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THE IMPORTANCE OF EMOTIONAL AND PHYSICAL SAFETY IN THE  
SUCCESS AND DEVELOPMENT OF PUBLIC SPACES

by

ISABELLA WILHELM

A thesis submitted in partial fulfillment of the requirements  
for the Honors Undergraduate Independent Thesis Program in Architecture  
in the College of Arts and Humanities  
and in the Burnett Honors College  
at the University of Central Florida  
Orlando, Florida

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Thesis Chair: Herbert Thomas James IV, M.Arch

## **ABSTRACT**

Our day-to-day lives consist of formal and informal settlements in the built environment. As humans, we gravitate towards successful informal settlements (public spaces) to conduct activities such as socializing and recharging. Previous research has highlighted the importance of distinct factors in determining the success of public spaces. Still, research has failed to develop the foundation that makes all public places prosper. Through examining successful and unsuccessful public places through case studies, this research analyses the success and importance of our emotional and physical safety in public spaces through the presence or absence of sound, light, nature, boundaries, and order.

## **ACKNOWLEDGEMENTS**

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## TABLE OF CONTENTS

INTRODUCTION .....	1
METHODS .....	5
1.1    Boundaries Methods .....	5
1.2    Sound Methods .....	7
1.3    Light Methods .....	8
1.4    Nature Methods .....	10
1.5    Absence of Order Methods .....	12
RESULTS .....	14
Boundary Tests Results .....	16
Sound Tests Results .....	21
Light Tests Results .....	27
Nature Tests Results .....	30
Absence of order Tests Results .....	34
GENERAL DISCUSSION .....	38
REFERENCES .....	40

## LIST OF FIGURES

FIGURE 1: HARBOR PARK MAP SHOWING THE OVERALL BOUNDARY AND MICRO-BOUNDARIES FOUND.....	16
FIGURE 2: CMX CINEMA PLAZA CAFÉ 12 SHOWING THE OVERALL BOUNDARY AND MICRO-BOUNDARIES FOUND .....	19
FIGURE 3: HARBOR PARK MAP SHOWING THE LOCATIONS WHERE DECIBELS (dB) AND SOURCES WERE MEASURED .....	21
FIGURE 4: CMX CINEMAS PLAZA CAFÉ 12 MAP SHOWING THE LOCATIONS WHERE DECIBELS (dB) AND SOURCES WERE MEASURED.....	24
FIGURE 5: HARBOR PARK MAP SHOWING VARIOUS LIGHT SOURCES .....	27
FIGURE 6: CMX CINEMAS PLAZA CAFÉ 12 MAP SHOWING VARIOUS LIGHT SOURCES .....	29
FIGURE 7: HARBOR PARK MAP SHOWING THE VARIOUS ELEMENTS OF NATURE .....	30
FIGURE 8: CMX CINEMAS PLAZA CAFÉ12 MAP SHOWING THE VARIOUS ELEMENTS OF NATURE ...	32
FIGURE 9: HARBOR PARK MAP SHOWING VARIOUS ELEMENTS OF ABSENCE OF ORDER .....	34
FIGURE 10: CMX CINEMAS PLAZA CAFÉ 12 MAP SHOWING VARIOUS ELEMENTS OF ABSENCE OF ORDER.....	36

## LIST OF TABLES

TABLE 1: HARBOR PARK BOUNDARIES ANALYSIS .....	17
TABLE 2: CMX CINEMAS CAFÉ 12 BOUNDARIES ANALYSIS .....	20
TABLE 3: HARBOR PARK LOUDNESS (dB) AND SOURCES .....	22
TABLE 4: CMX CINEMAS PLAZA CAFÉ 12 LOUDNESS (dB) AND SOURCES .....	25
TABLE 5: HARBOR PARK ABSENCE OF ORDER ANALYSIS.....	34
TABLE 6: CMX CINEMAS PLAZA CAFÉ 12 ABSENCE OF ORDER ANALYSIS .....	37

## INTRODUCTION

Our everyday life consists of formal and informal dimensions in the built environment. As humans, we look for these informal settlements (public spaces) within the environment to conduct different everyday activities such as socializing and disconnecting from our day-to-day lives. Our emotional and physical safety play a significant role in the success and development of these spaces. Since the architecture around us functions as a regulatory force that affects and influences our behavior, our feelings, and our thoughts, it is essential that we develop places in which we can thrive as a society (Shah and Kesan, 2007; Laguerre, 1994). Previous research on the elements that attribute to the success of a public space belittles the importance of our unconscious need for safety, both emotionally and physically, and overemphasizes the importance of other elements such as proper programming, location, activities, and accessibility to a place. However, this research aims to study the presence of our unconscious need for safety within public spaces in Central Florida as the foundation of their prosperity. This research utilizes the presence or absence of sound, light, nature, boundaries, and order to study the different elements that evoke safety within a public space. Since public spaces are crucial for our communities to operate as living organisms in our cities, it is essential we dissect the different elements that attribute to their success, especially those which contribute to our unconscious need for safety.

Concepts related to the association between our unconscious behavior and our surrounding environment emerged in the late 1900s, with city planners like Avant Garde Situationist Guy Debord, who studied the movement of humans and their reactions to the



environment. Woods (2010) notes in his study of Lynch Debord's "About Two Psychogeographies" that the Situationist International movement focused on artists, writers, and poets aiming to challenge the status quo to break down the barriers between culture and everyday life. Inspired by poet Charles Baudelaire's concept of the flaneur- an urban wonderer- which focused on how our environment shaped our behavior, Debord aimed to revolutionize how we went about our journey in the urban landscape. In his 1955 paper "Introduction to a Critique of Urban Geography," Debord argued that "psychogeography could set for itself the study of the precise laws and specific effects of the geographical environment, consciously organized or not, on the emotions and behaviors of individuals" (Wood 186). Situationists referred to the feeling or mood associated with the place as "ambiance" and focused on the character, tone, effect, or appeal that it may have on the individuals who experience it. They also used this term to describe larger spheres, such as neighborhoods, city blocks, plazas, and small gathering spaces (Wood 187). Such concepts are also closely related to placemaking, which focuses on "the process of creating quality spaces that people want to live, work, play and learn in" (Steuteville, 2016).

The principles of placemaking emerged during the same era as psychogeography after many iconic urban thinkers such as Kevin Lynch, Gordon Cullen, Jane Jacobs, William H. Whyte, and Allan Jacobs (among many others) began defining "place" rather than "space." Their studies involved how humans absorb and react to spaces around them. Andres et al. (1970) highlight in their studies of understanding Global South cities that for cities to thrive, the places within them need to be able to adapt to the needs of the community, as well as act as an engine of opportunities for its citizens. For this purpose, these spaces must become multifunctional and ever-changing to provide the city with the necessary functions to thrive as they can evolve with

the rest of the community. Lutzoni (2016) explores the difference and relationships between formal and informal places within the city and states that there is a need for informal settlements that can offer an adaptive ambiance that is transformative and multifunctional. This term can also be referred to as “public spaces” (Lutzoni, 2016).

