

KYIV SCHOOL OF ECONOMICS

Faculty of Social Sciences

Master's Programme "Urban Studies and Postwar Reconstruction"

MASTER'S THESIS

"Reconstruction of Nyvky Park (western part) in Kyiv as a Tool for Enhancing Social
Attractiveness and Safety of the Neighbourhood"

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Abstract

The present study has attempted to address an analytical problem of the absence of a generalised evidence base for the development of a safe and socially appealing public open space in Kyiv's western part of Nyvky Park. Thus the main research question is: Which measures can contribute the most to increase the subjective feeling of security and social appeal of this area, and which sequence in implementing them are preferable when taking into account the different constraints of time and money? To achieve these objectives, a design of search with a methodological triangulation have been employed. These include: a spatial audit using CPTED methodology (68 criteria / 8 zones /day/night); a survey among residents of the park (N=101); a multicriterial evaluation (MCDA) using weighted sum model (WSM), in total 18 possible measures to increase safety and social appeal of the park, based on seven criteria; a cost-effectiveness analysis (CER), as well as SWOT and PEST analyses.

Keywords: MCDA, CPTED, post-Soviet parks, reconstruction during wartime

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INTRODUCTION

Nyvky Park is a fascinating place with a rich history; during the Soviet era, it served as a summer retreat for government officials of the time, and later became a recreational area of the city and a favorite spot for locals to take walks.

During daylight hours, it is a pleasant place. Fresh, quiet, shaded, with an abundance of vegetation and ponds, it is an oasis amid the bustling city life. The Syrets River flows through the park, winding its way through the entire park and forming a series of ponds; this river is also a tributary of the Pochayna River. The ponds are the central gem of the park's landscape.

However, once darkness falls, the park turns into a place most residents are reluctant to venture into. The lighting along the park's main paths either doesn't work or isn't provided at all. The vegetation has grown quite thick, so that while walking in the dark, you find yourself wondering if someone might jump out at you from those bushes. The pavement is uneven, with potholes and ruts, so even during the day there is a risk of getting injured and spending the rest of the day at the emergency room. After rain, the paths become muddy, which also increases the risk of injury.

There is no signage in the park, and the entrances to the park are mostly staircases. Some have been renovated, some haven't, but almost all are inaccessible to people with mobility impairments.

Fifteen years ago, this park was considered somewhat marginal in the evening and was associated with danger by residents. As far as I know, nothing dramatic is happening in this park right now. But there's a feeling that you're alone, invisible, and unsure how to get out quickly; the abandoned areas and the lack of public restrooms are enough to make people avoid this place.

It is precisely this feeling, multiplied across dozens of spots within a 40-hectare area—a space that residents both love and, on the other hand, avoid—that defines the situation.

This study begins with this gap—between what Nyvky Park is now and what it could be—and asks how this state of the park can be overcome. This question is not purely aesthetic. It belongs to a broader discussion about the role of public spaces in urban life. This discussion has become particularly relevant in Ukraine for both global and local reasons.

At the global level, the evidence of its relevance is clear: well-maintained and well-designed parks increase physical activity, support mental health, foster social cohesion, and build the level of trust among neighbors that political scientists call social capital (Giles-Corti et al., 2005; Kondo et al., 2018; Gehl, 2010).

A park is not a luxury but an element of social infrastructure, just as necessary as a school or a clinic.

At the local level, the relevance is obvious, in my opinion. Ukraine is in the midst of an active, aggressive war. Daily life in Kyiv is unique given the regular air raid alerts, displacement of people, grief, and accumulated psychological pressure from more than four years of full-scale invasion. In this context, parks are not only recreational spaces but also healing ones. They are places where one can practice ordinary, non-war-like life, where children can play, where an elderly person can sit peacefully for an hour or two, and where everyone can connect with nature and feel that this world has not completely fallen apart and that life is thriving right here. Kaplan and Kaplan (1989) called this “re-attention.”

However, the professional and institutional framework for park management in Ukraine remains inadequate. The post-Soviet legacy left Kyiv with large green spaces designed for mass events and ideological representation, rather than for the everyday, small-scale functions that contemporary urban theory considers key (Hirt, 2012; Stanilov, 2007). After 1991, the institutional system that supported these parks effectively collapsed.

De jure, there is a new system in place to maintain these parks. But de facto, there is fragmented responsibility, chronic underfunding, and a lack of a planning culture that views parks as a problem and seeks various schemes to build yet another high-rise in a nature conservation area.

Instead, a renovated park can be an investment for people.

It was established in 1972 and is partially designated as a nature conservation zone. Since then, it has not undergone comprehensive renovation; only some stairways and ponds have been partially renovated. The western part of the park, which is the focus of this study, concentrates many spatial problems described in the CPTED (Crime Prevention Through Environmental Design) literature—poor lighting, disrupted visual connections, lack of maintenance, broken pedestrian connections, and signs of neglect that signal to visitors that this space is not being cared for (Crowe, 2000).

Analytical Problem

The core analytical challenge of this project is that no systematically developed, evidence-based framework exists to determine how to reconstruct the Western area of Nyvky Park in order to make it a public place both physically secure and appealing from a social perspective. There are two aspects of the challenge. One aspect is a spatial diagnostics gap — i.e., the absence of a structured, empirical assessment of the park’s physical condition relative to residents’ perceptions of its safety and social appeal. When walking through the park, one may be able to intuitively recognize problem areas (the unlighted areas, the dead end alleys, the broken down infrastructure) — but our use of intuition is not a sufficient foundation on which to allocate municipal funds. A second aspect is an evaluation/prioritization gap — i.e., even assuming that we know precisely where improvements are needed, we will require some mechanism or model for determining what should be addressed first; and within what budgetary limits; and with what anticipated outcomes.

Research Question

I have developed the following research question from this analytic task: Which interventions (within the context of the western section of Nyvky Park) will most improve the overall perceived safety and social appeal of the surrounding neighborhood; and at which level of priority should these interventions be implemented based upon differing budgetary and time constraints?

