

Observing Vibrancy on the Seattle Waterfront: A New Approach to Evaluating Urban
Waterfront Redevelopments

Noal Leonetti

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Branden Born

Keith Harris

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Noal Leonetti

University of Washington

Abstract

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Noal Leonetti

Chair of the Supervisory Committee:

Branden Born

Department of Urban Design and Planning

This study evaluates public spaces on the new Seattle waterfront, using vibrancy as a metric and a public life study as the tool of measurement. No studies have yet evaluated the success of this project. Using works of Jan Gehl and William Whyte as theoretical models, this study measured the percentage of people alone and in groups at the three public spaces—the Overlook Walk, Pier 62, Pier 58—whether these spaces were vibrant, and the conditions that may affect vibrancy. The study found that these spaces are the most vibrant when it is sunny and warm, and are more vibrant at the end of the week and during weekends. It provides a baseline for future research and recommendations for how policymakers can increase the vibrancy of this new project.

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Introduction

Context

Mega projects are often used to spur economic development in distressed or underdeveloped areas in major cities, and Seattle is no exception. Over the past 13 years, starting with the construction of the State Route 99 tunnel underneath the waterfront, Seattle has redeveloped its Central Waterfront district along Alaskan Way (referred to in this paper as the “waterfront”, which, until 2019, was separated from the dense towers of Downtown by an elevated viaduct freeway originally built in the 1950s. Before the viaduct was torn down, my strolls along the viewing deck at Pike Place Market or trips to the Aquarium were generally unpleasant, as the fresh sea air and views of Puget Sound were polluted by noise and particulate matter from the highway. This redevelopment project presents an opportunity for Seattle’s waterfront and the entire city to redefine itself as committed to the environment, quality of life, and cultural preservation and enhancement.

It also comes at a timely moment. Since 2020 and the COVID-19 pandemic, downtown Seattle has suffered from high office vacancy rates, increasing homelessness, drug use and street disorder, and closed businesses and boarded-up retail spaces. A new, exciting public space in downtown Seattle is an opportunity for the neighborhood to move forward into a new future. Most importantly, it could help bring back the foot traffic that supported downtown small businesses, residential development, and the general vibrancy that has been missing for many years (Talton, 2024). After the 2001 Nisqually Earthquake damaged the then 50-year old viaduct, the city had to decide whether to rebuild the freeway with a similar viaduct design,

relocate the highway in a tunnel underneath the waterfront, or dismantle the highway with no replacement of the limited-access highway. After years of discussion and ballot measures brought to voters, the voters decided to dismantle the viaduct and replace it with a tunnel, opening up the waterfront space for redevelopment (City Beautiful, 2017).

In 2004 the city adopted guiding principles for the waterfront project: integrating nature, economic and human activity, and transportation, enhancing access and connection to the waterfront from the rest of downtown and the city, creating a destination while preserving the area's status as a working waterfront, making the waterfront an exciting urban neighborhood with multiple functions and appeal to all, supporting tourism growth, and advancing sustainability (Seattle City Council, 2004). In 2011, the city council approved a resolution stating that "public use [is] a primary objective for redeveloping the Central Waterfront, linking the waterfront with inland areas so that each area reinforces the other and contributes to a unified Downtown" (Seattle City Council, 2011). These goals helped planners and designers develop a complete plan for redeveloping the waterfront as a place more focused on quality of life than transportation, as before.

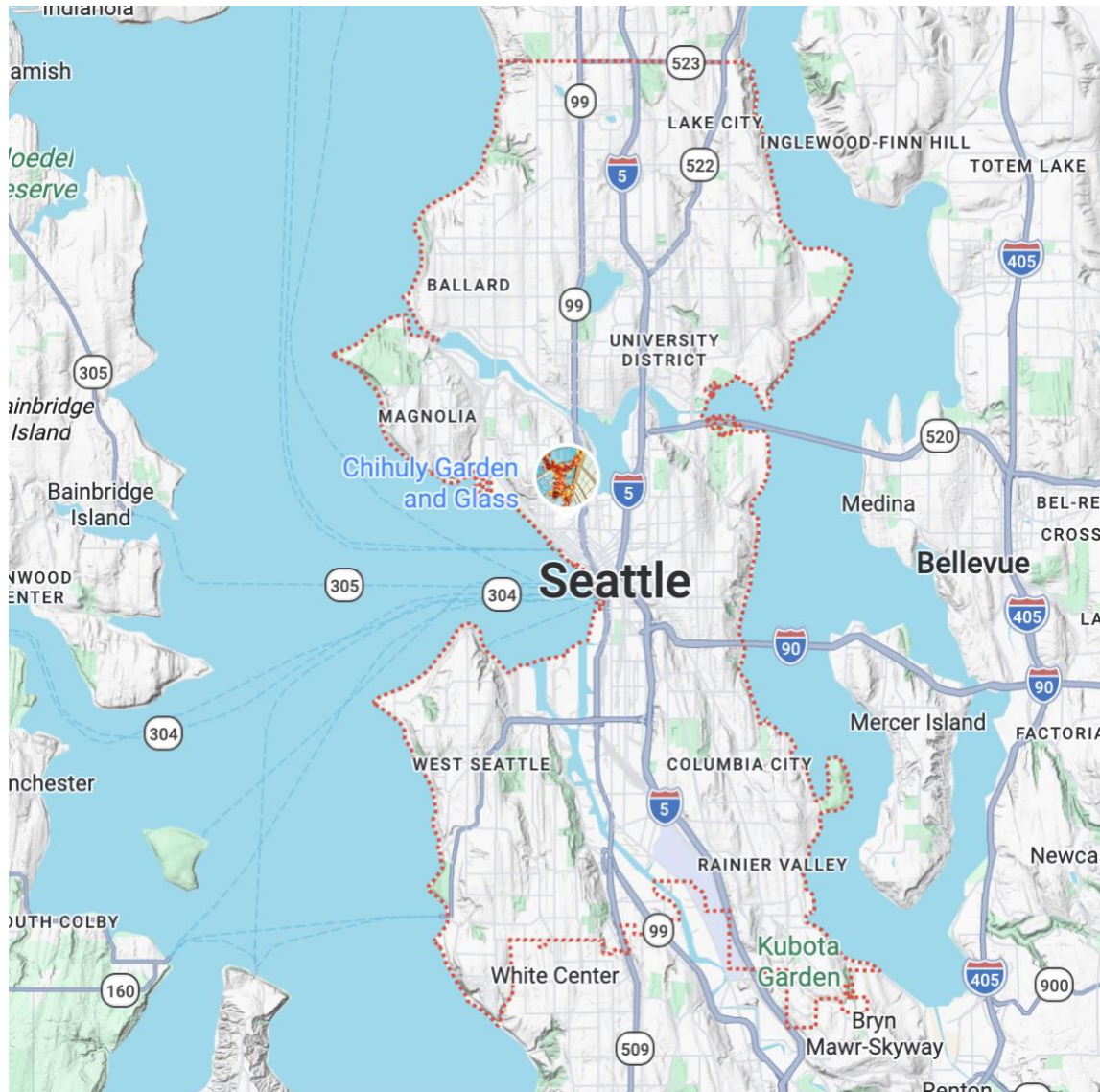


Figure I1: Map of Seattle city limits, outlined in red (Google Maps, n.d.-a)

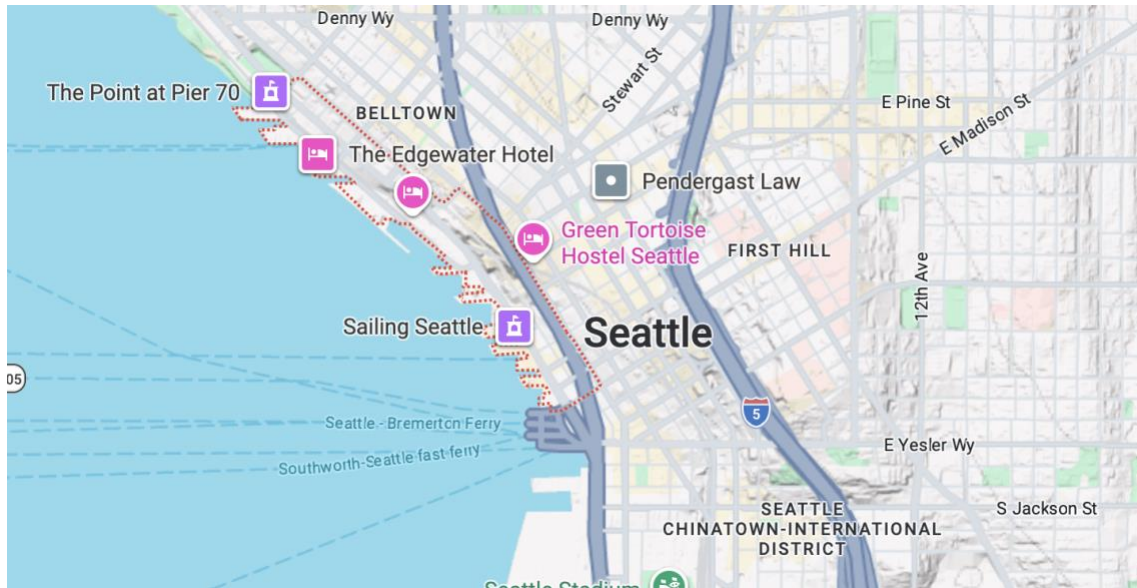


Figure I2: Map of Seattle waterfront, outlined in red (Google Maps, n.d.-a).



Figure I3: Map of Seattle Waterfront projects (Waterfront Seattle, 2017).

The redevelopment project involved dismantling the viaduct highway and replacing it with an underground highway beneath the city, beginning at the south end of Pioneer Square and ending in South Lake Union, near the Seattle Center Campus. The city expanded the walkway along the piers, converting it into a wide, landscaped promenade, with a bikeway running along the perimeter, next to Alaskan Way. Alaskan Way became a boulevard. The project also redeveloped the waterfront park, replaced the aging seawall, rehabilitated a historic boat landing, restored a beach for wildlife habitat, and installed many monumental works of art by local and especially indigenous artists (Waterfront Seattle, 2025). The centerpiece of the project, however, is the massive Overlook Walk, a landscaped pedestrian bridge linking Pike Place Market to the waterfront, which includes an expansion of the Seattle aquarium, providing spectacular views of Puget Sound and Mount Rainier (Friends of Waterfront Park, 2025a). The number of pieces of this puzzle is almost too many to name, and it was all put together along the stretch of waterfront that runs parallel to the downtown business district between Pioneer Square and Westlake Center.

Having grown up in the Seattle area, and spent many days on the waterfront visiting the aquarium and Pike Place Market as a child, and experienced the noise and pollution emitted from the Alaskan Way viaduct, I am personally invested in the success of the project, and am impressed by the transformation of the Waterfront during the past seven years. I have spent more time on the Waterfront in the past 2 years than in the 20 before it, because I find it to be an incredibly pleasant experience. For this reason I hope that it is a successful public space.

Research Question and Purpose

It is clear that the waterfront was an instant hit with the public, with the Friends of Waterfront Park announcing in January 2026 that 3.2 million people visited the waterfront between May and September 2025 (Friends of Waterfront Park, 2026). Still, as the project officially opened in October 2025, there are no studies yet evaluating its success. My research question is, is the new Seattle Waterfront a vibrant public space? Subquestions include: where is it vibrant on the waterfront, and when? In what ways and to what extent do people visiting the waterfront meet the criteria for Jan Gehl's definition of vibrancy, measured through William Whyte's theories of public spaces? The purpose of this study is to understand whether and to what extent the city of Seattle has developed a successful public space on the waterfront. This study does not evaluate whether the design of the waterfront influences whether people are at the waterfront; rather, this study focuses on the behavior of people using selected waterfront public spaces: The Overlook Walk, Pier 62, and Pier 58.

The research also addresses gaps in the literature on waterfront redevelopment projects, as this study will use observational methods that have not been used in prior literature to evaluate the success of such projects. This is significant because it will provide cities that have completed or are considering waterfront redevelopment projects with a new definition of success for waterfront redevelopment projects, a new way of evaluating the success of waterfront projects, and a case study in what was or was not successful at Seattle's waterfront. I draw from Gehl and Whyte in developing this new evaluative tool.

Theoretical Framework

Jan Gehl, a Danish urban designer, has spent decades as a researcher and practitioner working to understand what makes cities vibrant. In his 1971 book *Life Between Buildings: Using Public Space*, he discusses how people in a vibrant public space behave and interact, and why, based on the design of the space and the land use around it. Though Gehl does not use this term specifically, I use the term vibrancy to encapsulate what he argues are *good* public spaces. These are public spaces that have people, activities, events, inspiration, and stimulation. (Gehl, 2011, pgs. 13-14). This thesis also draws on the work of William Whyte, another public space researcher, specifically his book *The Social Life of Small Urban Spaces* (1980).

Definitions

Activities, in this study, refer both to the actual things people observed at the waterfront do and the three types of activities that Jan Gehl describes in *Life Between Buildings: necessary, optional, and social activities* (described in detail in the literature review). *Events* are pre-planned social activities or spontaneous activities resulting from social interaction. *Inspiration* is an urge to join others in activities and to contribute to activities in a public space. Referring to social stimulation, Jan Gehl asserts that

compared with -experiencing buildings and other inanimate objects, experiencing people, who speak and move about, offers a wealth of sensual variation. No moment is like the previous or the following when people circulate among people. The number of

new situations and new stimuli is limitless. Furthermore, it concerns the most important subject in life: people (Gehl, 2011, p. 21).

The Seattle waterfront redevelopment has a large project area, and studying its entirety is infeasible under time constraints. Rather, this study will evaluate the public space centerpieces of the waterfront: the Overlook Walk, Pier 58 Waterfront Park, and Pier 62. The Friends of Waterfront Park describe this section of the waterfront as the central public space and the cultural heart of the waterfront.

Study Organization

The second chapter of this study is a literature review focusing on the evaluation of waterfront redevelopments, especially in the late 20th century and early 21st century, as well as public life study methods from Jan Gehl, Brigitte Svarre, and William Whyte. The third chapter discusses how I operationalize Jan Gehl and William Whyte's theory through observational data collection methods and analysis. The third chapter outlines the findings of this study. The fifth chapter discusses those findings and options for future research.

Literature Review

Introduction

The bulk of the literature found on waterfront redevelopment projects is from the late 20th century and early 2000s, when many cities in the United States, Canada, and around the world were redeveloping waterfronts, reflecting deindustrializing and globalizing economies in the Western world (Craig-Smith, 1995, pg. 6) . This literature shows how scholars evaluated the success of waterfront redevelopment projects at the time. More recent literature about waterfront redevelopment includes Urbanist YouTubers like Dave Amos, creator of City Beautiful channel and Assistant Professor of City and Regional Planning at the California Polytechnic Institute in San Luis Obispo, and scholars focused on environmental justice as part of waterfront redevelopment. Given the lack of recent literature on this topic, this project is especially timely, as it will bring a mid 2020s perspective to this area of urban planning research. Finally, this study uses three urban design texts as a theoretical foundation: Jan Gehl's work *Life between buildings* (2011, originally published 1971), Jan Gehl and Brigitte Svarre's work *How to Study Public Life* (2013) and William H. Whyte's *The Social Life of Small Urban Spaces* (1980).

Evaluation of Waterfront Redevelopments

In the late 20th century many US cities were in decline due to changing economic conditions and shifting infrastructure spending, away from city centers (Craig-Smith, 1995, pg.

6). Throughout the 1970s and 80s, Alexandria, Virginia, a declining seaport dwarfed by the population growth and suburbanization of Washington, D.C., redeveloped its waterfront to reflect the changing needs of the city. An early example of waterfront redevelopment toward a people-focused space, planning lessons were learned and applied to the redevelopment projects of the 1990s and 2000s—specifically, redeveloping based on realistic economic potentials, protecting the waterfront’s historic values and focusing on local residents and visitor experience, encouraging water-related commercial activity, and balancing public and private use of scarce land resources (Fuller, 1995, p. 51).

