Promenade

San Francisco's waterfront demanded a cohesive

urban design plan in order to successfully connect many elements. In June 1997, the Port Commission adopted the *Waterfront Design and Access* element, which was intended to guide the design of waterfront revitalization efforts envisioned in the *Waterfront Land Use Plan*. By guiding the physical form of the shoreline and its features, the design and access element "provides policy for the preservation and development of public access and open space, views, and historic resources, as well as architectural design criteria that will be applied to new development."²³

Years later, specific design criteria for the Embarcadero Promenade were developed as guidance for designing a uniform linear public space. The *Embarcadero Promenade Design Criteria*, drafted for public review in 2011, outlines policy and design direction for furnishings, historic resources, circulation, and other enhancements to the promenade. Figure 2.6 shows an example of the types of planters tenants are expected to install when furnishing their outdoor areas along the promenade walkway.

The *Embarcadero Promenade Design Criteria* outline the following objectives:

- 1) Cleanup the promenade so that it functions and appears its best; determine what

23. Port of San Francisco, *Waterfront Design & Access Element*, San Francisco, Port of San Francisco, Planning & Development Division, June 1997, 4.

Figure 2.6. Planters Must Have a Simple Form and Use Sturdy Materials

Source: Port of San Francisco, *Embarcadero Promenade Design Criteria*, San Francisco, Port of San Francisco, Planning & Development Division, June 1997, 14.

furniture and improvements are appropriate for the Promenade and where they should be located,

- 2) Organize the public and private improvements; identify different activities zones and the furnishings and improvements that should be permitted in each zone, and
- 3) Define specific design criteria for furnishings and other improvements that support public enjoyment of the waterfront and further historic consistency.²⁴

The promenade criteria also define standards for promenade furnishings, tenant furnishings, Ferry Building area café criteria, covered outdoor dining areas, and bulkhead buildings. Developing these standards is critical to ensuring all elements along the Embarcadero Promenade are coordinated and create a cohesive linear public space.

24. Port of San Francisco, *Embarcadero Promenade Design Criteria*, San Francisco, Port of San Francisco, Planning & Development Division, January 2011, 6.

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3

RELATIONSHIPS BETWEEN DESIGN ELEMENTS AND USER BEHAVIOR

- 3.1** How Aspects of Urban Design Can Positively Influence User Behaviors Within a Public Space
- 3.2** How Aspects of Urban Design Can Negatively Influence User Behavior Within a Public Space

Urban design elements can affect the way a person behaves within a public space; successful design elements can have a positive influence on user behavior, and unsuccessful elements can negatively affect how people use a space. After a review of contemporary literature on aspects of urban design that may contribute to these conditions, it was mostly agreed upon by the researchers that the physical design elements of the environment are an essential consideration in the planning and design of these spaces. Successful design may encompass numerous design elements, yet certain elements may be considered more important than others for fostering the use and enjoyment of these places.

3.1. How Aspects of Urban Design Can Positively Influence User Behaviors Within a Public Space

An abundance of urban design considerations can contribute to a positive experience of a public space. The following represent some of the fundamental aspects in the design of these spaces, how these positively influence user behavior, and reflect on their relevance to the Embarcadero Promenade as a waterfront public space.

3.1.1. Presence of Seating Options

Ample seating in public spaces is an essential necessity for users; seating is a high priority design element and the need for abundant seating is evident.²⁵ And, “it appears that it does not matter what type of seating is provided (stools, chairs, or benches), but merely that it is available for use.”²⁶

Public seating in any form is critical and provides a needed amenity for people in public places.²⁷ Seating can take many forms and should not be limited to traditional seating options such as benches or chairs. Architects normally consider benches as primary seating, but design elements such as steps (Figure 3.1) or fountains are just as important and have actually

Figure 3.1. Stairs Are a Popular Seating Choice in this New York City Plaza

Source: Thomas Balsley Associates, “Jacob K. Javits Federal Building,” Thomas Balsley Associates, http://www.tbany.com/projects_page.php?projectid=328&categoryid=5 (accessed September 7, 2013).

been observed to be a more popular choice of seating.²⁸ When seating is present in a variety of forms, users have options of where they are able to stop and rest. If a public space offers enough seating to accommodate the amount of people who use it, then a positive relationship begins to develop between the user and the public space. Once a person has a positive experience, it instills confidence that he or she can enjoy the public space and find varied and ample seating.

Along the Embarcadero Promenade, seating is necessary to provide resting spots for people traveling along this linear public space, and seating should take advantage of the unique views that the surrounding waterfront environment has to offer. In general, seating is a vital design element for a successful public space and should be provided in large quantities and various forms.

3.1.2. Availability of Shade and Shelter

Shade and shelter is also an important design element to provide when planning effective public spaces. Shade should be offered in a variety of forms such as tree

25. Mehta and Bosson, 782-799.

26. Christine Lamorena, “Parklets for the People: Examining San Francisco’s Temporary Parks,” Master’s Thesis, San Jose State University, 2012: 43.

27. Mehta, 44-45; Macdonald, 194.

28. Wei Yan and David A. Forsyth, *Learning the Behavior of Users in a Public Space through Video Tracking*, IEEE, 2005: 8.

Figure 3.2. "Metropol Parasol" by Jürgen Mayer H. in Spain

Source: Ethel Baraona Pohl, "Waffle Urbanism: A visit to Jürgen Mayer H.'s Metropol Parasol, one of the most daring and controversial urban interventions to be completed in Europe in recent years," *Domus*, May 10, 2011, <http://www.domusweb.it/en/architecture/2011/05/10/waffle-urbanism.html> (accessed September 7, 2013).

cover, canopies, awnings, and overhangs. People's preferences typically change with the seasons, such as a desire for shade in hot summer months or protection from wind and rain in the winter.²⁹ As seen in Figure 3.2, shade structures can come in many forms and provide needed protection from the sun in public spaces.

Shade is also important on warmer days for elderly persons who are more prone to heat stroke and other effects of hot temperatures. On windy or rainy days, people tend to congregate under sheltered overhangs for cover and protection.³⁰

When shade and shelter are available, people will use it. If shelter is scarce in a public space during adverse weather, very few people will be seen using it. Yet, if a protective shelter structure exists within a public space, people are typically observed finding refuge during unfavorable weather conditions. When this physical design amenity is offered, a positive experience occurs when a user can be confident in their ability to seek protection when desired.

Along San Francisco's waterfront, shade and shelter is

Figure 3.3. Waterfront Promenade at Sunset in Penang, Malaysia

Source: Asisbiz, "Penang Promenade Sunset Mar 2001," Asisbiz, <http://asisbiz.com/Malaysia/Penang/pages/Penang-Promenade-Sunset-Mar-2001-03.html> (accessed September 7, 2013).

a helpful design element to protect promenade users from the gusty winds the city frequently experiences. During warmer days, that typically occur in the autumn months in San Francisco, using the Embarcadero Promenade may be more enjoyable when a shade structure is present to offer a cool resting place that is protected from sun exposure. Shade and shelter availability is an essential aspect of urban design and can be observed as a highly used amenity in many public spaces.

3.1.3. Utilizing Water Landscapes as an Attraction

Natural water bodies can play an important role in the design of a public space by highlighting a water landscape as an attraction or central focus, rather than ignoring this exclusive feature. By doing so, a public space will offer a more enjoyable experience and higher aesthetic appeal. For instance, during a research effort involving two urban waterfront landscapes in Kuching-Sarawak and Penang, Malaysia, it was said that "Water is a defining force that fundamentally shapes the character of each place it touches ... it is a feature to be

29. Mehta, 50; Mehta and Bosson, 782.

30. Chen, 58.

honored and celebrated..."³¹ A major body of water can offer a high aesthetic value while encouraging people to use the waterfront in various forms.³²

Utilizing water landscapes as an attraction is essential when designing waterfront public spaces, and many people have a strong appreciation for water views, scenery, and access to the water.³³ When these unique assets of water and scenery are present and become a central focus, users begin to develop an attachment to that public space.

If a public space were to turn its back towards a waterfront, much like the City of San Francisco did in the mid-to-late twentieth century with the construction of the Embarcadero Freeway, a negative connotation can develop between people and place. Today, the Embarcadero Promenade has learned to take advantage of its waterfront location by celebrating the views of San Francisco Bay. It is imperative that water views and amenities remain a well-regarded feature of waterfront public spaces.

3.1.4. Designing for the People

Positive user behavior is a direct result of successful urban design. Most important, the needs of users must be carefully considered when creating public spaces. Urban designers and planners must foresee the future trends of public open spaces, and should base efforts upon the evolution of public life and what the people demand, not a simple application of physical design elements as a sure way to promote activities.³⁴ There is clearly a need for "a shift of emphasis from form to function,"³⁵ and an important design consideration of a public space is that it accommodates the needs of the people using it.³⁶

The Embarcadero Promenade is an example of a waterfront amenity that must be designed based upon how people choose to use it. For instance, if users

desire access points to the Bay for water recreation then this type of access should be considered and implemented when possible along the waterfront. If a public space is designed for the people and how they tend to use it, not solely how designers or planners foresee it being used, positive experiences will transpire.

3.2. How Aspects of Urban Design Can Negatively Influence User Behaviors Within a Public Space

Public spaces can also display examples of unsuccessful design that negatively influences how people behave. The topics described in the previous section showed how seating, shade, shelter, water landscapes, and designing for the people are important for positive user behaviors. They can also be seen as aspects that negatively influence user behavior if they are absent or overlooked. The following section characterizes a few additional aspects of urban design that have been found to negatively affect user behavior, and their possible relevance to the Embarcadero Promenade.

3.2.1. Unintended Uses of Public Art

Art should be installed in public spaces when it adds some type of value to that space, such as an iconic

Figure 3.4. Children Climbing Wave Sculpture on the Halifax Waterfront

Source: Joe O'Connor, "Halifax Wave's White Flag in 26-Year Fight with Sculpture-Climbing Kids," National Post, <http://www.news.nationalpost.com/2012/05/02/halifaxs-new-wave-to-ease-three-decade-long-climbing-conflict> (accessed September 9, 2013).

31. Salina Mohamed Ali and Abdul Hadi Nawawi, "The Social Impact of Urban Waterfront Landscapes: Malaysian Perspectives," *Real Corp 2009: Cities 3.0 – Smart, Sustainable, Integrative* (April 2009): 529.

32. Chen, 53.

33. Macdonald, 193.

34. Tridib Banerjee, "The Future of Public Space," *Journal of the American Planning Association* 67, no. 1 (Winter 2001): 15.

35. Banerjee, 15.

36. Mehta, 62.

Figure 3.5. The Poorly Designed City Hall Plaza in Boston, Massachusetts

Source: Julia Galef, "Boston's Problem Plaza to Get Green Makeover," *The Architect's Newspaper*, <http://www.archpaper.com/news/articles.asp?id=4923> (accessed November 3, 2013).

piece of art that visitors identify with. If a public art installation is not carefully planned, unintended uses can arise. For instance, a research study that analyzed a waterfront promenade in the Philippines, found that sculptures intended as art installations were used as children's monkey bars, which posed a major safety concern.³⁷ Along Halifax's waterfront in Canada, children have been found frequently climbing a wave sculpture (Figure 3.4) that has posed safety concerns for the city. It has been a 26-year long battle attempting to get children off of the sculpture, and despite efforts to install no climbing signs; the children continue to physically interact with the art.