This question includes multiple sub-questions. What does the spatial environment of the park currently look like (as determined by an audit); how are the surrounding neighborhoods' perception of safety and social appeal toward the park; and what factors influence those perceptions? Based on the results of audits and surveys, what are the possible levels of intervention for the park ranging from least ambitious to most ambitious? And how do each of these possible levels of intervention compare with one another based on multi criteria decision analysis incorporating residents' preferences along with experts' assessments.

Research Design

I employed an exploratory research methodology. My selection was intentional and I think appropriately suited to the issues at hand. An exploratory methodology fits best with problems where the phenomenon being investigated has never been systematically examined in a specific context, where the relationships between the variable(s) under examination are too unclear to formulate testable hypotheses, and where the major objective is to delineate a "problem space" as opposed to testing and validating an existing theoretical construct (Creswell, 2014). Each condition applies to the present study. Perceived safety or social attractiveness in Nyvky Park have not been previously systematically studied. Spatial interventions and perceptions within the post-soviet wartime context have never been empirically demonstrated. Finally, the overall intent of the current study was to establish an ordered set of possible intervention strategies based on findings from the study rather than to evaluate an existing theoretical model. This type of methodology has several advantages. Most notably, it is open-ended. As such, the method will allow the data collected during the course of the study to influence how the analysis is conducted as opposed to constraining the analysis into preconceived notions about what should be found. Conversely, there are limitations to using this methodology. Primarily, since I am not attempting to test hypotheses regarding the relationship between independent and dependent variables, my results cannot be interpreted as having causal implications as they may if a confirmatory approach were used. Instead, the results of this study represent evidence-based recommendations for future decision making as well as potential areas for future research that could assess their validity.

Structure of the Thesis

Beginning with the introduction, this thesis has been organized as follows. Following the introduction will be a literature review focusing on four thematic topics: park design and social appeal; perceived safety; scenario planning; and Multi-Criteria Decision Analysis (MCDA), all situated within the specific context of post-Soviet and war-impacted cities. The Analytical Framework section will then outline the three main variables (perceived safety, social appeal, and impact from intervention) and present the theoretical model explaining how spatial intervention impacts on outcomes by way of a series of intermediate mechanisms and a feedback loop. The Methodology section will provide an explanation of the research design: the spatial audit, the resident survey, the MCDA framework, the structure of the scenarios, and the cost effectiveness analysis as well as details about the sample population, sampling strategy, ethics issues and limitations. The Results section will report on the results of both the audit and the survey as well as MCDA ranking of priority across each of the three scenarios. Finally, the last section will discuss the results relative to the current body of knowledge, draw some conclusions, suggest several practical policy options for the Kyiv Municipal Authorities, and identify directions for potential further research.

LITERATURE REVIEW

This literature review begins by examining a seemingly simple question: "what makes a park successful?" But as you read further, it becomes clear that the answer is increasingly complex. A park is much more than just an open area on the city plan; it is a social engine, a safety mechanism, a stage for daily life and during a time when a nation is at war a place where individuals can find emotional support. As such, I will consider four themes to develop my methodology in order to provide a model for reconstructing Nyvky Park:

- (1) how park design impacts social appeal;
- (2) the difference between objective vs. perceived safety in parks;
- (3) the process of developing scenarios for future urban planning projects;
- (4) applying multi-criteria decision-making processes to the development of public green spaces.

Additionally, I have devoted another portion of the literature review to the specific legacy of post-soviet parks and to the unique pressures that wartime presents to urban parks. The literature review concludes with the gaps that, collectively, demonstrate why this study is warranted.

Urban Parks and the Quality of Public Space

Functions of Parks in the Urban System

It was always known to urban planners that public parks could be viewed as multi-use. Parks provide recreation for residents, promote community interaction, preserve green space within urban areas and help to mitigate environmental issues such as air pollution and heat island effects (Wolch et al., 2014; Giles-Corti et al., 2005). Yet this view, although valid, provides limited insight into how parks function. It does not speak to the nature of parks that serve communities well and when. This line of inquiry is significant because it questions the common belief that simply having parks included on a city's comprehensive plan would suffice. Anyone familiar with walking through the west side of Nyvky Park in the late fall will understand why that is not sufficient.

The concept of "Active Parks," articulated by Bedimo-Rung et al. (2005), helps clarify the issue. Active Parks are defined as parks that incorporate certain spatial elements (lighting, maintenance level, zoning) that can directly influence whether or not a park will be heavily utilized by a variety of people over time or if it will remain vacant. In short, according to Bedimo-Rung et al. (2005), while parks may be necessary for cities, it is the design and condition of parks that matter most, not their mere presence.

Social Attractiveness and the Theory of Place

Passing through an area and knowing you're at a particular location that makes up part of the identity of your neighborhood. It is for this reason that Gehl (2010) identifies three kinds of activities - needed, desired, and social. If a person walks through a park because they need to get to or from a subway station, it has likely not achieved a level of social desirability. However, if people want to stay, talk, physically interact and return to the park as a result of its welcoming environment, then it has. Additionally, Oldenburg (1989) defines the "third place." This describes a public space that is neither someone's home nor workplace but plays a significant role in forming a sense of community. In light of the fact that many community spaces have been either destroyed or significantly damaged in war-torn Ukraine, parks serve as important areas where people may go to perform the third-place function.

Parks and Social Capital

Parks have also been linked to social capital — as Kondo et al. (2018) explain, social capital encompasses the relationships and connections within a community. When people can use their local parks without fear or exclusion, they experience both increased opportunities for intergroup contact and decreased levels of social isolation. Therefore, if there is a basis for believing these studies, then the renovation of Nyvky Park is not just about improving the physical condition of a public space. The renovation represents an investment in its community — where the return on that investment is based on the residents' level of neighborliness, the neighbors being willing to talk with and keep an eye out for each other, and how those residents feel connected to their environment.