As suburbanization and disinvestment in inner cities accelerated, cities in the 1990s looked to waterfront redevelopment as an opportunity to right the ship (Hoffman, 1999, p. 471). Given that waterfronts were naturally places people would like to be, redevelopment was a way to reinject economic vitality in struggling cities, provide a pleasant public space for residents and visitors, and, if done well, provide more job opportunities for existing low-income residents (Hoffman, 1999, p. 473). Evaluating Boston’s waterfront redevelopment plan as it was being created, Hoffman argues that Boston’s waterfront had huge potential to create economic vitality due to the synergies that it would foster through mixed-used development and public and private investments. However, she cautions that waterfront redevelopments can only be successful in solving broad city problems if they serve everyone across the income scale. Waterfront redevelopment projects should not be seen as a silver bullet for urban problems and the problem of suburban flight (Hoffman, 1999, p. 544).

One of the waterfront redevelopment projects that has received the most praise is that of Vancouver, British Columbia, Canada, which has been developing over the last 40-some years

(Punter, 2003, pg. 3). A massive undertaking, it converted the industrial waterfronts on Coal Harbour and False Creek, defined by blighted, polluted industrial sites related to the resource economy, which powered Vancouver's growth post-World War 2 (Punter, 2003, p. 8). These developments were characterized by high-rise luxury residential districts fronted by sections of the waterfront pedestrian and cycling path known as the Seawall (Punter, 2003, p. 186). A waterfront project of a massive scale (and this was just the sections in two neighborhoods—more is coming), there is general agreement that these projects were a major success, showing that cities can create high quality of life in dense urban environments through good design (Punter, 2003, pg. 3). However, critics of this model have argued that sites of this scale should be transferred to public ownership for development of affordable housing, rather than the luxury housing that went up (Punter, 2003, pg. 224).

Additionally, Blore and Sutherland criticized the neatness and orderliness of the projects, and the sterilization of urban life—to “predict, program, and control all aspects of public behavior” (as cited in Punter 2003, pg. 226). Furthermore, Berelowitz notes that the “cult of the view,” which drives Vancouver's design, produces a “‘highly contrived, ideologically controlled and economically commodified reality’ in the waterfront zone.” (as cited in Punter 2003, pg. 226). This has resulted in a public life “driven by conspicuous consumption, where conviviality replaces community, and where aesthetics override equity (Ley, 1996, as cited in Punter 2003, pg. 227).

Reiterated 20 years later, Vancouverite YouTuber Uyhae Lee, an Urban Planner behind the channel AboutHere, which has partnered with the City of Vancouver, City of Toronto, the Canadian Broadcasting Corporation (CBC), and other institutions to develop educational videos

about planning topics (Lee, n.d.), argues that Vancouver's waterfront, in its extensions over the last 20 years, has become boring, useless, and has not taken advantage of its prime real estate with (small) business and events because those living in the luxury towers on False Creek and Coal Harbor view the waterfront as their personal backyard, to be controlled, and not be changed or enlivened to the public benefit (Lee, 2023). Vancouver offers a warning about how private interests can hijack redevelopment from serving public priorities.

As more and more cities around the world redeveloped their waterfronts, scholars could begin to compare these projects and reach general conclusions about the success of waterfront projects based on more comprehensive study. The authors of *Remaking the urban waterfront* (Urban Land Institute, 2004), lay out principles of waterfront redevelopment and design premises that are instructive to those involved in waterfront redevelopment. Principles of waterfront redevelopment include understanding that waterfront transformation is a recurring event; waterfronts provide stability to rapidly changing cities and are a site of both preservation and reinvention; redevelopments can produce long-term value, and when exploited for short term riches will not be successful; waterfronts come alive when they become places to live, not just to visit; and success of a waterfront is tied to the interrelationship between landside and waterside uses (Krieger, 2004, p. 23).

On the other hand, design premises which should inform any redevelopment site: they include that design should be informed by the intrinsic qualities of the site, that underlying structure of the landscape should be used to reinforce spatial form and identity, that barriers to the waterfront should be removed, multiple linkages to the waterfront should be created, the urban fabric of the city should extend to the waterfront, waterfronts should be served by

multimodal transportation, and change and adaptation are better than historicism (Fischer, 2004, pg. 48). These principles and design premises are numerous, but can provide context and basic analysis frameworks for evaluating Seattle's waterfront design on its own, before any observation of what visitors are doing there.

Scholars have increasingly focused on waterfronts as (potential) sites of justice or injustice. Lehrer and Laidley view the Toronto, Canada, waterfront as one of these sites, one caught in the middle of the late 20th century economic transition between manufacturing and global trade. The push to make the Toronto waterfront the centerpiece of this shift has reflected other dynamics within the city: a widening income gap between rich and poor, working class and white collar, white and non-white, as well as a spatial displacement of low-income people from the inner city, near the waterfront, to the suburban fringes (Lehrer & Laidley, 2008, p. 789,90). The waterfront, like the city itself, was redeveloped as part of the provincial government of Ontario's push to turn Toronto into a "competitive city." This meant diversifying the economy of the city, and the waterfront itself, with plans for housing, restored wetlands, public space, and mixed use development, all privately developed by different actors.

However, the authors argue that rather than creating a waterfront that serves the public, the Toronto waterfront is designed to bring in who are most desired, i.e., who brings the most monetary value to the waterfront and to the city, in a globally competitive area (Lehrer & Laidley, 2008, p. 794, 799). Building on their analysis, Eidelmann characterizes Toronto's waterfront development as a failure in its goals (many projects were never or only partially implemented as of 2018), specifically because the uses are so diversified and fragmented by ownership and have no connection between them. Waterfront projects in Vancouver and

Chicago, where ownership of waterfront space remained either in public hands (in Chicago) or a small number of public and private entities working together (Vancouver), were successful in fulfilling their goals (Eidelman, 2018, p. 719). An approach like Toronto's may not work.

In contrast, Avni and Fischler show that mixed-use waterfront redevelopment can be aimed at repairing injustice. In their study of the Anacostia Waterfront Initiative, which transformed a blighted, former industrial area on the north bank of the Anacostia river in Washington D.C., they found that while the project raised the value of the land and the new housing projects catered to wealthier individuals, the large parks created as part of the AWI provided essential civic spaces utilized by the nearby 7th and 8th ward residents, a historically black and impoverished section of the District, as well as residents of a nearby HOPE VI housing development (Avni and Fischler, 2019, 1794).

Interviewees from their study noted that the public spaces attracted economically and racially diverse people, not just the new residents in high-end apartments (Avni and Fischler, 2019, 1793). This study shows that redevelopments can both create value and serve disadvantaged groups. However, Avni and Fischler note that the project has driven up land prices in not just the former industrial land, but the neighboring 7th and 8th wards as well, where fewer residents own homes and are more vulnerable to displacement. While residents of these low-income neighborhoods accessed this new space, the public space also threatened their ability to stay in those neighborhoods (Avni and Fischler, 2019, 1796). This project mirrors that of Seattle's where the city made accessible public space the centerpiece of the waterfront redevelopment project.

Recognizing the need to develop an equitable waterfront project in Seattle in the 2010s, Wessells argued that as a shared public and environmental good, Seattle must develop its waterfront in a way that counters established patterns of local and regional injustice (Wessells, 2014, p. 764). Specifically, she laid out a framework the city should follow as (in 2014) it developed its design for the new waterfront. The four pillars of justice would be economic justice (who pays and who wins/loses), environmental justice (who has access to urban blue space on the waterfront), social justice (whose preferences are being presented at the waterfront site), and tribal justice (whether indigenous people were engaged and honored) (Wessells, 2014, p. 769). While I cannot determine whether the city was successful under Wessell's framework without further study, the city made accessible public space the center of the development project, rather than commercial space, invested in habitat restoration that was accessible to the public (the sea wall and habitat beach), the friends of waterfront park host numerous events reflective of the diversity of the city and region, such as the Indigiqueer festival (Friends of Waterfront Park, n.d.-a), and indigenous artists were commissioned to create the waterfront's major pieces of public art, recentering indigenous identity on the waterfront (Friends of Waterfront Park, n.d.-b), showing that the city has at least made an attempt at fulfilling these four pillars of justice. Waterfronts can be the perfect place to implement universal design, to invite people of different ages, abilities, and socioeconomic backgrounds, and to provide a vehicle-free, ecologically friendly meeting point between land and water (MacDonald, 2018, 259).

Evaluating the Seattle Waterfront Redevelopment

While many deem the Seattle waterfront an obvious success based on the sheer number of visitors (Friends of Waterfront Park, 2026) some in the urban planning community have been critiquing Seattle's waterfront project for many years. Dave Amos of the urbanist YouTube channel City Beautiful argues that the size of the reconstructed Alaskan Way boulevard (8 lanes across in some places) disconnects pedestrians from the dense neighborhoods on the other side, like Pioneer Square. He argues that Seattle should have followed the example of San Francisco and Portland, and reduced the number of lanes on the waterfront boulevard to create a more pedestrian friendly space after removing a freeway (Amos, 2021).

Using MacDonald's (2018) evaluation framework, Amos argues that while Seattle's waterfront provides a way to get close to the water, and a place to move uninterrupted with leisure, the wide boulevard prevents ease of access. Additionally, the buildings fronting Alaskan Way, such as a steam plant and a self-storage facility, do not complement the uses at the waterfront (Amos, 2021). In a 2024 video, he expands on this critique by noting how the sheer size of both the pedestrian promenade and Alaskan Way prevent a sense of enclosure on the edge of the city, which he suggests helps pedestrians feel safer and more connected to the city they are in (Amos, 2024).

The city council approved goals for the waterfront in 2004. Whether they are fulfilled or not, and what is or is not working at the completed waterfront, can only be answered after the project is completed and the public begins interacting with it. The goals related to urban vibrancy are listed below.

- Increase physical and visual access to the shoreline and link the waterfront with inland areas so that each area reinforces the other and contributes to a cohesive Downtown. Extend the reach of the waterfront, in terms of visual access and physical connections, as far inland as possible. Maintain water views from downtown streets and public spaces, and provide public view corridors to strengthen visual access. Weave the waterfront and upland areas together through an intricate network of connections that provide a variety of quality experiences for pedestrians. Improve pedestrian connections, especially east-west connections between the waterfront and the rest of the Center City.
- Make the waterfront an exciting urban neighborhood and regional destination that accommodates multiple functions, including recreation and public gathering, working waterfront activity, a place for people to live and work, and habitat conservation. Make the waterfront available to all people: residents, tourists, families, and workers of all ages, incomes, social groups, and physical abilities, and create public places for bringing people together. (Seattle City Council, 2004).

It is not possible to evaluate the waterfront on all of these goals in one study. However, one component of these goals that can be measured is the city wants the waterfront to be a place for people to gather, and a place that is easy for people to get to so that they can enjoy it.

Another way to evaluate the waterfront's success is to find out whether people are at the waterfront and whether they are enjoying it; in short, whether people visit and make it vibrant.

Jan Gehl and William Whyte provide a theoretical basis for answering this question.

Public Life Studies: A New Approach

Gehl theorizes that when public spaces are high-quality, residents engage not only in the necessary activities of everyday life but also in optional and social activities [i.e. vibrancy] (2011, p. 11).

Necessary activities are those that are compulsory: going to work or school, going grocery shopping, or waiting for a bus or a person. These activities are the least influenced by the physical environment, as they must be done one way or another. Optional activities are those that occur when a person has time and are generally enjoyable. These include taking walks, sitting and sunbathing, or simply standing around. Because they take longer and are about enjoying oneself, the physical conditions of the public spaces where one can pursue optional activities are important to get right. Social or resultant activities are those that occur when activities from the two previous categories combine. These may include children playing, conversations, or even people watching, and only take place in publicly accessible spaces (Gehl, 2011, p. 11, 12). When these necessary and optional activities become social activities and are amplified, vibrancy is generated. As stated in the introduction, vibrant public spaces are spaces that have people, activities, events, inspiration, and stimulation. (Gehl 2011, pgs. 13-14). When a public space is pleasant and interesting, it offers an opportunity to be with others, even if one is not doing anything with anyone else—just being, in this public space, is rewarding in itself (Gehl, 2011, p. 17).

Vibrant public spaces also offer spontaneous social contact and events in a way unactivated spaces do not, as social events tend to attract others to join and create new events nearby (Gehl 2011, p. 23). They also invite passersby to stop and stay, to enjoy the stimulation

of being with others and having things to look at (Gehl, 2011, p. 28). These activities can also be self-reinforcing—when someone starts an activity, others tend to join, and the resulting activity may be greater and more complex than the sum of the original and component activities (Gehl, 2011, p. 73). Gehl comments that North American cities tend to have few pedestrian spaces, great distances between buildings, and many cars. It is no wonder that many people stay inside and watch TV (Gehl, 2011, p. 31). He notes that cities that establish pedestrian zones where traffic was before see an increase in pedestrians and an increased amount of time residents spend outdoors (Gehl, 2011, p. 33). This provides a good foundation for what to look for when at the waterfront—whether visitors exhibit the behaviors Gehl describes, particularly social or resultant activities.

Gehl also discusses how the design of public spaces influences behavior and resulting vibrancy. This will help to give context for the behavior observed at the Seattle waterfront. Gehl emphasizes the importance of compact public spaces, a concept that may be counterintuitive to those who value public spaces and want more of them. Smaller, enclosed public spaces physically restrict how far away people are from one another, making it more likely that people in public spaces will interact with one another. One problem with modern public spaces is that they are often too large and open—people enjoying the space are thinned out and may not interact. This results in “dead” public spaces that fewer people will want to visit (Gehl, 2011, p. 85). Compactedness also means that more people who live and work in surrounding buildings will use said space (Gehl, 2011, p. 101).

People also need the right conditions for walking, standing, and sitting. Meaningful social interactions generally only happen while standing, sitting down, walking, or lying down—

not from a car or train. On foot, one has time to experience, pause, or become involved (Gehl 2011, p. 72). Like when walking, people need a comfortable place to stand in public spaces. When performing a necessary standing activity, such as waiting for a moment before crossing a street or talking briefly with someone one happens to see on the street, pedestrians generally feel comfortable anywhere. However, when pedestrians stand for longer durations (an optional or resultant activity), they will need specific conditions to feel comfortable—specifically, the edge effect. When one stands at the edge of an open area, one's back is protected, and one can relax more easily. This is why, in public squares, people can be seen seated at the edge, not in the middle (Gehl, 2011, p. 149). Columns, trees, or bollards can also act as edges to provide more standing spaces deeper into the open space (Gehl, 2011, p. 151).

The same concept applies to seating areas—seating along facades and spatial boundaries is more desirable (Gehl, 2011, p. 157). Seating should be found in the form of *primary* seating (chairs, benches, etc.) and *secondary* seating (stairs, low walls, pedestals), so that seating is always abundant but never empty (Gehl, 2011, p. 161). Given the Seattle Waterfront project's large width between Elliott Bay and the east side of Alaskan Way, the project must create enough edges within the area to allow for comfortable standing and sitting opportunities.

Finally, Gehl stresses the importance of controlling noise and temperature extremes in public spaces. To foster vibrant public spaces, the people visiting them need to be able to hear one another and the commotion around them, including things like music and running water—otherwise they are less likely to stay and engage in vibrancy-creating activities (Gehl, 2011, p. 167). Additionally, public spaces must be protected from weather extremes, particularly wind, so that they can be enjoyed year-round. In northern cities like Seattle and Gehl's Copenhagen,

access to sun exposure and protection from winds are valued by pedestrians, and should be enhanced through design elements like windbreaks, trees and hedges, and covered areas (Gehl, 2011, p. 178).

Gehl provides necessary context for this study. As I am interested in whether a space is vibrant, at the waterfront I will look for people who are not just in the public space, but *staying* in the public space. Those staying in the public space—hanging out—are likely choosing to engage in optional or social activities: things like recreation, talking with a friend, meeting new people, or just people watching, because it is a comfortable space to be. While I will not be evaluating the design of each public space, I can assume that, if they are indeed vibrant public spaces, they were designed in accordance with Jan Gehl's criteria.