Within these multifunctional spaces, or public spaces, the environment within it must offer a space where celebrations can be held, economic exchanges can occur, ideas can be interchanged, relationships can be developed, and most importantly, a place where we can feel safe both psychically and emotionally. When the Project for Public Spaces (PPS) began studying what made certain places around the world successful, they found that cities can succeed or fail on the human scale. Their research focuses on the importance of human experience when building a place for people (Project for Public Spaces, 2010). As humans, we are highly responsive to our surrounding environment, and we tend to be aware of any potential threats that might jeopardize our sense of safety. It is a survival mechanism engraved in our bones, and it allows us to respond quickly to a situation to avoid danger. This system within us is set in place because survival takes precedence over all other emotions. Therefore, although a place might activate our sense of appeal, when our safety is compromised, we are unable to put our energy into other activities such as growth, connections, and restoration. Although many essential factors contribute to the success of a prosperous public place, such as access to the place, sociability, and activities, all of them rely on the concept of emotional and physical safety as the foundation of a prosperous place. Humans need safety to thrive in other activities within their environment. Although it might seem like a basic concept, it is often overlooked in our relationships, our motivations, our purpose, and most importantly, in the process of placemaking

in public spaces. Ewing (2021) highlights the importance of reimagining the importance of transforming these spaces so that they can offer us back the “potential for social cohesion, integration, and connectivity.”

Therefore, it is crucial that the spaces in which dwellers tend to thrive in evoke feelings of safety. We examined two significant popular public spaces in Central Florida, CMX Cinemas Plaza Café 12 in Downtown Orlando, and Harbor Park, Baldwin Park. Through various observations and the process of elimination, we determined the presence or/and absence of sound, light, nature, boundaries, and order were the main generic attributers to our unconscious need for safety within a public space. This paper will discuss the existence or/and inexistence of these different elements and analyze how they contribute to the unconscious safety of the place through mapping. By mapping the location and presence of these elements, we will then compare the elements within these two public spaces and discuss how safety plays a role in their success.

## **METHODS**

We will measure how these five principal components (spectrums) affect our sense of safety, both emotionally and physically, within the CMX Cinemas Plaza Café 12, Downtown Orlando, and Harbor Park, Baldwin Park.

### **1.1 Boundaries Methods**

From early times, walls were perceived as places of shelter and protection. Massive walls surrounded cities to keep outsiders out and protect them from dangers and threats. Although these massive medieval boundaries are not as common in our modern era, such boundaries can still be found all around us, including on a human scale. It must be noted that boundaries are essential to our safety; not only do they separate different activities within a determined space, but they also give us context on what should be happening within them. For example, in Ancient Rome, although the walls surrounding the city were shut entirely, they were also inviting and porous. Informal markets gathered around them, houses were built on both sides, and they functioned as places where connections were made. Richard Sennett (2006) argued that although such barriers should be sought to exist, they also need to be “breachable, if not ambiguous.” Though boundaries are necessary for places to exist, we will be identifying the different boundaries within a public space to study their importance within our unconscious need for safety, both emotionally and physically.

For the boundary tests, we will first determine the overall boundary. The overall boundary refers to the dividing line, whether it is existing or implied, that separates the public space from its surrounding context.

Within this overall boundary, we can expect to find micro-boundaries that usually separate programs or situations from one another. For the boundaries test, we will be identifying three main types of micro-scale boundaries: shelter (overhead boundaries), material changes (horizontal boundaries), and constructed boundaries (vertical boundaries). Shelter, or overhead boundaries, refer to those elements within the built environment that allows us to seek protection from outward forces. Whether you are removing yourself from the harsh heat of the sun or removing yourself from a big crowd in a park, the environment around you must allow you to seek shelter when needed to feel safe. Although seeking refuge when required is essential, Appleton (1975, 1984) explains, based on the prospect-refuge theory, that we tend to prefer environments or situations that allow us to observe our surroundings while remaining concealed from them. Therefore, we can conclude that shelter must do two things: 1. protect us from a situation we are trying to remove ourselves from, and 2. allow us the opportunity to observe from a safe distance our surroundings.

Material change boundaries within our built environment refer to those horizontal boundaries that exist at the ground level and divide one activity or situation from one another. These boundaries exist in all dimensions of our lives; roads, sidewalks, and pathways are a few examples of material changes within our built environment. Such implied boundaries give us context to what must be happening within them and give us clues to where activities end, and new activities begin.

Constructed boundaries, or vertical boundaries, refer to those boundaries that create a physical dividing line between one situation and another. In most cases, these can be represented by fences, built-in walls, murals, constructed planters, or others. These create physical

representations of clear divisions within our built environment and exist for different purposes, such as prevention and safety.

## **Process**

1. Using the map, determine the overall boundary of the site. There is a clear separation line for most public spaces that determines where the public space begins and where it ends. This boundary line can be determined by surrounding containments, such as fences, buildings, material changes, designed vegetation, etc.
2. Within the overall boundary of the public space, identify the different micro-boundaries: shelter boundaries (overhead boundaries), material change boundaries (horizontal boundaries), or constructed boundaries (vertical boundaries). Number them on the map and classify them with assorted color sequences.
3. In a table, chart each boundary by category: shelter, material change, or constructed boundary. Identify what that element is and what its intended purpose is.

## **1.2 Sound Methods**

Loud noises can trigger the “fight or flight” response within us and put us in an area of stress. Huang et al. (2021) note in their research on noise pollution within neighborhoods in Chicago, that when the noise in our built environment reaches a certain level, you cannot respond to or perceive important stimuli within your environment, and your attention can be drawn away from critical situations. Constant exposure to loud noises or noise pollution can be considered environmental stressors and might induce feelings of anxiety, depression, high blood pressure, and heart disease (Huang et al., 2021). However, the question of noise being perceived as safety

also arises. To an extent, noise such as water fountains, diffused conversations, and nature might resemble feelings of comfort and presence, increasing our sense of safety (Lis and Iwankowski, 2020). For this test, the loudness of decibels will be analyzed, and the role that noise and acoustics play in our unconscious need for safety.

For the sound test, we will be measuring the decibels (dB) of a place, and the various sources of sounds within the environment.

### **Process**

1. Using the map and using a sound level meter, select five distinct areas to measure the decibels (dB) of the place. The goal is to capture the overall essence of sound levels for the public space, and not capture a precise location within it.
2. After every measure, the different sound sources within the public space will be identified. The goal is to capture the various sources of sound that contribute to the overall level of noise within each location in the site.
3. Once the measuring and identification are completed for each location within the site, the overall average of the decibel (dB) of the place will be calculated to determine the overall decibel (dB) and identify the most common sources.

### **1.3 Light Methods**

It has long been thought that lighting can impact our sense of safety within space. In some cities, like New York, there have been studies to challenge this belief as an attempt to reduce crime within the city. Yet, little rigorous evidence exists to support the statement that an increase in light can reduce crime. In partnership with the Mayor's Office of Criminal Justice, the New

York City Housing Authority conducted a controlled trial involving 40 public housing developments, all of which experienced high crime levels. By increasing different lighting sources within housing developments that experienced elevated crime levels during the night, there was a 36% reduction in index crimes. However, they also found that crime increased by increasing sources of light within non-residential areas. Although these results are surprising, lighting in vacant streets encourages crimes (Chalfin et al., 2019). Darkness enables us to see, making us fear the unknown and blind to potential threats. Streetlights boost visibility not only for us but also for criminals doing nefarious activities. The baseline is that streetlights allow criminals to feel secure when they can see their target because they can recognize any potential danger signs. For this research, we will be examining the existence of diverse types of lighting in public spaces.

