ENHANCING URBAN PARK SAFETY: A CPTED-BASED APPROACH TO COMMUNITY-DRIVEN DESIGN IN DETROIT

By

Andrew Paul Nord

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ABSTRACT

Urban parks play a crucial role in supporting physical activity, psychological well-being, and overall public health, making them vital resources for community life (Wolch et al., 2014; Raap et al., 2022). As cities invest in park improvements to promote resilience and livability, users' perceptions of safety often shape their success (Mohan and Chani, 2025). Growing attention among planners has focused on the role of the built environment - particularly strategies rooted in Crime Prevention through Environmental Design (CPTED) - to reduce fear and crime and improve quality of life (Hussain & Said, 2015). For CPTED strategies to succeed, community input is critical, as shown in research emphasizing the importance of participatory planning and localized knowledge (Hou et al., 2025; Nubani et al., 2023). This study explores how CPTED principles, guided by community input, can enhance perceptions of safety in LaSalle-Ford Park in Detroit, Michigan. The study employed a two-phase survey process. In Phase 1, community members were surveyed on safety concerns in the existing park, and crime data from the Detroit Police Department were analyzed. These insights informed a CPTED-based redesign visualized through 3D renderings. In Phase 2, a separate group of participants evaluated the redesigned proposal to assess changes in perceived safety. While the role of engagement was not measured, community input was foundational to the redesign. Statistical analysis using the Mann-Whitney U test showed significant improvements in perceptions of safety related to visibility, seating, and overall comfort, while perceptions of accessibility, community activity, and nighttime safety remained unchanged. These findings highlight the value of integrating community-informed CPTED strategies in urban park design and emphasize the importance of considering both environmental and social factors when designing safe, inclusive public spaces.

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CHAPTER 1:

INTRODUCTION

1.1 Background of Study

Public parks are intended to be safe, inclusive spaces that support recreation, social interaction, and community well-being (Raap et al., 2022; Wolch et al., 2014). However, recent data reveals that parks are also frequent sites of violent crime across the United States (Federal Bureau of Investigation, n.d.). According to the FBI's Uniform Crime Reporting (UCR) Program, parks and recreational areas rank among the highest locations for violent crime nationwide. Over the past five years, these spaces have seen 7,760 aggravated assaults, 758 homicides, 6,622 rapes, and 12,033 robberies (Federal Bureau of Investigation, n.d.). These numbers underscore a pressing challenge: while parks have the potential to foster health, cohesion, and public safety (Wolch et al., 2014), they are often compromised by criminal activity that deters use and undermines their value to communities (Han et al., 2017; Mohan and Chani, 2025).

This issue is particularly acute in neighborhoods affected by poverty and structural inequity (Wolch et al., 2014). In low socioeconomic and ethnic minority neighborhoods, parks are not only more likely to experience disinvestment and crime, but also tend to be of lower quality, less accessible, and used less by residents as a result (Rigolon, 2016). Parks in low-income neighborhoods are especially vulnerable to issues like vandalism, drug use, gang activity, and neglect—making them places to avoid rather than communal assets (Cohen et al., 2016). In cities like Detroit, where systemic inequality and disinvestment have contributed to elevated levels of crime (Raleigh & Galster, 2015), reimagining public parks as safer, more inclusive environments is both urgent and necessary.

1.2 Problem Statement

In neighborhoods facing elevated levels of poverty and crime, public parks hold enormous potential to act as restorative, community-centered spaces (Han et al., 2018). However, without intentional design strategies, these parks often fall into disuse or become sites associated with fear and disorder (Han et al., 2018). Maintaining safety in parks is especially challenging due to their open layouts, minimal surveillance infrastructure, and the difficulty of applying traditional security measures such as patrol routes or physical barriers (Hilborn, 2009). Crime Prevention Through Environmental Design (CPTED) offers an alternative, evidence-based framework for enhancing safety through design rather than policing (Iqbal & Ceccato, 2016). CPTED strategies emphasize natural surveillance, territorial reinforcement, access control, and maintenance to influence behavior, reduce opportunities for crime, and foster a greater sense of ownership among users (Newman, 1971). Parks that incorporate these principles have been shown to reduce fear of crime and increase community use (Mehta & Gopalakrishnan, 2024), particularly when residents are involved in the design and decision-making processes (Heinze et al., 2018).

Despite growing interest in CPTED as a strategy for reducing crime through environmental design, there is still a notable gap in research that explores its application in low-income neighborhoods (Cohen, 2016)—especially when it comes to incorporating community input (; Nubani et al., 2023). This is particularly problematic in historically marginalized communities, where lived experiences and perceptions of safety often differ from those of decision-makers or external stakeholders (Hou, 2024). In the context of neighborhood parks, there is a critical need for CPTED strategies that are both responsive to and co-created with local

residents. This study aims to address that gap by centering community voices in the redesign of a Detroit park using CPTED principles.

1.3 Research Objectives

This study aims to evaluate the effectiveness of CPTED-informed design interventions in improving perceptions of safety in LaSalle-Ford Park, a neighborhood park in Detroit. The objectives are: 1) To engage local residents in identifying key safety concerns within the park through a survey and design charrette. 2) To propose design interventions aligned with CPTED principles and informed by community input. 3) To assess changes in perceived safety before and after the proposed design solutions, using survey data and participant feedback.

1.4 Research Questions

This research seeks to answer the following questions:

1. How do CPTED principles, when applied through a community-driven design process, influence perceptions of safety in urban neighborhood parks?
2. Which specific CPTED-based design interventions, informed by community feedback, contribute most to improving perceived safety?

1.5 Significance of the Study

This study contributes to the growing body of research on Crime Prevention Through Environmental Design (CPTED) by addressing a critical gap: the limited exploration of community-informed CPTED interventions in low-income urban neighborhoods, particularly in the context of public parks. LaSalle-Ford Park in Detroit, MI, serves as a case study to examine how resident-informed CPTED strategies can enhance perceptions of safety, increase park use, and strengthen community ownership of public space. The findings from this research can inform future park design and safety planning efforts not only in Detroit, but in other U.S. cities

facing similar challenges related to poverty, disinvestment, and public distrust in traditional policing approaches. Determining what CPTED based design solutions may have a significant impact on lowering crime and applying them in a design proposal is the objective of this research.