The Social Life of Small Urban Spaces describes Whyte's observations of public parks and plazas in New York City in the 1970s, and how they were or were not well designed to attract people to spend time in them, as well as their behaviors. Like Gehl, he notices that vibrant public spaces create a feedback loop: when a place is vibrant, more people want to be there because it is vibrant. This creates a counterintuitive phenomenon: people will hang out in public spaces, alone, just to experience the space. In one of Whyte's studies, he found that in five of New York's most-used public spaces, about 45% of people in those spaces are in groups of two or more. In the five least-used spaces, 32% are in groups (Whyte, 1980a, p. 17). While Whyte does not provide a specific threshold for vibrancy, these numbers provide a benchmark for what to look for on the Seattle Waterfront. If Whyte's theory holds, highly used spaces will have a higher proportion, though not a majority, of groups, whereas little-used spaces will have a lower proportion of groups. Drawing on Gehl, this suggests that in vibrant public spaces, more

people are engaging in social activities (including those alone, simply people-watching), whereas in non-vibrant public spaces, more people are engaging in optional activities (for example, recreation, reading, or eating lunch). The major problem that was not addressed in the literature review was that neither Gehl nor Whyte could provide a threshold for when a space becomes vibrant.

The Methods section will operationalize Gehl and Whyte's theories to evaluate whether and to what extent the public spaces on the Seattle Waterfront are vibrant.

Methods

To address the question of whether the Seattle waterfront public spaces are vibrant, and in what ways, Gehl and Whyte offer a public life study method to evaluate vibrancy in public spaces. Public life studies, as opposed to the evaluation methods focused on equity, economic growth, and design, help researchers understand whether, how, and to what extent public spaces are used, and used as intended. I chose this method because a public life study tells me not whether the waterfront is accessible to all, creates jobs, or adheres to design principles, but whether people actually use it.

Life Between Buildings and Gehl's book with Birgitte Svarre *How to Study Public Life* provides guidance for conducting a public life study tailored to my questions and constraints. First, they discuss the necessary questions to ask when observing public life: How many (quantified public life), Who (gender, age, ability, race, etc.), Where (edges, middle, distributed, public, private, etc.), What (activities, necessary, optional, resultant), and How long (length of activity) (Gehl and Svarre, 2013, p. 13-19). Individual public life studies are built from these underlying questions.

Second, Tools for measuring public life are described. Tools are selected based on the purpose of the study, as well as budget, time, local conditions, and human capacity (manual vs. automated data collection). Tools include counting, mapping, tracing, tracking, looking for traces, photographing, keeping a diary, and test walks (Gehl and Svarre, 2013, p. 24)

For this study, I needed to choose a way of measuring the vibrancy on the waterfront that fit my budget, time, and capacity. I have no funding for this project, I have limited time as a student, and I am just one person; my methods need to be relatively simple. Counting people staying in a public space is a simple task for one person to do in a limited amount of time. Counting involves quantifying the number of people in an area for a selected time period. Counting is useful for before-and-after comparisons (Gehl and Svarre, 2013, p. 25). Tracking only involves analysing one person and looking for traces involves analysing a vibrant space after everyone has left it. Mapping would show how many people are in a space, and where they are in the space, but it does not tell me whether a space is vibrant. Gehl does not provide any theory for how full a space must be, or how people must be distributed, for the space to become vibrant. In fact, while he defines what vibrancy is, he does not say (or know) at what

point a space *becomes* vibrant: there is no common threshold. Vibrancy is a subjective *feeling*, and impossible to quantify in itself. It is difficult to capture the vibrancy of a space (or a whole space) with photography, and the diary method would take too much time. Counting is the best option for my study.

Next, the authors provide studies Gehl conducted in European cities, using qualitative and quantitative strategies to describe and analyze behaviors in public spaces, and generating the theories in *Life* from these analyses. A study that I found useful, which uses counting as the main measurement tool, draws on a study by Whyte as inspiration. In Whyte's study, he started with an empty public space and gradually filled it with more and more people. The participants in the study were asked, as people were added, whether the space felt vibrant. According to the participants, it takes about 14-20, or 16.6 people within one's field of vision for a space to feel vibrant (Gehl and Svarre, 2013, p. 110). This study gives me a starting point for measuring vibrancy on the waterfront through counting. It provides a number, but as one person, it is difficult to capture my own field of vision. Therefore, in this study, I provided my own operationalization of vibrancy in a public space. This account is inherently subjective and should be taken as such by the reader.

This study consisted of eight weeks of research, with around three observational periods per week. These observations were conducted during the months of February and March, 2026, accounting for conditions at the end of the Winter season and the beginning of Spring. Each week, observations were conducted on a day in the early part of the week (Tuesday), at the end of the week (Thursday), and on the weekend (Saturday). At the beginning of the week, observations were conducted starting at 12 pm and ending at 1 pm, observing around

lunchtime for downtown workers. At the end of the week, observations were conducted on Thursdays and Fridays from 4 pm to 5 pm, observing the end of the work week and the beginning of nightlife.

On the weekend, observations were conducted from 11 am to 12 pm, observing the “brunch hour.” Originally, I had planned to conduct each observation for 20 minutes. However, after I conducted a Saturday study, I realized this created time constraints on my broader schedule as a student, and that 20 minutes of observation did not actually give me an understanding of how vibrant a space was. The 5-minute maximum point-in-time study proved to be more useful. Additionally, while I originally planned to conduct my end-of-the-week study on Fridays, I revised this approach because, as Seattle has become a Tuesday-Thursday work week for hybrid white collar workers (Bishop, 2023), I believed I would be more likely to observe nightlife on the waterfront on Thursdays. The schedule for observations is shown below.

Figure M1. Research Schedule February-March 2026 including schedule type

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
February						
					Weekend	
	Weekday Obse		End of Wee			
	Weekday Obse		End of Wee		Weekend	
	Weekday Obse		End of Wee		Weekend	

March						
	Weekday Obse		End of Wee		Weekend	
	Weekday Obse		End of Wee		Weekend	
	Weekday Obse				Weekend	
				End of Week		

Descriptions of each public space are provided below, as well as discussion of challenges with conducting observations in each space.

Overlook Walk

The Overlook Walk is the centerpiece of the Seattle Waterfront project. The north edge sits on top of a parking garage for Pike Place Market, where a playground built into the structure, a retail space, and covered seating are situated. From the north edge, the structure narrows, running southwest above and across Alaskan Way, with long concrete benches on each side and landscaping acting as physical and sound buffers between pedestrians and the roadway. The structure then widens to the south and leads pedestrians along the concrete bench to the elevator to the waterfront. On the northwest side, the structure becomes a long staircase, running straight down to the waterfront promenade.

Below the overlook and above the stairs are oversized steps meant for both seating and climbing. Because of the irregular shape of the structure, I cannot physically see the entire

structure at once, and so cannot count every person at once. Instead, I decided to conduct observations at the central space, between the edge of the retail space to the northwest and the stairs, including the section running to the elevator. A diagram of the observed space is shown below:

Figure M2. Overlook Walk, looking northeast (Friends of Waterfront Park, 2024).



Pier 62

Pier 62 sits below the Overlook Walk, and is a flexible public space to be used in different ways for different events and at different times of year. It is shaped, like the other piers, like a parallelogram, and juts out from the waterfront promenade into Elliot Bay. It includes a floating dock accessible from the edge of the pier, but this has been closed for the winter. During February and March, the park was set up with a flexible pop-up retail space,

picnic tables and cafe tables, a portable giant chess board, and giant lounge chairs facing the water. A portable Sauna company had leased part of the space as well, and no one visiting the Sauna was counted in the observations at Pier 62. A diagram of Pier 62 is shown below:

Figure M3. Pier 62, plan view, looking southwest (Friends of Waterfront Park, 2025).



Note: Pier 62 is a flexible space, and the elements shown in this image are not the same as what was observed in the study

Pier 58

Pier 58 is located on the south side of the Seattle Aquarium, which sits on Pier 59 between Pier 58 and Pier 62. Pier 58 is mainly a large concrete slab, with a large playground on the north side, wooden and rock seating structures, a large fountain, and two elevated platforms, one with artificial turf and one with trees and cafe tables. The edges of the fountain

and elevated platforms double as seating. I chose not to include the playground section of Pier 58 in the observations, as it is nearly impossible to count the children playing, it is a destination in itself and not a public space meant for everyone, and because of my own discomfort and ethical concerns with observing children at play for a study. A diagram of Pier 58 is shown below:

Figure M4. Pier 58, isometric view (Seattle Times Staff, 2025).



During each day, observations were conducted twice at each of the three public spaces (Overlook Walk, Pier 62, and Pier 58, in that order). Each observation took a maximum of 5 minutes, and 5 minutes was allocated for travel time between each public space. During observations, people in each public space who were staying in the public space, as opposed to walking through it (this was especially important to note at the Overlook Walk, which is also a pedestrian transportation corridor), were counted using a smartphone counter application,

which allowed for each tallying of people, new tallies for each observation, and the ability to name tallies. This made it easy to track data.

Observation Process and Operationalization

In general, those staying in the space were sitting or leaning on furniture or railings, though some were pacing or standing, at least for a minute, or had been staying in the space at the time of counting. I categorized counted people as being alone or in groups (2 or more people). This single-time count of people shows, in general, how many people are in the space at one time. The proportion of people alone or in groups was also calculated.

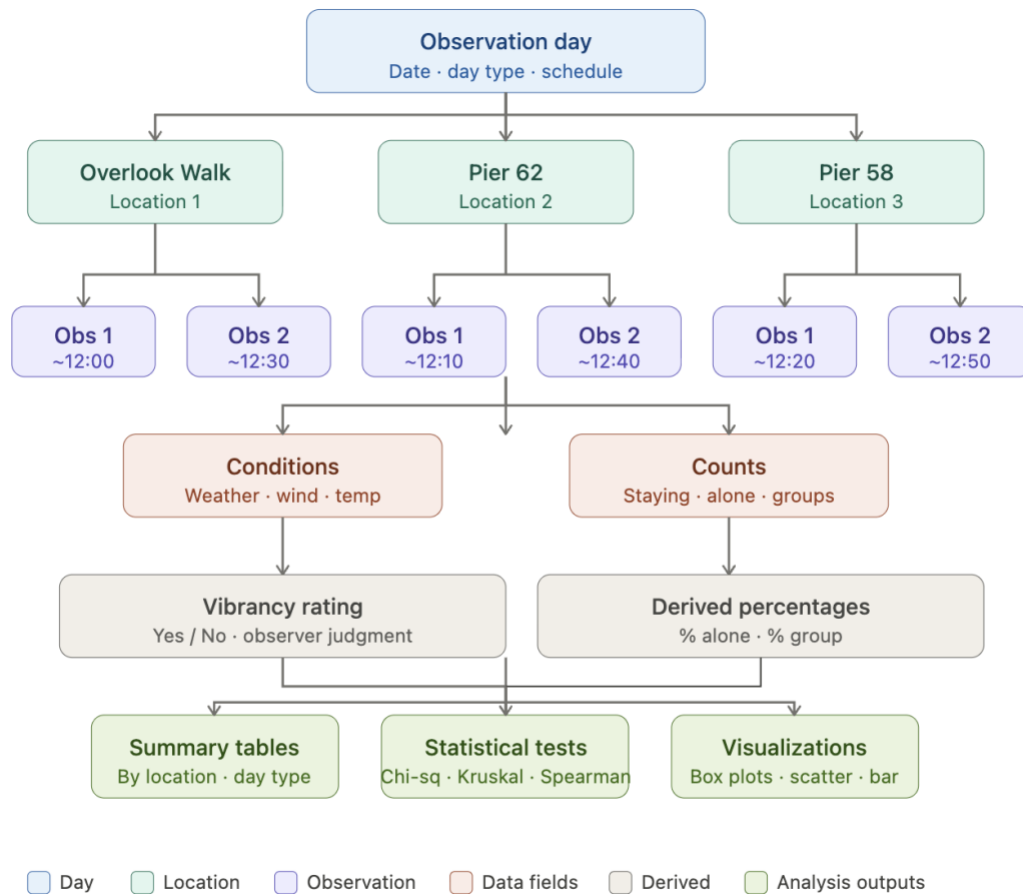
During each observation, the conditions, including weather, wind speed (low, mild, moderate, and high), and temperature were recorded. Wind speed was recorded categorically, rather than the speed shown on a weather app, for example, because wind speed was not consistent, as was shown on an app, and would change between the 5 minute intervals. Additionally, because I found no threshold for vibrancy theorized in the literature review that a single person could record, I developed a replicable method for determining whether a space is vibrant. To determine whether the space felt vibrant, I used the definition generated from Gehl's text: vibrant public spaces have people, activities, events, inspiration, and stimulation.

I labeled the public space as vibrant when I noticed all five of these elements: people were almost always present, but were a necessary but insufficient part of vibrancy. Examples of observed activities include mainly optional and social activities like lounging on street furniture, conversations between friends, family, or strangers, children or adults playing a game (such as the giant chess game at Pier 62), or wildlife viewing. Examples of observed events include family gatherings and picnics, tag games among children, and even people having a

conversation. Examples of inspiration included when wildlife or ferry viewing among people using the space became an activity among strangers, when children from different family groups began playing together, or simply seeing someone sitting by the water, and joining because it looks pleasant. Stimulation happened when it became difficult to observe all activities occurring, as there were so many happening at once.

I did not record the instances of each component of vibrancy for each observation where vibrancy occurred, as I found that every observation had people, activities, events, and inspiration. What was missing was stimulation. I recorded a public space as vibrant when the pace and varieties of activities were too much to take in all at once—when the space felt exciting and was changing constantly. If one section of the public space was vibrant, and another section not vibrant, I still labeled the entire space as vibrant, as my measurement is binary, and to label the space as not vibrant would discount the vibrancy generated in part of space. A flow chart of the observational methods is shown below in Figure M5.

Figure M5. Flow chart showing observational methods, using weekday (Tuesday) schedule as an example (Anthropic, 2026). Generated with Claude generative AI software. Claude command in Appendix C



I had planned, over the course of the study, to begin to understand at what number of people the space became vibrant. However, I found that these spaces, during the research period, were so rarely vibrant that generating these threshold numbers was impossible. Additionally, though I planned to ask random waterfront visitors whether a space felt vibrant when I was unsure of how to categorize an observation, the shift from not-vibrant days to vibrant was so obvious and dramatic to me that this was unnecessary. Instead, I was able to generate a number of people where vibrancy was ensured, knowing that the real threshold was probably lower. Photos were taken of the public space during the first few observations, but I

decided that they often did not provide much information. Rather, photographs are included in the results section to provide examples of vibrancy or lack thereof on the waterfront. The template of my field notes observation form, filled out after each observation, is in Appendix B.

After this data was collected on the research form, I used *Claude* (Anthropic) generative AI software to convert the data to a spreadsheet form, where it could more easily be analyzed. The command I used is in Appendix C. The result is in Appendix A.

When the software completed the spreadsheet, I found it had already created separate Microsoft Excel sheets with summaries of the data by location and day type, showing averages of percentage of people alone and in a group by location and day type. This assisted in understanding how each public space attracts individual people or groups of people. As I collected more data, I added to this spreadsheet and continued the calculations using the Excel formula function. Finally, I asked Claude to develop a summary statistics spreadsheet of the weather conditions compared to the vibrancy observed. I validated this by doing random spot checks of the averages and percentages generated by the software. All were correct.

The full documentation of each observation is in Appendix A. Using the percentage 'group' and 'alone' data, as well as the total number of people, conditions, time of day, week, and season, and my own observations about whether the space was vibrant or not, I was able to characterize the vibrancy (or lack thereof) of the three waterfront public spaces, and see trends when cross-referencing the types of data. I then asked Claude to suggest and conduct statistical tests based on the kind of data I had collected and generate box and scatter plots to determine whether there were statistically significant relationships between variables.

Specifically, they tested the relationship between environmental conditions and vibrancy, and environmental conditions and people staying in the public spaces.

I conducted random checks on the tests suggested by researching those tests online and comparing what I found to what Claude had suggested. Additionally, I conducted random checks on the plots, comparing the findings to the raw data to ensure there were no inconsistencies. Finally, using the theory established in the literature review, I made inferences about what factors are influencing the vibrancy of the space, and how or if the space could be changed to increase vibrancy.

Limitations

This study has certain limitations. Because I will be conducting the observation portion of the research during just two months of the year, it is unclear if I would produce the same results when the weather is warmer and sunnier, and when there are more tourists visiting the city. The weather likely had an effect on the results of the research, and the research likely would have different results if it were conducted again at a different point in the year. However, it is expected that the level of vibrancy of the waterfront will change over time and will not stay constant due to changes in weather and tourism levels.