After various observations and processes of elimination, we classified diverse types of lighting into three categories: task lighting, building lighting, and rhythmic lighting. Task lighting refers to the type of lighting within a space focused on a specific program located within the public space, such as outdoor sitting of a restaurant or events happening within a specified location in the public space. On the contrary, building lighting refers to light that comes from inside or outside the building, typically used to illuminate different facades or elements within the architecture. This type of lighting can usually be found around the perimeter of public spaces. Finally, rhythmic lighting refers to a series of lighting installations that illuminate a space in a sequence, such as street lighting.



For this test, we will be identifying the existence, or lack thereof, of these three types of lighting within a public space.

## **Process**

1. Using the map, identify the three types of lighting, task lighting, building lighting, or/and rhythmic lighting within a public space.

## **1.4 Nature Methods**

Time after time, studies have shown the positive effects that nature can have on our mental health. Nature can be restorative, healing, and soothing, essential for our well-being within the urban landscape. Marc. G. Berman, John Jonides, and Stephen Kaplan (2008) studied the cognitive benefits of interacting with nature and found that nature is “filled with intriguing stimuli,” which is essential for our health because it “modestly grabs attention in a bottom-up fashion, allowing top-down directed attention abilities a chance to replenish.” Unlike cities and urban environments, which dramatically grab our attention to make us more aware of potential threats and alert our directed attention abilities, nature allows us to replenish in its holistic environment, providing us with a safe space in which we can restore our senses (Berman, Jonides, Kaplan). When our senses are replenished and we feel safe in our environment, we are more motivated to connect with our environment, others, and ourselves. These interactions are essential for healthy functioning individuals and communities because they support us, induce positive feelings, reduce stress, aid in clearer thinking, and are associated with positive well-being. The sense of safety that nature provides us with is crucial for these interactions because they affect our human behavior and our outlook on the environment (Coley, Kuo, Sullivan).

For the nature test, we will be analyzing the various elements that pertain to nature within public spaces and how they affect our sense of safety. The presence of nature is important for our wellbeing and sense of safety, but it is essential we study how nature exists within a place. The presence of nature can vary from one place to another. In our studies, we will be analyzing how these natural elements exist in a public space, including natural plants, which includes any native plants that exist in their natural state; designed vegetation, which includes vegetation that has been tampered with or placed in an area to enhance the design; and open fields, which are any areas in the public space that have little to no vegetation and typically occur as grass or dirt areas. We will also be studying the different water features within site and how they affect our sense of safety. Lastly, since the fauna is also an essential aspect of nature, we will be studying the appearance of different fauna to study the effects that it can have on our wellbeing or sense of safety.

### **Process**

1. Identify the overall weather of the place for the measured time. The weather will give us context to the population of the public area in the studied time and how other elements can develop in it.
2. Using the map, identify the distinct types of vegetation in the public space: natural plants, designed vegetation, or/and open fields.
3. Using the map, identify the water features in the public place, either natural or designed.
4. Using the Map, identify the different fauna in the site.

## **1.5 Absence of Order Methods**

The broken windows theory is one of the most extensively studied concepts in policing literature (Ranasinghe, 2011). In its entity, the broken windows theory can be perceived as a warning about the consequences of public disorder and its deleterious impact on the community. Concepts related to this theory seek to explain why New Orleans experienced elevated levels of riots and looting in the aftermath of Hurricane Katrina- in such circumstances, the community's behavior was far from unexpected, Ranasinghe (2011) explains. Wilson and Kelling (1982) describe this phenomenon in their research and theory of the "broken windows theory," which explains how disorder might inspire disorderly social behavior that might pose concern for personal and public safety (Robinson et al., 2003). Behaviors such as panhandling, public drinking, loitering, broken storefronts, amongst others; are not only related to crime and violence but also provide an environment where we are in a constant state of awareness and ignite the fear of "being bothered by disorderly people" (Ranasinghe, 2011).

In the absence of order tests, we will be studying two critical aspects that contribute to order within a public space: disorderly behavior and place maintenance. Since the behavior of others can ignite feelings of alertness and awareness, we will be studying potential disrupting behavior from individuals that might make the place feel less appealing. Behaviors such as reckless use of equipment, loud conversations, panhandling, and others will be studied. We will also analyze the overall maintenance of a place, including how certain materials or facades appear, littering, overgrown vegetation, and others that might disrupt our sense of order or appeal to the site.

### **Process**

1. Using the map, identify and number the elements that lack maintenance in a public space, such as dirty sidewalks or facades, broken elements, litter, etc.
2. Using the map, identify and number signs of disorderly behavior within a public space that might alert our sense of danger, such as reckless use of materials, nefarious activities, panhandling, etc.
3. Using a table, further identify what is happening within each moment.

## RESULTS

### Harbor Park - Baldwin Park, Florida

Harbor Park is a small-scale, multi-functional public space within the extensive Lake Baldwin Park walking trail. It provides for moments of pause within its larger sphere, allowing for situations of reconnection and socialization. The circle formed by its two piers and surrounding built environment creates a containment of energy that allows dwellers to reconnect with themselves, others, and their surrounding environment. Located terminally of New Broad St. in Baldwin Park, a multi-purposed street filled with residential, commercial, and industrial facilities, Harbor Park provides its surrounding community with the grey space needed for dwelling and casual interactions outside of the routinary environment.

Although the definition of a successful public space can vary from one location to another, Harbor Park plays an essential role within its community by providing a celebratory and engaging space to tourists, residents, visitors, and workers within the Baldwin Park area beyond. Due to its high popularity and unique qualities, it can be determined that Harbor Park is a successful public space, leading us to study the role that emotional and physical safety elements play in its success.