If art installations are used as climbing gyms for children, this can not only pose a safety risk but can also cause excessive wear and tear on the art piece itself. And although this may be a positive experience for the children, it is a negative user behavior with regards to safety and liability.

Other unintended uses of public art may include a sleeping place for the homeless or a skateboarder's paradise. Both of these examples have been seen occurring along the Embarcadero Promenade, and

Figure 3.6. Place de la Concorde in Paris, France Demonstrates Poor Spatial Structure

Source: Wikimedia Commons, "File: Federation Internationale de l'Automobile headquarters, Place de la Concorde, Paris, France - 20111023.jpg," Wikimedia Commons, http://commons.wikimedia.org/wiki/File:Fédération_Internationale_de_l'Automobile_headquarters,_Place_de_la_Concorde,_Paris,_France_-_20111023.jpg (accessed November 3, 2013).

are most likely uses that urban designers do not encourage when installing a public art piece. Possible and unintended uses should be foreseen if possible prior to the installation of an art piece in a public space, and measures such as skateboard stops should be anticipated.

3.2.2. Absence of Urban Design Elements

The inclusion of urban design elements in public spaces is essential for the positive experience of users, and negative experiences will occur without thoughtful design. When a person visits a public space without sufficient seating, they may be less inclined to stay in the space if they are looking for a place to rest. If a public space lacks landscaping elements, it may create a less inviting place to spend time in. Figure 3.5 shows the City Hall Plaza in Boston, Massachusetts, which is a poorly designed public space in need of improvements such as greenery and seating.

A 2011 study which studied the architectural arrangement of public spaces in two cities in Lithuania and Germany, noted that a lack of landscape elements such as trees and smaller plants within a public square

37. Abaya Gomez Jr., 103.

Figure 3.7. Dark Spaces Behind a Bus Stop in Delhi, India

Source: Ayesha Vemuri, "An Overview of Pecha Kucha #15: 'Our Spaces, Our Voices,'" Design ! Public Blog, entry posted February 5, 2013, <http://www.designpublic.in/blog/an-overview-of-pecha-kucha-15-our-spaces-our-voices> (accessed September 9, 2013).

provide no clear spatial structure to the space.³⁸ This lack of spatial structure was evident when the absence of pedestrian paths was observed to result in confusing pedestrian flows across many directions within the public square. Figure 3.6 demonstrates an example of a public space in Paris, France with poor spatial structure.

In addition, the study found that the absence of ramps and the abundance of stairs leading into the square deemed it inaccessible for the elderly and disabled.³⁹ When a public space fails to offer elements and mobility modifications necessary for the enjoyment of all users, negative user behaviors will likely be observed.

By studying the Embarcadero Promenade, an understanding of the relationship between physical design elements and how people behave can be achieved. The negative relationships between design and user experiences can inform future improvements to avoid furthering these unfavorable experiences.

3.2.3. Negative Perceptions of Safety

A negative perception of safety can also be linked to

38. Gintaras Stauskis and Frank Eckardt, "Public Spaces as Catalysts of Social Interaction in Urban Communities," *Town Planning and Architecture* 35, no. 2 (2011): 125.

39. Ibid.

user behavior in public spaces. Poor urban design may be closely linked to negative perceptions of safety, such as areas of large open parking lots and poor lighting in dark areas.⁴⁰ The ineffective design of a public space, such as the presence of dark and isolated corners, can cause users to avoid that space. For instance, in Delhi, India many public bus stops are lit on the street side, but lack lighting behind them, creating dark and unsafe areas particularly for women (Figure 3.7).

Other aspects of public life may also cause a negative perception of safety, such as a large homeless presence or frequent crime. By creating a public space with sufficient lighting and an orientation to face neighborhoods and businesses, people feel safer and therefore more inclined to use that area.

At first glance, the Embarcadero Promenade seems to have a minor problem with homelessness. Although this is a much larger social issue that will not be examined in this research, the large homeless population in San Francisco does have an influence on who uses the waterfront promenade and when. Planners and designers can learn from negative perceptions of safety and anticipate how future design considerations may be able to address negative user behavior.

40. Mehta, 56; Abaya Gomez Jr., 102.

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4

POSITIVE ASPECTS OF THE EMBARCADERO PROMENADE

- 4.1** How Observations of User Behavior Can Inform Positive Effects of Urban Design
- 4.2** Positive Experiences of Users of the Embarcadero Promenade
- 4.3** Thoughts on Successful Urban Design From a Landscape Architect's Point of View
- 4.4** Accomplishments of the Embarcadero Promenade

While researching the Embarcadero Promenade, several positive experiences were documented through interviews and observations at three study sites. This chapter will concentrate solely on the positive aspects that were uncovered through the research methodologies and will summarize the overall accomplishments of the Embarcadero Promenade.

4.1. How Observations of User Behavior Can Inform Positive Effects of Urban Design

Observations were one of the most critical methods to study user behavior along the Embarcadero Promenade. By documenting how people behave within this public space, certain commonalities could be identified and documented. This section will explore the site design observation findings and the positive user behavior observation findings associated with each of the three sites. Also, the liveliness index assessment results will be discussed.

4.1.1. Site Design Observation Findings

While taking a comprehensive inventory of the design elements at the three study sites (Pier 7, Rincon Park, and Brannan Street Wharf), it was clear that great thought and planning were executed in the design of the Embarcadero Promenade and adjoining public spaces. The positive site design findings of each study location are discussed as follows, including summary tables of the findings for each site.

Pier 7

The plaza and promenade adjacent to Pier 7 in the Northeast Waterfront Subarea provided an abundance of seating options. The plaza provided benches, tables and chairs, and large wooden-slatted seating blocks (Figure 4.1).

The materials were primarily wood and concrete with metal detailing, and provided an adequate level of comfort. Lighting was present and spaced appropriately along the promenade, although the study sites were not observed at night. Two wayfinding signs were present at the north and south ends of the study area along the promenade, which contained large-scale maps of the waterfront directing visitors to various destinations. A large metal pylon celebrating the Port of San Francisco's 150th anniversary was also located on the promenade, which depicted historical photos and text telling the story of an important piece of Port history. There was a positive perception of safety at this location with many surrounding residential and commercial land uses. All of the found design items at Pier 7 are summarized in Table 4.1.

Figure 4.1. Wooden-Slatted Seating Blocks at Pier 7 Plaza and Embarcadero Promenade

Source: Author.

Table 4.1. Positive Site Design Findings at Pier 7

SEATING

Positive?	Aspect
X	Presence of seating
X	Material
	Condition
X	Comfort
	Cleanliness
X	Seat width

LANDSCAPING

Positive?	Aspect
	Presence of shrubs/bushes
	Presence of landscaping beds
	Presence of flowers
	Presence of grass
	Cleanliness

LIGHTING

Positive?	Aspect
X	Presence of lighting
X	Spacing of lighting

SCALE

Positive?	Aspect
X	Size of study area
	Width of promenade

SIGNAGE

Positive?	Aspect
X	Presence of interpretive signage
X	Presence of wayfinding signage
X	Condition

PUBLIC ART

Positive?	Aspect
	Presence of public art
	Condition

COVERAGE/SHADE

Positive?	Aspect
	Presence of tree cover
	Presence of overhangs/other cover

GENERAL AESTHETICS

Positive?	Aspect
	Cleanliness
	Condition
X	Perceived safety from crime
X	Surrounding land uses

Source: Author.

Rincon Park

At Rincon Park in the Ferry Building Subarea, seating was offered in a variety of forms. The three main types of seating were metal benches, large concrete seating forms (Figure 4.2), and concrete seating blocks as part of the “art ribbon” (Figure 4.3). The art ribbon is made up of square-shaped glass blocks set in the promenade pavement, and is intended to be a linear representation of the waterfront’s seawall as a way to guide people along the waterfront.

Lighting was spaced appropriately along the promenade, and a large interpretive sign was located in the middle of the promenade where visitors could stop and learn about waterfront history. The landscaping elements at Rincon Park were particularly appealing with generous amounts of bushes, flowers, shrubs, and

grass carefully placed and designed within the public space. The promenade itself was quite wide at this location (just under 28 feet including the art ribbon), and was generally kept clean. Public art was a central focus at Rincon Park, which boasted a massive bow and arrow located within a large grass area. Table 4.2 on the following page can be referenced for a summary of these positive design elements at this study site.

Figure 4.2. Large Concrete Seating Forms at Rincon Park

Source: Author.

Figure 4.3. Concrete Seat Blocks of Art Ribbon, Rincon Park

Source: Author.

Table 4.2. Positive Site Design Findings at Rincon Park

SEATING

Positive?	Aspect
X	Presence of seating
X	Material
	Condition
	Comfort
	Cleanliness
	Seat width

LANDSCAPING

Positive?	Aspect
X	Presence of shrubs/bushes
X	Presence of landscaping beds
X	Presence of flowers
X	Presence of grass
X	Cleanliness

LIGHTING

Positive?	Aspect
X	Presence of lighting
X	Spacing of lighting

SCALE

Positive?	Aspect
X	Size of study area
X	Width of promenade

SIGNAGE

Positive?	Aspect
X	Presence of interpretive signage
	Presence of wayfinding signage
	Condition

PUBLIC ART

Positive?	Aspect
X	Presence of public art
X	Condition

COVERAGE/SHADE

Positive?	Aspect
	Presence of tree cover
	Presence of overhangs/other cover

GENERAL AESTHETICS

Positive?	Aspect
X	Cleanliness
X	Condition
X	Perceived safety from crime
X	Surrounding land uses

Source: Author.

Positive Aspects of the Embarcadero Promenade

Brannan Street Wharf

Brannan Street Wharf is a newly constructed public space in the South Beach/China Basin Subarea that exemplifies uniqueness through attractive design elements. Along the Embarcadero Promenade is an elongated concrete wall (Figure 4.4) that runs next to the art ribbon and is meant to represent a rough waveform, and act as a seating option.

Other seating such as benches and picnic tables were present at Brannan Street Wharf near the promenade, and were primarily constructed of wood with metal accents. The seating was comfortable as well as aesthetically pleasing. Lighting was spaced evenly throughout the promenade at this site, and a black

and white interpretive sign highlighting waterfront history was located in the middle of the Embarcadero Promenade.

A large green lawn brightened up this waterfront space as well, and seemed to be very clean and well maintained. Best of all, the promenade was observed to be wide at this site (roughly 25 feet) which provided adequate space for multi-modal use. A large public art (and educational) display drew attention to the

Figure 4.4. Concrete Wave Wall Along the Promenade at Brannan Street Wharf

Source: Author.

Figure 4.5. Tidal Columns Show Height of the Tides, with America's Cup Boat in Background

Source: Author.

space, which included giant tidal columns emerging out of the wharf deck showing the current height of the tide (Figure 4.5). The positive site design findings are summarized in Table 4.3.

Table 4.3. Positive Site Design Findings at Brannan Street Wharf

SEATING

Positive?	Aspect
X	Presence of seating
X	Material
	Condition
X	Comfort
	Cleanliness
X	Seat width

LANDSCAPING

Positive?	Aspect
	Presence of shrubs/bushes
	Presence of landscaping beds
	Presence of flowers
X	Presence of grass
X	Cleanliness

LIGHTING

Positive?	Aspect
X	Presence of lighting
X	Spacing of lighting

SCALE

Positive?	Aspect
X	Size of study area
X	Width of promenade

SIGNAGE

Positive?	Aspect
X	Presence of interpretive signage
	Presence of wayfinding signage
X	Condition

PUBLIC ART

Positive?	Aspect
X	Presence of public art
X	Condition

COVERAGE/SHADE

Positive?	Aspect
	Presence of tree cover
	Presence of overhangs/other cover

GENERAL AESTHETICS

Positive?	Aspect
X	Cleanliness
X	Condition
X	Perceived safety from crime
X	Surrounding land uses

Source: Author.