Additionally, Gehl's *Life between Buildings* and Whyte's *Social Life of Small Urban Spaces* may not be directly translatable to the waterfront. Gehl mainly discusses neighborhoods where people live, work, and play. On the other hand, the waterfront is mainly a destination, and it is difficult to imagine many people, aside from those who work on the waterfront, conducting "necessary" activities. However, because Gehl emphasizes the vital role of optional and social

activities in urban vibrancy, I expect to be able to use his theoretical framework to answer the research question.

Finally, public spaces take time to become part of the city and draw visitors. It will be difficult to understand the full impact of the project for some years, and conducting this research just a few months after the project's opening may mean I cannot draw broad conclusions about the waterfront's success and its influence on the rest of the city. However, this study could function as a baseline, and a replication of the research several years from now could evaluate how the waterfront has changed since the opening.

Ethical Considerations

Observing people in public must be done ethically. All data will be anonymous. When conducting observations and taking field notes, I was aware of my personal opinions about the waterfront and the behaviors of people on it, and, as I acknowledged my bias toward the success of the waterfront, I controlled for this bias through the operationalization of vibrancy. I will also not interfere with any activities and behaviors I am documenting to avoid influencing the data produced.

Results

This study produced 108 separate observations over eight weeks of study. Summary statistics were produced using Microsoft Excel and Claude generative AI (Sonnet 4.6 version) to understand how each variable manifested at each observation site. All interpretations of statistics are my own. When summarized by location, the Overlook Walk had the highest average number of people staying in the public space, at 45.5%, with Pier 58 second at 34.6% and Pier 62 last at 20.6%. However, though Pier 62 also has the highest average percentage of people alone and the lowest average number of people in groups, with 41.1% and 58.9%, respectively, the gap is large when compared with Pier 58 and the Overlook Walk. The Overlook Walk had an average of 25.9% alone and 74.1% in groups, and Pier 58 had an average of 22.1% alone and 75% in groups. Despite this, Pier 58 had the least number of times observed as vibrant, at 5, with Pier 62 with 7 and the Overlook Walk with 8. These results are shown in table R1 and figures R1-R3.

Table R1. Summary Table of Results by Location (Anthropic, 2026)

Summary by Location					
<i>Average conditions and vibrancy by observation location n = 108 observations</i>					
Location	Total Observations	Avg People Staying	Avg % Alone	Avg % Group	# Vibrant
Overlook Walk	36	45.5	25.9%	74.1%	8
Pier 62	36	20.6	41.1%	58.9%	7
Pier 58	36	34.6	22.1%	75.0%	5

Figure R1. Average People Staying in Public Space by Location (Anthropic, 2026)



Figure R2. Average Percentage of People Alone by Location (Anthropic, 2026)

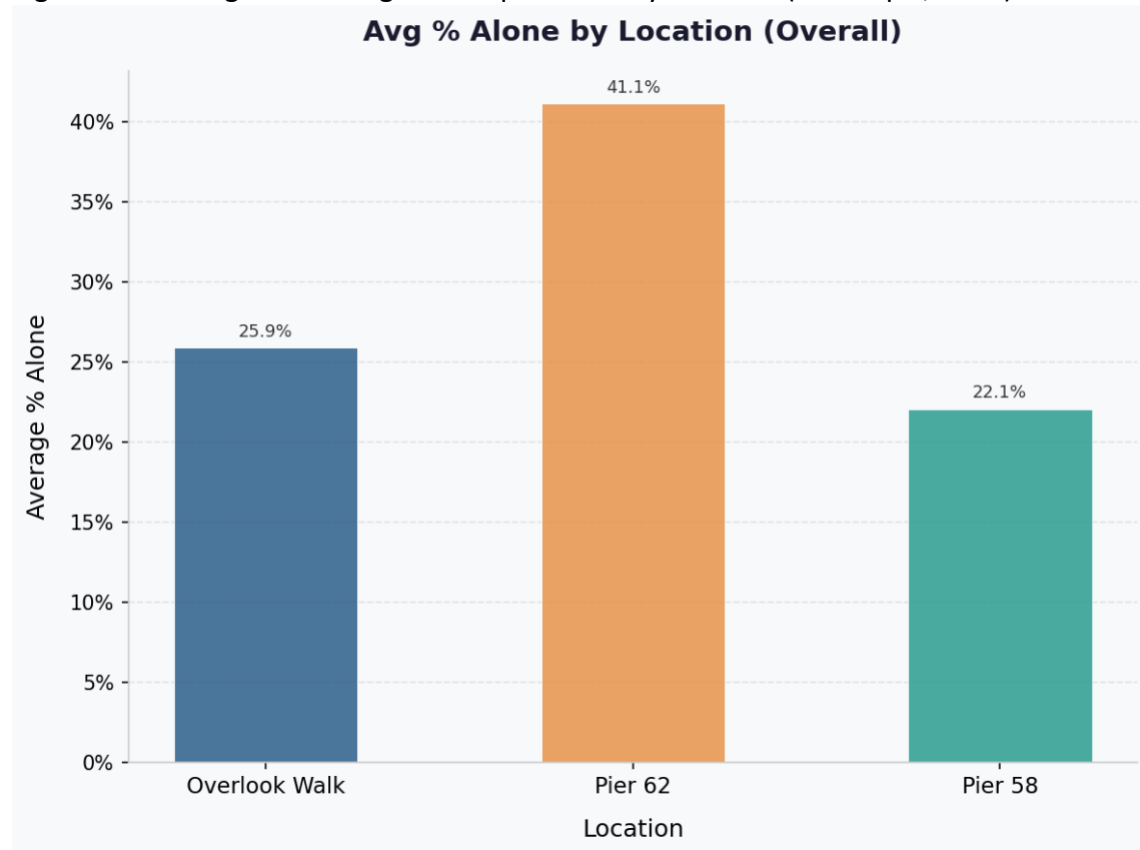
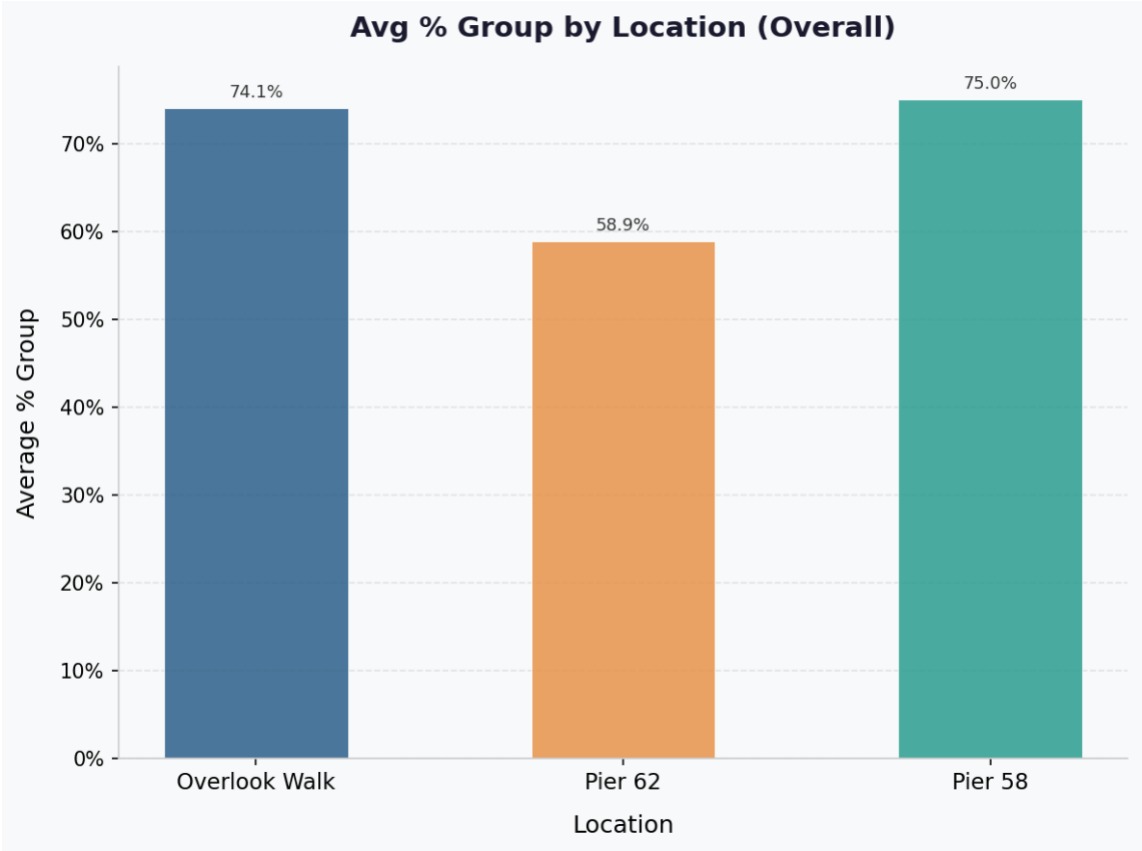


Figure R3. Average Percentage of People in Groups by Location (Anthropic, 2026)



Unsurprisingly, weekends had the most people staying in the waterfront spaces, with 47.2 on average staying, 18.7% alone and 78.5% in groups. The end of the week came in second with 34.6 people staying on average, 28.9% alone, and 71.1% in groups. Finally, weekdays were the slowest, with 18.8 people on average staying, 41.5% alone, and 58.4%; much more balanced than at the end of the week and on the weekends. These results are shown in table R2 and figures R1-R7.

Table R2. Summary table of results by day type (Anthropic, 2026)

Summary by Day Type					
Average conditions and vibrancy by day type n = 108 observations					
Day Type	Total Observations	Avg People Staying	Avg % Alone	Avg % Group	#Vibrant
Weekend	36	47.2	18.7%	78.5%	9
Weekday	36	18.8	41.5%	58.4%	0
End of Week	36	34.6	28.9%	71.1%	11

Figure R4. Average number of people staying in public space by location and day type (Anthropic, 2026)

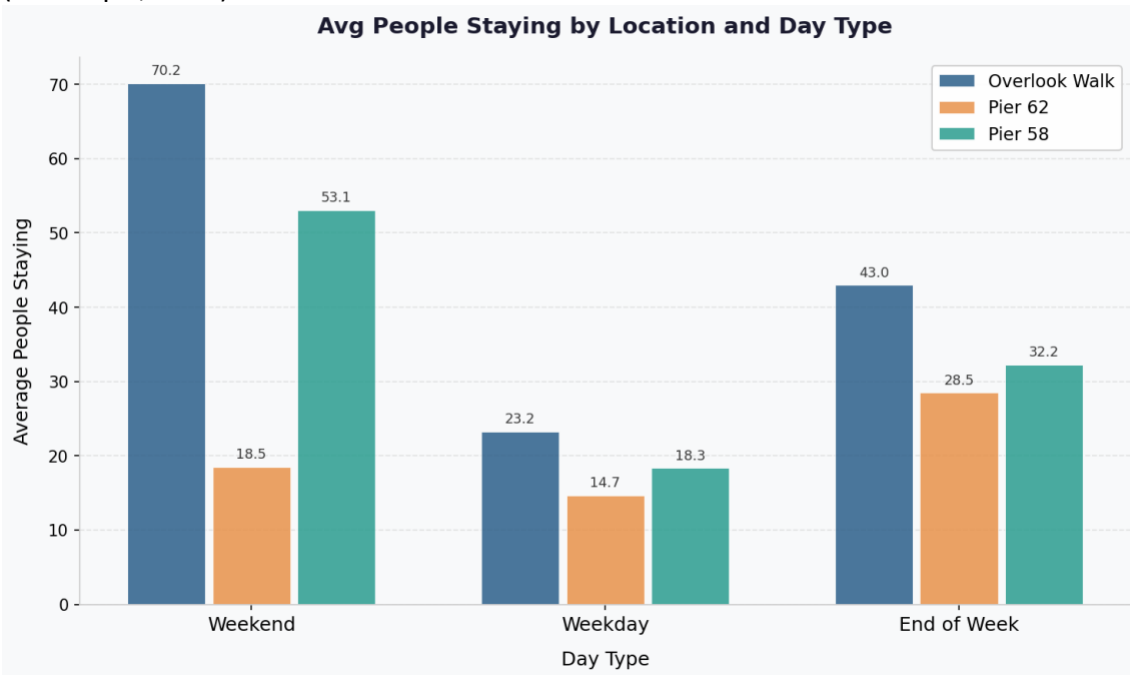


Figure R5. Average percentage of people alone in public space by location and day type (Anthropic, 2026)

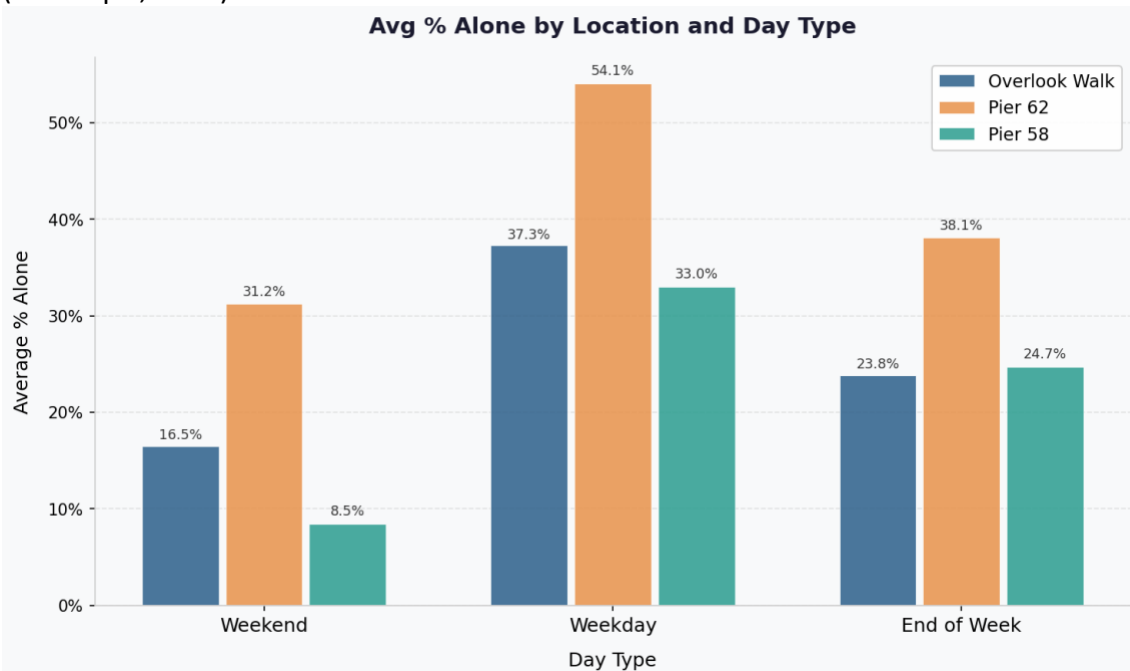


Figure R6. Average percentage of people in groups by location and day type (Anthropic, 2026)