### CMX Cinemas Plaza Café 12- Downtown Orlando, Florida

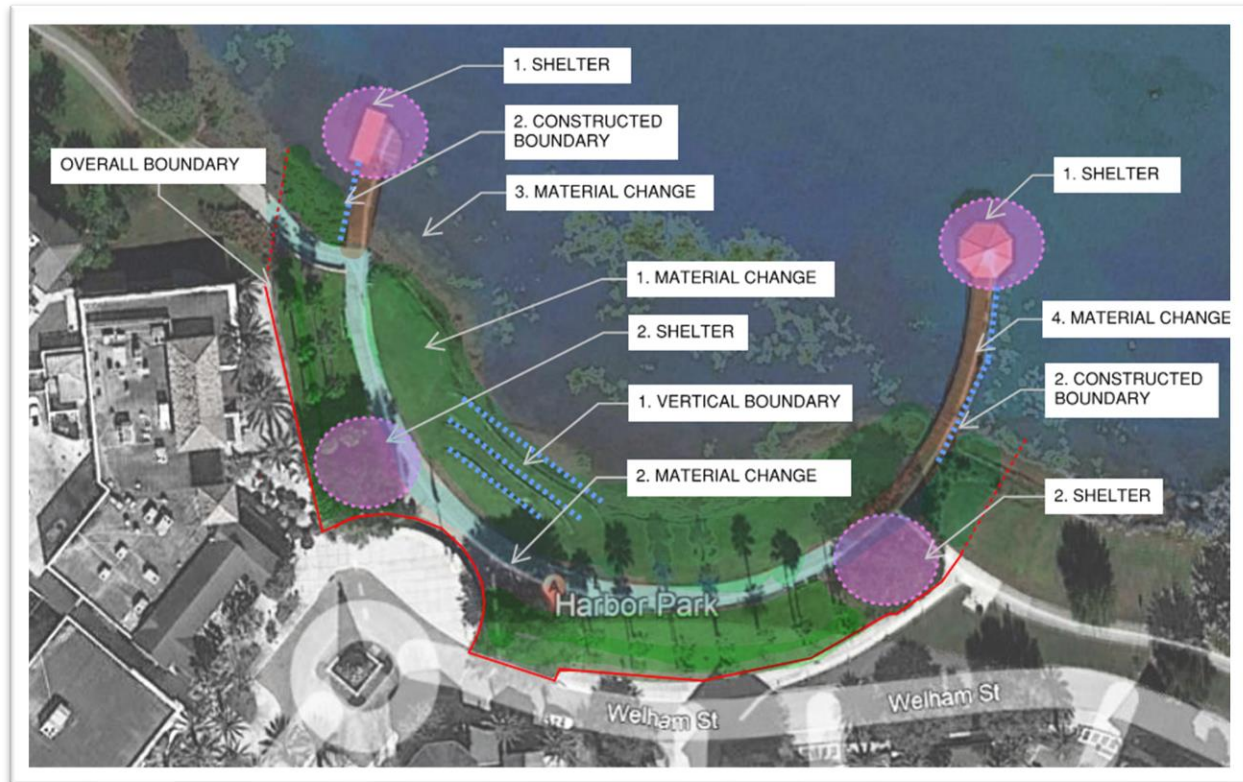
Located in the heart of Downtown Orlando, the CMX Cinemas Plaza Café 12 becomes a typical crossing and stopping point for the everyday traveler progressing through the streets of Downtown Orlando. This plaza provides a moment of relief from the busy formal settlements that a common downtown area has to offer, forcing us to pause and observe our surroundings

both during the daytime and nighttime. This plaza connects different programs around its site, including the Cigar Company, the Cinema, and restaurants; having the opportunity to be a container where various dwellers can spontaneously interact and connect.

Although this place has all the resources to become a successful public space, the CMX Cinemas Plaza Café 12 has become a place many avoid dwelling in for extended periods. Our goal is to evaluate the different elements of the public space that contribute to our unconscious need for safety and analyze areas of improvement.

## *Boundary Tests Results*

### Harbor Park- Boundaries Results



**Figure 1: Harbor Park map showing the overall boundary and micro-boundaries found**

In Figure 1, we identify the different boundaries that exist in Harbor Park, both the overall boundary and micro-boundaries. The red annotation identifies the overall boundary. Although it is porous and continuous on both ends, connecting to a more extensive pathway, its boundary is composed of a built fence that separates the park from its surrounding programs.

**Table 1: Harbor Park Boundaries Analysis**

<b>Shelter (Overhead Boundaries)</b>		
<b>Number</b>	<b>What is it?</b>	<b>Purpose</b>
1.	Gazebos (2X)	Privacy
2.	Trees (2X)	Protection from elements, privacy
<b>Material Change (Horizontal Boundaries)</b>		
<b>Number</b>	<b>What is it?</b>	<b>Purpose</b>
1.	Grass	Separation from program
2.	Concrete	Circulation
3.	Water	Separation from program
4.	Wood	Circulation, separation of program
<b>Constructed Boundaries (Vertical Boundaries)</b>		
<b>Number</b>	<b>What is it?</b>	<b>Purpose</b>
1.	Monumental steps	Creation of program
2.	Railing (2X)	Safety
3.	Fence	Separation of program
4.	Built concrete planters	Creation of program

Table 1 further discusses the roles of each micro-boundary existing in Harbor Park. We have shelter, constructed boundaries, and material changes within an overall boundary that composes the public space. We observe the different micro-boundaries and their role in our emotional and physical need for safety. We note that boundaries in the shelter category create moments of privacy within the public space where dwellers can feel protected while observing and being aware of their surrounding environment. Material changes in Harbor Park begin giving us context to what should be happening within them. Pathways indicate circulation; they begin to indicate where we can move without disrupting others. Grass areas become moments of leisure, where dwellers enjoy their environment and the resources it provides. Other areas, such as the wood docks, strictly become areas of circulation that lead you into the water, therefore disrupting



the overall pathway of Harbor Park. Other boundaries, such as those constructed, give us clear, physical separation between each program and can be used for safety measures, create programs, or separate them. For example, built-in concrete planters are designed for sitting. Such elements, paired with a tree that adds protection, become moments of privacy and safety that people can enjoy within public spaces. By adding functional built elements and creating soft programs within Harbor Park, like the monumental steps and the built concrete planters, we create moments that give us context of what could be happening within each area. This is essential for our safety because it gives dwellers awareness of the different programs that can happen within each area to avoid disruption and annoyance.

## CMX Cinemas Plaza Café 12- Boundaries Results



**Figure 2: CMX Cinemas Plaza Cafe 12 showing the overall boundary and micro-boundaries found**

In Figure 2, we further analyze the different boundaries present in the CMX Cinemas Plaza Café 12, both the overall boundaries of the public space and the micro-boundaries within it. The overall boundary is identified with the red annotation. Its dividing lines are the buildings that contain it and the material change between the public space and the street. This overall boundary is implied rather than separated by physical elements.

**Table 2: CMX Cinemas Cafe 12 Boundaries Analysis**

<b>Shelter (Overhead Boundaries)</b>		
<b>Number</b>	<b>What is it?</b>	<b>Purpose</b>
1.	Overhead canopy	Privacy, protection
<b>Material Change (Horizontal Boundaries)</b>		
<b>Number</b>	<b>What is it?</b>	<b>Purpose</b>
1.	None	None
<b>Constructed Boundaries (Vertical Boundaries)</b>		
<b>Number</b>	<b>What is it?</b>	<b>Purpose</b>
1.	Built concrete planters	Creation of program, privacy
2.	Built concrete planters	Creation of program

In Table 2, we further analyze the role of each micro-boundary in our emotional and physical safety within this public space. We analyzed elements of shelter, material change, and constructed boundaries within this small-scale public space. Contrary to Harbor Park, the CMX Cinema Plaza Café 12 has significantly fewer micro-boundaries in all three categories studied. Elements of shelter present in Harbor Park, such as tree canopies paired with built concrete planters, were not prominent in this public space. Although each built-in concrete planter in the center of the public space has vegetation within them, neither one of them serve the purpose of creating privacy or protection from elements such as the weather and crowds.

Furthermore, the inexistence of a variety of material changes within the public space can make the place seem uninteresting and fail to give context to what should be happening within each moment. Although the public space has color changes on the ground level for design purposes, they do not serve as boundary purposes. Such a lack of material changes can pose safety concerns when placed to proximity to a high-traffic road. There can be no precise determination of what areas can be used for leisure and what others can be used for circulation.