4.1.2. User Behavior Observation Findings

Through direct observations at three study sites, a comprehensive assessment was taken of user behaviors, where they were occurring, and how they related to design elements. The positive user behavior findings of each site are discussed as follows, including summary tables of the user behavior findings.

Pier 7

The promenade and plaza at Pier 7 were observed to have several positive user behaviors (Table 4.4). During the weekdays, this portion of the Embarcadero Promenade was relatively quiet compared with other sites along the waterfront (particularly Rincon Park). Although people utilize this area of the promenade to eat lunch during weekdays, the majority of activity seemed to occur on weekends when tourists and locals alike were out enjoying the waterfront. On weekdays, this location provided a private and quiet retreat from city life to read a book or take a rest.

Many users were seen enjoying the plaza and promenade at Pier 7, while conversing with others and taking pictures of waterfront views. Families and large groups gravitated towards the water and city views from Pier 7, and were seen getting easily distracted from traveling along the promenade to stop and explore. This public space offered adequate

seating and tables, and behaviors such as resting, sitting, conversing with others, eating, and using mobile technology were common here. Just off of the promenade was a restroom facility, which deemed to be a popular resting spot.

Users of the promenade were frequently observed sitting on the wooden-slatted blocks or benches facing the promenade to watch people passing by. Yet, users were more inclined to sit facing the bay and water views. Seating options were well utilized by many, and children were commonly seen playing and jumping on and off the block seating. As previously discussed in Chapter 3, the presence of seating options in a public space is an essential necessity for users. The Embarcadero Promenade and plaza at Pier 7 delivered this, providing various types of seating that could accommodate multiple users.

Due to a narrow width of the Embarcadero Promenade at this location, users were often observed utilizing the plaza adjacent to the promenade as a thoroughfare to maneuver around crowds. This allowed bicyclists and runners to get around slower pedestrian traffic. When

Figure 4.6. People Utilizing Wooden-Slatted Block Seating at Pier 7

Source: Author.

Figure 4.7. Safe and Family-Oriented Atmosphere Along the Promenade at Pier 7

Source: Author.

this behavior was initially observed it was thought that this may discourage people from using the Pier 7 plaza, but in fact, it was still a heavily used space despite the promenade traffic overflowing into the plaza.

becoming a bustling public space where people from all walks of life could enjoy a thoughtfully designed space with many surrounding activities.

The Embarcadero Promenade at Pier 7 offered a safe environment where many people passed through, especially on weekends. Many users were documented conversing with each other and pushing strollers with their children. The promenade was underutilized on weekdays, but this also offered a quiet and relaxing space for people who may be looking to get away from the busy city. On weekends, it was quite the contrary,

Table 4.4. Positive User Behavior Observation Findings at Pier 7

Design Aspect	Observed Positive User Behaviors
Seating	<ul style="list-style-type: none"> • Various types of seating frequently utilized by people • People observed sitting facing the water and the promenade, although were more inclined to sit facing the bay views • Provided many opportunities to converse with others, eat lunch, read a book, rest, or use mobile technology • Wooden-slatted seating blocks became an interactive element for many children, who were seen jumping on and off the blocks
Signage	None.
Coverage/Shade	None.
Landscaping	None.
Scale	<ul style="list-style-type: none"> • People utilized the adjacent plaza as an extension of the promenade, providing a wider space to travel through • Pier 7 plaza allowed faster modes, such as bicyclists and runners, to navigate around slower pedestrian traffic • The above mentioned observations did not discourage people from using the plaza
Public Art	None.
Water Landscape/Views	<ul style="list-style-type: none"> • People frequently observed taking pictures of the San Francisco Bay views • Water views would draw people away from the promenade onto the Pier 7 plaza to stand near the water
Surrounding Land Uses	<ul style="list-style-type: none"> • Surrounding land uses and promenade pedestrian usage offered a safe and family-oriented environment, where many people were observed pushing strollers and playing with their children
Site Specific Design Aspects	<ul style="list-style-type: none"> • Pier 7 offered a public restroom facility which was deemed a popular resting spot for people

Source: Author.

Rincon Park

This part of the Embarcadero Promenade was a popular spot amongst local employees, runners, walkers, and tourists. On a weekday, many people were observed sitting along the promenade mingling with friends and coworkers over lunch. On weekends, the lunch crowds dissipated to make way for more people engaging in physical activity.

Promenade users were involved in various behaviors at this site, yet physical activity was by far the most common user behavior observed. Whether a weekday or weekend, people flocked to this part of the waterfront for a run, walk with a friend or pet, or to meet up with an exercise group. Perhaps this area of the waterfront is popular for physical activity because it is not as densely crowded as the northern waterfront and Fisherman's Wharf, which can be a deterrent if traveling along the promenade at a faster pace. These behaviors more often occurred in pairs or groups of people, as compared with people enjoying the space alone. The promenade was a place to interact and socialize with others in a variety of forms while enjoying the unique water views the San Francisco waterfront has to offer.

Users were also seen interacting with many of the physical design elements, such as the interpretive sign

(showing history specific to the Rincon Park area) and large concrete seating forms for stretching and tying shoes. In addition, the art ribbon was seen as an element guiding people up and down the promenade. It was observed numerous times that people like to walk on the art ribbon as they move along the waterfront. In areas where the art ribbon changed between raised blocks and inset within the promenade concrete, people still enjoyed walking or running on the ribbon (Figure 4.9). Skateboard stops on many of the large concrete seating forms were disguised as octopi and sea turtles (refer to Figure 4.2), and proved to be a fun design element that children and adults could interact with and touch.

Many visitors of the promenade at Rincon Park enjoyed taking photographs of the views of the San Francisco Bay and Bay Bridge. This reiterates the significance of utilizing water landscapes as an attraction, as discussed in Chapter 3. By creating a public space where the natural water environment is a key feature, users can experience an enjoyable space with high aesthetic appeal.

Figure 4.8. Promenade Users Walking and Socializing at Rincon Park

Source: Author.

Figure 4.9. Runners Traveling Alongside and Atop the Art Ribbon Concrete Blocks

Source: Author.

Figure 4.10. People Sitting on Art Ribbon Concrete Blocks and Leaning Against Railing

Source: Author.

The grass area adjacent to the large bow and arrow was a popular hangout spot for sunbathing, stretching, and playing with pets and kids. The art ribbon seating blocks were a popular choice for many weekday lunch goers, where numerous groups of people were seen socializing with one another. People were also observed congregating towards the water's edge for seating, if available.

The bayside railings were a popular design element for people to lean against, which virtually created an intimate social space amongst friends (Figure 4.10). While sitting on both the art ribbon concrete blocks and larger concrete forms, users were able to enjoy the

bay views and people watch; it was a win-win location for sites and stimulation. The positive user behavior findings at Rincon Park are summarized in Table 4.5.

Table 4.5. Positive User Behavior Observation Findings at Rincon Park

Design Aspect	Observed Positive User Behaviors
Seating	<ul style="list-style-type: none"> • People typically observed sitting facing the water • Provided many opportunities to converse with others and eat lunch • Large concrete seating forms used by runners for stretching and tying shoes • The art ribbon seating blocks became an interactive element for many people, who were seen jumping on and off the blocks
Signage	<ul style="list-style-type: none"> • People observed viewing the interpretive signage • Interpretive signage used by runners for stretching and tying shoes
Coverage/Shade	None.
Landscaping	<ul style="list-style-type: none"> • Large grass area served as a place for sunbathing, stretching, and playing with pets and children
Scale	<ul style="list-style-type: none"> • Pedestrians, runners, and cyclists enjoyed the promenade - physical activity was the most commonly observed behavior
Public Art	<ul style="list-style-type: none"> • Art ribbon observed as a positive art element that many pedestrians and runners carefully followed • The art ribbon seating blocks became an interactive element for many people, who were seen jumping on and off the blocks • Children were seen interacting with the octopi and sea turtles that were disguised as skateboard stops on the large concrete seating forms
Water Landscape/Views	<ul style="list-style-type: none"> • People frequently observed taking pictures of the San Francisco Bay views, the Bay Bridge, and America's Cup boats • People enjoyed socializing and exercising with others while enjoying the bay views • Many local employees chose to face the water while taking their lunch break at Rincon Park
Surrounding Land Uses	<ul style="list-style-type: none"> • Many commercial and retail land uses were located near Rincon Park, which was reflected in the high volume of local employees eating lunch with coworkers
Site Specific Design Aspects	<ul style="list-style-type: none"> • Railings on the bayside of the promenade utilized as a backrest for people leaning against them

Source: Author.

Brannan Street Wharf

The Brannan Street Wharf site also revealed many positive user behaviors at this segment of the Embarcadero Promenade, as recapped in Table 4.6. Similar to Rincon Park, many users at this location engaged in running and walking while conversing with others. Figure 4.11 provides a 15-minute snapshot of some of the user behaviors that occurred during the observation sessions. Appendix F provides additional samples of observation maps for the other two study sites.

Runners and other pedestrians were observed following the path of the art ribbon as they traveled along the Embarcadero Promenade (Figure 4.12), as well as utilizing walls, benches, picnic tables, and interpretive signage for stretching and tying shoes. The picnic tables closest to the water's edge were observed

to be the most popular seating option. The large lawn also acted as a place to exercise, play with pets, and enjoy a grassy space with children. Additionally, promenade users were observed taking pictures of the bay views and America's Cup racing boats (many of which were stationed just off of the wharf).

During weekdays, the promenade and adjacent seating options within Brannan Street Wharf were filled with local employees eating lunch. Weekends were much quieter and boasted a wider variety of users, including people traveling to and from various events along the waterfront (e.g. San Francisco Giants baseball games).

The various design elements at this site were generally well received by users. People enjoyed the waveform concrete wall on the promenade; some users (both children and adults) ran or walked atop the wall, and some used it to lean up against and converse with others. The large tidal columns were a focal point of the space, where people frequently stopped to look at them. Interestingly enough, the black and white interpretive column located in the middle of the promenade acted as a turning point for runners who were seen circling the column before reversing their direction of travel.

Figure 4.11. 15-Minute Snapshot of User Behavior at Brannan Street Wharf

Source: Site Plan image from Port of San Francisco, with annotations added by author.

Figure 4.12. Promenade Users Walk and Run Along the Art Ribbon at Brannan Street Wharf

Source: Author.

Figure 4.13. Brannan Street Wharf Picnic Benches

Source: Author.

In general, this section of the Embarcadero Promenade was observed to be a much safer travel zone than the other two study sites, due to both a wider promenade and fewer promenade users.