Safety Perception in Public Spaces

Objective Safety and Perceived Safety

There has been a long-standing disconnect on how we refer to safety within city limits. The objective safety of an area can be measured as crime statistics, incident reports, and crime rate, etc. In contrast, it is subjective safety -- the actual level of security someone feels while walking through a park, for example. The research clearly shows that there can be large discrepancies between these two measures of safety (Lorenc et al., 2013; Loewen et al., 1993). For example, a park may have great crime data yet people avoid the park at night due to inadequate lighting, excessive vegetation, or the recollection of a frightening experience. These differences greatly matter with respect to Nyvky. Regardless of the recorded crime statistics, the perceived risk, i.e. the fear of something happening, will

discourage visits to the park, diminish its social value and create "dead" space out of what was once potential community space.

Spatial Determinants of Perceived Safety

What contributes to creating this feeling? There are specific spatial elements identified as contributing to creating this feeling. Welsh and Farrington's (2008) meta-analysis illustrates how improved street lighting has reduced reported crimes and feelings of being victimized. Branas et al. (2011) found, using quasi-experimental methods, that cleaning and "greening" vacant lots results in observable increases in neighborhood perception of safety. While there may be debate about the extent of the causal relationship described within the broken windows theory (Wilson & Kelling, 1982); it does capture an intuitive idea that most individuals visiting a public park understand - when one sees visible signs of disorder, they infer that no one is maintaining or managing the area and they perceive themselves as vulnerable. Conversely, activation programming (the intentional use of events, activities, and uses that create a sense of population, watchfulness, and liveliness in a particular location (Amin, 2008; Madden, 2010)) creates the opposite of what the broken windows theory describes and provides criteria for evaluating whether a given intervention is effective in improving the quality of experience at each location across the three case studies examined below.

Differential Safety Experience

Perceived safety varies among different demographics. Consistently, women, seniors and individuals with disabilities experience less perceived safety and tend to see their environment become unsafe much sooner than others once the sun sets (Dymen & Ceccato, 2012; Koskela & Pain, 2000; Valentine, 1989). While this variation isn't simply a statistical footnote, it also presents a design issue. If a park can be safely used by young men during daylight hours, then socially, that park hasn't been attractive. As such, this data further reinforces the necessity of using a stratified sample in surveys of Nyvky and incorporating inclusiveness as an explicit element in the MCDA methodology. To answer whether or not an intervention will achieve its intended purpose, we need to ask two additional questions. What populations are being served? At what times of the day will they use the space?"

Scenario Planning and Evaluation of Urban Interventions

The Logic of Scenario-Based Approaches

There is no one right way to reimagine a public space. Budgets will remain untested, political priorities may shift in ways you cannot predict, and multiple stakeholder groups will have their own views about what should happen. As such, the Scenario Based

Approach was designed for just this type of situation. Rather than provide one "optimal" solution, it produces multiple coherent packages of interventions. Each package represents a different level of ambition, cost and risk (van der Heijden, 1996; Schwartz, 1991; Brooks & Haynes, 2021). A park with an unknown budget like Nyvky, where the range of potential actions can vary from repainting some benches to building entirely new infrastructure, requires this kind of flexibility - it is a requirement.

Ex Ante Evaluation and Theory of Change

I use two analytical tools to give each scenario sufficient credibility. First, I apply ex ante evaluation (Rossi et al., 2019) - an ex-ante evaluation of anticipated outcomes prior to the commencement of implementation. This form of evaluation relies upon empirical data derived from similar cases as opposed to data collected after the fact via measurement. Second, I use the theory of change (Weiss, 1995) -- I develop an explicit causal chain of thought or "impact logic" for each scenario. Specifically, for each scenario, I outline the spatial changes I intend to introduce into the environment, the behavioral changes I expect these changes to elicit, and how those behavioral changes will lead to improved perceptions of safety and social attractiveness. The rationale for making these causal relationships explicit is two-fold. They discipline my own thinking. Every action that I propose has to have a rational basis by virtue of having a plausible cause-and-effect relationship. Additionally, the rationale behind the causal relationships I propose are transparent enough that others (municipal officials, community activists, researchers) could dispute them, modify them, or evaluate them in subsequent research.

Evidence Base for Specific Interventions

An additional source of support for the credibility of each type of intervention comes from the literature. For example, Branas et al. (2011) found that even low-cost greenery and cleaning initiatives could generate substantial improvements in neighborhood safety metrics. Similarly, the Inclusive Design Research Centre (2010) demonstrated that increasing accessibility to a greater number of individuals in terms of physical design leads to increased levels of natural surveillance as a secondary benefit - more people using a space results in more eyes on it. While neither study dictates what specific elements will be included in each of the scenarios, both studies inform the palette of alternatives from which I draw as well as the expectations that I place upon each.

Multi-Criteria Decision Analysis in Public Space Management

MCDA in Urban Planning and Cost-Effectiveness Analysis

The selection of one option among many options for developing an area — all of which have their own cost structure, time line, and socio-economic implications — necessitates a methodology that allows consideration of multiple or even opposing factors. For this purpose multi-criteria decision analysis (MCDA) offers a methodological tool to

consider multiple factors simultaneously (Belton & Stewart, 2002; Munda, 2008). What renders MCDA so appealing for urban planning is not merely the analytical capability of the methodology, but also its ability to facilitate participation in the evaluation process. In particular, the development of the criteria and the assignment of weightings can involve stakeholders and/or local communities thereby enabling decision-making to move from being based on expert opinion alone to being more akin to a public debate. An analogous application of MCDA in similar areas for green spaces has taken place in Central and Eastern Europe (Kronenberg et al., 2017; Mattijssen et al., 2017), thus providing some reassurance regarding applicability in Ukraine.