CHAPTER 2:

LITERATURE REVIEW

Urban parks are critical components of community infrastructure, offering a wide range of benefits that support the physical, psychological, and social well-being of residents (Han et al., 2013; Li et al., 2023). Extensive research has shown that urban parks positively influence health through creating opportunities for physical activity (Han et al., 2013; Han et al., 2014; Lee & Maheswaran, 2011; Reed et al., 2011) as well as reducing stress, improving mood, and enhancing overall mental health (Li et al., 2023; Rivera et al., 2024). Moreover, urban parks function as neighborhood gathering spaces, encouraging social cohesion and active lifestyles, and offering accessible venues for community engagement, recreation, and everyday connection among residents (Jennings & Bamkole, 2019; Walton, 2014). The extent to which these benefits are experienced can be diminished when parks lack proper maintenance, are viewed as unsafe, or fail to reflect the needs and values of the surrounding community (Lapham et al., 2016).

This chapter reviews existing literature related to urban park use and perceived safety, the role of community input in shaping safer and more inclusive park environments, and the application of Crime Prevention through Environmental Design (CPTED) principles to enhance safety in public parks.

2.1 Understanding park use and the role of safety and in neighborhoods parks

Perceptions of safety in urban parks are influenced by a combination of physical, social, and environmental factors. Studies have shown that inadequate lighting, poor maintenance, and the presence of undesirable activities, such as drinking and vandalism, significantly reduce perceived safety (Kim & Lee, 2018). For example, in Cytadela Park, respondents felt unsafe in areas with dense vegetation and limited visibility, while open spaces with active use were

perceived as safer (Kim & Lee, 2018). Similarly, a study in Hong Kong found that visitor-related concerns, such as crime rates in the surrounding neighborhood and specific unsafe locations within the park, played a significant role in shaping perceptions of safety (Lo & Jim, 2020). These findings highlight the need for park design and management to address both physical and social factors to create safer environments.

Evensen et al. (2021) conducted a mixed-method study in Torshovdalen Park, a large urban park in central Oslo, Norway, to examine how hedge height influences perceptions of safety along a 250-meter pathway. Their study was prompted by community complaints about poor visibility and discomfort associated with a tall 2-meter hedge bordering the path. A field experiment using pre- and post-intervention surveys (n = 266) assessed park users' perceptions before and after the hedge was cut to a lower height. Results revealed that after the hedge was lowered, female participants in particular reported increased perceived prospect and lower concealment, which significantly improved their feelings of safety.

In another study, Hani (2015) investigated how different spatial arrangements and complexities of vegetation influence perceived safety in urban parks. Their study was conducted in El Gholi Park, a major urban park in Tabriz, Iran, using a photo-questionnaire survey completed by 296 park users. Respondents were shown vegetation areas with three levels of visual complexity and were asked to rate their perceptions of safety. The findings revealed that moderate complexity in vegetation design was associated with the highest levels of perceived safety, while densely planted areas with high visual complexity were viewed as unsafe due to limited visibility. Additionally, the presence of antisocial behavior such as loitering, vandalism, and the presence of drug users, was a major factor contributing to feelings of insecurity. The study underscores the need for park designers to carefully consider plant height, canopy

structure, and spatial configuration, as overly dense vegetation can obstruct views and create hiding spots and areas of concealment (Hani, 2015).

Lis et al. (2019) examined how vegetation characteristics—particularly visual accessibility and concealment—impact users' perceived safety and preference in urban parks. Using 112 photographs of varied park settings, participants evaluated levels of vegetation density and openness. The study found that dense vegetation that obstructed views and provided concealment reduced perceived safety and overall preference, echoing findings from Evensen et al. (2021) and Hami (2015).

Maruthaveeran (2015) explored fear of crime and defensive behaviors among urban park users in Kuala Lumpur through semi-structured interviews with 19 participants. The study identified eight key attributes that contribute to fear in parks: concealment due to vegetation, being alone, physical disorder, social incivilities, unfamiliarity, prior crime information, and past victimization. Concealment—particularly from dense, unmaintained vegetation—emerged as a major factor in perceived unsafety, echoing findings from earlier studies.

Mohan and Chani (2014) explored perceived safety in urban parks using qualitative, participatory mapping combined with safety-perception mapping and after-walk interviews. Conducted in three public parks in Thiruvananthapuram, India, the study involved 132 participants who were asked to walk through designated routes in each park and later mark areas where they felt safe, unsafe, or neutral on a park layout. Interviews revealed that key environmental factors contributing to feelings of insecurity included poor maintenance, overgrown vegetation, lack of lighting, and absence of natural surveillance. In particular, areas with concealed corners, rusted or abandoned infrastructure, and signs of neglect such as vandalism or waste dumping were most frequently identified as unsafe.

2.2 CPTED applications in Parks

Crime Prevention Through Environmental Design (CPTED), rooted in Whyte's (1980) seminal work The Social Life of Small Urban Spaces, Jacobs's (1961) seminal work The Life and Death of Great American Cities and Newman's (1971) seminal work Defensible Space, emphasizes how the built environment can be strategically designed to reduce crime and fear of crime. The original CPTED framework is built on four key principles: natural surveillance, access control, territorial reinforcement, and maintenance (Newman, 1971). These principles aim to increase visibility, define boundaries, and promote a sense of ownership, all of which contribute to reducing opportunities for crime and enhancing feelings of safety. While later research and practice have expanded CPTED to include a fifth principle—activity support—this thesis intentionally focuses on the original four. This decision is based on the premise that when natural surveillance, access control, territoriality, and maintenance are well-integrated, they inherently create the conditions for positive, prosocial activities to occur and flourish.

Kim et al. (2014) applied CPTED principles to assess the physical environment and safety perceptions of four children's parks in Dalseo-gu, Daegu, South Korea. The study used a user satisfaction survey and a checklist evaluating park features against five CPTED principles: natural surveillance, access control, territorial reinforcement, maintenance, and activity support. Survey results showed that activity support had the highest suitability for crime prevention, followed by territorial reinforcement. However, natural surveillance, access control, and maintenance were rated low, often due to poor visibility, lack of CCTV, unmanaged vegetation, and insufficient entrance control. The study concludes that while Korean urban parks are generally accessible, many lack critical CPTED features, particularly those that deter criminal opportunity through visibility and upkeep.

In another study in Korea, the authors examined CPTED in Yangjae Citizen's Forest, a CPTED-certified urban park in Seoul (Kim et al., 2018). Using surveys from 147 park users and field observations, the study explored factors contributing to perceived safety. They found that insufficient CCTV coverage and densely wooded areas along trails increased feelings of vulnerability, especially among women, while open spaces, rest areas, and natural surveillance elements such as lighting and visibility improved perceived safety. Respondents expressed strong preferences for additional surveillance, including CCTV, emergency call boxes, and regular patrols.