Table 4.6. Positive User Behavior Observation Findings at Brannan Street Wharf

Design Aspect	Observed Positive User Behaviors
Seating	<ul style="list-style-type: none"> • People typically observed sitting facing the water • Provided many opportunities to converse with others while eating lunch or exercising • The concrete wave wall became an interactive element for many people, who were seen running and walking on top of the wall, as well as leaning up against it • Picnic tables and benches utilized by runners for stretching and tying shoes
Signage	<ul style="list-style-type: none"> • Interpretive signage used by runners for stretching, as well as a turning point or landmark to reverse their travel direction
Coverage/Shade	None.
Landscaping	<ul style="list-style-type: none"> • Large grass area served as a place for exercising and playing with pets and children
Scale	<ul style="list-style-type: none"> • Pedestrians, runners, and cyclists enjoyed the promenade - physical activity was a commonly observed behavior • Many people seen using the promenade to travel to events, such as San Francisco Giants baseball games • A relatively wider promenade at Brannan Street Wharf provided a larger area for pedestrian circulation
Public Art	<ul style="list-style-type: none"> • Art ribbon observed as a positive art element that many pedestrians and runners carefully followed • The tidal columns public art display was a focal point of the public space, with many people stopping to observe
Water Landscape/Views	<ul style="list-style-type: none"> • People frequently observed taking pictures of the San Francisco Bay views and America's Cup boats • People enjoyed socializing and exercising with others while enjoying the bay views • People tended to sit facing the water
Surrounding Land Uses	<ul style="list-style-type: none"> • The AT&T Ballpark was close to Brannan Street Wharf, which increased the number of people using the promenade
Site Specific Design Aspects	None.

Source: Author.

4.1.3. Liveliness Index Results

Directly following all observation sessions, the liveliness index assessment was performed in order to measure the activity and length of stay of promenade users. Although the data collected (Table 4.7) may have varied between the three study sites, it was still a successful measure in understanding how long people typically stayed within each of the three locations along the promenade.

Rincon Park received the highest liveliness score, more than double of Brannan Street Wharf. The two main reasons this occurred were: 1) visitors to this area of the promenade tended to sit and enjoy a lunch or conversation with a friend/coworker, and typically stayed longer than 15 minutes, and 2) there were more

users at this site in general, which increased the score.

Pier 7 had the next highest score, with roughly 18 percent of the users staying in the space between one to five minutes, which was most likely due to the bathroom facility in the plaza. Brannan Street Wharf indicated that 88 percent of its promenade users remained in the space between 15 seconds and one minute. The majority of people traveling along the promenade adjacent to Brannan Street Wharf were bicyclists, runners, and walkers, indicating this location had a large percentage of users simply traveling through. This observation reflects the nature of the Embarcadero Promenade as a linear public space, which serves as a travel route for many people along the waterfront.

Table 4.7. Liveliness Index Data (Page 1 of 2)

Location	Date	Duration of Stay	Assigned Score	Total Score	Count	Count %
Pier 7	Monday, 7/15/13	15 seconds to <1 minute	1	111	111	75%
		1 minute to <5 minutes	3	81	27	18%
		5 minutes to <10 minutes	7.5	45	6	4%
		10 minutes to <15 minutes	12.5	25	2	1%
		>15 minutes	15	30	2	1%
				292	148	100%
	Sunday, 7/21/13	15 seconds to <1 minute	1	235	235	78%
		1 minute to <5 minutes	3	159	53	18%
		5 minutes to <10 minutes	7.5	67.5	9	3%
		10 minutes to <15 minutes	12.5	25	2	1%
		>15 minutes	15	15	1	0%
				501.5	300	100%
Rincon Park	Tuesday, 8/20/13	15 seconds to <1 minute	1	285	285	82%
		1 minute to <5 minutes	3	15	5	1%
		5 minutes to <10 minutes	7.5	60	8	2%

Table 4.7. Liveliness Index Data (Page 2 of 2)

Location	Date	Duration of Stay	Assigned Score	Total Score	Count	Count %
		10 minutes to <15 minutes	12.5	175	14	4%
		>15 minutes	15	555	37	11%
				1090	349	100%
	Saturday, 8/24/13	15 seconds to <1 minute	1	288	288	94%
		1 minute to <5 minutes	3	39	13	4%
		5 minutes to <10 minutes	7.5	22.5	3	1%
		10 minutes to <15 minutes	12.5	25	2	1%
		>15 minutes	15	30	2	1%
				404.5	308	100%
Brannan Street Wharf	Thursday, 8/22/13	15 seconds to <1 minute	1	169	169	88%
		1 minute to <5 minutes	3	27	9	5%
		5 minutes to <10 minutes	7.5	22.5	3	2%
		10 minutes to <15 minutes	12.5	50	4	2%
		>15 minutes	15	90	6	3%
				358.5	191	100%
	Saturday, 8/24/13	15 seconds to <1 minute	1	120	120	88%
		1 minute to <5 minutes	3	9	3	2%
		5 minutes to <10 minutes	7.5	15	2	1%
		10 minutes to <15 minutes	12.5	37.5	3	2%
		>15 minutes	15	120	8	6%
				301.5	136	100%

Source: Author.

4.2. Positive Experiences of Users of the Embarcadero Promenade

Direct accounts from people who use the Embarcadero Promenade are important to understand user's attitudes and how this may play into the design of a public space. Users of the promenade were interviewed, and their positive assessments of the Embarcadero Promenade are summarized as follows. Most of these people used the promenade often (at least on a weekly basis), and participated in a variety of activities such as running, walking, meeting with coworkers, and eating lunch.

Amongst all interviewees, a commonality found was the special meaning the Embarcadero Promenade held for them. They expressed what an amazing amenity it was for San Francisco, and a great place where people can experience the bay views and all that the waterfront has to offer; one interviewee dubbed the promenade "an incredible jewel." They also consistently discussed the importance of the promenade as a public space that not only connects downtown to the waterfront, but various waterfront neighborhoods within the city. Some felt an increased quality of life amongst residents and workers, and appreciated the aesthetic appeal of the waterfront as a representation of San Francisco. One interviewee stated that the Embarcadero Promenade is "where San Francisco presents its face to the world... it is our Times Square." This statement is quite fitting considering the waterfront is where many of San Francisco's tourists enter the city via cruise ships.

Figure 4.14. Runner Following the Art Ribbon along the Embarcadero Promenade

Source: Author.

The opportunity for recreational activities along the promenade was generally a positive association, with many people feeling that they could safely walk or exercise along the promenade while enjoying the bay views. One interviewee, who identified herself as a frequent runner along the promenade, remarked that the waterfront is one of the only places within the city (besides Golden Gate Park) to experience a run where pedestrians take precedence.

With regards to safety, the occurrence of special events along the waterfront, such as the America's Cup races or San Francisco Giants baseball games, influenced user perceptions of high activity and safety along the waterfront. One person commented on experiencing greater feelings of safety during busier times of the day when people were on the promenade traveling to or from events.

As far as positive experiences concerning the physical design of the promenade, interviewees voiced their opinion on a variety of issues. The enjoyment and appreciation of public art was evident across all interviews, and each person noted that they would like to see more art along the waterfront. It was said by some to provide a landmark for runners and pedestrians as they travel along this waterfront, which could be implemented even further with a cohesive vision for waterfront art. The art ribbon also provides a linear path for runners (Figure 4.14), cyclists, and pedestrians, as if it is an element to concentrate on as one makes progress along the promenade.

Most of the interviewees said that shade and shelter were sufficient along the waterfront, and that there is no need to create more since San Francisco rarely experiences hot temperatures. However, one person noted that when she searches for shade on warmer days she is unable to find many options, therefore increasing the amount of shade along the waterfront might be ideal for some.

Personal views of landscaping elements along the waterfront were varied, with some people stating that the amount of existing greenery is appropriate for a historically working waterfront and that they do not expect to see more on an urban promenade. Although one interviewee stated that he would like to see more trees and green spaces to break up the overwhelming concrete environment of the promenade.

In summary, a few of the specific aspects of the Embarcadero Promenade that users had a positive experience with were:

- Higher promenade traffic volumes create a sense of safety
- Open sky and water views are enjoyable and a valued asset
- Promenade linearity and length provide access, variety, and a continuous pedestrian experience
- Public art and the art ribbon deliver waterfront identity

4.3. Thoughts on Successful Urban Design From a Landscape Architect's Point of View

The successes of the Embarcadero Promenade are not only important to understand through the eyes of the users, but also the viewpoints of the people who contributed to its design. Interviews were conducted with two landscape architects who played a role in the early development of the Embarcadero Promenade.

The first interviewee was Dan Hodapp, AICP, ASLA, LEED-AP who is a Senior Waterfront Planner at the Port of San Francisco and serves as the Port's urban designer and landscape architect on many waterfront projects. He prepared the *Waterfront Design & Access Element*, which is an award-winning urban design plan for San Francisco's waterfront. The second interviewee, Martha Ketterer, LEED-AP is a Landscape Architect with the Department of Public Works at the City and County of San Francisco. Martha played a significant role in the development of the Embarcadero Promenade by working on Phases 1 through 4 of the promenade project over a 12-year span. Both designers offered their insights on important considerations when designing a public space and/or promenade, and some of the particular successes of San Francisco's Embarcadero Promenade.

Typically, there are certain design elements that are more important to consider than others when creating a public space or promenade. According to Dan, features can be simple and should offer a variety such

as piers, lawns, and plazas.⁴¹ This variety can define the public space experience, and design considerations should apply to the goals of what a particular public space is attempting to achieve. Stopping points are also important features to include in a linear public space where people can rest as they travel along it. Dan also felt that shade structures were not as important for San Francisco, since the weather is typically mild.

Martha noted that the scale of a public space, such as the width of the Embarcadero Promenade, is an essential element to consider when designing these spaces since people must have adequate room for comfortable accommodation of uses. She also mentioned that frequent and bright lighting is crucial from a safety perspective. Both Dan and Martha noted that the choice of materials used within a public space must be durable and consider the finish, color, wear and tear, and how the materials will hold up against vandalism. If the materials within a public space show wear and tear, people will naturally begin to lose respect for it.

In particular, some of the elements that the landscape architects felt contribute to a successful promenade were adequate circulation space, people watching areas (e.g. benches facing the promenade), and highlighting natural features. Martha noted that any public space can be successful if it has a story behind it and a meaning behind the design, such as a vision statement. Maintaining a promenade with frequent trash pickup or regular cleaning is also important.

The Embarcadero Promenade is a unique waterfront public space. For instance, it is a densely populated area with a collection of finger piers unlike any other waterfront. The promenade is used as a linear park where people come to walk along the water's edge and enjoy the views. Martha discussed the uniqueness of the Embarcadero Promenade due to the great combination of scenic views, functioning maritime, recreational activities, and commercial facilities; the waterfront essentially takes you out of the city.

Dan stated that the promenade attracts people to come and view the maritime uses along the waterfront, such as tugboats and large cruise ships, which makes it a desirable public space to use. He said that this urban environment is not as much about open space as it

41. Dan Hodapp, interview by author, San Francisco, CA, June 6, 2013.

Figure 4.15. Scenic Views of the Ferry Building and the Bay at Rincon Park

Source: Author.

Figure 4.16. People Experiencing the Water's Edge South of the Agriculture Building

Source: Author.

is about highlighting the natural features of the San Francisco hills and bay (think back to Chapter 3 where this was discussed as an important design element). Martha commented on the differences she has seen since the promenade was created, noting that the use of this public space has dramatically increased over the years. The Embarcadero Promenade design was about offering a “working waterfront” (which ties into the history of waterfront labor) that featured monochromatic colors and built a strong identity recognizable to users. It offers an “episodic experience along the promenade with many stopping and resting points.”⁴² She also discussed the importance of people experiencing the seawall (where the bay meets the land, typically located just underneath the promenade) between the Agriculture Building and Pier 24 (Figure 4.16), where the water's edge changes from piers to open water and provides a constant source of attraction and interest.