In addition to MCDA, I am using cost effectiveness analysis (CEA) — see Drummond et al. (2015) — where cost is compared with effect in terms of outcomes of interventions. CEA does not require monetization of social benefits and therefore avoids distorting results through valuing those impacts that are easier to quantify than others. Thus MCDA allows assessment of the total scope of impact across seven criteria whilst CEA will provide a single simple metric for use in budgeting. Hence these two methodologies allow both a broad overview of each possible action and a detailed focus.

Parks in Post-Soviet and War-Affected Cities

Any evaluation of Nyvky Park will be incomplete unless it takes into account the time when Nyvky Park was constructed and the time when it is currently being utilized. As Hirt (2012) and Stanilov (2007) point out, the Soviet "parks of culture and recreation" were created for a specific goal: mass-programming events, ideological expression, and organized collective leisure by the government. Therefore, they were not made for people to simply sit down and read a book, allow their children to play on their own, let older people to walk at whatever pace they want without feeling unsafe. Once 1991 came around, the administrative structures that had maintained these types of parks were gone and there was no corresponding municipal structure to take their place. This has left a huge void in terms of management. Parks are either too big for one person to manage, have been under funded so badly that they cannot be upgraded, and/or are simply not important enough politically to be given priority. The example of Nyvky Park in the Shevchenkivskyi District of Kyiv is a perfect illustration of how things went downhill over the past thirty years. The deterioration of the park today is not just the result of a single decision or a single ten-year period. Rather it is a cumulative effect of thirty years of fractured responsibility, lack of governmental oversight, and a planning culture that looked at the park as an inheritance instead of living space.

The war adds a new and urgent dimension. Research on public spaces in conflict and post-conflict settings documents profound shifts: changed usage patterns, new social needs, and a heightened demand for restorative environments (Connelly & Tanner, 2021). Kaplan and Kaplan's (1989) attention restoration theory — the idea that contact with natural settings replenishes cognitive resources depleted by directed attention — gains particular force in a

city where daily life is punctuated by air-raid sirens, displacement, and the background anxiety of an ongoing invasion. Davoudi et al. (2012) identify high-quality public spaces as a component of urban social resilience, and from this perspective a renewed Nyvky Park is not a post-war luxury. It is a piece of recovery infrastructure — a place where ordinary, non-crisis life can begin to be practised again. This understanding shapes everything that follows in this study: the diagnostic framework, the choice of criteria, the construction of scenarios.

Research Gaps and Contribution of the Study

I've identified three interrelated voids in this body of research. Firstly, although there are considerable amounts of data supporting the effectiveness of park based interventions in many areas throughout the Western Europe & North America as well as the developing world, there is relatively little evidence comparing the results of such programs in post-socialist or conflict affected settings. Most of the research referenced above was carried out in the United States, the United Kingdom, and the Netherlands. All three countries have different building histories and government systems than Ukraine. Secondly, while most comparative studies evaluate the potential benefits of various options for park reconstruction through comparisons based on hypothetical "what if" scenarios; few — almost none — have been done in Ukraine. Thirdly, despite the fact that post-Soviet urban parks may be viewed by some residents as unsafe due to their physical attributes (e.g., large open spaces), years of deferred maintenance, changing social uses, etc.; very little systematic study has been done on whether or how perceived safety varies depending on location within such parks.

Therefore, this dissertation will address all three gaps. A combination of a spatial audit, a resident survey, and MCDA-based prioritization across three nested scenarios will produce an analysis that is grounded in local evidence from Nyvky Park, while being conceptually transferable to other similar locations across Ukraine and the broader post-Soviet region.

ANALYTICAL FRAMEWORK

The analytical framework provides the connection between the existing research that I've reviewed and the data collection that I will be conducting. It enables me to clarify my unstated assumptions regarding what I believe are the meanings of the critical constructs, how these constructs interrelate to one another, and how a physical intervention (i.e., a change in a park) could possibly lead to changes in feelings and behavior. Without such a connection, the study has the potential to become a disassociated list of interventions, or an abstract theoretical discussion without operational relevance. Below is an attempt to outline the conceptual/theoretical structure upon which all of the analysis for the study is based.

Conceptualization

Three central concepts are part of this research project (perceived safety, social attractiveness, and the impacts of interventions). These three concepts have different definitions based on various literatures. Researchers have defined each concept differently for their studies. The purpose of my work is to provide definitions that I can use to analyze the data that I collect. To do this effectively, I will review all possible ways to define each concept, examine the benefits and drawbacks of each alternative definition, and justify the choices I make regarding which definition(s) to use.

Perceived Safety

In addition to being an issue of concern, safety has become an extremely important aspect of urban planning. What is often thought of as simply a matter of whether a space is safe or unsafe in fact involves many different dimensions. As shown above, there is evidence that both objective safety measured in terms of the likelihood of experiencing a crime and the subjective experience of safety (i.e., how safe individuals believe a space is) are separate concepts (Loewen et al., 1993; Lorenc et al., 2013). For example, a park may appear to have no crime problems and therefore be considered objectively safe, while it could still be viewed by some users as unsafe due to its layout and/or location. Similarly, a crowded public square may have high crime statistics, however those statistics would likely result in little, if any, subjective feelings of unease among the crowds of people using the area.

The perceived safety component of this study will refer to the respondent's belief regarding their personal risk of being physically harmed (either physically or verbally), or psychologically distressed in a particular spatial environment at a specific time. This definition incorporates elements of the fear of crime tradition found in environmental criminology and builds upon work done by others such as Lorenc et al. (2013) to include consideration for other factors that contribute to an individual's sense of vulnerability (e.g.

lack of social support, presence of visible disorder/abandonment etc.). Specifically, this definition includes consideration for a variety of forms of distress beyond simple fear of criminal victimization including, but not limited to: spatial disorder, spatial isolation, lack of presence of other people. An example illustrating this might be a female who walks through Nyvky Park alone and passes by broken benches and unlit pathways. While she does not necessarily fear any particular form of crime she certainly feels vulnerable. This is exactly the kind of vulnerability which I seek to assess.