Similarly, a study of an urban park in Tantolunden, Sweden addressed CPTED's principles through crime mapping, field inspection, people counting, and interviews (Iqbal & Ceccato, 2015). The researchers concluded that larger urban parks challenge the principles of access control and territoriality while also posing limitations in terms of maintenance (Iqbal & Ceccato, 2015). The researchers also found that crime concentrations were directly related to the design and maintenance of the park, with the largest concentrations of crimes observed around specific areas that had numerous hiding places and lacked clear lines of site (Iqbal & Ceccato, 2015).

More recently, Mehta and Gopalakrishnan (2024) evaluated perceived security in 15 public parks in Tiruchirappalli, India, using a CPTED framework. The study combined objective observations of park design with subjective perceptions from 524 park users to assess how physical environmental features impact fear of crime, particularly theft and robbery. Well-maintained vegetation, lighting, signage, and facilities like benches and swings were positively associated with safety. Similarly, park designs that enabled natural surveillance enhanced users' sense of safety. In contrast, surrounding noise, poor visibility from buildings, and presence of

vacant land reduced perceived safety. The study also found that clear entrance design increased perceived security.

In China, Hou et al. (2024) examined how CPTED principles influence perceived safety in Baitashan Park, Lanzhou, while considering users' interpersonal needs and socioeconomic status. Drawing from 350 surveys, the study found that CPTED principles like lighting, sightlines, and maintenance, positively affect perceived safety. Interpersonal needs were found to mediate the relationship between CPTED and perceived safety in parks that are designed to foster social interaction. For example, users with higher socioeconomic status reported stronger interpersonal needs and a more positive link between CPTED features and safety, possibly due to access to better-designed parks. Conversely, users with lower socioeconomic status prioritized basic safety needs over social ones, and CPTED principles alone were not as strongly linked to perceived safety in this group. These findings suggest that park planners should integrate CPTED with strategies that support interpersonal engagement and address socioeconomic disparities to ensure equitable perceptions of safety and broader use of parks.

2.3 Community Input and CPTED Applications

While CPTED principles provide a strong foundation for enhancing safety in park environments, relying solely on environmental design without community input can limit long-term effectiveness and overlook the lived experiences of local residents.

Recent research has highlighted the limitations of traditional policing approaches in reducing crime and the need for community-driven strategies that integrate environmental design, policy development, and active engagement (Nubani et al., 2023). The authors conducted a study in three medium-sized cities in Michigan by testing a community-engaged participatory research approach that combined crime data analysis, design interventions, and local engagement

to develop policies, tools, and strategies for crime prevention. The study emphasized that overpolicing is not an effective crime reduction strategy and can strain community relationships, underscoring the need for non-police-driven crime prevention models that prioritize community input (Nubani et al., 2023).

Additional research also demonstrated that community-led efforts can lead to tangible reductions in crime, as evidenced by Flint, Michigan's 40% reduction in violent crimes through CPTED-based initiatives (Heinze et al., 2018). This initiative was driven by extensive community input, with residents actively participating in identifying high-risk areas, co-developing safety interventions, and contributing to decisions about environmental improvements such as lighting, clean-ups, and activating vacant lots. However, challenges in maintaining consistent community engagement were noted, suggesting that structured frameworks and long-term participation strategies are necessary for sustained impact (Hipple & Saunders, 2020).

CHAPTER 3:

METHODOLOGY

3.1 Research Design

This research study was conducted in two phases utilizing a quantitative research design to assess perceptions of safety and gather feedback on park modifications. In the pre-design phase, a 37-question survey was administered to collect data on residents' perceptions of safety in the LaSalle-Ford Park area. The survey included targeted questions about lighting, feelings of safety during the day and at night, perceptions of cleanliness (e.g., trash and litter), and other factors influencing park use. After obtaining IRB approval, the surveys were distributed to representative community members through connections with the Detroit Police Department, and responses were recorded using Qualtrics as well as paper-based surveys. Additionally, crime data was obtained through the research team of the Byrne Criminal Justice Innovation (BCJI) grant, with one of the research team members also serving on this thesis committee.

Based on community feedback from the pre-design survey, a 3D rendering of a redesigned park was developed, incorporating community input and Crime Prevention Through Environmental Design (CPTED) principles. This proposed design was presented to park users during a community engagement event and was also distributed via email to community members. To evaluate changes in perceptions of safety following the redesign, a follow-up survey was administered. All survey responses were kept confidential and obtained consensually.

3.2 Study Area

3.2.1 LaSalle-Ford Park:

LaSalle-Ford Park is a neighborhood-scale public park located in the Hope Village neighborhood within the boundaries of the 10th Precinct in Detroit, Michigan (see Figure 1). The park spans approximately 20,000 square feet and is surrounded by multifamily residential housing, serving as a central community gathering space. Existing amenities include a basketball court, an aging playground, and mature tree coverage, which, while providing shade, has contributed to reduced visibility and ongoing safety concerns among residents.