The landscape architects echoed each other by commenting on the successful connection between city and waterfront. The relationship between the city and water was a conscious decision, where major streets meet the waterfront and public spaces tie back into the city, which has significantly improved the quality of the San Francisco experience. In addition, the removal

of the Embarcadero Freeway was also a large part of the Embarcadero Promenade's success, and without doing so the waterfront would still have a significant separation from the rest of the city. Activities such as the Ferry Building farmer's market have greatly improved the social fabric of San Francisco, and roughly 23,000 people visit the waterfront on a typical Saturday. Dan called the Embarcadero Promenade both “the living room of the city” and “the Golden Gate Park of the twenty-first century,” describing how this waterfront promenade has been more successful than he, and many others, thought it ever would be.

The promenade is truly about being connected with the water and has created a sense of belonging and identity for many users of the promenade. Not only is there a connection with the water, but also the open spaces and recreational activities the promenade has to offer. It creates a walkable city where pedestrians are the first priority, and offers destination open spaces five to seven minutes apart from each other that highlight many historic and maritime features.⁴³ The natural climate of the Embarcadero Promenade, compared with the blustery winds near the Golden Gate, offers a comfortable experience that is more protected from the elements of the bay. Overall, the Embarcadero Promenade “puts you in the perfect place, which does

42. Martha Ketterer, interview by author, San Francisco, CA, June 12, 2013.

43. Dan Hodapp, interview by author, San Francisco, CA, June 6, 2013.

not overshadow the natural bay views, architecture, and historic aspects.”⁴⁴

4.4. Accomplishments of the Embarcadero Promenade

The Embarcadero Promenade has revealed many accomplishments and successes in its design and use. Observations concluded that the promenade is a highly used public space with many amenities to accommodate its users, as well as vast opportunities to engage in social interactions with coworkers, friends, family, and strangers. People were observed using many unique seating options, such as the art ribbon concrete blocks. Public art was a focal point for many visitors to the waterfront, which also acted as important destination landmarks. There was a clear relationship between the water landscape and user environment, where people not only flocked to the waterfront as an attraction but also as a travel route along the city’s edge.

Interviews with promenade users and landscape architects echoed the positive behaviors observed firsthand at the three study sites. Users of the promenade voiced their strong connection to the promenade and waterfront, and discussed the many facets of this public space for which they have a true appreciation. The landscape architects recognized that this is a special place where people are able to come together to participate in a variety of recreational activities and subsequently create a social network of people. The promenade is seen as a place where all types of users engage in a multitude of activities for a variety of reasons, and all seemingly coexist together in a well-designed linear public space.

⁴⁴. Martha Ketterer, interview by author, San Francisco, CA, June 12, 2013.

5

NEGATIVE ASPECTS OF THE EMBARCADERO PROMENADE

- 5.1** How Observations of User Behavior Can Inform Negative Effects of Urban Design
- 5.2** Negative Experiences of Users of the Embarcadero Promenade
- 5.3** Thoughts on Poor Urban Design From a Landscape Architect's Point of View
- 5.4** Lessons Learned from the Embarcadero Promenade

While studying the Embarcadero Promenade, some negative experiences were also recorded through the research methodologies. The first section in this chapter will discuss the findings of the site design and user behavior observations, and the second and third sections will uncover some of the aspects promenade users and landscape architects thought could be opportunities for the Embarcadero Promenade. In the fourth section, lessons learned from the promenade will be summarized. Specific recommendations for improving the promenade are discussed in Chapter Six.

5.1. How Observations of User Behavior Can Inform Negative Effects of Urban Design

The site design and user behavior observations were extremely helpful in gathering information about the unsuccessful design aspects of the promenade. This section will describe some of the poorly designed elements and negative user behaviors observed at the three study sites along the Embarcadero Promenade.

5.1.1. Site Design Observation Findings

The site design observations uncovered some urban design elements that were considered negative for a variety of reasons, such as amenities in poor condition. The negative site design findings at each of the three study locations are discussed below, each with a summary table.

Pier 7

Although the plaza at Pier 7 provided a good amount of seating, the cleanliness and condition were relatively poor. The wooden-slatted seating blocks were particularly worn with scratches and discolored edges, most likely due to skateboarders, and also showed visible graffiti and fading of the “No Rollerblading” and “No Skateboarding” paint, as seen in Figure 5.1.

Pier 7 offered no protection (such as overhangs or tree cover) from the elements, which proved to be a particularly negative experience while sitting in this location during a cold and windy day. Landscaping elements were also scarce at this location and were only located within the outdoor patios of adjacent restaurants, not as part of the promenade or plaza landscape.

No public art was present at this site of the promenade, and the cleanliness and condition of the promenade was poor. Several trash bags were seen littering the promenade awaiting trash pickup. The width of the Embarcadero Promenade at this location was roughly 23 feet (not including the plaza), which was narrower than the other two study sites. The negative site design findings discussed here are summarized in Table 5.1.

Figure 5.1. Signs of Wear and Tear on Wooden-Slatted Seating Blocks

Source: Author.

Table 5.1. Negative Site Design Findings at Pier 7

SEATING

Negative?	Aspect
	Presence of seating
	Material
X	Condition
	Comfort
X	Cleanliness
	Seat width

LANDSCAPING

Negative?	Aspect
X	Presence of shrubs/bushes
X	Presence of landscaping beds
X	Presence of flowers
X	Presence of grass
X	Cleanliness

LIGHTING

Negative?	Aspect
	Presence of lighting
	Spacing of lighting

SCALE

Negative?	Aspect
	Size of study area
X	Width of promenade

SIGNAGE

Negative?	Aspect
	Presence of interpretive signage
	Presence of wayfinding signage
	Condition

PUBLIC ART

Negative?	Aspect
X	Presence of public art
X	Condition

COVERAGE/SHADE

Negative?	Aspect
X	Presence of tree cover
X	Presence of overhangs/other cover

GENERAL AESTHETICS

Negative?	Aspect
X	Cleanliness
X	Condition
	Perceived safety from crime
	Surrounding land uses

Source: Author.

Negative Aspects of the Embarcadero Promenade

Rincon Park

Much of the seating at Rincon Park was also in poor condition. The metal benches within this public space were rusting, and the art ribbon concrete blocks had graffiti in certain areas (Figure 5.2). The seating was also uncomfortable and unclean.

Directional signage was not present at Rincon Park; therefore it may be a more confusing area for tourists to navigate. Little shade was present at the site with the exception of a few trees located near the Embarcadero Roadway, which were typically occupied by the homeless. These negative design aspects found at Rincon Park are summarized in Table 5.2.

Figure 5.2. Graffiti on Art Ribbon Seating

Source: Author.

Table 5.2. Negative Site Design Findings at Rincon Park

SEATING

Negative?	Aspect
	Presence of seating
	Material
X	Condition
X	Comfort
X	Cleanliness
X	Seat width

LANDSCAPING

Negative?	Aspect
	Presence of shrubs/bushes
	Presence of landscaping beds
	Presence of flowers
	Presence of grass
	Cleanliness

LIGHTING

Negative?	Aspect
	Presence of lighting
	Spacing of lighting

SCALE

Negative?	Aspect
	Size of study area
	Width of promenade

SIGNAGE

Negative?	Aspect
	Presence of interpretive signage
X	Presence of wayfinding signage
X	Condition

PUBLIC ART

Negative?	Aspect
	Presence of public art
	Condition

COVERAGE/SHADE

Negative?	Aspect
X	Presence of tree cover
X	Presence of overhangs/other cover

GENERAL AESTHETICS

Negative?	Aspect
	Cleanliness
	Condition
	Perceived safety from crime
	Surrounding land uses

Source: Author.

Brannan Street Wharf

Brannan Street Wharf offered a beautiful shade structure on the far side of the wharf near the water's edge, but did not provide shade for the picnic tables located along the promenade. Since this area of the waterfront was observed to be quite windy, it was desirable to have the ability to sit or eat lunch at a table underneath the protective structure. There were also noticeable scuffs and marks on railings, concrete walls, and benches (Figure 5.3), despite this public space only having been opened to the public for two weeks (at the time this observation occurred). Table 5.3 summarizes the negative site design findings observed at this study site.

Figure 5.3. Skateboarders Cause Damage on Concrete Wall at Brannan Street Wharf

Source: Author.

Table 5.3. Negative Site Design Findings at Brannan Street Wharf

SEATING

Negative?	Aspect
	Presence of seating
	Material
X	Condition
	Comfort
X	Cleanliness
	Seat width

LANDSCAPING

Negative?	Aspect
X	Presence of shrubs/bushes
X	Presence of landscaping beds
X	Presence of flowers
	Presence of grass
	Cleanliness

LIGHTING

Negative?	Aspect
	Presence of lighting
	Spacing of lighting

SCALE

Negative?	Aspect
	Size of study area
	Width of promenade

SIGNAGE

Negative?	Aspect
	Presence of interpretive signage
X	Presence of wayfinding signage
	Condition

PUBLIC ART

Negative?	Aspect
	Presence of public art
	Condition

COVERAGE/SHADE

Negative?	Aspect
X	Presence of tree cover
X	Presence of overhangs/other cover

GENERAL AESTHETICS

Negative?	Aspect
	Cleanliness
	Condition
	Perceived safety from crime
	Surrounding land uses

Source: Author.

5.1.2. User Behavior Observation Findings

Directly observing user behavior illustrated some undesirable experiences along the promenade. These observations can inform how unsuccessful public space design can negatively influence how people use the space. The user behavior observation findings are discussed in this section, followed by summary tables for each study site.

Pier 7

Observations at Pier 7 revealed several negative user behaviors associated with the design of the promenade, as summarized in Table 5.4. Although not solely a negative experience (can be positive as well, as discussed in section 4.1.2), one common observation was how the plaza essentially became part of the promenade. Due to the inadequate width of the promenade to accommodate all users, many faster modes of mobility such as bicycling and running were observed to occur in the plaza in order for these users to navigate around slower moving traffic. Pedestrians were also seen using the plaza as part of the promenade (Figure 5.4). Although, the presence of

fast moving users traveling through the plaza did not discourage people from stopping and resting within the space. The Pier 7 plaza was not solely a stationary public space, but became part of the linear promenade. This mainly posed a safety concern for children and others standing and sitting within the plaza, and presented the possibility of collisions with fast moving bicyclists.

This observation of overflowing promenade traffic into the plaza occurred for two reasons: 1) there were too many people traveling along the promenade, particularly during event days (America's Cup Races, San Francisco Giants baseball games), and 2) runners and bicyclists showed visible frustration with the slow movement of crowds. Another recorded observation linked to the safety of pedestrians were the presence of skateboarders within the plaza; they were seen using the wooden-slatted seating blocks to perform

Figure 5.4. Pedestrians Traveling on the Promenade and Through the Plaza

Source: Author.

skateboarding tricks and often came close to colliding with people sitting on these blocks or walking nearby. The skateboarders also seemed to startle some pedestrians as they moved quickly within the public space.

Pedi cabs (pedal-operated bicycles serving as taxis) can be found frequenting the waterfront in many locations, and were observed on a variety of occasions along the Embarcadero Promenade. They were observed causing congestion due to their fast pace and relatively large size (two to three people wide in the rear).