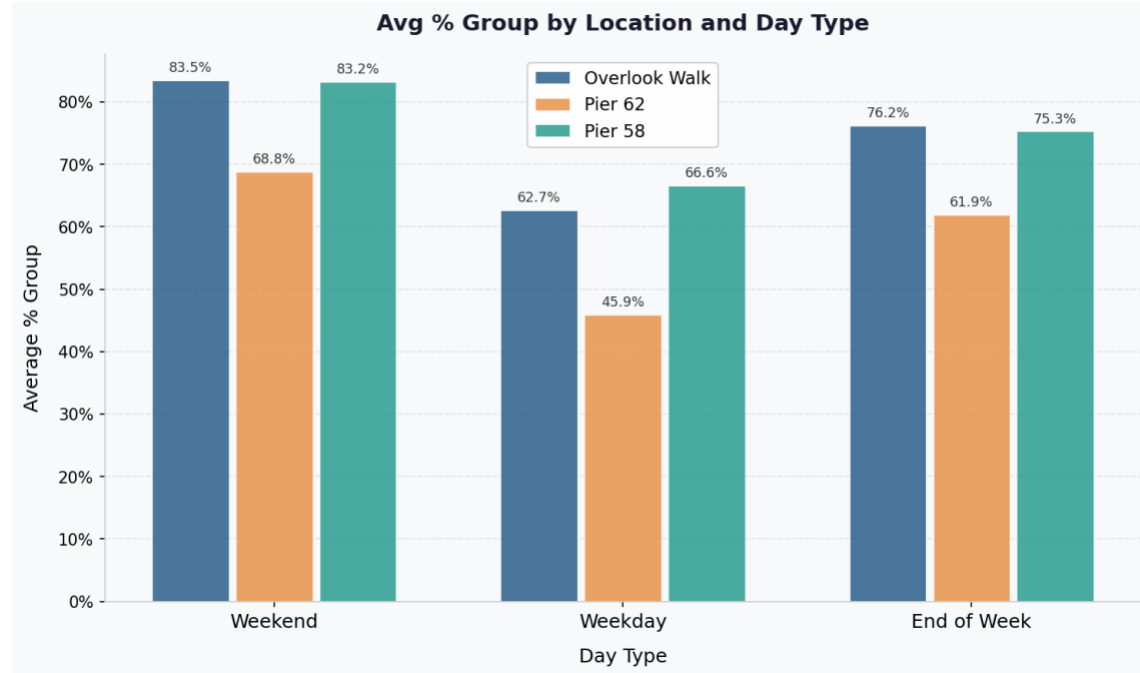
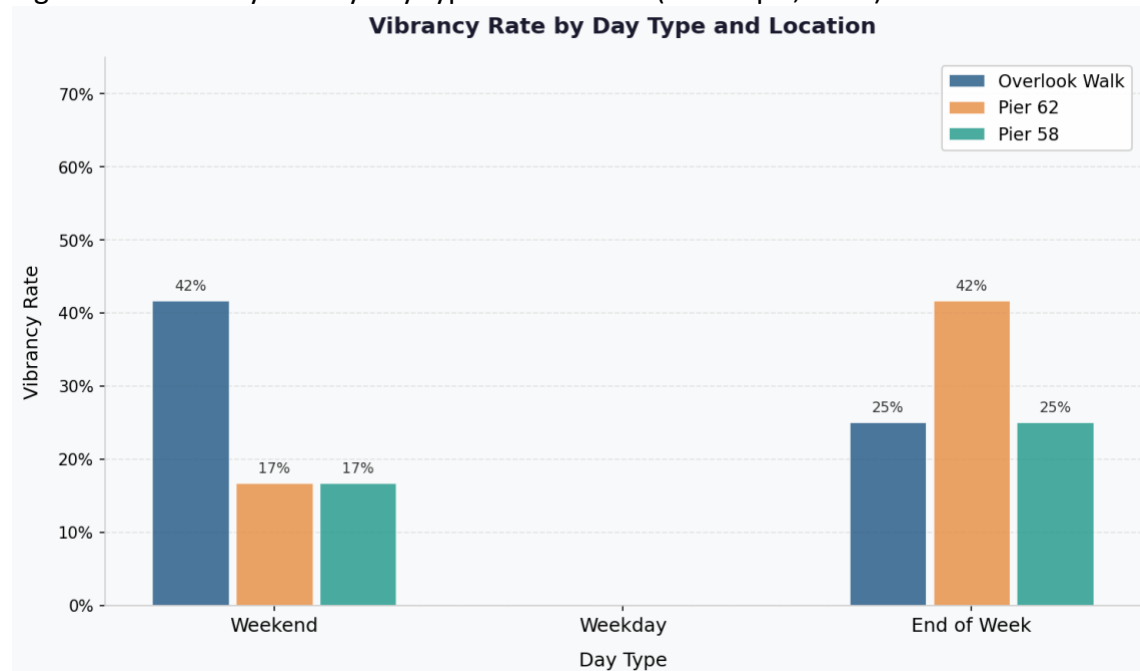


Figure R7. Vibrancy rate by day type and location (Anthropic, 2026)



Environmental Conditions on the waterfront played a role in how vibrant the public spaces were. As shown in table R3, When the weather was sunny, the spaces were vibrant 10

times. When overcast, the spaces were vibrant 8 times. When it was rainy, it was vibrant 2 times. When the wind speed was lower it was generally more vibrant than when it was higher.

Figure R8. Photo of a vibrant overcast day at Pier 58



Figure R9. Photo of a rainy, non-vibrant day at pier 62



As shown in table R3, when the temperature range was lower, it was vibrant less often, and when it was higher, it was vibrant more often. 20 of the observations of the 108 were recorded as vibrant, or 18.5%. As figure R7 shows, no observations were labeled as vibrant on any weekdays. The end of the week was vibrant more often, but the weekend had more people in the public spaces.

Table R3. Summary table of conditions versus vibrancy count (Anthropic, 2026)

Vibrancy vs. Conditions Summary				
<i>Share of observations rated vibrant by weather, wind, and temperature</i>				
Weather Conditions				
Weather	Vibrant	Not Vibrant	Total Obs	% Vibrant
Sunny	10	27	37	27.0%
Overcast	8	36	44	18.2%
Rainy	2	25	27	7.4%
Wind Conditions				
Wind	Vibrant	Not Vibrant	Total Obs	% Vibrant
Low	5	8	13	38.5%
Mild	8	28	36	22.2%
Moderate	5	33	38	13.2%
High	2	19	21	9.5%
Temperature Range				
Temp Range	Vibrant	Not Vibrant	Total Obs	% Vibrant
38–42°F	1	24	25	4.0%
43–47°F	4	22	26	15.4%
48–52°F	15	42	57	26.3%

Figure R10. Average number of people staying in public space by location and weather (Anthropic, 2026)

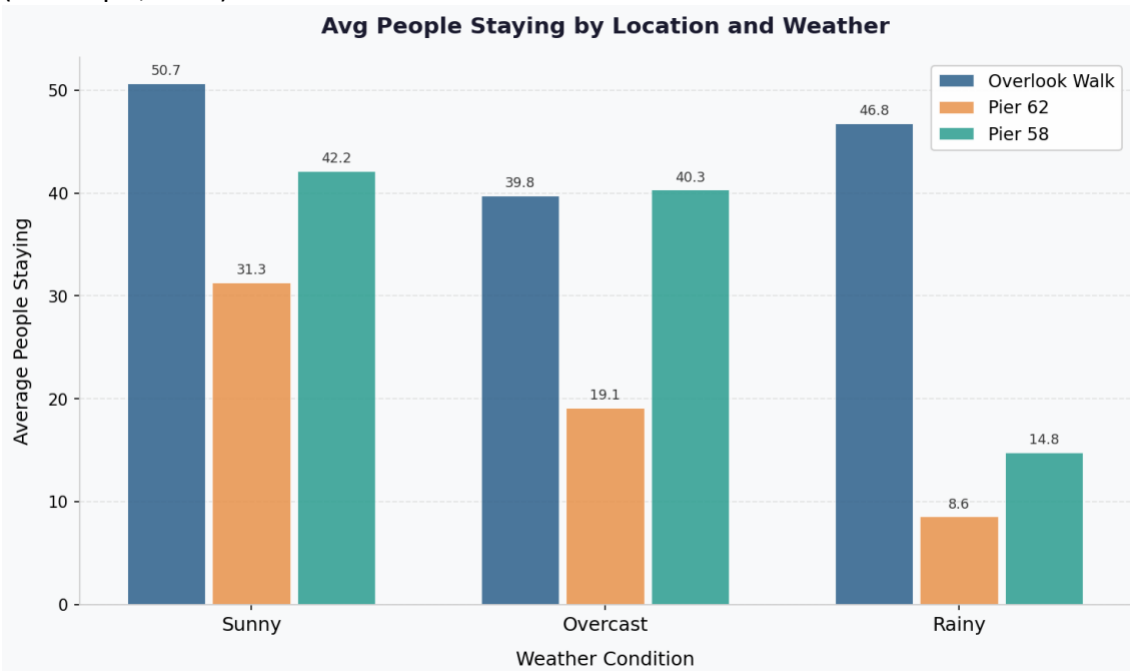


Figure R11. Average number of people alone by location and weather (Anthropic, 2026)

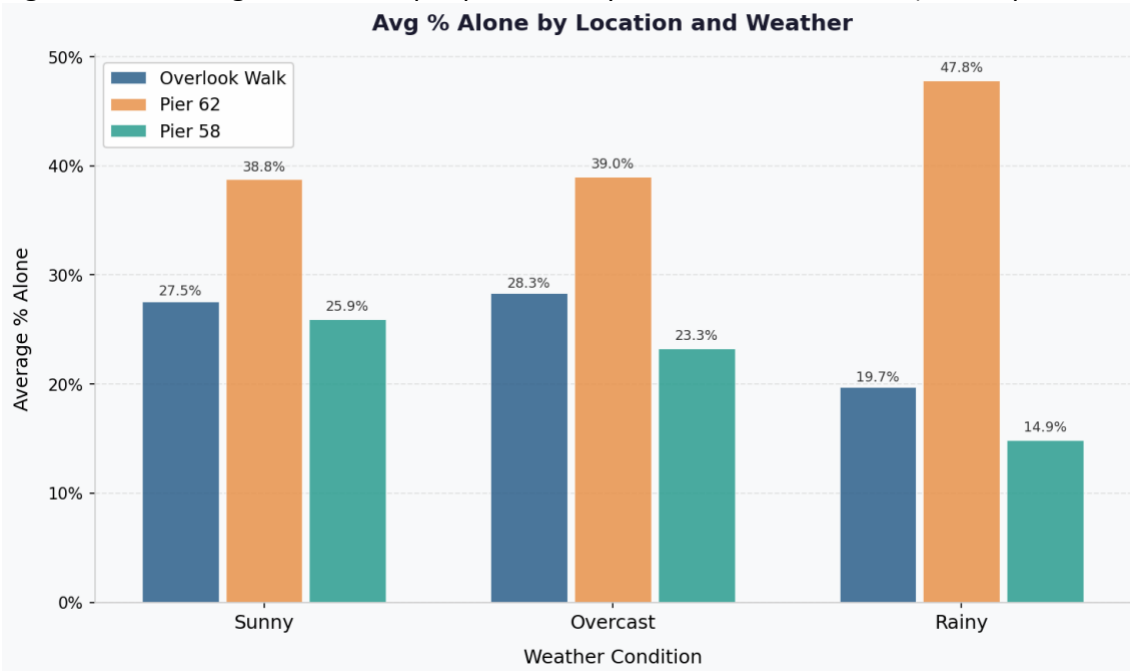
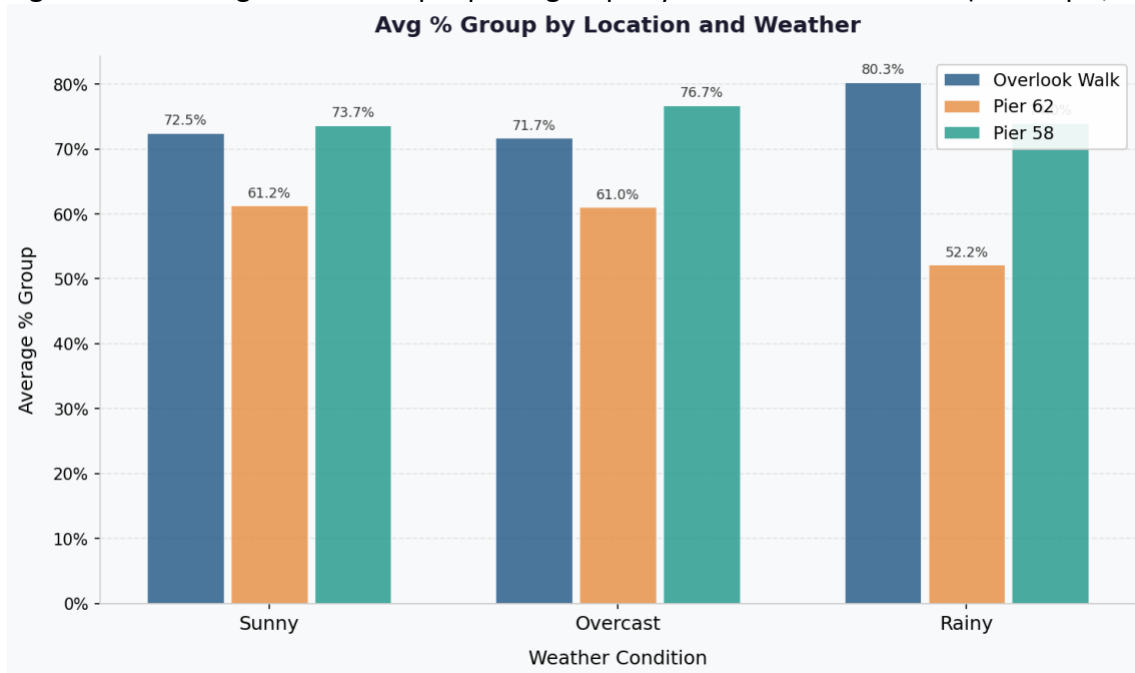
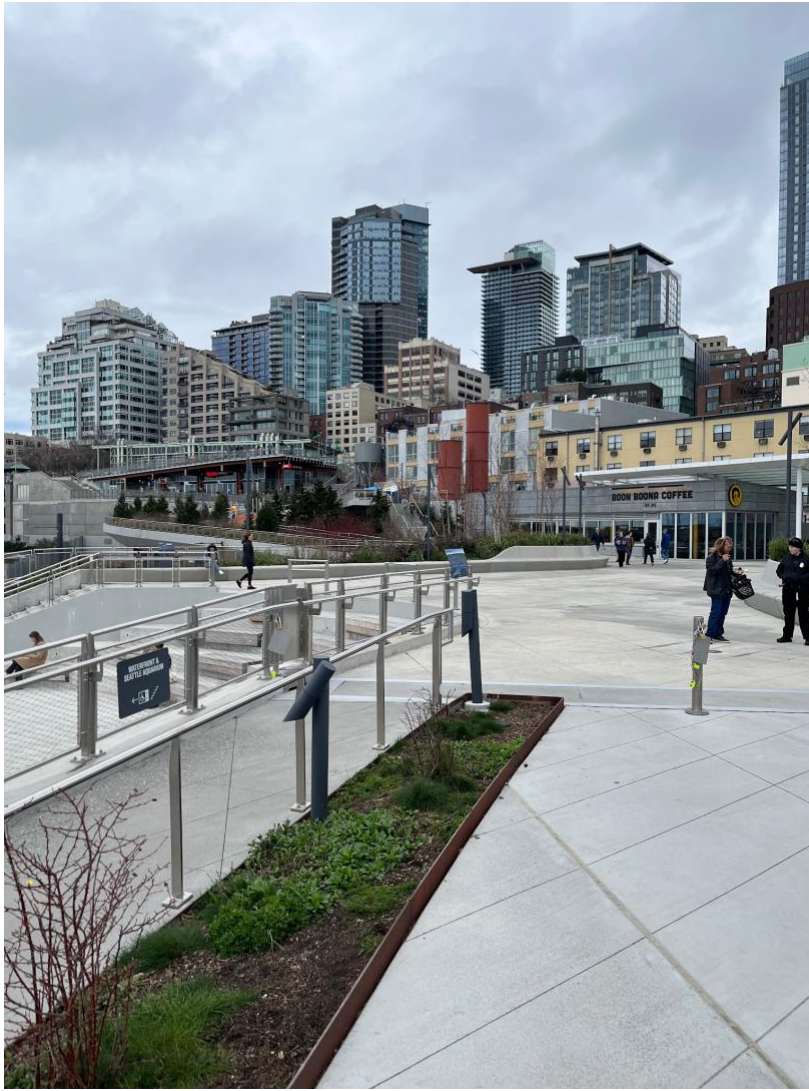


Figure R12. Average number of people in groups by location and weather (Anthropic, 2026)



It is unclear how many people are needed in the public space in order for the space to feel vibrant. For the Overlook Walk, the first time it was recorded as vibrant was when there were 47 people counted, with 21.28% alone and 78.72 in groups. However, multiple times when counts were higher (for example, 54 and 58 people, with a similar ratio of alone to group), the Overlook Walk was recorded as not vibrant. Only when the count hit 74 was the Overlook Walk subsequently reliably vibrant. However, because the Overlook Walk was only recorded as vibrant 8 times, there is not enough data to be confident that this is a true threshold.