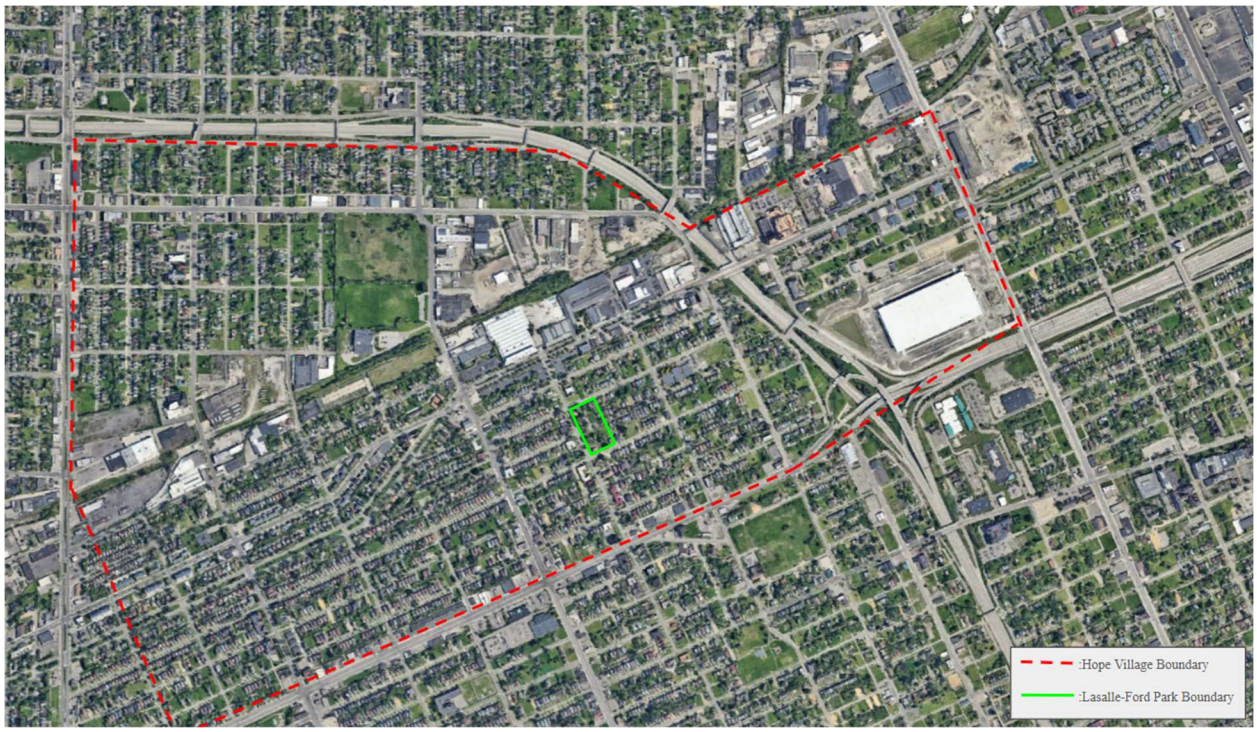

Figure 1. Neighborhood Context Map (Google Earth, 2025)

The park was selected as the focus site for this research as part of a larger community safety initiative supported by the Byrne Criminal Justice Innovation (BCJI) grant, awarded to the Detroit Police Department 10th Precinct in partnership with a research team from Michigan State

University. Dr. Nubani, who is a member of the committee, also serves on the project team for the BCJI grant. Although the grant itself did not fund site-specific design assessments or park modifications, LaSalle-Ford Park was nominated by residents during community engagement events conducted under the grant. This nomination reflected the community's expressed concerns about safety and under-utilization of the park and highlighted it as a high-priority public space in need of design attention.

The 10th Precinct, in which the park is located, presents significant socio-economic and environmental challenges that further justified its selection. According to the Detroit Land Bank Authority (DLBA), the precinct includes 2,909 DLBA-owned vacant residential properties, nine vacant commercial structures, and numerous privately or city-owned commercial buildings, many of which are in various states of disrepair. The precinct is also home to five Qualified Opportunity Zones, and its population is predominantly Black or African American (89.4%), with smaller percentages of White residents (4.4%) and those identifying with two or more races (3.9%) (ACS 2010–2014). The area has a poverty rate of 45.75% and a long-term housing vacancy rate of 38.53%, with 36,583 total housing units reported in the 2010 U.S. Census.

Given the high levels of vacancy, poverty, and disinvestment, as well as the community-identified need for safety improvements, LaSalle-Ford Park provided a highly relevant and contextually appropriate site for evaluating how Crime Prevention through Environmental Design (CPTED) strategies, informed by community input, could be applied to improve perceptions of safety and park usability.

3.2.2 Hope Village Profile

The 2023 Neighborhood Vitality Index Survey provides a comprehensive snapshot of Hope Village, highlighting both its strengths and ongoing challenges. Community engagement in

the neighborhood is notably high. A significant majority of residents (85.7%) intend to remain in the neighborhood for at least the next year, indicating strong residential stability. (Community Development Advocates of Detroit, Data Driven Detroit, & JFM Consulting Group, 2023). Additionally, the survey found that 71.4% of residents report participating in block clubs, neighborhood associations, community groups, or school-related activities. More than two-thirds (66.7%) are actively involved in efforts to address neighborhood conditions, and 61.9% have participated in formal community engagement processes, illustrating a strong foundation for collaborative planning and local capacity for change.

Socioeconomic indicators, however, point to considerable hardship. Only 33.4% of residents live above 200% of the federal poverty level, and while 60.5% have earned a high school diploma or GED, just 19.5% hold a post-secondary credential (Community Development Advocates of Detroit, Data Driven Detroit, & JFM Consulting Group, 2023). The neighborhood also faces significant employment challenges, with 46.1% of residents aged 20 and over actively seeking work.

Housing affordability and quality remain pressing concerns. Just over half (52.9%) of owner-occupied households and only 25.1% of renter-occupied households spend less than 30% of their income on housing, suggesting widespread housing cost burden, particularly among renters (Community Development Advocates of Detroit, Data Driven Detroit, & JFM Consulting Group, 2023). The same survey also shows that although 57.4% of residential structures are not classified as poor or blighted, only 38.1% of residents report satisfaction with the overall quality of housing in their area.

The survey showed perceptions of safety that reflect a complex reality. Despite a violent crime rate of 1,684.7 incidents per 10,000 residents, 61.9% of residents report feeling safe in

their neighborhood (Community Development Advocates of Detroit, Data Driven Detroit, & JFM Consulting Group, 2023). However, only 38.1% feel comfortable reporting crime, signaling potential mistrust or fear in engaging with law enforcement or other reporting mechanisms.

Health and well-being indicators paint a more positive picture. A substantial majority of residents (71.4%) express satisfaction with their physical, mental, and emotional health, and 76.2% report being satisfied with their overall quality of life. These findings suggest a resilient community with a strong sense of identity and investment in collective well-being, despite the challenges it faces.

3.3 Data Collection

3.3.1 Crime Data

In addition to the 2023 Neighborhood Vitality Index Survey, additional crime data was utilized for this study which was obtained through grant funding from BCJI Grant Team. To ensure confidentiality, only aggregated statistics (e.g., crime types, frequency) were analyzed; no addresses, identifiable case details, or raw datasets were examined. This approach aligned with IRB protocols and protected sensitive information while allowing for thematic analysis of safety perceptions. Crime frequencies were categorized by type (e.g., violent vs. non-violent) to inform CPTED design priorities, as summarized in Table 1.

These data sets highlights the complex dynamics of Hope Village, providing critical context for understanding residents' perceptions of safety and the potential impact of park modifications.