The unsuccessful physical elements at this site were wayfinding signage, lack of shade or protection, and lack of trash receptacles. There were two wayfinding signs located at this study site, which were rarely used. Several tourists were observed sitting in the plaza using large foldout maps to study the waterfront and plan their next destination, but very few seemed to notice the signs provided at either end of the promenade at Pier 7.

The lack of shade or protection made the plaza an uncomfortable place to sit during observation sessions, as there were strong winds and no shelter was available for refuge. It was uncovered in Chapter 3 that shade and shelter are an important design amenity to provide in public spaces, and without this design element many user preferences may not be met.

As discussed in the site design observation findings, trash bags were found along the promenade awaiting pickup. The trash bags had been torn open by seagulls, and trash was spilling out onto the promenade. In addition to this, trash receptacles were overflowing or very full and several homeless people were spotted rummaging through the garbage. This lack of cleanliness negatively influenced user behavior by deterring people from these areas, as well as impeding heavy pedestrian traffic on the promenade.

Table 5.4. Negative User Behavior Observation Findings at Pier 7

Design Aspect	Observed Negative User Behaviors
Seating	<ul style="list-style-type: none"> Wooden-slatted seating blocks were used by skateboarders to perform tricks on, which posed safety risks with other users within the public space. Pedestrians were often startled by quick moving skateboarders.
Signage	<ul style="list-style-type: none"> Although wayfinding signage was present, people rarely noticed or utilized them
Coverage/Shade	<ul style="list-style-type: none"> No coverage or shade was provided, which created an uncomfortable space to sit or stand in (very windy and cold)
Landscaping	None.
Scale	<ul style="list-style-type: none"> Promenade width was narrow at this location, therefore faster modes (e.g. bicyclists and runners) navigated around slower pedestrian traffic by traveling through the Pier 7 plaza, which posed a safety risk Pedi cabs caused congestion on the promenade
Public Art	None.
Water Landscape/Views	None.
Surrounding Land Uses	None.
Site Specific Design Aspects	<ul style="list-style-type: none"> Overflowing trash receptacles deterred people from the area Trash bags that littered the promenade caused heavy promenade traffic to maneuver around the trash

Source: Author.

Negative Aspects of the Embarcadero Promenade

Rincon Park

The negative user behavior observation findings at Rincon Park are reflected in Table 5.5. Although an abundance of seating was found along the promenade at Rincon Park, there were still not enough seating options on weekday afternoons. During weekdays at lunchtime this area was extremely crowded, which left some people searching for a place to sit. Chapter 3 noted the importance of ample seating options for users, and that these options are essential for providing a positive experience for the user. Without sufficient seating, people may become frustrated with a public space if this is the amenity they are seeking.

This area of the promenade was by far the busiest during the weekdays; compared with the other two study sites. The quantity of promenade users was quite overwhelming at Rincon Park, due to the combination of people exercising, conversing with others, and eating lunch all within the same space. The mixture of pedi cabs, runners, bicyclists, pedestrians, children, adults, exercise groups, and many other users created a bustling yet chaotic promenade. During one observation session, a group of roughly 20 people were

seen using an extensive portion of the promenade and Rincon Park to engage in exercises and sprinting drills. The group clearly frustrated many promenade users who were trying to navigate around them. Runners were seen weaving in and out of pedestrians, and one runner almost collided with a toddler who escaped his parent's hand.

Although the public art at Rincon Park (the large bow and arrow) was not located on the promenade, it was a popular attraction for many tourists. Yet, a few people were deterred from taking photos next to the bow and arrow due to several homeless people lying in the grass below it.

On a separate day, the bow and arrow was seen being used for a small bit of shade by some park goers (Figure 5.5). This shows that some users desire shade on a

Figure 5.5. Utilizing Public Art as Shade

Source: Author.

sunny day, but with no shade structures or large trees the only shade found here is the small sliver produced by the bow and arrow. Children and adults were also observed climbing the bow for a good picture, which could pose safety concerns. The unintended uses of public art discussed in Chapter 3 were clearly reflected in this user behavior observation at Rincon Park.

Table 5.5. Negative User Behavior Observation Findings at Rincon Park

Design Aspect	Observed Negative User Behaviors
Seating	<ul style="list-style-type: none"> Not enough seating options on weekday afternoons, therefore some people could not find a place to sit and eat lunch Metal benches were uncomfortable which deterred people from using them
Signage	None.
Coverage/Shade	<ul style="list-style-type: none"> Little coverage/shade was provided at this location, and some people were observed to use the sliver of shade from the public art for shade This indicated that people desire shade but do not have options for this at Rincon Park
Landscaping	None.
Scale	<ul style="list-style-type: none"> Promenade too narrow for the overwhelming crowds at this locations, which made it difficult for people to navigate through the space An exercise group was seen using the promenade for sprinting drills, which caused chaos and visibally frustrated users
Public Art	<ul style="list-style-type: none"> People seen climbing the public art installation, which could potentially pose a safety risk
Water Landscape/Views	None.
Surrounding Land Uses	None.
Site Specific Design Aspects	<ul style="list-style-type: none"> Homeless people near the large bow and arrow deterred people from enjoying this public art installation

Source: Author.

Brannan Street Wharf

The Embarcadero Promenade at Brannan Street Wharf also exhibited negative user behaviors during the observation sessions, which are summarized in Table 5.6. A common observation was the use of Brannan Street Wharf itself as a promenade instead of the Embarcadero Promenade (similar to the Pier 7 plaza experience). Many pedestrians and cyclists chose to move along the water's edge, through the new wharf, and back onto the promenade (Figure 5.6).

This is most likely due to the recent opening of this public space where people desire to use a new space and continue along the water instead of the roadway. A negative aspect of this is the safety concern it poses by fast moving cyclists traveling through the wharf instead of the linear promenade. Many children were seen playing at this site, and some parents may not feel confident allowing their children to play freely at the park unless they play off of the paved area.

The concrete wave wall along the Embarcadero Promenade at this location displayed some negative behaviors. This wall is meant to serve as an informal seating option along the promenade, but was very seldom observed being used in this manner. Most of the observation sessions documented children and adults running or walking atop the wave wall, which could potentially discourage people to use it as seating. Although a fun and unique obstacle to climb, the wave wall could also have some adverse safety effects if someone were to trip and fall on the many grooves in the concrete form (the wall is not a smooth surface

on top). Additionally, skateboarders and BMX bikers seemed to commonly take to the wave wall and picnic tables creating some visible wear and tear. This also seemed to discourage some users from sitting near the skateboarders.

The picnic tables at Brannan Street Wharf were located directly off of the promenade and exhibited some negative user behaviors. The picnic tables were found to be fairly unclean with food stuck on many of the tabletops. Some people were observed sitting down at a table to eat lunch, and then moving to a different table that was cleaner. This lack of cleanliness demonstrated people's desire to enjoy a clean public space. People were also observed to congregate at the tables closer to the water and further from the Embarcadero Promenade and roadway. This could be due to traffic congestion along the roadway that typically occurred in the afternoon hours. Both observation sessions occurred during extremely windy afternoons, which proved it difficult to sit at the picnic tables and eat lunch. The tables were located in an open and unprotected area; therefore some people chose to sit underneath the shade structure that was further from the promenade.

Figure 5.6. Promenade Pedestrian Flow of Brannan Street Wharf

Source: Site Plan image from Port of San Francisco, with annotations added by author.

Table 5.6. Negative User Behavior Observation Findings at Brannan Street Wharf

Design Aspect	Observed Negative User Behaviors
Seating	<ul style="list-style-type: none"> The concrete wave wall was rarely seen as a preferred seating option Many children and adults were seen running or walking atop the wave wall, which could be discouraging people from sitting on it, and also be a tripping hazard The wave wall and picnic benches were used by skateboarders, creating visible wear and tear and discouraging people from sitting near to them Picnic tables were unclean, which deterred people from using them - people were later seen moving to cleaner tables People did not use the picnic benches near the roadway as often, possibly due to an undesirable view of automobiles
Signage	None.
Coverage/Shade	<ul style="list-style-type: none"> No coverage or shade was provided along the promenade or at the picnic benches, which created an atmosphere subject to strong winds - difficult to eat lunch in a windy seating spot
Landscaping	None.
Scale	<ul style="list-style-type: none"> Although the promenade at this site was relatively wide, people utilized the Brannan Street Wharf itself as a promenade much more often than the Embarcadero Promenade, which posed a safety concern for possible collisions between fast moving cyclists and children
Public Art	None.
Water Landscape/Views	None.
Surrounding Land Uses	None.
Site Specific Design Aspects	None.

Source: Author.

5.2. Negative Experiences of Users of the Embarcadero Promenade

Interviewing people who use the Embarcadero Promenade provided valuable insight as to what could be improved. Interviewees commented on the poor comfort, frequency, and orientation of seating amenities along the promenade. One woman said that the lack of cleanliness prevents her from using many of the seating options along the promenade, and that these seats are uncomfortable and often do not provide backs to lean against. Another person noted that there are many beautiful benches that are not being used because they are tucked away in hard to find places or are not oriented towards the water.

Several physical design elements that modeled negative experiences were found by speaking with the promenade users. Lighting was also a design element that users had a negative experience with along the promenade. Many promenade goers noted that lighting is not bright enough along the waterfront, especially under the Bay Bridge, and that improving the brightness and frequency of the lighting would significantly help. Many people also noted that the art ribbon was a desirable amenity, but that the glass blocks within the ribbon did not light up anymore and were damaged in many locations (Figure 5.9).

With regard to shade, one interviewee noted that she typically seeks shade during warmer days but seldom comes across it. Improving wayfinding signage was also a common theme among many people, some

Figure 5.8. Undamaged Art Ribbon at Pier 26, 2011

Source: Untapped Cities, "Architecture Spotlight: Freeway Demolition and Public Open Space," Untapped Cities: Urban Discovery From a New York Perspective, <http://www.untappedcities.com/2011/12/02/architecture-spotlight-freeway-demolition-and-public-open-space> (accessed October 1, 2013).

Figure 5.9. Damaged Art Ribbon at Pier 26, 2013

Source: Author.

Figure 5.7. The Art Ribbon with Working Glass Block Lights, Early 2000s

Source: Port of San Francisco.

suggested including estimated walking times to specific destinations along the waterfront. Trash receptacles and the maintenance associated with them was also a negative aspect of the promenade for some users who frequently noticed overflowing trash.

Although interviewees stated that recreational opportunities were generally a positive experience along the promenade, they also felt that the width of the promenade was not adequate to accommodate these opportunities. The promenade offers opportunities to walk, rollerblade, bicycle and more, but it is often too busy to take full advantage of this. One interviewee was a runner and stated that the amount of pedestrian traffic in Fisherman's Wharf is a deal-breaker when deciding where to run on the promenade; it is simply too crowded and busy.

Several of the people interviewed voiced concern over the conflicting modes on the Embarcadero Promenade. Many of them said that the promenade is too narrow to accommodate the various types of users, and that a designation or separation between the types is desired. Two of the interviewees stated that they feel the need to continually be on-guard when using the promenade, since bicyclists can quickly come from behind without warning. These concerns demonstrate the need for a wider promenade and/or a separation of uses to more safely manage the large volumes and diversity of promenade traffic.