## *Sound Tests Results*

### Harbor Park – Sound Results



**Figure 3: Harbor Park map showing the locations where decibels (dB) and sources were measured**

Figure 3 demonstrates the different locations within Harbor Park where sound, both its loudness and sources, have been analyzed and measured. By determining five distinct locations in which we can measure, we can get a better representation of the overall sound of the public space and study the positive or negative effect it has on those who dwell in it.

**Table 3 Harbor Park Loudness (dB) and Sources**

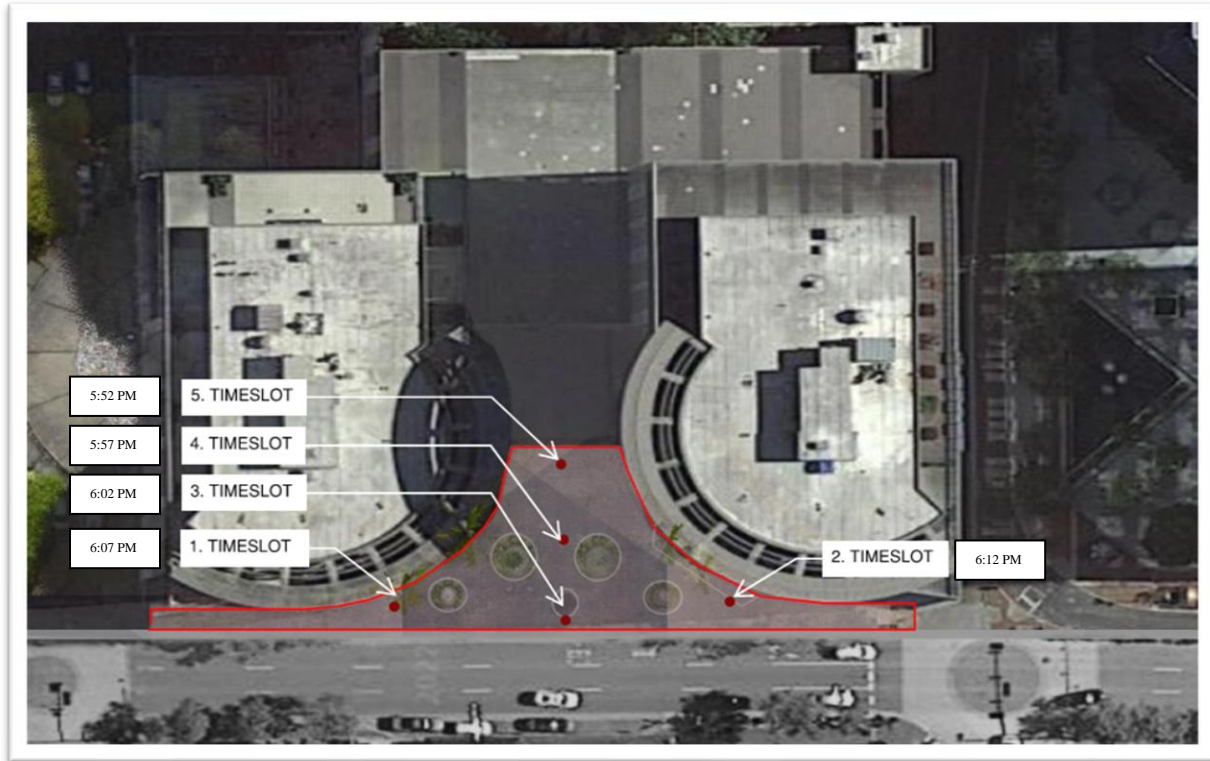
<b>Timeslot</b>	<b>Decibels (dB)</b>	<b>Sources of Sound</b>
Timeslot 1	64.5 dB	Water fountain, diffused conversations, birds, wind
Timeslot 2	31.4 dB	Music, wind, birds, airplanes
Timeslot 3	26.8 dB	Birds, trees, diffused conversations, music
Timeslot 4	36.0 dB	Traffic, birds, wind, trees, human activities
Timeslot 5	32.4 dB	Diffused conversations, birds, music, wind
<b>Average</b>	38.22 dB	Diffused conversations, nature sounds

In Table 3, we measure the loudness of the different locations using decibels (dB) and further identify the primary sound sources. Although there are repeated sources of sound within each location, our findings indicate that one source might be more prominent in some locations than another. Combined, the overall loudness of Harbor Park at the time was measured, which was 6:26 PM on March 25<sup>th</sup>, 2022. Each time was measured approximately five minutes apart from one another. Overall, the biggest contributors to the overall sound of the place were diffused conversations and nature sounds.

It is important to note that different public spaces will vary in decibels (dB) and sources depending on different factors, such as culture, programs, activities, and times of the day. For the sound test in Harbor Park, a popular time where dwellers would be present, it was selected to accurately depict the typical loudness and sources of the public space. According to the US Environmental and Protection Agency (2016), the comfortable level of loudness for an outdoor

area where “people spend widely varying amounts of time and other places in which quiet is the basis for use” is less than or equal to 55 dB, more than that would cause outdoor activity interference and annoyance. Not only does Harbor Park’s overall sound decibel (dB) fall below that, but the place also had various sources of sound that resemble feelings of safety and wellbeing, such as diffused conversations and various nature sounds.

## CMX Cinemas Plaza Café 12- Sound Results



**Figure 4: CMX Cinemas Plaza Cafe 12 map showing the different locations where decibels (dB) and sources were measured**

Figure 4 demonstrates the different areas in which sound decibels (dB) were measured. Demonstrates the various locations within CMX Cinema Plaza where sound, both its loudness and sources, have been analyzed and measured. By determining five distinct locations in which we can measure, we can get a better representation of the overall sound of the public space and study the positive or negative effect it has on those who dwell in it.



**Table 4: CMX Cinemas Plaza Café 12 Loudness (dB) and Sources**

<b>Timeslot</b>	<b>Decibels (dB)</b>	<b>Sources of Sound</b>
Timeslot 1	65.7 dB	Traffic, music, birds, mechanical, diffused conversations
Timeslot 2	53.8 dB	Music, traffic, diffused conversations, birds
Timeslot 3	67.7 dB	Ambulance, motorcycles, traffic, music, diffused conversations
Timeslot 4	48.5 dB	Mechanical, nature, music, diffused conversations
Timeslot 5	43.0 dB	Mechanical, nature, music, traffic
<b>Average</b>	56.14 dB	Traffic, music, various nature sounds

In Table 4, we measure the loudness of the different locations using decibels (dB) and further identify the primary sound sources. Although there are repeated sources of sound within each location, our findings indicate that in some locations, one source might be more prominent than another. Combined, the overall loudness of the CMX Cinemas Plaza Café 12 at the time was measured, which was 5:52 PM on April 6<sup>th</sup>, 2022. Each time was measured approximately five minutes apart from one another.