Figure R13. Photo of a non-vibrant, overcast day at the Overlook Walk.



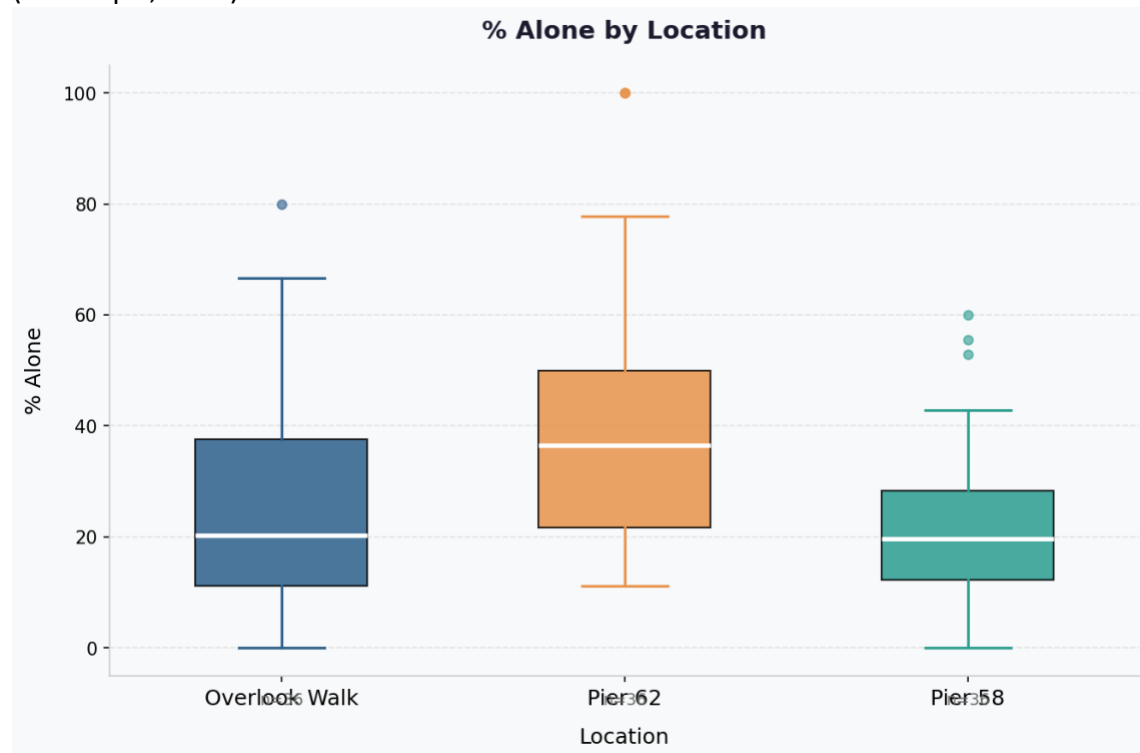
At Pier 62, the first count to be recorded as vibrant was 25 people, with 28% alone and 72% in groups, at the end of the week (2/12/2026). Interestingly, two days prior, 25 people were recorded at Pier 62 but with a much higher percentage of people alone: 36% alone vs. 64% in groups. This observation was recorded as not vibrant. Pier 62 only becomes reliably vibrant at 40 people, with other results with 35 and 38 people counted being recorded as both vibrant and not vibrant. Pier 62 has the highest median percentage of people alone, with the

Overlook Walk and Pier 58 having a similar median at about 20 percent. However, the spread at Pier 58 is much more narrow than at the Overlook walk.

Figure R14. Photo of a late afternoon at pier 62, vibrant.



Figure R15. Boxplot showing the difference in percentage of people alone by location (Anthropic, 2026)

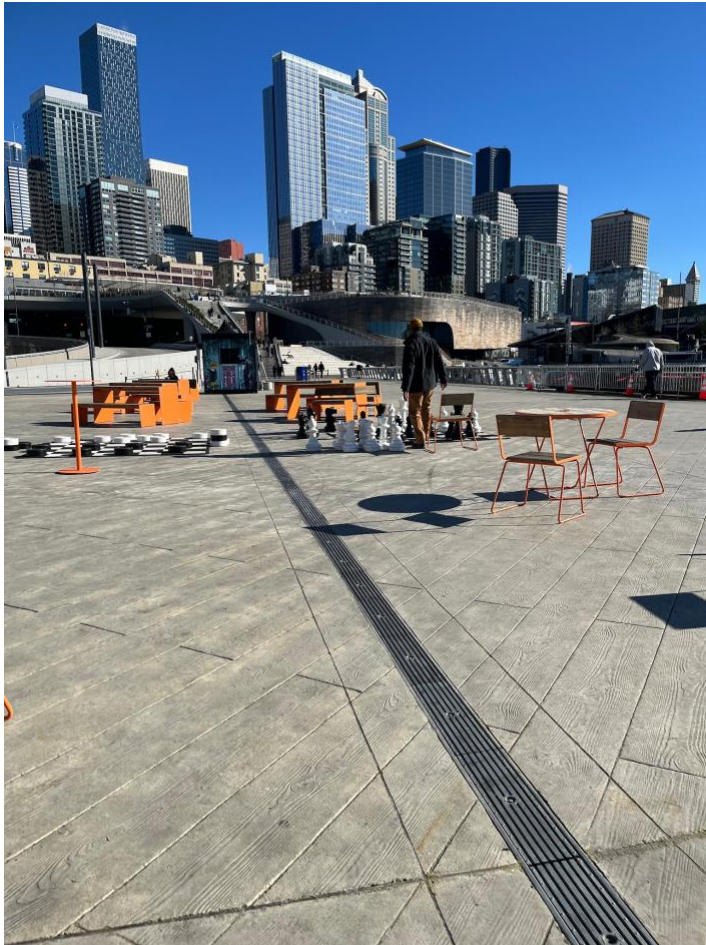


At Pier 58, the first vibrancy recording was at 63 people, but it never became reliably vibrant.

On 2/28/2026, a sunny day with 119 people, 90.76 of whom were in groups, Pier 58 was labeled as not vibrant. Because of these unexpected findings, other factors may contribute to vibrancy besides simply the number of people and the ratio between alone and group.

However, reiterating that the sample size is small, it is difficult to draw this conclusion with confidence. More than half of the observations had a percentage of people in groups above 75%, even though the vast majority of observations were labeled as not vibrant. While the sample size of observations and vibrant observations are low, this finding does call into question the methods of William Whyte and Jan Gehl.

Figure R16. A photograph of a non-vibrant sunny day at Pier 62



I generated several box plots and scatter plots to show the relationship between variables. A box plot graph was produced showing the relationship between weather conditions and vibrancy. The boxes show the interquartile range (or 50 percent of the data) of vibrancy or non vibrancy on the x axis and people staying on the y axis. The whiskers show the minimum and maximum number of people staying when it is vibrant or not vibrant. The points show outliers in the data (for example, one observation was labeled not vibrant, but with 119 people staying recorded). Figure R15 shows the difference between the percentage of people labeled as alone in each public space. While there is overlap between the percentages among the three spaces, Pier 62 had the highest overall percentage of people alone. Figure R18 shows that there

is significant overlap between non-vibrant and vibrant observations on both sunny and overcast days, while there is little overlap between vibrant and non-vibrant observations on rainy days (The rainy day with many people recorded is likely an outlier—this was the opening day of the coffee shop located on the overlook walk, shown in Figure R17). This suggests that there are other factors in determining vibrancy on days when there is no rain.

Figure R17. Photo of a vibrant, rainy first day at the Overlook Walk



Figure R18. Box plot showing the relationship between weather conditions and vibrancy among people staying in the public spaces (Anthropic, 2026)

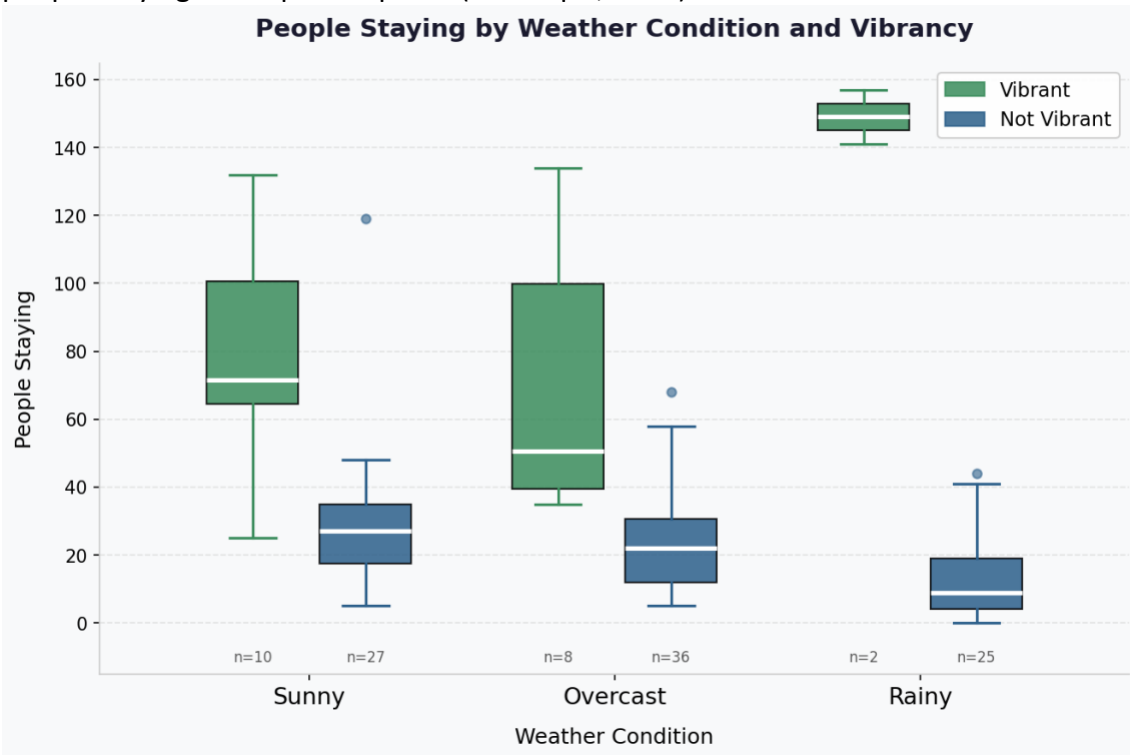


Figure R19. Box plot showing the relationship between wind speed and the number of people staying in the public spaces (Anthropic, 2026)

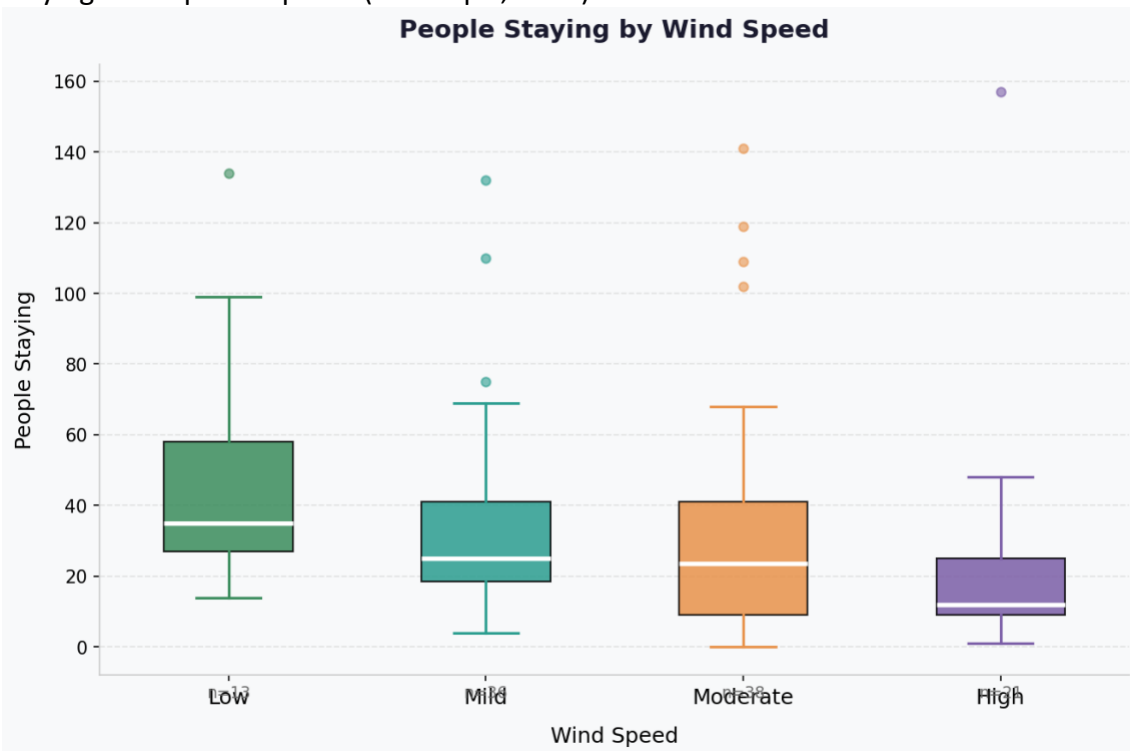


Figure R19 shows the relationship between people staying and wind speed. While this graph does show a slight relationship, that fewer people are staying in the public spaces when wind speed is higher, there is significant overlap between speeds, and many outliers across all four speeds. Because of the outliers, temperature is a possible factor that could be influencing people staying. Because it is a continuous variable, I generated a scatterplot to show this relationship.

Figure R20. Scatter plot showing relationship between temperature and people staying in public spaces (Anthropic, 2026)

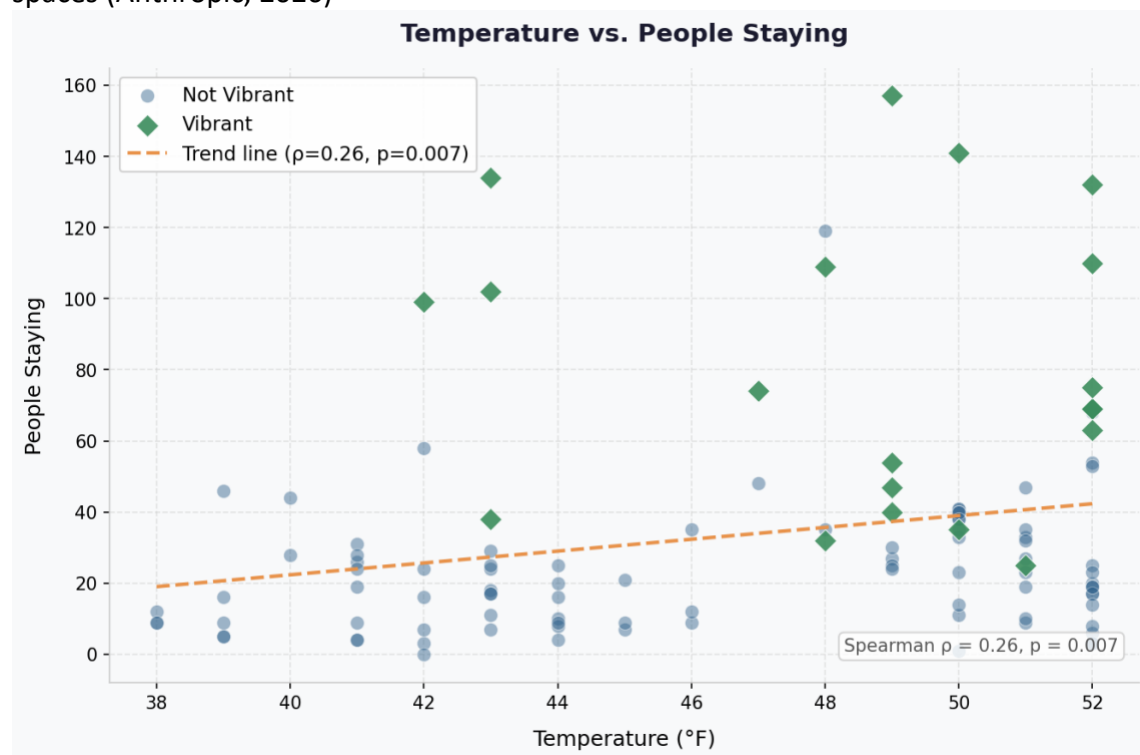


Figure R20 shows the relationship between temperature and people staying, showing a slightly significant relationship between the two variables. As temperature rises, more people are likely to stay in the public spaces. This trendline was produced by a Spearman correlation

test, which is used with two continuous variables that are not necessarily normally distributed. The p value equals .007, meaning that there is a statistically significant relationship between temperature and number of people.