Table 1. Aggregated Crime Incidents by Proximity to Lasalle-Ford Park

Crime Category	One Block (N=19)	0.25 Miles (N=205)	0.5 Miles (N=369)
Violent Crimes	5 (26.3%)	60 (29.3%)	120 (32.5%)
Aggravated Assault	2	17	28
Simple Assault	3	24	56
Robbery	0	2	6
Other (e.g., threats, CSC)	0	17	30
Non-Violent Crimes	8 (42.1%)	96 (46.8%)	189 (51.2%)
Burglary/Larceny	4	45	89
Motor Vehicle Theft	1	9	12
Property Damage	3	14	24
Other (e.g., fraud, tows)	0	28	64
Neutral/Non-Criminal	6 (31.6%)	49 (23.9%)	60 (16.3%)
Administrative (e.g., tows)	4	22	42
Misc. (e.g., reports, deaths)	2	27	18

3.3.2 Surveys

The survey was developed in tandem with the thesis major advisor, an expert and a national trainer on CPTED, with the goal of gathering as much valuable data as possible to inform design decisions while keeping the total number of questions to a reasonable amount. To do this the questions were focused mainly on people's perceptions of safety within the neighborhood and the park, as well as gathering input on what types of amenities people wanted within the space. Each question was structured as either a fill in the blank question or a statement with a range of answers to choose from consisting of strongly disagree, disagree, neutral, agree, or strongly agree. The survey was distributed via a connection within the Detroit Police Department 10th Precinct and the BCJI Research Team and distributed the surveys at a

community meeting in November of 2024. Both hard copies and a digital option of the first survey were provided to a total of 23 participants. Once the survey data was gathered, a 3D rendering of a reimagined LaSalle-Ford Park was created utilizing the community's input and CPTED principles to guide the design decisions. Perspective images of the design were then added to a PowerPoint and emailed to representative community members of Hope Village for them to view. Upon viewing the survey, they were then asked to answer the survey again, where their responses will be compared to those recorded in November of 2024 to measure the changes in perception of safety. In total 17 responses were recorded for the second round of surveys, with 5 being hard copies distributed and filled out at an existing community engagement meeting and the other 12 being filled out online.

3.4 Survey Measurements

This study assessed ten key environmental and social factors to measure changes in perceptions of safety and usability following the redesign of LaSalle-Ford Park. These factors were identified based on Crime Prevention Through Environmental Design (CPTED) principles and community feedback. They include physical design features (e.g., sightlines, seating, accessibility) and social factors (e.g., comfort in engaging in activities, perceived safety during the day and night).

Each factor was measured through a survey question designed to capture respondents' perceptions before and after the redesign. The ten factors and their corresponding survey questions are as follows:

1. Visibility and Sightlines – The ability to see across the park with minimal obstructions. Survey question: *I feel that the layout of the proposed Park allows for clear sightlines, enabling me to see and be seen by others easily.*

2. Entry and Exit Visibility – Clear views of park entrances and exits for improved access control. Survey question: *I feel it is easy to see the entry and exit points to the proposed park.*
3. Blind Spots – The presence or absence of hidden or secluded areas that could pose safety concerns. Survey question: *I feel there are no blind spots or spaces people could hide in the proposed La Salle Park.*
4. Comfort in Bringing Children for Recreation – The level of comfort parents or guardians feel when bringing children to the park for recreational purposes. Survey question: *I feel comfortable bringing my children to the proposed park for recreational purposes.*
5. Comfort in Engaging in Community Activities – The extent to which individuals feel comfortable participating in events and social gatherings in the park. Survey question: *I feel comfortable engaging in community activities and events in the proposed La Salle-Ford Park.*
6. Seating Availability – Adequacy of seating options throughout the park. Survey question: *I feel there are an adequate amount of places to sit and rest comfortably in the proposed Park.*
7. Seating Comfort and Aesthetics – Design, placement, and attractiveness of seating areas. Survey question: *I feel the seating in the proposed La Salle Park is comfortable and aesthetically pleasing.*
8. Accessibility – Ease of access to the park for all users, including those with mobility challenges. Survey question: *I feel La Salle Park is accessible to all members of the community.*

9. Perceived Safety During Day – Participants' overall feelings of security when visiting the park during the day. Survey question: *I feel safe visiting the proposed La Salle Park during the day.*
10. Perceived Safety During at Night – Participants' overall feelings of security when visiting the park at night. Survey question: *I feel safe visiting the proposed La Salle Park at night.*

The original pre-design survey consisted of 37 questions, covering various aspects of park safety, usability, and community experiences. This included the 10 key environmental and social factors assessed in both the pre- and post-design surveys, along with additional questions related to personal experiences with crime, past park usage patterns, basic demographic questions and general neighborhood perceptions.

For the post-design survey, the questionnaire was revised to focus specifically on perceptions of the proposed park design. While the 10 key questions remained unchanged to allow for direct comparison, irrelevant questions—such as "Have you been a victim of crime?"—were removed, as they did not pertain to the evaluation of the newly proposed design. This revision ensured that responses focused on design-driven changes in safety perception, rather than broader personal experiences that may not directly reflect the effectiveness of CPTED interventions.

CHAPTER 4:

RESULTS

4.1 Phase 1

The focus of Phase 1 was to gather community feedback to inform a CPTED-aligned redesign of LaSalle-Ford Park. In November 2024, a survey was distributed to residents of Hope Village, where participants shared their perceptions of safety and identified key challenges and opportunities for park improvement. Their input directly shaped the proposed design interventions.

A major concern expressed by 100% of respondents was the presence of abandoned buildings and a lack of adequate seating (see Figure 2). In response, the proposed redesign incorporated the purchase and transformation of two previously abandoned lots to the north and east of the park (see Figure 3). The eastern lot was converted into a community social space featuring a gazebo, umbrella seating, and native planting beds, while the northern lot was redesigned into a community garden with indoor and outdoor plots to support food access and neighborhood engagement.

Another issue raised in the first survey was the limited inclusivity of the existing playground, which many described as “too old” or “not suitable for young children.” Two respondents specifically requested a space that could accommodate children with autism. In response, a sensory-friendly play structure was designed with soft, brightly colored rubber surfacing, calming scented plantings like lavender and Joe-Pye weed, and circular seating that allows caregivers to supervise from all angles (Figure 4).

Figure 2. Aerial View of Existing Park

Figure 3. Top View of Proposed Park

Figure 4. Playground of existing park (top) and proposed (bottom)

Community members also noted that the basketball court was one of the park's most actively used features. To further encourage positive activity support, additional bench seating was installed nearby, providing space for spectators and rest. Surrounding infrastructure was also improved: trash receptacles, new lighting, and a security call box were added to maintain cleanliness, improve surveillance, and create a stronger sense of safety (see Figure 5).

In regards to the eastern lot (Figures 6 and 7), it was converted from an abandoned lot consisting of nothing more than trash and overgrowth into a new seating area with a gazebo for event hosting. New native planting beds were introduced to provide both aesthetic value and an alternative seating option along the walking paths, positioned opposite the umbrella tables and picnic tables under the gazebo. This wide range of seating types supports various activities for community members, such as gathering, relaxing, or attending small events. The presence of multiple seating zones also enhances territoriality, as the space encourages large gatherings and regular foot traffic, which are both deterrents to criminal behavior. To further strengthen surveillance and maintenance, the area was equipped with additional light posts and trash receptacles, improving both visibility and cleanliness.