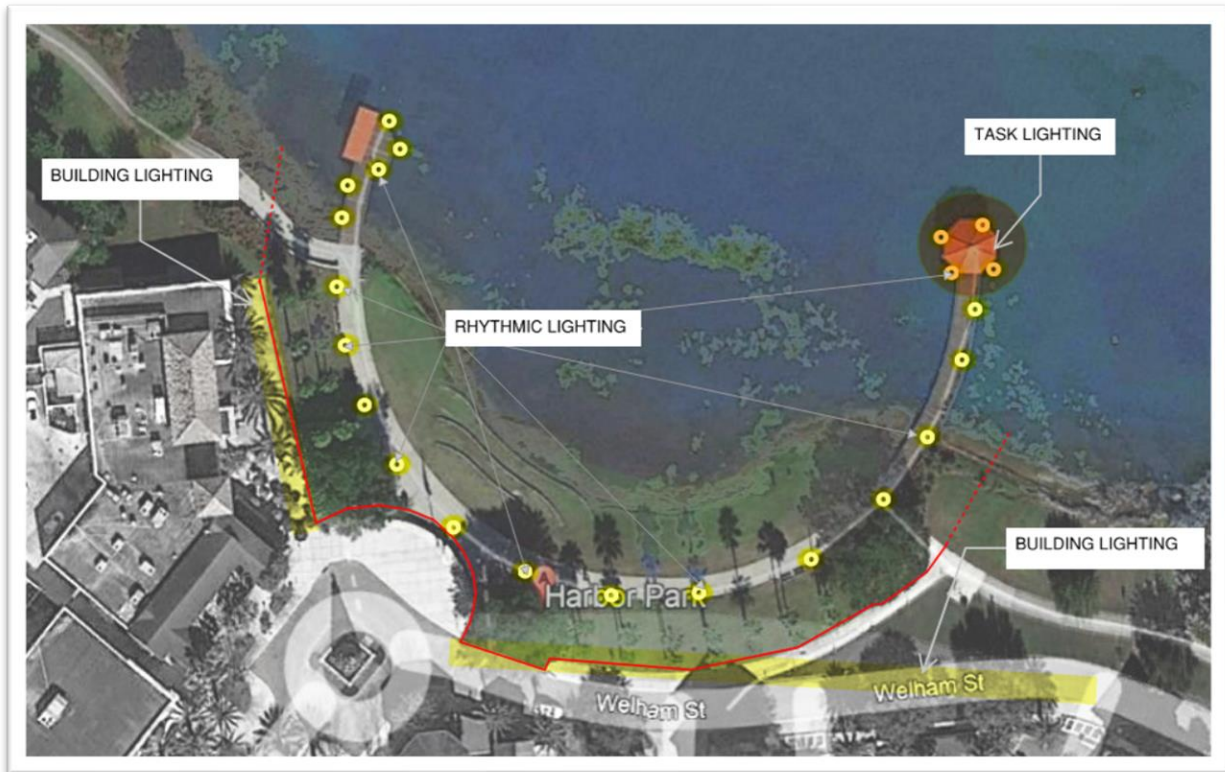
For the sound test in the CMX Plaza, a standard time for dwellers to be engaged in the public space was picked to get an accurate depiction of how the sound and sources of the place are at the time of peak interaction. The overall loudness of the CMX Cinema Plaza is 56.14 dB, which is louder than the common public space. Although these levels are not enough to induce physical or mental harm, it fails to provide a peaceful environment for someone in need of



renewal. Due to its location in a high traffic area, this public space experiences high levels of noise from the busy urban landscape, potentially posing physical threats and disrupting our sense of safety and wellbeing.

## *Light Tests Results*

### Harbor Park, Light Results

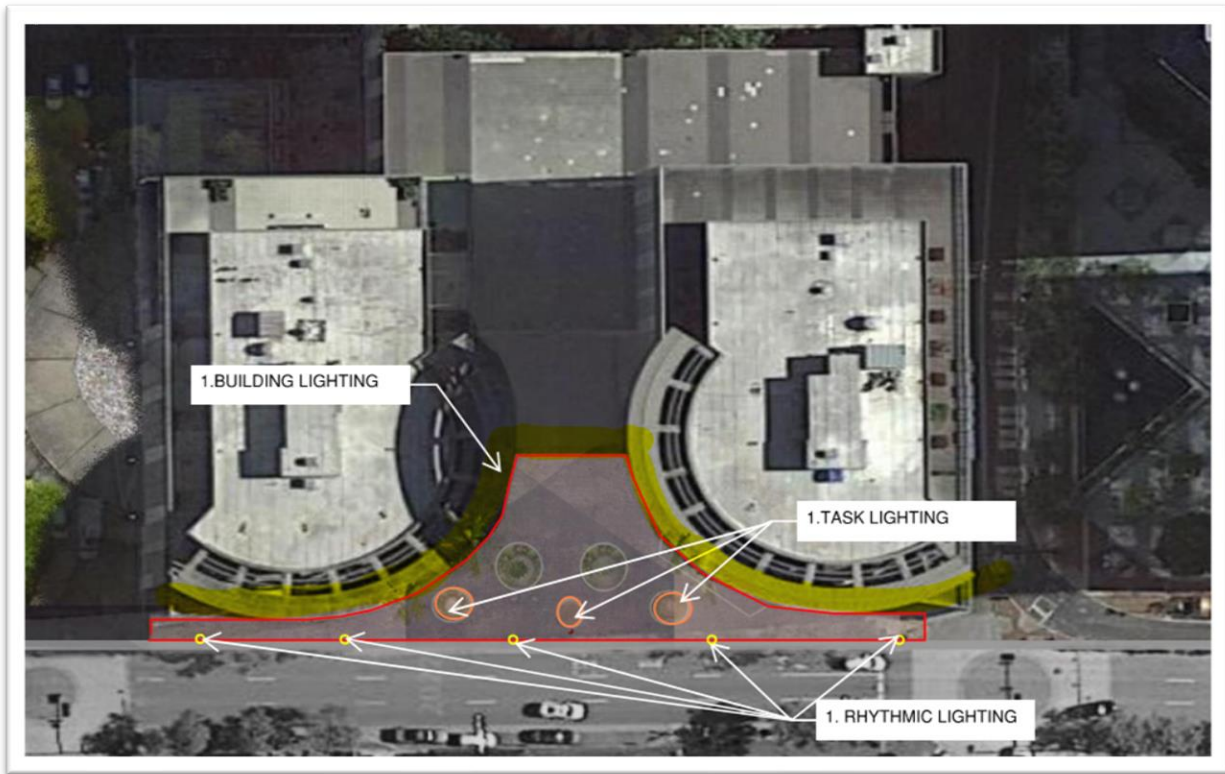


**Figure 5: Harbor Park map showing different light sources**

Figure 5 identifies the different sources of lighting- task, building, and rhythmic- within Harbor Park. Along with the pedestrian and walkable areas, we found there to be a consistent arrangement of lighting that illuminates the main path of circulation. We also found that the right pier had significantly more lighting, both at ground level and ceiling level, than other areas of the site. Due to the existence of shelter and the size of the gazebo on the pier, different activities seek to take precedent in this place, both during the daytime and nighttime. Although this test was conducted near sunset, at 7:04 PM on March 25<sup>th</sup>, 2022, it can be concluded that the existence of lighting is consistent on a day-to-day basis.

There is also a significant existence of building light that occurs on the outer perimeter of the site. It is important to note that although we did not intend to examine how external forces might influence our sense of safety through lighting within a site, it is inevitable no acknowledge that such existence of light within a building may impact our unconscious sense of safety by providing cues within our environment that might indicate livability and protection in case of danger. Building lighting, especially at the ground level, can suggest that there are eyes on the street, therefore increasing our sense of physical and emotional safety. It can be concluded that although the existence of lighting within a building might not influence our sense of safety directly, meaning it might not be the reason we stay in a place or departure it, it can aid by alleviating the fear of danger and increasing visibility.