Figure R21. Photo of a non-vibrant overcast day at Pier 58



Statistical tests were also conducted alongside these charts to further explain relationships between variables, specifically whether environmental conditions correlate with vibrancy and people staying in the waterfront public spaces. Chi-square tests were conducted for weather and wind conditions vs. vibrancy, as these are both categorical variables, resulting in p-values of .136 and .133, respectively, meaning that there is no significant relationship between either wind or weather and vibrancy. Furthermore, another Chi-square test showed that there is no significant relationship between location and vibrancy (p-value of .651).

However, when a point-biserial test (used for the relationship between one continuous and one binary variable) was conducted for temperature vs. vibrancy, this resulted in a p-value

of .034, showing a significant relationship, potentially due to the small sample of vibrant-recorded observations. Additionally, when a Chi-square test was conducted for day of week vs. vibrancy, this also showed a significant relationship between the two, with a p-value of .002.

There is a much stronger correlation between environmental conditions and people staying. Kruskal-Wallis tests, which are used to find relationships between an abnormally distributed continuous variable (people staying) and three or more groups (e.g. weather types) found that there are significant relationships between weather and people staying (p-value $<.001$), wind and people staying (p-value .019), and location and people staying (p-value .003). The interpretation is fairly obvious: more people stayed on sunny days, less windy days had more people staying, and the Overlook Walk had the most people, while Pier 62 had the least.

Figure R22. Photo of a vibrant sunny day at the Overlook Walk



Figure R23. Photo of a vibrant sunny day at Pier 58



Finally, a Point-biserial test was conducted to determine whether there is a relationship between percentage of people in groups and vibrancy, the theory of William H. Whyte. The test found that, with p-value of .001, there is a statistically significant relationship between

percentage of people in groups and vibrancy. Furthermore, the test found that for vibrant observations, there is a median of 85.5 % people in groups, whereas for non-vibrant observations, there is a median of 69.4 % people in groups.

Figure R24. Photo of a vibrant overcast day at Pier 58



Discussion

Vibrancy

First, public spaces on the waterfront were vibrant during sunnier weather and less so in colder and wetter conditions. The Overlook Walk is generally a more vibrant public space than Pier 62 and Pier 58, but there is no significant difference in the vibrancy of the three public spaces. William Whyte's theory that vibrant public spaces have a higher percentage of people in groups holds at Seattle's waterfront. However, there is a clear difference between Whyte's New York spaces and Seattle's waterfront. While Whyte found that in vibrant spaces less than 50 percent of people were in groups, at the Seattle waterfront public spaces, the spaces were vibrant when the percentage of people in groups was much higher.

One potential reason for this discrepancy is that the spaces that Whyte (and Gehl) were researching during the late 20th century were fundamentally different from Seattle's waterfront, and perhaps other redeveloped waterfronts in the United States and Canada. Whyte and Gehl were researching neighborhood parks and plazas like Seagram Plaza in New York City, which is well integrated into a residential and business neighborhood, unlike the Seattle waterfront, which is decidedly separate from the residential and business district.

This could mean that fewer residents and downtown office workers are close to the waterfront, as opposed to the residents and office workers in Whyte's New York plazas. This could be why on weekdays at 12 pm, during the lunch hour, the waterfront was often empty, and why no weekday observations were labeled as vibrant. On the contrary, end-of-week and

weekend observations were more likely to be vibrant, suggesting that people visiting the waterfront are tourists rather than locals or workers.

Furthermore, these public spaces exist alongside other waterfront attractions. Tourist attractions nearby, such as Miner's Landing, the Seattle Great Wheel, whale watching and private cruise launches, Ye Olde Curiosity Shop, the Seattle Aquarium, and the Colman Dock ferry terminal, are all within walking distance of these three public spaces. It makes sense that many people would stop at these public spaces on their way to these attractions—especially the Overlook Walk, which doubles as a transportation route between Pike Place Market and the Waterfront.

Percentages of people in groups may be high because people visit the Waterfront as tourists with friends and family. I did not collect data on this phenomenon, but it was my perception that many of the people visiting the waterfront, even on non-vibrant days, were groups of families. Despite very high percentages of observed people being in groups, vibrancy did not happen until more people came during the sunny weather and higher temperatures. Of the 108 observations, only during 14 was there a percentage of at or below 45%, the number that Whyte highlights for vibrancy. And when the observations are ordered by percentage of people in groups, the percentage must get above 70 for vibrancy to occur.

Time period could be another reason for this discrepancy. When William Whyte was studying Seagram plaza in New York in the 1970s, it was a time when all workers worked on-site, with few options for remote work. It was also a time without mass communication and entertainment, which provide stimulation whenever boredom arises. Whyte's film-format of *Social Life of Small Urban Spaces* (1980) shows people standing around, watching others, and

simply enjoying being around other people (this could be why the percentage of people alone was much higher when this data was collected by Whyte).

Fewer people may feel the need to go to public spaces to feel a sense of stimulation and connection. While cell phones cannot recreate the pleasure of human interaction, the dopamine hit is instant. I saw some people enjoying being by themselves on the waterfront, but the behavior at the waterfront compared to the behavior in Whyte's film was completely different. Most people by themselves were not watching others, as people in the film were (Whyte, 1980b). Furthermore, post-pandemic Seattle is a work-from-home city. Fewer people come to work in downtown Seattle (the most recent data, from 2024, showed that 24% of people in Seattle work from home most days) (Balk, 2025), and so there are fewer single people to fill the public spaces at lunchtime and after work. While Amazon recently began requiring employees to work in the office (Zinkula and Zhang, 2026), the closest offices are located more than a half-mile away from the waterfront, so it is unlikely that these workers would spend much time at the waterfront on breaks.

Whyte's theory that more groups and socializing means more vibrancy still holds in the 21st century, but may need to be recalibrated to incorporate new communication and entertainment paradigms and the way destinations draw groups of people. While there was no obvious percent threshold to change Whyte's finding to, it would probably be around 75%, rather than 45%.

Design

While I did not account for the design of the waterfront public spaces as part of the analysis, it is clear from the Gehl and Whyte literature that design plays a large role in facilitating vibrancy, and likely played a role in the vibrancy of the public spaces on the waterfront. We can use the work of Whyte and Gehl to theorize visitation to the waterfront. All three public spaces provide good infrastructure for standing, sitting, and walking, especially along the edges of the spaces.

Overlook Walk also provides good seating and standing space along edges, with many edges against pleasant, lush vegetation planted between the walkway and the edge of the bridge. For these reasons, it is unsurprising that each location hosted large crowds of people during good weather and less wind. Gehl suggests that NA cities don't account for weather conditions in urban design, and this might explain why the three public spaces were often deserted in February and March when the weather was not perfect. While I did not collect data on this phenomenon, I often walked through the covered arcade of Pike Place Market on the way to the Overlook Walk, which, even in the dark of winter, was usually packed with people. Pike Place provides shelter from wind and weather, as well as an interesting destination, which the Waterfront cannot offer in the winter weather.

While the Overlook Walk includes a sheltered area next to the retail building, it is narrow and does not protect from the wind coming off Elliott Bay. Pier 62 and Pier 58 offer no permanent shelter from the elements, although Pier 62 consistently has foldable tents set up, where I would collect data from during stormy days. Protective shelter, even temporary shelter, could allow more people to enjoy the waterfront in the off-season and allow more frequent

programming. While a winter market did take place on one day at Pier 62 after my data collection, it was rainy that day, and few people were walking on the waterfront.

Policy Reforms

Planners can influence the urban space around the waterfront to maximize the number of people visiting and staying in the public spaces year-round, instead of relying on tourism to fill the space. Land use and transportation planning can play an important role in ensuring that this investment is worth the money. First, as Professor Dave Amos noted in his YouTube video *Did Seattle Build the Best Pedestrian Bridge Ever?*, the land use along the east side of Alaskan Way is not reflective of the current waterfront land use: before the redevelopment, public storage and a surface parking lot made sense as freeway-adjacent land uses. The city of Seattle could provide incentives in the form of property tax breaks to developers who redevelop underutilized or poorly utilized parcels on or near the waterfront into dense, mixed-income multifamily housing and retail buildings, which would help to drive local traffic on the waterfront during the off-season.

Additionally, while Seattle has crafted a beautiful skyline through height limits on the waterfront, the low-rise multifamily and office buildings along Alaskan Way likely are not the highest and best use for parcels of such high value. The Downtown Harborfront zones (DH1 and DH2) have height limits between 45 feet and 85 ft, a severely limiting size (Seattle Municipal Code § 23.49.007). This could be why so few parcels have been redeveloped on the waterfront compared to other downtown districts—it may be cost-prohibitive to develop high-value waterfront parcels with so few floors. In fact, there were several development projects proposed along Alaskan Way, then abandoned, in the last few years (Costar Group, n.d.). The

city could also increase or eliminate the height limits on waterfront adjacent parcels to spur development and increase residential density along the waterfront. While this would be a major change in urban form, it would increase foot traffic in the neighborhood. Opponents of this kind of reform may counter that increasing tall buildings near the waterfront would mean that only wealthy people who can afford to pay would be able to access viewsheds of the water. However, the Seattle Mandatory Housing Affordability Program would still apply in this case, and would ensure that affordable housing is accessible on the waterfront, or that funding for affordable housing is generated through these developments (SDCI, n.d.).

Transportation on the waterfront should also be reformed. While the new walking and biking trails on the waterfront are a great addition, high-capacity transportation is limited. The Colmon Dock Ferry terminal is located on the waterfront, as are north and south-bound stops on the Rapidride H and C lines on Alaskan Way and Columbia St. But these are far from the three public spaces I researched, and the next closest transit corridor is 3rd Ave, which has buses and light rail, five blocks away and up a steep hill. In hind-sight, it may have been a poor decision to retire the waterfront streetcar, which ran along Alaskan Way between the Chinatown/International District and the (now) Olympic Sculpture Park between 1982 and 2005 (Hall, 2013). Considering the high costs of rebuilding a waterfront streetcar route. However, a year-round, frequent King County Metro bus line would be helpful to provide direct access to and from the waterfront from, for example, Lower Queen Anne and the Seattle Center to the north, as well as Pioneer Square and the International District/Chinatown station to the south. This would help both visitors and locals access the waterfront more easily.

Limitations

This study had limitations that impact the ability to draw strong conclusions from the data with confidence. However, understanding these limitations means that future research or similar studies can be better developed. These limitations have to do with human capacity, human error, and time constraints.

First, the scope of this study was constrained by my capacity to collect data. Being one person, I could only collect data on how many people were in the public spaces, and not what those people were doing while in the space, how long they stayed, and whether they interacted with people they did not know previously. Additionally, I could not conduct William Whyte's study, wherein he asked study participants to answer whether or not they felt the space was vibrant, and how many people it took within their field of vision for the space to feel vibrant. If I had been able to do this, I would have produced much more robust data about the vibrancy of the space.

Second, human error could have affected the quality of the data. As I labeled the public spaces as vibrant or not vibrant during my observations based on my own perceptions and not on a threshold based in theory or experimentation, the results are inherently subjective. While this is information in itself, these findings cannot be generalized to anyone else's perception, even though others may find it useful in understanding what one person felt made a vibrant public space. This reduces the reliability of the study. Additionally, while I tried to make my observations consistent, it is possible that factors other than the people present, such as temperature, wind speed, and time of day affected my perception of the vibrancy of the space.

This could be why there were no clear thresholds between vibrant and not vibrant in any of the public spaces, and why this study has a low level of validity.

Finally, time constraints reduced the scope of the study. Unlike a dissertation, a Master's thesis is conducted over a period of a few months rather than a year or more. Because of this, data collection could only be conducted during February and March of 2026. While this study provided valuable findings about the vibrancy of the public spaces on the waterfront during the off-season, a year-long study would be much more effective in capturing overall trends, and would provide more time to revise the methods when problems arise. Additionally, time constraints from my schedule meant that I could only collect data during small windows during the week, and only during periods of time when I thought the spaces would be more vibrant. This means that I did not collect data describing the vibrancy during the vast majority of the week. It is possible that my assumptions about when vibrancy would occur were completely incorrect, and that I missed important data collection opportunities because I did not visit the waterfront during most times of the week.

Future Research

Future research related to vibrancy at the waterfront's public spaces would mitigate the limitations as much as possible, as well as incorporate new methods and scope to expand the understanding of this space. First, volunteers, likely from the Community, Environment, and Planning (CEP) undergraduate program, would be asked to assist with data collection and with determining the thresholds for vibrancy more objectively. This would also account for human error, as a larger sample size would have fewer outliers. Additionally, the study would be

conducted over the course of the year, and with a team rather than an individual, the study would be conducted at many more times of the week.

Next, the study could expand its scope. Other methods, like the diary method, could be employed to understand what people do when they stay in the public spaces and how this differs by space, how the space changes over time (hours rather than minutes), at what times of the day or week the spaces become or cease to be vibrant, and how the vibrancy is different in different sections of the public space. This would mean that a broader amount of Gehl and Whyte's theory, discussed as context in the literature review, could be used to analyze the waterfront public spaces. Additionally, if funding for this research is available, drone and camera technology could be utilized to capture behavior on the waterfront over long periods of time, similar to how Whyte captured behavior on pedestrian plazas in New York City (Whyte, 1980b). Collecting this data would mean that the potential for human error would be lessened, as one could pause footage to ensure every person is recorded.

Furthermore, the design of the waterfront could be more fully investigated, determining whether one space is more vibrant than the others when a certain design element is present. Finally, a twin study could be conducted at a different public space—for example, Westlake Park, which is more integrated with Downtown Seattle, is not a destination in itself, and is more reminiscent of Whyte's New York plazas—to determine whether the fact that the waterfront is a destination is the factor that determined the percentage of people in groups versus those alone.

Conclusion

The public spaces on the newly redeveloped Seattle waterfront—the Overlook Walk, Pier 62, and Pier 58—are vibrant when weather is sunnier, wind is low, and temperatures are higher, during the months of February and March. The Overlook Walk is the most vibrant, followed by Pier 58 and Pier 62. The public spaces are the most vibrant at the end of the week and during the weekend, but are not vibrant during weekdays. The public spaces have more people on the weekends, but the end of the week is vibrant more often than weekends. The work of Gehl and Whyte provides a new theoretical framework for evaluating the success of waterfront spaces, and while the theory needs to be understood in the context of waterfronts as a unique kind of space, and the 21st century, their work would be helpful to other scholars looking for ways to evaluate waterfronts in their cities, and for planners designing new waterfront projects to better ensure they will be vibrant spaces their communities will enjoy.

This study provides a baseline for future research and for policymakers to use as guidance to help facilitate more vibrancy in the public spaces the city has invested in. This study has given the opportunity to explore and calibrate research questions based on feasibility, formulate methods, and revise them when they collide with reality, and work independently with a large data set to produce results for analysis.