The northern lot (Figures 8 and 9) was converted into a community garden featuring both indoor and outdoor planting plots. This transformation promotes activity support and territorial reinforcement by encouraging residents to grow food, build relationships, and invest in the care of the park. The area also includes new seating and bike parking to enhance accessibility and usability. A graffiti-style mural of the Hope Village name was added across the adjacent street, reinforcing local identity and a sense of ownership.

Figure 5. Basketball Court of existing park (top) and proposed (bottom)

Figure 6. Eastern Lot of existing park (top) and proposed (bottom) Perspective 1

Figure 7. Eastern Lot of existing park (top) and proposed (bottom) Perspective 2

Figure 8. Northern Lot of existing park (top) and proposed (bottom) Perspective 1

Figure 9. Northern Lot of existing park (top) and proposed (bottom) Perspective 2

Further analysis revealed that park users felt significantly safer using the existing park during the day (mean = 3.6) compared to at night (mean = 2.5), highlighting concerns about visibility and surveillance after dark. Additionally, 80% of respondents reported that the park was poorly maintained and identified inadequate lighting and multiple blind spots as major safety issues. In response, the redesigned park incorporated a range of improvements including additional trash receptacles and multiple forms of lighting—bollard lights, lamp posts, and string lights—strategically placed throughout the site. These interventions aimed to enhance natural surveillance, reduce hiding spots, and promote a cleaner, more inviting environment, ultimately supporting both safety and usability for community members.

Approximately 60% of respondents indicated that the existing park layout did not allow for clear sightlines, likely due to the dense canopy and presence of mature trees that obstructed views across the site. To address this, several trees located within the medians were removed, significantly improving visibility into and throughout the park from adjacent streets—enhancing natural surveillance, a core CPTED principle. Additionally, 66% of participants reported feeling that law enforcement presence in the park was inadequate. To respond to this concern, emergency call boxes were installed at key locations in the redesigned park, offering a direct and immediate link to police assistance and reinforcing perceptions of safety.

These changes were not only informed by the community's survey responses but also closely aligned with CPTED strategies. Surveillance was strengthened through tree removal, strategic lighting (including bollard lights, lamp posts, and string lights), and the elimination of blind spots. Access control was enhanced by introducing a circular wooden bench system around the new play structure and a perimeter hedge wall, subtly guiding movement and defining spaces within the park. Maintenance was improved through the addition of more trash receptacles and

the transformation of previously abandoned lots into functional areas like seating zones and community gardens—efforts that discourage neglect and promote stewardship. Finally, activity support was integrated through the addition of sensory-friendly play features, a social gathering area, and a community garden—each of which encourages positive use and reinforces a sense of community ownership.

Finally, territoriality was reinforced by transforming previously abandoned lots into valuable community assets, establishing clear park boundaries, and creating well-maintained, welcoming spaces that promote a sense of ownership and pride among residents. The installation of emergency call boxes further supports this by offering a direct line to law enforcement, addressing community concerns about limited police presence. Additionally, the neighborhood name is marked in two distinct ways—painted in a bold graffiti art style across the road and integrated using natural elements at both entrances of the park—enhancing territoriality by visibly identifying the space as belonging to the community (see Figures 10 through 12). These features not only establish a strong sense of place but also celebrate neighborhood identity through both creative and natural expressions. Collectively, these interventions reflect CPTED principles and contribute to a safer, more inclusive, and vibrant park environment.

To summarize how each intervention aligns with specific CPTED principles and community feedback, Table 2 provides an overview of the redesign elements implemented throughout the park. The table categorizes the design strategies by CPTED principle (e.g., surveillance, maintenance, access control) and links them to their visual representation in the figures, helping to illustrate the layered and intentional approach taken in the new park design.

Figure 10. South Entrance of existing park (top) and proposed (bottom)

Figure 11. Proposed Southeast Aerial

Figure 12. Proposed Northwest Aerial

Table 2. Design Interventions

CPTED Principle/Reason	Intervention	Figure Reference
Surveillance	String lights implemented on central pathway.	4
Territoriality & Access Control	Added gate with park name, new pathways, new planting plan, and a new hedge wall surrounding the site	4
Maintenance	Removed overgrowth, added additional trash receptacles	4
Activity Support	Additional bench seating	4
Surveillance & Maintenance	New light posts, trash receptacles, and security call boxes	5
Activity Support & Survey Specific Responses	New playground with autism friendly features and additional seating	6
Territoriality	New planting plan	6
Activity Support & Territoriality	New planter-seating & umbrella tables	7
Maintenance & Surveillance	New light posts & trash receptacles	7
Activity Support	New gazebo, picnic tables, planter-seating, and walkways	8
Activity Support	New indoor community garden plots & bike parking	9
Territoriality	New median plantings	9
Activity Support	New outdoor community garden plots	10
Territoriality	New median plantings & Hope Village graffiti-style logo across the road	10

4.2 Phase 2

A total of ten variables related to Crime Prevention Through Environmental Design (CPTED) were analyzed to assess differences in safety perception between two independent groups: those who evaluated the existing park and those who evaluated the proposed park. To compare the responses, the Mann-Whitney U test was used, as it is a rank-based nonparametric test that determines whether there are significant differences between two independent groups on an ordinal dependent variable. This was chosen over a T-test as the assumptions required couldn't be met, those being the data was ordinal, not interval or ratio, and the distribution of the data was non-normal. Medians and means were calculated for all variables (see Table 3), and population distribution patterns were visually inspected through population pyramid charts (see Figure 13).