In summary, the main aspects of the Embarcadero Promenade that users had a negative experience with were:

- Few comfortable seating options
- Dim lighting, feel unsafe in certain areas
- Damaged art ribbon
- Little shade found along promenade
- Overflowing trash cans
- Inadequate wayfinding signage for tourists
- Promenade too narrow, does not safely accommodate all users
- Frequent conflicts between pedestrians, bicyclists, and pedi cabs

5.3. Thoughts on Poor Urban Design From a Landscape Architect's Point of View

As previously discussed in section 4.3, Dan Hodapp and Martha Ketterer were interviewed to gain an understanding of the promenades successes and failures through the eyes of a landscape architect. They were able to give honest accounts of what they believe some of the negative aspects of the promenade are.

Martha and Dan both commented on the failure of the art ribbon. Martha noted that it was poorly designed and is used by skateboarders, which has created wear and tear. She recognized that the art ribbon and lighting along the waterfront has been a learning curve. Dan thought that the art ribbon was uncomfortable to sit on and impedes promenade circulation. He said that the promenade did not position itself to be a successful public space with regard to public art, because public art must enhance the use of a public space and not impede circulation. For instance, the black and white interpretive columns are beautiful but are located in the middle of the Embarcadero Promenade (Figure 5.10). Dan stated that the interpretive signage on the promenade has failed as well—there is too much

Figure 5.10. Black and White Interpretive Column on the Embarcadero Promenade

Source: Author.

information and the font size is too small.

According to Dan, maintaining the Embarcadero Promenade is a challenge for the Port of San Francisco. Maintenance is important to the success of a public space, and currently, there is an inability to frequently pick up trash. Additionally the promenade is located within a saltwater environment; therefore more corrosion on promenade amenities is occurring, which can cause people to lose respect for the public space. Dan observed that the promenade has failed to accommodate bicycles appropriately. Bicycling was not taken as seriously in the initial phases of the promenade, but many families and visitors today use the promenade to travel by bike. Thus, creating a safe space for bicycle use is an opportunity for the Embarcadero Promenade.

5.4. Lessons Learned from the Embarcadero Promenade

Through observations and interviews, the Embarcadero Promenade has unveiled several learning opportunities with regards to its design, and indicated where to concentrate future efforts. User behavior observations suggested that little or no shade is found along the promenade, and that promenade users would utilize more shade options. Damage from skateboarders was also a commonly revealed problem along the waterfront, with many amenities chipped and scratched. Interviews concluded that more comfortable seating options facing the water should be provided, and that lighting could be brighter to provide a safer environment. The art ribbon is also a failed design element and a desired amenity, and should be repaired if possible.

Both observations and interviews signified a need for more maintenance along the Embarcadero Promenade. And it was evident that the promenade is too narrow and does not safely accommodate all types of users. Frequent conflicts were observed firsthand, and were also an expressed frustration by the majority of interviewees. A specific set of recommendations will be given in section 6.2.

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6

THE FUTURE OF THE EMBARCADERO PROMENADE

- 6.1** Overall Synthesis of Findings
- 6.2** Suggested Improvements for the Promenade
- 6.3** Final Thoughts
- 6.4** Limitations of the Research

The Embarcadero Promenade is a unique waterfront walkway that provides the public with exemplary views, abundant recreational opportunities, stimulating social interactions, and attractive urban design. It is an asset to San Francisco, and an important city attraction to maintain and continually improve.

This chapter will first provide an overall synthesis of the findings from this research as they relate to the original research question. Second, a set of recommendations will be provided for improving the Embarcadero Promenade. Third, concluding thoughts regarding the research project are reviewed. And finally, a brief evaluation of the research limitations is provided.

6.1. Overall Synthesis of Findings

Throughout the past two chapters, the research findings have been presented in great detail and encompassed many different facets of the Embarcadero Promenade. The goal of this section is to bring the conversation back to answering the original research question:

What aspects of physical design in three key areas along the Embarcadero Promenade influence user behavior within this linear public space and how is that behavior positively or negatively affected?

The physical design aspects that influenced user behavior, both positively and negatively, were summarized within Chapters 4 and 5. To briefly revisit these, the positive physical design aspects that most commonly revealed themselves through the research methods were:

- seating
- landscaping
- scale
- public art
- general aesthetics
- water views
- surrounding land uses

These aspects of the Embarcadero Promenade positively influenced user behaviors by encouraging use and certain behaviors specific to each design element. For instance, public art was observed to be the subject of a photograph or a landmark for a runner. And water views were clearly a celebrated waterfront

amenity that many people gravitated towards by sitting in areas closest to (and facing) the water. These findings were unearthed through observations, and reinforced through interview discussions.

On the other hand, the design aspects of the promenade that negatively influenced user behaviors were:

- seating
- signage
- coverage/shade
- scale
- general aesthetics
- lighting

Note that some of these items were also said to be positive design elements, since the research uncovered these physical design aspects could have multiple affects on user behavior, depending upon the study site and special circumstances. These aspects negatively influenced user behavior by discouraging use, frustrating promenade users, or by being absent or insufficient. For example, some people were observed to avoid unclear seating, and others were visibly frustrated by the competing uses along the narrow promenade. And, coverage and shade were absent in many places. The user behavior observations and interviews echoed each other with regard to these negative design aspects, which indicated a strong connection between the various research methods and their findings.

6.2. Suggested Improvements for the Promenade

The Embarcadero Promenade boasts several attractions, offers many amenities, exudes smart design, and is a distinctive public space that holds a special meaning for many people. Understanding the shortcomings of this linear public space are important to improve this part of San Francisco and to create a continually improving experience for its users. The following set of recommendations is provided (in no particular order) to further focus future Embarcadero Promenade efforts. These suggested improvements are intended to outline the most commonly found opportunities to further enhance the Embarcadero Promenade, and are not inclusive of all research findings. Port of San Francisco staff, as well as landscape architects and planners of other waterfront promenades, may wish to consider these shortcomings

of the promenade and work to provide the public with the best waterfront linear public space experience possible.

6.2.1. Provide More Comfortable Seating Options Facing the Water

The promenade needs more seating options that face the water, where people can utilize various places to stop and rest as they travel along this linear public space. Much of the seating along the promenade is uncomfortable and faces the adjacent roadway. It became evident in the research that people prefer to sit and experience the bay views, rather than the city traffic and congestion. This brings the promenade user out of the city and close to the beautiful sights and sounds of the San Francisco Bay. More wooden benches should be provided (similar to Brannan Street Wharf benches), as compared with metal or concrete seating options seen elsewhere. Movable seating may also be a useful experiment since people desire to sit in different places depending on the weather or what type of experience they are looking for (e.g. reading alone or sitting with a friend). Seating should be concentrated on the edge of the promenade and should not impede circulation.

6.2.2. Widen the Embarcadero Promenade

Widening the promenade in certain areas is extremely important to create a more enjoyable experience for users. As observed during weekends or special events, the promenade is not wide enough to accommodate the thousands of people who use it on a daily basis. The width of the promenade most likely was appropriate

in the early 2000s, but as we come to a close on 2013, it is apparent that this area continues to bring more and more traffic to the waterfront. With new uses being brought to the waterfront, such as the recently opened Exploratorium, promenade use will continue to increase in the years to come. Widening the promenade may be a challenge for a variety of reasons, yet it is still a needed change, considering where the Embarcadero Promenade is headed in terms of increased pedestrian traffic and expanded neighboring attractions.

6.2.3. Encourage Pedi Cab and Experienced Cyclists to Use the Bike Lane

Pedi cabs and bicycles do not safely mix with many of the slower modes of pedestrian traffic. By encouraging these types of uses to use the bike lane instead of the promenade, the promenade can become a more pedestrian-oriented public space. Currently, many experienced cyclists and Pedi cabs travel at a rate too fast for other promenade users, often endangering children, pedestrians, and runners. With the large volumes of slower moving traffic along the promenade, it may not be an ideal mix of uses anymore. Some cyclists may not feel safe using the green bike lane currently provided on the roadway, therefore a separated lane from auto traffic would be ideal.

6.2.4. Create a Separation Between Various Types of Promenade Uses

Relating to the above recommendation, separating the various uses along the promenade is essential to provide a safe linear public space. This separation could be achieved through pavement labeling or

Figure 6.1. Encourage Pedi Cabs to Use Bike Lane Instead of Promenade

Source: Author.

Figure 6.2. An Example of a Waterfront Walkway Separating Various Uses - San Diego County, California

Source: Philip J. Erdelsky, "Red Routes in San Diego County, California," efg.com, <http://www.efg.com/bike/redroute.htm> (accessed November 5, 2013).

physical barriers. Painted lines or another type of separation (Figure 6.2) that guide the various users along the promenade would suffice, or perhaps varying grades of pavement may also be successful in achieving this separation. The different types of promenade uses could be separated into three rates of travel: 1) bicycling and Pedi cabs, 2) runners, rollerbladers, and skaters, and 3) pedestrians.

6.2.5. Improve Promenade Maintenance

Maintaining a clean and aesthetically pleasing waterfront promenade is necessary to uphold people's respect for the public space. If promenade users continually see trash, graffiti, or unclean benches, they will begin to negatively experience the space. Trash should be picked up on a regular basis and should not be left on the promenade. This devalues the promenade and creates a roadblock for busy promenade traffic. As previously discussed in Chapter 2, the first objective of the *Embarcadero Promenade Design Criteria* was to "Cleanup the promenade so that it functions and appears its best..."⁴⁵ This objective is not currently being met from the observations and interviews conducted through the research. By delivering better maintenance to the Embarcadero Promenade, people

Figure 6.3. Repair the Art Ribbon to Improve Aesthetics

Source: Author.

will respect this public space and will not avoid certain areas due to poor or unclean conditions.

6.2.6. Repair the Art Ribbon

The art ribbon was found to be a highly used and important public art component of the promenade. Yet, many pieces of this design element are damaged and unsightly (Figure 6.3). By making necessary repairs to the art ribbon, it will greatly improve the aesthetics of the waterfront as a whole. This ribbon runs along the entire promenade and is a linear representation of the seawall, but with frequently missing pieces, it does not seem to be one cohesive piece. If repairing the lighting behind the glass blocks of the ribbon is not possible or too costly, the simpler fix of replacing broken glass blocks would still be of great value to the art ribbon.

6.2.7. Create a Comprehensive Waterfront Public Art Program

The waterfront currently has sporadically placed public art pieces; ranging from large scale installations (such as the bow and arrow at Rincon Park) to small found items in the pavement. The promenade would greatly benefit from a consistent art program that incorporates more art installations that are tied together through common standards. Many promenade users expressed their appreciation for public art and the need for

45. Port of San Francisco, *Embarcadero Promenade Design Criteria*, San Francisco, Port of San Francisco, Planning & Development Division, January 2011, 6.

Figure 6.4. Large Scale Public Art at Rincon Park

Source: Author.

more of it. Public art can be a fun way to engage people within a public space and create landmarks for promenade users. This aspect of the Embarcadero Promenade should be considered further and held as an important piece of its culture.

6.2.8. Discourage Skateboarders from Using Promenade Amenities by Creating a Designated Skate Area

It is clear that skateboarders are among the users that enjoy the Embarcadero Promenade. However, their activities are harming the quality and aesthetics of many promenade amenities, such as benches, railings, and walls. These users do not have a designated place near the waterfront to enjoy this activity. If a skate area were designated somewhere along the waterfront, perhaps with railings, walls, and other obstacles for them to traverse, they may less frequently use promenade amenities that are not meant for skateboarding. A designated skate area would be a valuable community asset for skateboarders, and provide a safe social space where valuable interactions could occur.