This study will not address issues relating to objective safety. Unfortunately, reliable crime data on Nyvky Park which can be geographically matched with other information on the park and the respondents' experiences are unavailable. Additionally, this study focuses on whether people subjectively view a space as sufficiently safe so as to encourage them to visit that space. Therefore, I did not consider it relevant to examine objective safety measures since budgetary constraints exist when implementing solutions to provide a safer environment for park visitors and programs designed to increase one's subjective perception of safety (e.g. improved lighting, activation events) may be more fiscally responsible than programs intended to decrease objective crime levels if those crime levels were already very low.

Social Attractiveness

Social Attractiveness is often mentioned throughout Urban Design Literature, yet is almost never clearly defined. Gehl (2010) explains social attractiveness by what is present and diverse regarding options of optional and social activities; the kinds of things people will select to do in a given location where they perceive the area to be welcoming to allow them to do so. Montgomery (1998) expands upon this by incorporating the qualities of Vitality (pedestrian traffic and general use); Diversity (range of functions and users); and Sense of Place (a perceived unique character of a particular location). Oldenburg (1989) who approaches this issue from a sociological standpoint as opposed to a design perspective emphasizes the importance of informal gathering spaces — "third places" — which can contribute to community development.

From the previous definitions, I have synthesized an operational definition: Social attractiveness is the ability of a Public Space to attract individuals into the space, encourage those attracted to remain in the space, provide opportunities for various activities/users, and foster a sense of belonging among those using the space. My definition includes four key elements, and I wanted to explicitly state how important each was. Drawing people in is related to accessibility/accessibility (does the Park appear appealing from the Street?). Encouraging them to stay is related to comfort, amenities, and environmental quality (are there reasons to linger or is the space designed to move people through?). Providing opportunities for various activities and users is related to inclusion (is the Park intended only for Joggers/Dog Walkers or Elderly Residents/Parents with young Children/Teenagers/Pedestrians with Limited Mobility?). Generating a sense of belonging

relates to identity (does the Park belong to its Neighbourhood or is it an anonymous Green Space)?

My definition of social attractiveness is purposefully broad than simply measuring Foot Traffic. For example, a Park with High Visitor Numbers and Low Activity Diversity (essentially a Transit Corridor) would receive poor scores under my social attractiveness concept. Conversely, a Park with Moderate Visitor Numbers and Diverse Activities/Age Groups/Resident Time Spent in the Park would receive good scores. The distinction makes a difference for Policy. If the goal is simply to Increase the Number of Bodies Passing Through, Widening Pedestrian Paths may be sufficient. However, if the objective is to develop social attractiveness as described above, then the Intervention Needs to Be More Thoughtful.

Intervention Impact

The third essential concept was intervention impact — the anticipated influence of a planned spatial modification on both of the previously described output variables. Impact is arguably less controversial than the prior concepts; however, there are two aspects of this concept that require clarification.

Firstly, my analysis focuses on expected or estimated impacts, rather than measured impacts. As noted earlier, this is an ex-ante study. Therefore, it is impossible for me to measure the actual effects of interventions that will be implemented at some time in the future. It is possible to estimate the expected impacts based upon three data sources: The existing body of published research from similar types of interventions in other areas (the literature review); Professional judgments made by individuals knowledgeable about municipal projects in Ukraine; And, Residents' expressed preference regarding their neighborhoods, which were documented using a survey instrument. While each of these sources has limitations. Transferability limitations apply to the published research; Subjective judgment applies to professional judgments; Hypothetical bias exists when respondents express preferences. Used together, however, they provide a reasonably acceptable method for evaluating alternatives.

Secondly, I conceptualized impact as multi-dimensional. In other words, an intervention could increase perceived safety while decreasing social attractiveness (e.g., installing CCTVs would likely give residents a feeling of being "watched" rather than making them feel welcome). Conversely, another type of intervention could increase social attractiveness while having no discernible effect on safety (an example of such a project would be establishing a new playground in an area that is already lit up). That's why I am using Multi-Criteria Decision Analysis (MCDA) instead of developing a single criterion ranking process.

Theoretical Framework

The conceptual model for this research is based upon two interconnected assertions. First, the spatial attributes of an open area - its lighting, upkeep, signage clarity, activation, and accessibility - serve as predictors of both perceived safety and social attractiveness. Second, the social attractiveness and perceived safety of an open area are interdependent. Improvements in perceived safety promote increases in social attractiveness while increases in social attractiveness create additional opportunities for perceived safety to be improved. These two assertions provide the basis for a positive cycle that can be created by an effective intervention or a negative cycle that can be exacerbated by negligence.

These two assertions are grounded within two distinct bodies of knowledge. In the case of the assertion that the physical attributes of an open area predict perceived safety and social attractiveness, I utilize the insights from environmental criminology and Crime Prevention Through Environmental Design (CPTED) regarding how the physical layout of a public space conveys messages about safety and concern. As stated by Crowe (2000) and Newman (1972), various aspects of the design of a public space including visual access, territorial markers, and upkeep communicate cues regarding potential crime threats and who is responsible for maintaining the environment. Additionally, the same spatial attributes utilized by CPTED to predict perceived safety also contribute to an individual's determination of if they want to visit a location and/or spend time there (Bedimo-Rung et al., 2005; Gehl, 2010). While the focus of these theories differ - one focuses on predicting criminal behavior and the other predicts why individuals choose to visit locations -- both theories recognize that the physical environment influences both behaviors and perceptions.