## CMX Cinema Plaza Café 12 - Light Results



**Figure 6: CMX Cinemas Plaza Cafe 12 map showing different light sources**

Figure 6 identifies the existing sources of light within the CMX Cinema Plaza to analyze how they contribute to our emotional or physical safety. Along the main sidewalk facing the roads, we find rhythmic lights illuminating the path along the street. Other sources of light that can be found in this public place are different types of task lighting, illuminating programs such as statues for observation, and built concrete planters for sitting at night, which provide illumination to the place, allowing us to see. We also find that programs such as those found on the perimeter of the public give light to the public space through building lighting. Although this test was conducted at 6:50 PM on April 6<sup>th</sup>, 2022, near sunset, it can be concluded that the lighting in this space is consistent on a day-today-basis.

## *Nature Tests Results*

### Harbor Park- Nature Results



**Figure 7: Harbor Park map showing the different elements of nature**

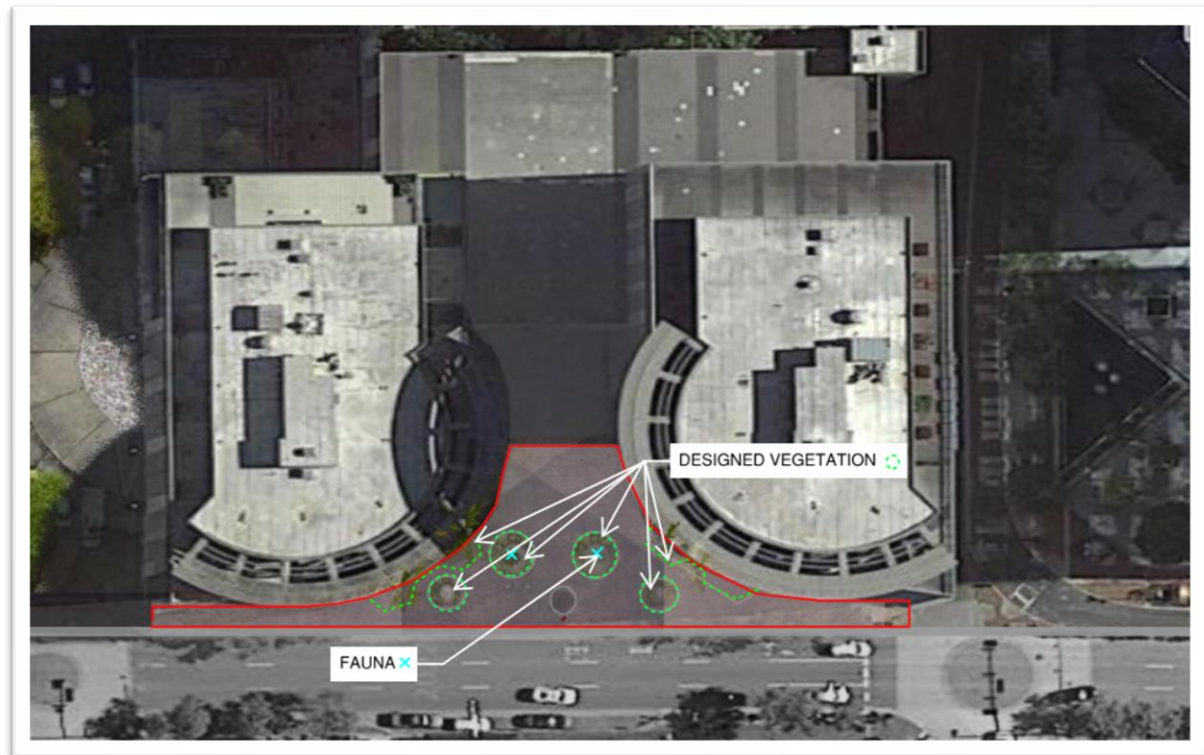
In Figure 7, we study further the appearance of nature in Harbor Park. We identify the three types of vegetation: natural plants, designed vegetation, and open fields. Although Harbor Park does not have an abundant amount of natural plants, designed vegetation allows dwellers to not only enjoy their presence but also interact with the various types of vegetation and enjoy the benefits of protection and privacy that they provide. For example, open fields at a small scale paired with a canopy of trees allow dwellers to enjoy leisure moments, such as sitting under the shade and enjoying the surrounding environment. According to Begley (2015), humans have a genetic affinity for the living world, making us long for it. We are deeply connected to nature,

and its presence and interaction are essential for us to seek familiarity and feel safe in our environment (Berman, Jonides, Kaplan).

We also identified water features within Harbor Park and studied the role that the lake plays in our unconscious need for safety. Water features, such as lakes, can provide the environment with rich, fascinating stimuli, allowing us to disconnect from our day-to-day lives and enjoy what a public space offers (Berman, Jonides, Kaplan). Water features can also provide us with pleasant noises. In her study, Buxton (2021) explains that noises such as those produced by water are most effective at providing psychological comfort, while those produced by birds are best at lowering stress levels. Although we did not find any free roam animals posing a danger, we found a high population of birds in tree canopies that produced pleasant bird sounds.



## CMX Cinemas Plaza Café 12- Nature Results



**Figure 8: CMX Cinemas Plaza Café 12 map showing the different elements of nature**

In Figure 8, we further analyze the role that different elements of nature have on our emotional and physical sense of safety within a public space. In the CMX Cinemas Plaza Café, we analyzed the presence of designed vegetation and different kinds of fauna, as well as the absence of water features, open fields, and natural vegetation. In this study, we found that although the public space has designed vegetation within it, it is not interactive at any moment, meaning we cannot enjoy its benefits at a more personal level. The center-designed vegetation is at a small scale, therefore not providing the shelter or privacy properties that a tree canopy could provide. The designed vegetation found on the outer corner concrete planters is scattered around at a major scale, which means that it might not provide enough shade or privacy needed to enjoy the sitting areas.

We found that the presence of nature through fauna was prominent in this public space. In areas where vegetation was present, animals such as birds had a significant influence on the place. As discussed in the Harbor Park Nature Analysis, nature sounds induce feelings of comfort and peace, including those produced by birds.