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Appendix A

Full spreadsheet with data collected:

Date	Day Type	Location	Observation #	Time	Weather	Wind
2/7/2026	Weekend	Overlook Walk	1	11:20-11:40	Rainy	High
2/7/2026	Weekend	Overlook Walk	2	12:35-12:55	Rainy	Moderate
2/7/2026	Weekend	Pier 62	1	11:45-12:05	Rainy	High
2/7/2026	Weekend	Pier 62	2	1:00-1:20	Rainy	High
2/7/2026	Weekend	Pier 58	1	12:10-12:30	Rainy	Moderate
2/7/2026	Weekend	Pier 58	2	1:25-1:45	Rainy	Moderate
2/10/2026	Weekday	Overlook Walk	1	12:00-12:05	Sunny	Low
2/10/2026	Weekday	Overlook Walk	2	12:30-12:35	Sunny	Moderate
2/10/2026	Weekday	Pier 62	1	12:10-12:15	Sunny	Moderate
2/10/2026	Weekday	Pier 62	2	12:40-12:45	Sunny	Moderate
2/10/2026	Weekday	Pier 58	1	12:20-12:25	Sunny	Moderate
2/10/2026	Weekday	Pier 58	2	12:50-12:55	Sunny	High
2/12/2026	End of Week	Overlook Walk	1	4:00-4:05	Sunny	Low
2/12/2026	End of Week	Overlook Walk	2	4:30-4:35	Overcast	Moderate
2/12/2026	End of Week	Pier 62	1	4:10-4:15	Sunny	Low
2/12/2026	End of Week	Pier 62	2	4:40-4:45	Overcast	Moderate
2/12/2026	End of Week	Pier 58	1	4:20-4:25	Sunny	Low
2/12/2026	End of Week	Pier 58	2	4:50-4:55	Overcast	Low
2/17/26	Weekday	Overlook Walk	1	12:00-12:05	Sunny	Mild
2/17/26	Weekday	Overlook Walk	2	12:30-12:35	Sunny	Mild
2/17/26	Weekday	Pier 62	1	12:10-12:15	Sunny	High
2/17/26	Weekday	Pier 62	2	12:40-12:45	Sunny	High
2/17/26	Weekday	Pier 58	1	12:20-12:25	Sunny	Mild
2/17/26	Weekday	Pier 58	2	12:50-12:55	Sunny	Moderate
2/17/26	End of Week	Overlook Walk	1	4:00-4:05	Sunny	Moderate
2/19/2026	End of Week	Overlook Walk	2	4:30-4:35	Sunny	Moderate
2/19/2026	End of Week	Pier 62	1	4:10-4:15	Sunny	High
2/19/2026	End of Week	Pier 62	2	4:40-4:45	Overcast	High
2/19/2026	End of Week	Pier 58	1	4:20-4:25	Sunny	High
2/19/2026	End of Week	Pier 58	2	4:50-4:55	Overcast	High
2/21/2026	Weekend	Overlook Walk	1	11:00-11:05	Rainy	Moderate
2/21/2026	Weekend	Overlook Walk	2	11:30-11:35	Rainy	Moderate
2/21/2026	Weekend	Pier 62	1	11:10-11:15	Rainy	Moderate
2/21/2026	Weekend	Pier 62	2	11:40-11:45	Rainy	Mild
2/21/2026	Weekend	Pier 58	1	11:20-11:25	Rainy	Moderate
2/21/2026	Weekend	Pier 58	2	11:50-11:55	Rainy	Mild
2/24/2026	Weekday	Overlook Walk	1	12:00-12:05	Overcast	Mild
2/24/2026	Weekday	Overlook Walk	2	12:30-12:35	Overcast	Mild
2/24/2026	Weekday	Pier 62	1	12:10-12:15	Overcast	Moderate
2/24/2026	Weekday	Pier 62	2	12:40-12:45	Overcast	High
2/24/2026	Weekday	Pier 58	1	12:20-12:26	Overcast	Mild
2/24/2026	Weekday	Pier 58	2	12:50-12:55	Overcast	Moderate

2/26/2026	End of Week	Overlook Walk	1	4:00-4:05	Sunny	High
2/26/2026	End of Week	Overlook Walk	2	4:30-4:35	Sunny	Moderate
2/26/2026	End of Week	Pier 62	1	4:10-4:15	Sunny	High
2/26/2026	End of Week	Pier 62	2	4:40-4:45	Sunny	High
2/26/2026	End of Week	Pier 58	1	4:20-4:25	Sunny	Low
2/26/2026	End of Week	Pier 58	2	4:50-4:55	Sunny	Low
2/28/26	Weekend	Overlook Walk	1	11:00-11:05	Sunny	Low
2/28/26	Weekend	Overlook Walk	2	11:30-11:35	Sunny	Moderate
2/28/26	Weekend	Pier 62	1	11:10-11:15	Sunny	High
2/28/26	Weekend	Pier 62	2	11:40-11:45	Sunny	Moderate
2/28/26	Weekend	Pier 58	1	11:20-11:25	Sunny	High
2/28/26	Weekend	Pier 58	2	11:50-11:55	Sunny	Moderate
3/3/26	Weekday	Overlook Walk	1	12:00-12:05	Overcast	Mild
3/3/26	Weekday	Overlook Walk	2	12:30-12:35	Overcast	Mild
3/3/26	Weekday	Pier 62	1	12:10-12:15	Overcast	Mild
3/3/26	Weekday	Pier 62	2	12:40-12:45	Overcast	Mild
3/3/26	Weekday	Pier 58	1	12:20-12:26	Overcast	Mild
3/3/26	Weekday	Pier 58	2	12:50-12:55	Overcast	Mild
3/5/2026	End of Week	Overlook Walk	1	4:00-4:05	Overcast	Mild
3/5/2026	End of Week	Overlook Walk	2	4:30-4:35	Overcast	Mild
3/5/2026	End of Week	Pier 62	1	4:10-4:15	Overcast	Mild
3/5/2026	End of Week	Pier 62	2	4:40-4:45	Overcast	High
3/5/2026	End of Week	Pier 58	1	4:20-4:25	Overcast	Mild
3/5/2026	End of Week	Pier 58	2	4:50-4:55	Overcast	Moderate
3/7/2026	Weekday	Overlook Walk	1	12:00-12:05	Overcast	Moderate
3/7/2026	Weekday	Overlook Walk	2	12:30-12:35	Overcast	Moderate
3/7/2026	Weekday	Pier 62	1	12:10-12:15	Overcast	Mild
3/7/2026	Weekday	Pier 62	2	12:40-12:45	Overcast	Mild
3/7/2026	Weekday	Pier 58	1	12:20-12:26	Overcast	Moderate
3/7/2026	Weekday	Pier 58	2	12:50-12:55	Overcast	Moderate
3/10/2026	Weekday	Overlook Walk	1	12:00-12:05	Overcast	High
3/10/2026	Weekday	Overlook Walk	2	12:30-12:35	Overcast	Mild
3/10/2026	Weekday	Pier 62	1	12:10-12:15	Overcast	High
3/10/2026	Weekday	Pier 62	2	12:40-12:45	Overcast	Mild
3/10/2026	Weekday	Pier 58	1	12:20-12:26	Overcast	Moderate
3/10/2026	Weekday	Pier 58	2	12:50-12:55	Overcast	Moderate
3/12/2026	End of Week	Overlook Walk	1	4:00-4:05	Rainy	Moderate
3/12/2026	End of Week	Overlook Walk	2	4:30-4:35	Rainy	Mild
3/12/2026	End of Week	Pier 62	1	4:10-4:15	Rainy	Moderate
3/12/2026	End of Week	Pier 62	2	4:40-4:45	Rainy	High
3/12/2026	End of Week	Pier 58	1	4:20-4:25	Rainy	Mild
3/12/2026	End of Week	Pier 58	2	4:50-4:55	Rainy	Moderate
3/14/2026	Weekend	Overlook Walk	1	11:00-11:05	Overcast	Mild
3/14/2026	Weekend	Overlook Walk	2	11:30-11:35	Rainy	Mild

3/14/2026	Weekend	Pier 62	1	11:10-11:15	Overcast	Mild
3/14/2026	Weekend	Pier 62	2	11:40-11:45	Rainy	Mild
3/14/2026	Weekend	Pier 58	1	11:20-11:25	Overcast	Mild
3/14/2026	Weekend	Pier 58	2	11:50-11:55	Rainy	Mild
3/17/2026	Weekday	Overlook Walk	1	12:00-12:05	Rainy	Moderate
3/17/2026	Weekday	Overlook Walk	2	12:30-12:35	Rainy	High
3/17/2026	Weekday	Pier 62	1	12:10-12:15	Rainy	Moderate
3/17/2026	Weekday	Pier 62	2	12:40-12:45	Rainy	Moderate
3/17/2026	Weekday	Pier 58	1	12:20-12:26		
3/17/2026	Weekday	Pier 58	2	12:50-12:55	Rainy	Moderate
3/21/26	Weekend	Overlook Walk	1	12:00-12:05	Overcast	Low
3/21/26	Weekend	Overlook Walk	2	12:30-12:35	Overcast	Moderate
3/21/26	Weekend	Pier 62	1	12:10-12:15	Overcast	Low
3/21/26	Weekend	Pier 62	2	12:40-12:45	Overcast	Low
3/21/26	Weekend	Pier 58	1	12:20-12:26	Overcast	Low
3/21/26	Weekend	Pier 58	2	12:50-12:55	Overcast	Low
3/26/2026	End of Week	Overlook Walk	1	4:00-4:05	Sunny	Mild
3/26/2026	End of Week	Overlook Walk	2	4:30-4:35	Sunny	Mild
3/26/2026	End of Week	Pier 62	1	4:10-4:15	Sunny	Mild
3/26/2026	End of Week	Pier 62	2	4:40-4:45	Sunny	Mild
3/26/2026	End of Week	Pier 58	1	4:20-4:25	Sunny	Mild
3/26/2026	End of Week	Pier 58	2	4:50-4:55	Sunny	Mild

Temperature (°F)	People Staying	People Alone	People in Groups	% Alone	% Group	Vibrant?
49	157	16	141	10.19	89.81	Yes
50	141	16	125	11.35	88.65	Yes
50	1	1	0	100.00	0.00	No
51	9	1	8	11.11	88.89	No
50	41	4	37	9.76	90.24	No
51	33	5	28	15.15	84.85	No
49	27	18	9	66.67	33.33	No
50	23	13	10	56.52	43.48	No
49	25	9	16	36.00	64.00	No
50	38	15	23	39.47	60.53	No
50	41	15	24	36.59	58.54	No
51	19	8	11	42.11	57.89	No
51	35	14	21	40.00	60.00	No
50	40	5	35	12.50	87.50	No
51	25	7	18	28.00	72.00	Yes
50	35	10	25	28.57	71.43	Yes
51	32	7	25	21.88	78.13	No
50	33	8	25	24.24	75.76	No
41	31	6	25	19.35	80.65	No
41	26	8	18	30.77	69.23	No
41	9	9	0	100.00	0.00	No
41	19	3	16	15.79	84.21	No
41	28	5	23	17.86	82.14	No
41	24	5	19	20.83	79.17	No
39	16	4	12	25.00	75.00	No
38	9	0	9	0.00	100.00	No
39	9	7	2	77.78	22.22	No
38	12	6	6	50.00	50.00	No
39	5	3	2	60.00	40.00	No
38	9	2	7	22.22	77.78	No
42	3	1	2	33.30	66.70	No
42	7	3	4	42.86	57.14	No
43	18	5	13	27.78	72.22	No
43	24	5	19	20.83	79.17	No
42	0	0	0	0.00	0.00	No
44	10	0	10	0.00	100.00	No
45	21	9	12	42.86	57.14	No
46	35	11	24	31.43	68.57	No
45	7	3	4	42.86	57.14	No
46	9	5	4	55.56	44.44	No
45	9	5	4	55.56	44.44	No
46	12	2	10	16.67	83.33	No

51	27	8	19	29.63	70.37	No
50	40	15	25	37.50	62.50	No
50	11	5	6	45.45	54.55	No
50	35	13	22	37.14	62.86	No
50	14	6	8	42.86	57.14	No
50	38	7	31	18.42	81.58	No
47	74	10	64	13.51	86.49	Yes
48	109	9	100	8.26	91.74	Yes
48	32	7	25	21.88	78.13	Yes
48	35	6	29	17.14	82.86	No
47	48	6	42	12.50	87.50	No
48	119	11	108	9.24	90.76	No
51	10	8	2	80.00	20.00	No
52	20	11	9	55.00	45.00	No
51	23	13	10	56.52	43.48	No
52	19	10	9	52.63	47.37	No
52	25	6	19	24.00	76.00	No
52	17	9	8	52.94	47.06	No
49	47	10	37	21.28	78.72	Yes
49	24	7	17	29.17	70.83	No
49	40	8	32	20.00	80.00	Yes
43	25	9	16	36.00	64.00	No
49	30	8	22	26.67	73.33	No
49	54	7	47	12.96	87.04	Yes
51	47	8	39	17.02	82.98	No
52	54	12	42	22.22	77.78	No
52	23	7	16	30.43	69.57	No
52	17	8	9	47.06	52.94	No
52	53	4	49	7.55	92.45	No
52	68	8	60	11.76	88.24	No
42	24	4	20	16.67	83.33	No
43	29	11	18	37.93	62.07	No
43	7	5	2	71.43	28.57	No
43	11	5	6	45.45	54.55	No
43	17	6	11	35.29	64.71	No
43	17	4	13	23.53	76.47	No
44	16	8	8	50.00	50.00	No
44	20	2	18	10.00	90.00	No
44	8	3	5	37.50	62.50	No
44	4	2	2	50.00	50.00	No
44	25	4	21	16.00	84.00	No
44	9	2	7	22.22	77.78	No
39	46	3	43	6.52	93.48	No
40	44	4	40	9.09	90.91	No

39	5	1	4	20.00	80.00	No
41	4	2	2	50.00	50.00	No
40	28	7	21	25.00	75.00	No
41	4	0	4	0.00	100.00	No
52	14	0	14	0.00	100.00	No
52	19	2	17	10.53	89.47	No
52	6	2	4	33.33	66.67	No
52	3	3	0	100.00	0.00	No
	3	1	2	33.33	66.67	No
52	8	3	5	37.50	62.50	No
42	58	11	47	18.97	81.03	No
43	102	5	97	4.90	95.10	Yes
42	16	2	14	12.50	87.50	No
43	38	6	32	15.79	84.21	Yes
42	99	3	96	3.03	96.97	Yes
43	134	10	124	7.46	92.54	Yes
52	132	24	108	18.18	81.82	Yes
52	110	14	96	12.73	87.27	Yes
52	69	12	57	17.39	82.61	Yes
52	69	20	49	28.99	71.01	Yes
52	75	11	64	14.67	85.33	Yes
52	63	9	54	14.29	85.71	Yes

Appendix B

Template of Field Notes Observation Form

Template:

Date:

Schedule:

Location 1: Overlook Walk

- First Observation:
 - Conditions:
 - Weather:
 - Wind:
 - Temperature:
 - Number of people staying:
 - Number of people alone:
 - Number of people in groups:
 - Percentage single:
 - Percentage group:
 - Vibrant (Y/N):
 - Notes:
 - Photos:
- Second Observation:
 - Conditions:
 - Weather:
 - Wind:
 - Temperature:
 - Number of people staying:
 - Number of people single:
 - Number of people in groups:
 - Percentage alone:
 - Percentage group:
 - Vibrant (Y/N):
 - Notes:
 - Photos:

Location 2: Pier 62

- First Observation:
 - Conditions:
 - Weather:
 - Wind:
 - Temperature:
 - Number of people staying:
 - Number of people single:
 - Number of people in groups:
 - Percentage single:
 - Percentage group:
 - Vibrant (Y/N):
 - Notes:
 - Photos:
- Second Observation:
 - Conditions:
 - Weather:
 - Wind:
 - Temperature:
 - Number of people staying:
 - Number of people single:
 - Number of people in groups:
 - Percentage single:
 - Percentage group:
 - Vibrant (Y/N):
 - Notes:
 - Photos:

Location 3: Pier 58

- First Observation:
 - Conditions:
 - Weather:
 - Wind:
 - Temperature:
 - Number of people staying:
 - Number of people single:
 - Number of people in groups:
 - Percentage single:
 - Percentage group:

- Vibrant (Y/N):
 - Notes:
 - Photos:
- Second Observation:
 - Conditions:
 - Weather:
 - Wind:
 - Temperature:
 - Number of people staying:
 - Number of people single:
 - Number of people in groups:
 - Percentage single:
 - Percentage group:
 - Vibrant (Y/N):
 - Photos:

Appendix C

Claude Generative AI Commands

1. "Can you create a flow chart for how observations are organized?"
2. "Here is a research form I have used to collect data. Please organize it into a spreadsheet I can use to analyze the data. Do not include the photos, notes, or reflection data."
3. "Here is the updated spreadsheet--can you add a summary table comparing weather, wind and temperature to vibrancy."
4. "I would like to conduct statistical tests on this data to find which [variables] influence each other" and "I want to create box and scatter plots for these variables."