Table 3. Means and Medians for 10 variables in the pre and post surveys

Survey	I feel Park is accessible to all members of the community.	I feel comfortable engaging in community activities and events	I feel safe visiting the Park during the day.	I feel safe visiting the Park at night.	I feel comfortable bringing my children for recreational purposes.	I feel that the layout allows for clear sightlines, enabling me to see and be seen by others easily.	I feel it is easy to see the entry and exit points	I feel there are no blind spots or spaces people could hide	I feel there are an adequate amount of places to sit and rest comfortably	I feel the seating is comfortable and aesthetically pleasing.
Median Pre	4.00	4.00	4.00	3.00	3.00	2.00	3.00	2.00	2.00	1.00
Median Post	4.00	4.00	4.00	3.00	4.00	4.00	4.00	4.00	4.00	4.00
Mean Pre	3.33	3.53	3.60	2.47	3.21	2.40	2.60	2.20	1.87	1.67
Mean Post	3.53	3.94	3.71	2.88	3.93	4.06	4.00	3.71	3.47	3.88

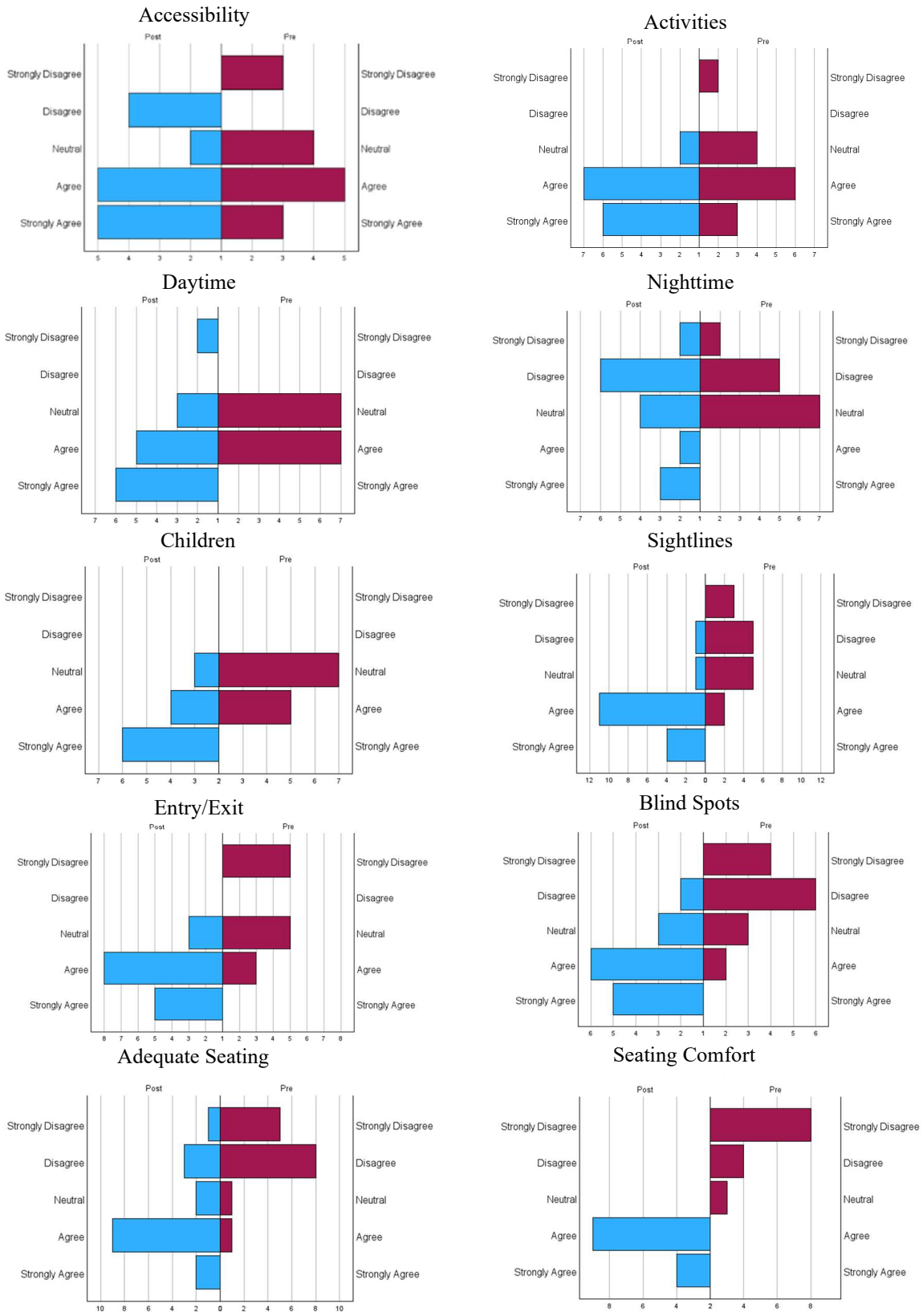

Figure 13. Results of Population Pyramid Test for ten variables

A comparison of sign-in sheets from both events where data were collected confirms that the two groups were composed of different participants. However, additional responses were obtained by encouraging attendees to share the proposed design presentation with others who could not attend in person. While it is unknown whether these additional participants also completed the first survey, the number of potential overlaps did not exceed n = 2, suggesting that any effect on the statistical comparison is likely minimal. Nevertheless, this represents a limitation of the study, particularly in survey design. Future iterations of the instrument should include a screening question—such as "Did you participate in the first survey?"—to account for repeat participation and strengthen the validity of group comparisons.

4.2.1 Assumption Testing:

The Mann-Whitney U test requires several assumptions, which were verified:

- Assumption 1: The dependent variables were measured at the ordinal level.
    - All survey responses were recorded on a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).
- Assumption 2: The independent variable had two categories.
    - The two groups represent responses from participants assessing the existing park (pre-test) and the proposed park (post-test).
- Assumption 3: Independence of observations.
    - Each participant provided only one response and was not included in both groups.
- Assumption 4: The distributions of the two groups were non-identical.

- This was evaluated by examining the medians (see Table 3) and visualizing the distribution of scores through the population pyramid test (see Figure 13).

4.2.2. Mann-Whitney U Test Results

The Mann-Whitney U test revealed statistically significant differences between the existing park and the proposed park in six of the ten variables. For example, median comfort of bringing children to the park score was statistically significantly different between the two parks, $U = 61.5$, $z = -1.981$, $p = .048$. Furthermore, there was statistically significant differences between the two parks for the following variables: sightlines were clear ($U = 25$, $z = -4.04$, $p = .000$),easier to see entry and exit points ($U = 51.5$, $z = -2.969$, $p = .003$), no blind spots ($U = 45.5$, $z = -3.167$, $p = .002$), adequate seating ($U = 38$, $z = -3.519$, $p < .001$), seating is comfortable and aesthetically pleasing ($U = 13$, $z = -4.434$, $p < .001$).

Conversely, no statistically significant differences were found for the following variables:

- Accessibility of the park: $U = 116.5$, $z = -0.427$, $p = .669$
- Engagement in community activities at the park: $U = 100$, $z = -1.092$, $p = .275$
- Likelihood of visiting the park during the day: $U = 105$, $z = -0.892$, $p = .372$
- Likelihood of visiting the park at night: $U = 110$, $z = -0.690$, $p = .049$

These findings suggest that the redesign of the park incorporating CPTED principles significantly improved perceptions of safety related to visibility, seating, and overall comfort, while perceptions of accessibility, community engagement, and visitation patterns remained unchanged.