## *Absence of order Tests Results*

### Harbor Park - Absence of Order Test Results



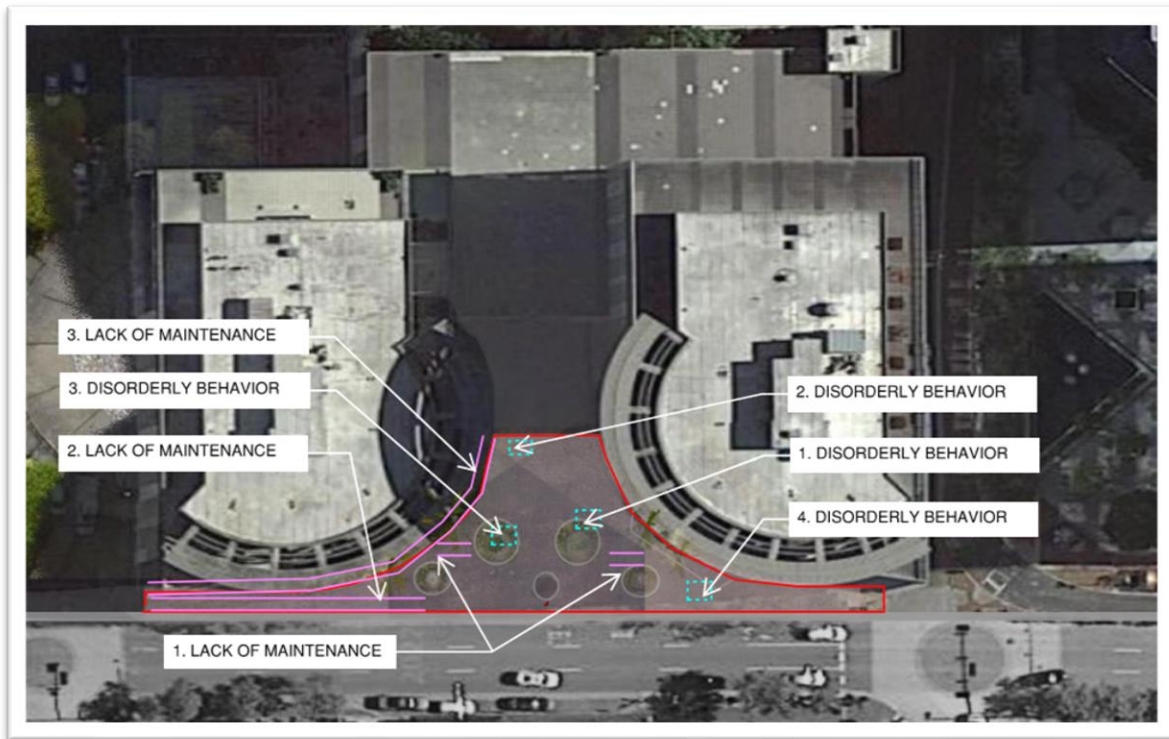
**Figure 9: Harbor Park map showing different elements of absence of order**

**Table 5: Harbor Park Absence of Order Analysis**

Lack of Maintenance	
Number	What is it?
1.	Lack of maintenance around the lake, overgrown vegetation that looks unpleasant
Disorderly Behavior	
Number	What is it?
1.	Reckless use of equipment, dangerous with the use of bicycles and skateboards

In the absence of order test, shown in Figure 9 and Table 5, we studied both the lack of maintenance in Harbor Park and disorderly behavior in the park. We found a lack of maintenance around the lake, where there were a lack of boundaries that could pose a danger for dwellers to fall into the lake, as well as unmaintained vegetation that appeared overgrown. For disorderly behavior, we found that there were teenagers using equipment, such as bicycles and skateboards, recklessly around other inhabitants in the place. Although such disorderly behavior was present, they did not seem to be posing any magnified threats to the overall essence of the site or compromise the sense of safety of others. Therefore, we can conclude that Harbor Park was an orderly place.

CMX Cinemas Plaza Café – Absence of order Results



**Figure 10: CMX Cinemas Plaza Cafe 12 map showing different elements of order**

**Table 6 CMX Cinemas Plaza Cafe 12 Absence of Order Analysis**

<b>Lack of Maintenance</b>	
<b>Number</b>	<b>What is it?</b>
1.	Various items of trash on the ground next to a trash can
2.	The ground floor had multiple stains on it, overall appealed dirty.
3.	Excessive smell of smoke coming from the Corona Cigar Co.
<b>Disorderly Behavior</b>	
<b>Number</b>	<b>What is it?</b>
1.	Homeless sleeping on the planter
2.	Noisy teenagers in shaded areas of the public space
3.	Panhandling
4.	Reckless use of the scooter

In Figure 10 and Table 6, we identify the several elements of absence of order found at the CMX Cinemas Plaza Café. We found high levels of disorderly behavior in conjunction with several elements that lacked maintenance and appeared out of place. As previously discussed in Absence of Order Methods, when a place appears disorderly, it influences the way people behave in it, and that may potentially be in a disorderly fashion. The ground appeared dirty with multiple stains and there was trash scattered around disposal areas. These, combined with heavy smoke from cigars, panhandling, noisy individuals, and reckless use of equipment may induce feeling of disturbance and unsafety for someone in seek of a peaceful environment. Since this public space is small, such elements of disorder have a big impact on the overall quality of the space.

## **GENERAL DISCUSSION**

The two public spaces studied and analyzed in this research represent successful and unsuccessful public spaces found within the Central Florida landscape. By comparing Harbor Park and the CMX Cinemas Plaza Café 12, we can better understand how different elements that evoke safety, such as boundaries, sound, light, nature, and absence of order, play a role in the development and success of public spaces. Although these two public spaces sit within a different landscape and populations within the city, it is not our intent to compare the type of public place (park, plaza, beaches, squares, etc.), but rather the quality of it, which we measured by the existence or lack thereof of different elements of emotional or physical safety.

First, by studying and analyzing Harbor Park, we can conclude that this is a safe space to dwell in, where people can enjoy the many benefits and functions that this place provides. With a strong sense of boundaries that provide safety, prevention, separation of programs, and privacy, dwellers can perform many soft programs within the park. On the contrary, with a lack of boundaries that fail to provide people with a sense of prevention, separation or creation of programs, and privacy, it was no surprise why the inhabitants of CMX Cinemas Plaza Café 12 would depart the place after short periods.

When comparing sound, the CMX Cinemas Plaza Café 12 nearly doubled in loudness to Harbor Park and had much more aggressive sources, such as traffic, that appeared to be the most prominent. Such noises can then disrupt our purpose of dwelling within a public space, forcing us to depart after short periods. Other sounds, such as nature and diffused conversation, can alleviate stress and induce feelings of wellbeing, contributing to our overall sense of safety.

Our light studies in both public spaces indicated a similar pattern of light within each site. We concluded that light does two things within a public space: 1. Allow us to see what is happening within the place, and 2. Provide a sense of relief and protection in case of danger arises. The existence of illumination from rhythmic lighting, task lighting, and building lighting is present within both public spaces.

Nature was also present in both public spaces, but its existence was drastic. From our nature tests, we concluded the presence of nature is most impactful when it is interactive and personal. Some examples found in Harbor Park include providing scenery through a beautiful lake, providing us with protection under a large tree canopy, or enjoying sitting areas within an open field. The CMX Cinemas Plaza Café 12 lacked the existence of nature that was interactive for its inhabitants.

When the environment around us appears disorderly and lacks maintenance, it encourages us to act in a disorganized fashion. When comparing the elements of order in Harbor Park and the CMX Cinemas Plaza Café 12, Harbor Park almost lacked such elements that compromised our sense of safety and wellbeing. The CMX Cinemas Plaza Café 12 contained many elements that lacked maintenance, but it also encouraged disorderly behavior within its site.

By comparing each element that contributes to our sense of safety in different public spaces, we can better understand the factors that make places successful and determine areas of improvement within the site. It is essential that we learn about key elements that aid in restoring the life in cities through public spaces, allowing our communities to prosper and flourish in our built environment.

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