The assertion that perceived safety and social attractiveness positively reinforce each other, i.e., that increasing perceived safety creates an opportunity for social attractiveness to increase, and vice versa, is grounded in Jane Jacobs' (1961) idea of "eyes on the street" (i.e., informal monitoring through use). Jacobs posited that the mere presence of others in an area provides a deterrent against anti-social behavior due to the fact that the area is being watched by those using it, creating feelings of greater safety. Conversely, a decrease in use (and therefore fewer eyes on the street) creates a void where anti-social behavior can thrive. The self-sustaining nature of this relationship has been further developed by researchers subsequent to Jacobs (Newman, 1972; Gehl, 2010) and supports the findings presented in the prior section regarding the Branas et al. (2011) study documenting that greenery added to vacant lots decreased crime rates while enhancing neighborhood activity. Likewise, when parks appear unsafe, they lose users. Fewer users equate to less surveillance. Less surveillance equates to an appearance of being increasingly unsafe. Therefore, stopping this downward spiral represents essentially the practical problem that Scenarios 1-3 were designed to address.

I make three assumptions about the causal linkages between spatial interventions and results in this study. First, I assume that the connections between spatial interventions and

resulting outcomes are probabilistic rather than deterministic. For example, improving lighting improves the likelihood that a park visitor will perceive a greater level of safety, but does not assure safety. Other factors such as individual experiences/ memories/expectations influence park visitors' perceptions of safety. Second, I assume that the feedback loop between perceived safety and social attractiveness occurs over time i.e., a new pathway cannot immediately develop into a vibrant gathering place; however, it requires time for changes in usage to occur. This assumption is relevant to my analysis of Scenarios 1 & 2 since it implies that short-term interventions may require some time before they begin to demonstrate their entire social attractiveness impacts. Third, I assume that while the post-Soviet/War-time context does not negate the basic theoretical associations found throughout western literature describing the relationships between spatial attributes and resultant social outcomes, it may affect either the strength or rate at which they operate. For example, populations experiencing frequent sirens and shelter drills likely possess differing baseline perceptions of safety compared to populations living in peacetime settings like Amsterdam. Thus, an identical lighting improvement would most likely generate a smaller or potentially larger impact on perceptions of safety than similar upgrades generated in studies conducted in the Netherlands.

RESEARCH DESIGN AND METHODOLOGY

General Research Design

The study is classified as exploratory. Therefore, I will not examine a previously developed hypothesis concerning a known causal relationship. Rather, I am assessing a previously unexamined problem/gap - i.e. the difference between Nyvky Park's present condition and possible future as a community safe place. The purpose of this exploratory study is to determine the extent of this gap, define the parameters of the gap and identify an evidence-based list of intervention alternatives to eliminate the identified gap. Accordingly, my choice of an exploratory design reflects my belief that at the time of this study, there exists insufficient empirical knowledge to permit the formulation of testable hypotheses with reasonable certainty regarding post-communist park redevelopment.

As described by Creswell (2014), I utilized a pragmatic, problem-centered paradigm - i.e. methods will be chosen to best answer the research questions rather than vice versa. As stated above, I followed this procedure. The three forms of data that I collected to answer the research questions are intended to provide complementary information with regard to various components of the problem. Specifically, the spatial audit provided a "physical" or diagnostic review of the park - i.e. what was damaged, what was absent, and what posed a hazard. Conversely, the resident survey evaluated the "subjective" aspects of the park - i.e., how residents perceive the park, what do they avoid and what would they like to see in their park. Finally, I used MCDA and CER to combine the findings from each audit into a single

ranking mechanism that produced objectively derived, replicable rankings of all possible interventions for three discrete conditions.

A significant advantage of this design is triangulation; i.e. the results from the spatial audit were compared with those from the surveys. Further, the MCDA created a systematic framework for synthesizing both sets of findings. My most significant limitation is also clearly articulated. This is an *ex ante* assessment - i.e., before construction has occurred. Although I can argue - based upon comparison to other similar projects and/or professional expertise - that some alternatives are likely to be beneficial - I cannot demonstrate whether any alternative(s) have been successful under the constraints imposed by Nyvky.

Operationalization of key variables

Perception of safety

Operationalizing abstract concepts into measurable indicators in order to connect conceptual ideas with real world data, I developed three key variables. These include perception of safety. Using Lorence et al. (2013) and the wider fear of crime literature as a framework for this variable definition, it is considered as the subjective sense of security reported by park residents/park visitors. It will be measured on a five-point Likert scale (where 1 = very unsafe; 5 = very safe). Also, respondents will be requested to identify specific places they have chosen not to enter/avoid in their responses. Besides providing numeric responses to my scaling questions, they will also be asked to describe why they made those choices — generating qualitative spatial data that add "texture" and context to the numbers from my Likert scale.

Social attractiveness

The second variable to be considered in this study was social attractiveness. I assessed social attractiveness through three measures. Three social-attractiveness measures were used for each indicator; visit frequency - as a proxy measure based on respondents' revealed preference of returning to the site - activity diversity - what respondents reported doing while visiting the site and what they report they would like to do when conditions improve at the site, and perceived user diversity - to assess whether the park attracted a broad range of users across age categories, family types and/or socioeconomic background versus whether it had become the domain of a particular group within society. Each of the three social attractiveness measures collectively reflected the understanding of social attractiveness expressed by Gehl (2010), and Montgomery (1998). They identified social attractiveness with the quantity of visitors to a public space, but also included who those visitors are and what they do.

Impact of interventions, cost and prioritization criteria

A variety of factors contribute to the assessment of interventions within this study. To address the first criterion, three sets of variables were used: those that relate to the characteristics of the interventions themselves; those that relate to how these interventions interacted with each other; and those that relate to the priorities assigned to the various attributes.

The first two sets of variables pertain to the interaction among the different interventions. The second set of variables concern the interactions among the different interventions. The first set of variables concern the nature of the individual interventions. In addition to identifying the number of individual interventions assessed (16) and their respective categories (10), I also identified a variety of criteria by which to assess the relative importance of each intervention. Each intervention was assessed according to the following criteria:

- Expected Impact on Perceived Safety. This variable measures the potential positive effect of an intervention on perceived safety.

- Social Attractiveness. Social attractiveness refers to the ability of a project to attract people. This variable measures the potential positive effect of an intervention on attracting new customers/users/visitors.