6.3. Final Thoughts

As the Embarcadero Promenade continues to develop and become one of the most highly used public spaces

in San Francisco, adaptations and improvements must be made. By investing time, money, and effort into this waterfront walkway it can serve as an example of successful public space design that celebrates its unique views and environment. Future research on the Embarcadero Promenade should focus on how multiple users function together in this public space, and how providing a greater mix of amenities can influence their behaviors. Attitudes, experiences, and behaviors (positive and negative) should continually be monitored if improvements are made. Most important, maintaining an open dialogue with people who utilize this public space is one of the most direct ways to understand what the public values and desires.

In closing, this research study unveiled the successes and opportunities of the Embarcadero Promenade. It indicated how important this public space is to so many people, and what a unique and celebrated place it truly is. It also exposed some shortcomings of the promenade and what promenade users value most. The research findings provide useful and valuable information to the field of urban design and planning, and contribute to the understanding of how important thoughtfully designed public spaces are to the health, safety, and welfare of our cities.

Figure 6.5. The New Exploratorium Increases Promenade Traffic

Source: Author.

6.4. Limitations of the Research

After conducting observations and interviews throughout this research process, some limitations came to light and could help improve future research of the Embarcadero Promenade. The two main limitations were 1) inadequate time to conduct research, and 2) only having a single researcher to conduct observation sessions.

The data collection occurred over an approximately three-month period, which was too short of a time frame to gather the desired amount of data. If more time was available, it would have been extremely helpful to observe more than three study locations along the Embarcadero Promenade, perhaps looking at a dozen sites including day and night observation sessions. Also, more interviews could have been conducted with promenade users to gain further insight into the attitudes towards this public space.

Having a single researcher to conduct all of the observation sessions was a challenge. Due to the high amounts of traffic observed on the promenade, it was often difficult to keep up with the user behavior observation maps while documenting each and every person and their associated behavior. Related to this, changing behavioral patterns of the linear public space was an unexpected challenge for the research. For instance, a man may have started down the Embarcadero Promenade (at a particular study site) running, yet he could have then stopped to walk, tie his shoe on a bench, and then stretch on the grass.

Therefore, some users had multiple user behaviors within the public space, which was difficult to document. This also made it difficult to document the users' exact location of the observed behavior since it was continually changing.

An additional thought, although not a limitation was the potential influence of special events on promenade traffic patterns. For instance, on observation days where a San Francisco Giants baseball game was occurring, there were notable changes in the amount of people traveling along the promenade (and many of them were quickly moving through the public space, rarely stopping). The new Exploratorium has also drawn many visitors to the waterfront promenade (Figure 6.5), especially influencing the amount of pedestrian traffic when school fieldtrips are present. Special events in particular could have had an effect on observation data, although there is no way to observe a public space like the Embarcadero Promenade without noticing changes in activity based on surrounding uses or events.

Although these aspects inform the limitations present during the research, the data collection process was performed to the best of one researcher's ability, and extreme care was taken to accurately document both observation and interview information.

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Appendix A. Snapshot of the EAPRS Instrument

A. Trails

1. Paved - existence and surface

Aspect	Rating		Scaling	Considerations
Paved trail presence	Yes	No		If none present, skip section
Number	Number ____			
Material	Asphalt Concrete			Circle predominant material
Condition	1	2 3	PEX	Standard condition definition; also consider holes, cracks, tree branches under surface
Width	1	2 3		<2 ft (1 adult); 2-5 ft (2 adults; side-walk width); >5 ft (>3 adults)
Cleanliness	1	2 3	NATE	standard cleanliness, plus consider mud, rocks, twigs
Flatness	1	2 3	NATE	
Continuity	Yes	No	NATE	Consider change in surface material
Clear from obstruction	1	2 3	NATE	Standard obstruction definition
Coverage/shade	1	2 3	PER	Consider the entire length of the trail, but not width
Dividing-line stripe	Yes	No		

Figure 1—Sample revised EAPRS instrument items for park and playground environment assessment. The complete instrument and ratings instructions are available at <http://www.cincinnatichildrens.org/research/div/psychology/fs/fac/brian-saelens.htm>. PEX scaling 1=poor, 2=fair, 3=excellent; NATE scaling 1=not at all, 2=somewhat, 3=mostly to extremely; PER scaling 1=0-33%, 2=34-66%, 3=67-100%.

Source: Brian E. Saelens, Lawrence D. Frank, Christopher Auffrey, Robert C. Whitaker, Hillary L. Burdette, and Natalie Colabianchi, "Measuring Physical Environments of Parks and Playgrounds: EAPRS Instrument Development and Inter-Rated Reliability," *Journal of Physical Activity and Health* 3, no. 1 (2006): S194.

Note: The highlighted areas are some of the examples that were drawn from in creating the site survey tool for this research. It should be noted that not all items or scaling indexes were used in the research presented here. The EAPRS instrument was adapted to fit the research in ways that it would be useful to help determine the amenities present at the three study areas along the Embarcadero Promenade.

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Appendix B. Snapshot of the BRAT Instrument

Table 6 Selected Items, Individual Item Reliability, and Individual Item Validity from the Direct Observation Instrument

Domain	Geographic Area	Item	N (sites)	N (obs)	# Possible Response Options	Individual Item Reliability	Individual Item Validity
Access	Target Area	Can the entire TA be locked?	8	30	2	93.8%	93.8%
Access	Street	What is the traffic volume of the street?	10	38	2	90.0%	80.0%
Access	Court	Are there sources of light that would allow the courts to be used at night?	3	12	2	100.0%	100.0%
Access	Sports Field	Are there signs specifying that reservations are required to use the sports field?	8	29	2	85.4%	72.9%
Condition	Target Area	Rate the condition of the landscaping in the Target Area.	8	30	5*	87.5%	87.5%
Condition	Target Area	How much litter is present in the Target Area?	8	30	5*	74.0%	55.2%
Condition	Court	How much of the court structures appear broken or missing on the courts?	3	12	5*	91.7%	58.3%
Condition	Green Space	Rate the condition of the surface of the	10	36	5*	89.2%	84.2%

Source: Ariane L. Bedimo-Rung, Jeanette Gustat, Bradley J. Tompkins, Janey Rice, and Jessica Thomson, "Development of a Direct Observation Instrument to Measure Environmental Characteristics of Parks for Physical Activity," *Journal of Physical Activity and Health* 3, no. 1 (2006): S184.

Note: The BRAT instrument was generally used as a guide in developing the site survey tool in this research. Although many of the general topics were not used in the research, some did lend a hand in the overall construction of the site survey tool. The domains from the BRAT that were used in some way include condition, aesthetics, and safety.

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Appendix C. Site Survey Tool for Observation of Design Aspects

Site:
Waterfront Subarea:

Date:
Start Time:
End Time:
Weather Conditions:

SEATING

Aspect	Rating	Notes
Seating present	Yes No	N/A
Material	Concrete Wood Metal Plastic Other	Circle all that apply
Condition	1 2 3	1 = poor 2 = fair 3 = excellent
Comfort	1 2 3	1 = poor 2 = fair 3 = excellent
Cleanliness	1 2 3	1 = poor 2 = fair 3 = excellent
Seat width	< 2 feet 2 - 4 feet > 4 feet	N/A

LIGHTING

Aspect	Rating	Notes
Lighting present	Yes No	N/A
Spacing of lighting	< 10 feet 10 - 20 feet > 20 feet	N/A

SIGNAGE

Aspect	Rating	Notes
Interpretive signage present	Yes No	N/A
Wayfinding signage present	Yes No	N/A
Overall condition of signage	1 2 3	1 = poor 2 = fair 3 = excellent

COVERAGE/SHADE

Aspect	Rating	Notes
Shade present from trees	Yes No	N/A
Shade present from overhangs or other design elements	Yes No	N/A

LANDSCAPING

Aspect	Rating	Notes
Shrubs or bushes present	Yes No	N/A
Landscaping beds or planters present	Yes No	N/A
Flowers present	Yes No	N/A
Grass present	Yes No	N/A
Overall cleanliness	1 2 3	1 = poor 2 = fair 3 = excellent

SCALE

Aspect	Rating	Notes
Size of study area	Square feet: _____	Square feet should be calculated using GIS to gather accurate data
Width of promenade	< 20 feet 20 - 25 feet > 25 feet	N/A

PUBLIC ART

Aspect	Rating	Notes
Public art present	Yes No	N/A
Condition of art installation	1 2 3	1 = poor 2 = fair 3 = excellent

GENERAL Aesthetics

Aspect	Rating	Notes
Cleanliness	1 2 3	1 = poor 2 = fair 3 = excellent
Condition	1 2 3	1 = poor 2 = fair 3 = excellent
Perceived safety from crime in neighborhood	Unsafe Somewhat safe Very safe	Circle all that apply
Surrounding land uses	Residential Commercial Mixed-use	Circle all that apply

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Appendix D. Interview Questionnaire for Landscape Architects

- Q1** What do you feel is unique to the Embarcadero Promenade compared with other waterfront promenades throughout the world?
- Q2** When designing a public open space, are there certain design elements that are more important to provide than others?
- Q3** In your personal opinion, what specific aspects of design do you feel make a successful promenade?
- Q4** How do you think some of the design elements along the Embarcadero Promenade positively or negatively influence user behavior and why?
- Q5** How successful do you think the Embarcadero Promenade has been in reconnecting the city with its waterfront? Do you feel that the promenade itself has improved the social fabric of San Francisco?
- Q6** Do you think the Embarcadero Promenade has created a “sense of place” among San Francisco residents? If so, what aspects of the promenade do you feel promote its identity?
- Q7** Do you have any additional thoughts from personal experience regarding *your* behavior along the Embarcadero Promenade as a result of its design?

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Appendix E. Interview Questionnaire for Promenade Users

- Q1** How often would you say you use the Embarcadero Promenade?
- Q2** What types of activities do you tend to use the Embarcadero Promenade for?
- Q3** When you use the promenade, whom do you most often use it with? Do you tend to use it alone, or with others?
- Q4** Generally speaking, how safe do you feel when you use the Embarcadero Promenade? Would you say that there are any significant factors that prevent you from using it, day or night?
- Q5** In your opinion, please describe the condition and presence of the following amenities along the Embarcadero Promenade:
- Seating	- Landscaping
- Shade / Shelter	- Public Art
- Lighting	- Signage
- Scale	- General Aesthetics
- Q6** Do you feel that the promenade provides adequate opportunities to engage in recreational activities?
- Q7** Does the Embarcadero Promenade have any special meaning to you? If so, why?
- Q8** Please describe whether the promenade is or is not an important public space for your use, and why.
- Q9** What do you like and/or dislike about the promenade?
- Q10** Are there any improvements you would like to see to the Embarcadero Promenade?

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Appendix F. Sample Observation Maps of User Behavior

Pier 7 - Sample User Behavior Observation Map

LOCATION: Rincon Park
DATE: Sat, August 24th
START TIME: 11:15
END TIME: 11:30
WEATHER CONDITIONS: 64°, sunny/windy

SF Bay

use interpretive signage for stretching

taking pics

stretch on railing

pedit-cab

EMBARCADERO PROMENADE

stretching

stretching on wall

Note: people tend to sit on sides of seating

two homeless men laying on grass

more tourists here on Sat! Compared w/ mostly local workers during week.

people walking to/from PB Farmers market

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