CHAPTER 5:

DISCUSSION

The results presented in the previous chapter demonstrate significant relationships between CPTED-based park redesign and perceived safety in LaSalle-Ford Park. This chapter situates those findings within the broader literature, draws conclusions about the effectiveness of CPTED principles is combined with community input, and outlines practical recommendations for urban park design and planning. This study confirms that CPTED principles—particularly surveillance, territoriality, and activity support—can meaningfully enhance safety perceptions and support community development. These findings are consistent with studies in Seoul (Kim et al., 2018), Sweden (Iqbal & Ceccato, 2015), and India (Mehta & Gopalakrishnan, 2024), where lighting, visibility, and park maintenance were found to be among the most influential factors shaping users' sense of security.

5.1 Key Findings

This study explored the impact of Crime Prevention Through Environmental Design (CPTED) principles on perceived safety in LaSalle-Ford Park, leveraging community input to guide a proposed redesign. By assessing safety perceptions before and after a CPTED-informed redesign, this research sought to answer two key questions:

1. How do CPTED principles, when applied through a community-driven design process, influence perceptions of safety in urban neighborhood parks?
2. Which specific CPTED-based design interventions, informed by community feedback, contribute most to improving perceived safety?

The findings provide empirical support for the role of CPTED in enhancing park safety perceptions, while also highlighting the importance of community input in ensuring that interventions address local concerns effectively.

5.2. The Influence of CPTED and Community-Driven Design on Safety Perceptions

This study confirms prior research indicating that environmental design modifications alone are not always sufficient to change perceptions of safety—community input is a key factor in creating design strategies that reduce crime (Nubani et al., 2023). Community-driven CPTED interventions have been shown to be more effective in addressing localized safety concerns than top-down approaches, as residents provide first-hand knowledge of their needs as well as site-specific challenges (Heinze et al., 2018).

In LaSalle-Ford Park, design changes such as improving sightlines, adding shaded seating, and incorporating a sensory-friendly playground, had the most substantial impact on safety perceptions. These changes echo the findings of Kim & Lee (2018) and Evensen et al. (2021), which emphasized the importance of natural surveillance and the psychological effects of open, well-maintained spaces. The study's quantitative results support these improvements:

- The item measuring clear sightlines increased from a mean of 2.40 to 4.06.
- Comfortable and aesthetically pleasing seating increased from 1.67 to 3.88.
- Willingness to bring children to the park rose from 3.21 to 3.93.

These changes align with research by (Kim & Lee, 2018), who emphasize that natural surveillance—achieved through clear sightlines, open spaces, and removal of hidden spots (Iqbal & Ceccato, 2015) — plays a fundamental role in reducing fear of crime. The findings also revealed that surveillance and lighting were the most critical factors influencing safety perceptions. Over 80% of respondents reported feeling unsafe due to poor visibility and blind

spots, which the redesign addressed through strategic tree removal, added lighting (bollards, string lights), and emergency call boxes. Territoriality and maintenance played a secondary but vital role. Residents associated abandoned lots and poor upkeep with crime; converting these spaces into community gardens and seating areas fostered a sense of ownership and deterred neglect. Activity support enhanced daytime safety. The inclusion of a sensory-friendly playground and social gathering spaces encouraged positive use, aligning with the principles of activity support.

However, not all aspects of perceived safety improved, suggesting that CPTED modifications alone may not be sufficient to change long-standing concerns about urban parks. For example, perceptions of nighttime safety and accessibility did not see statistically significant improvements, which may be attributed to persistent crime levels in the surrounding neighborhood. While policy interventions and community programming are often key components of successful safety strategies, they were not directly addressed in this study, which focused solely on design interventions within the park itself. Future research should explore how external crime reduction efforts and social programming could complement CPTED interventions to further enhance perceptions of safety.

5.3. Key CPTED Design Interventions that Improved Safety Perceptions

The three most impactful CPTED-based interventions observed in this study were: 1) Visibility and Sightlines: Improved through strategic tree removal and lighting design, aligning with Kim et al. (2018) and Iqbal & Ceccato (2015). 2) Seating and Territorial Reinforcement: Residents reported that well-placed and comfortable seating made the park feel more welcoming and secure, reinforcing the idea that clearly marked, actively used spaces enhance perceptions of ownership. 3) Entry/Exit Visibility and Lighting: Enhancing access control, reducing ambiguity

about boundaries, and improving nighttime visibility—critical themes in the CPTED frameworks reviewed by Newman (1971) and reaffirmed in studies in India and China (Hou, 2024; Mehta & Gopalakrishnan, 2024).

CHAPTER 6:

CONCLUSIONS

This study reinforces the value of integrating Crime Prevention Through Environmental Design (CPTED) principles into urban park design, particularly in neighborhoods that face elevated levels of crime and disinvestment. Design elements such as improved lighting, clear sightlines, and defined territorial boundaries were associated with increased perceptions of safety and usability among participants. These findings align with a growing body of research indicating that thoughtful environmental design can positively shape how residents experience and use public space.

While community engagement was not directly measured in this study, the design process was informed by resident feedback, which played a critical role in identifying specific concerns and guiding the proposed interventions. This underscores the potential benefits of incorporating local knowledge and community input into CPTED-driven projects. In areas like LaSalle-Ford Park, where traditional policing may not address deeper environmental or social issues, design strategies rooted in CPTED offer a promising, non-enforcement-based approach to improving safety.

6.1 Limitations

While the current study offers valuable insight into the application of CPTED principles to increase perceptions of safety in urban parks there are limitations that must be discussed. Since surveys were distributed through specific community meetings in Hope Village, this potentially overlooks both Hope Village residents who work non-standard shift times for work or Detroit's broader population, which aligns with the findings of Hipple & Saunders (2020). Crime rates are also determined by many different factors, including socioeconomic factors, such as

poverty and policing, that go far beyond park design and that the study did not control for. In terms of survey responses the total number of participants wasn't incredibly high with 23 in the first round and 17 in the second. This could be due to a lack of faith from residents in the ability of governing bodies and institutions to support the Hope Village community and thus creating a sense of apathy from residents. Future studies should seek expanded participation in the survey and design development stages, possibly cross referencing data from adjacent neighborhoods for comparative analysis, track crime statistics and user behavior before and after a redesign has been implemented to evaluate the overall effects of said redesign, as well as investigate cost-benefit analyses of CPTED interventions to guide municipal budgeting. By centering community voices and CPTED principles, this study demonstrates how intentional design can transform urban parks into safer, more inclusive spaces. While not a perfect solution for systemic crime and injustices, such approaches offer a replicable framework for cities grappling with similar challenges.

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