- Inclusivity. Inclusivity represents the extent to which an intervention provides benefits to users with limited mobility, older adults, and families. These groups have been historically underrepresented in public transportation infrastructure development in Ukraine.

- Implementation Cost. The costs associated with implementing an intervention can significantly affect its feasibility. This variable uses inflation-adjusted procurement data from Prozzoro to determine whether an intervention's costs fall into one of four categories: low (less than 50,000 UAH); medium (50,000-500,000 UAH); high (500,000-5 million UAH); or very high (more than 5 million UAH).

- Speed of Implementation. The time required to implement an intervention can also influence its feasibility. This variable determines how quickly an intervention may be implemented based on a scale from "achievable in less than 3 months" through "achievable in 1-3 years," to "achievable in over 3 years."

- Estimated Maintenance Costs. Ongoing maintenance costs represent another factor affecting the long-term viability of a project. This variable ranks estimated ongoing maintenance costs into three categories: low, medium, and high.

- Implementation Risk. Implementation risk relates to the likelihood of delays, conflicts, or even total failure during the implementation process. Like the previous two variables, this variable utilizes a scale with five levels of possible ranking: low (very unlikely); medium (likely); high (very likely); very high (extremely likely); and extremely high (certainly).

In general, the values entered for each criterion were developed using a combination of prior research on comparable projects/studies, data from analogous studies, and/or information provided by experts who have knowledge about local conditions.

Study Population and Sampling

General Population

The general public is made up of all residents of Shevchenkivskyi and that portion of Sviatoshynskyi districts in Kyiv living inside a one-and-one-half kilometre distance from Nyvky Park. A visualization of the study area and the survey area is shown in Figure 1, which was created by the author in Google Earth.

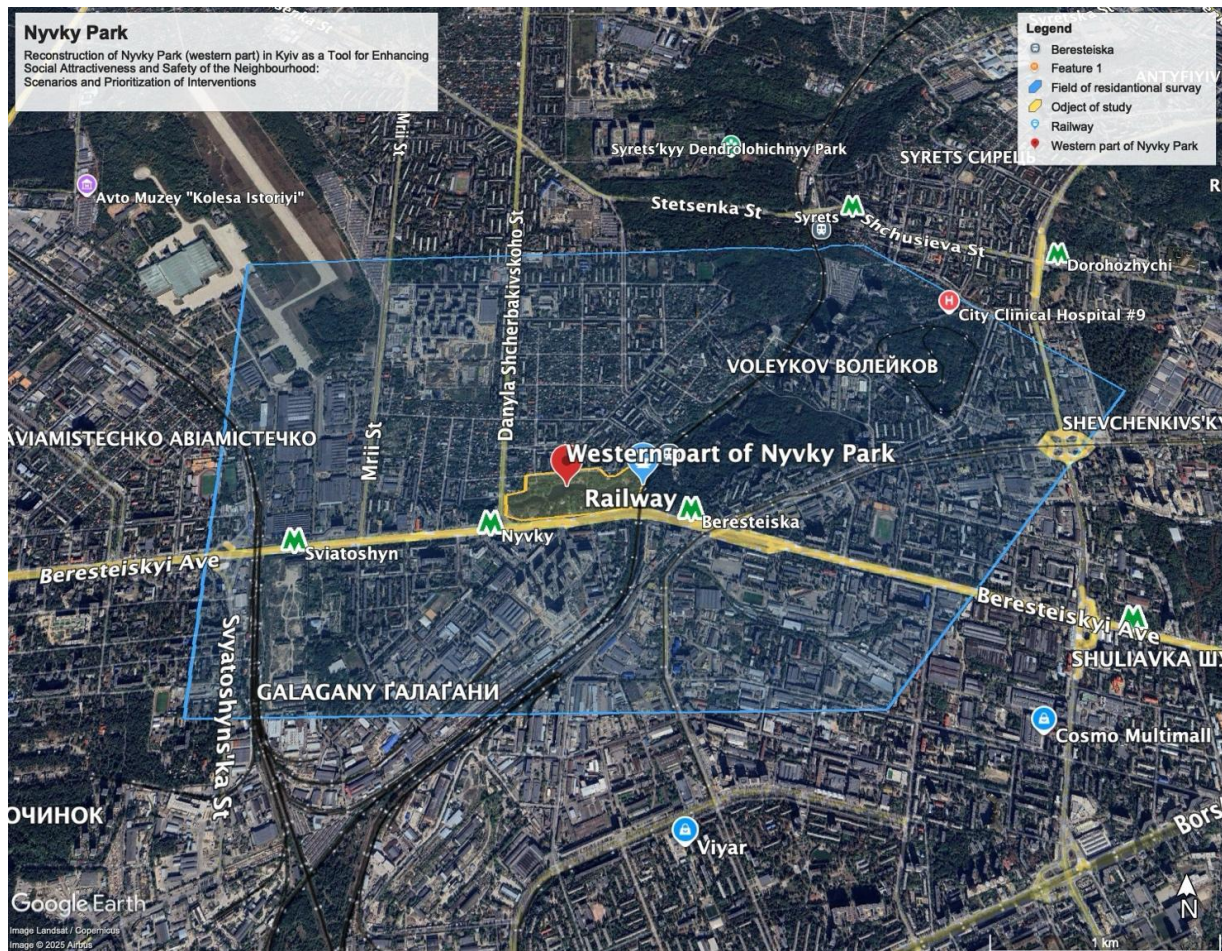


Figure 1. Visualization of the study area and the residential survey area
Created by author April 2026

The geographic area in which the park could reasonably be expected to act as the first choice for recreation (Giles-Corti et al., 2005) includes the residential areas of Nyvky, Beresteiska, and the west end of Shulyavka

Sampling technique for the residents' survey.

For the residential survey, I am using a Quota Purposive Stratified Sample for which I will select residents according to three criteria: gender, age category (under 18, 18-35 years, 36-55 years, 56-70 years, and 70+ years), and visitation frequency as reported by the individual. The third criterion defines three categories of visitors to the park: frequent visitors (at least one time per week), occasional visitors (1 time per month or less frequently than that), and non-visitors (no visits within the previous year). By designating this sampling scheme to specifically target a particular objective, I hope to obtain differing experiential dimensions regarding perceived safety and security in public spaces documented in prior research particularly for females and older adults (e.g., Koskela & Pain, 2000; Dymen & Ceccato, 2012), while also allowing me to directly compare the perceptions of individuals who regularly use the park versus those who do not.

The survey received 101 completed surveys that were conducted from March through April, 2026. The data collection method was by a combination of direct outreach to park visitors/and pedestrians in the Nyvky neighborhood and an on-line outreach campaign via Facebook and Telegram groups for residents of Nyvky/and Beresteiska neighborhoods.

Regarding gender, the sample was slightly female biased (64 women; 36 men; 1 — other/no response). This reflects the target population since females have historically reported being safer than males in their perception of public spaces.

The ages represented in the sample include approximately equal numbers of two age bands (18 – 35 years old — 39; 36 – 55 years old — 38); significantly fewer people representing the older adult cohort (56 – 70 years old — 11; <18 years — 9; >70 years — 4).

Approximately one-third of the participants had children living at home (31 individuals). By distance from respondent's residential location: 24 respondents lived within 500 meters; 22 respondents lived between 500 meters and 1 kilometer away; 28 respondents lived between 1 – 1.5 kilometers away; 18 respondents live farther than 1.5 kilometers but still visit the park; and 9 respondents did not reside in the general vicinity of the park.

Because a quota targeted sampling strategy was employed, the results reflect opinions regarding the park from its immediate geographic community (i.e., neighbors) rather than an attempt to provide statistical representativeness for all members of this geographic area.

Data Collection Methods

Field Spatial Audit

The spatial audit is structured, repeatable field research, using the "crime prevention through environmental design" (CPTED) by Crowe (2000), and combined with the "park

quality" framework from Bedimo-Rung et al. (2005). The spatial audit tool includes 68 criteria organized under six thematic categories: (1) lighting; (2) natural surveillance/sightlines; (3) maintenance/cleanliness; (4) connectivity/routing legibility; (5) access/amenities; and (6) indicators of conflict/avoidance. The western section of the park was broken down into 8 functional Zones representing various parts of the park's history: the Fairy Tale Meadow; the catamaran pond area; the upper section near Brest Avenue - the old amusement park area; peripheral areas; and corridor along railroad. Each zone was evaluated twice - once during the day (10am-2pm); and once during evening/night hours (8pm-midnight) - to determine specific differences that align with prior research regarding perceived safety (Loewen, Steel & Suedfeld, 1993).

The division of the park into assessment zones can be seen in Figure 2, which was created by the author in Google Earth by manually mapping out the zones. In addition, during the field study, the park's key attractions, activity areas, and recreational zones, as well as abandoned areas were identified and marked on the map, which is included as Figure 3, which was created by the author in Google Earth.

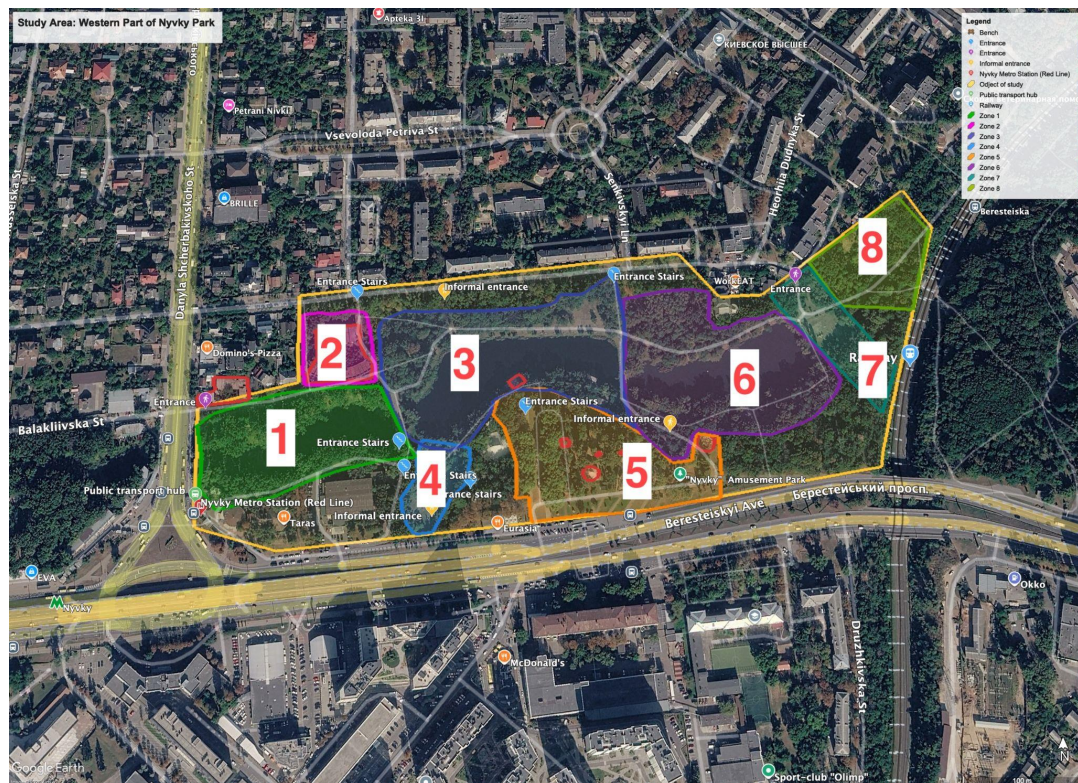


Figure 2. Division of the study area into 8 zones for spatial analysis and resident surveys. Created by author in Google Earth

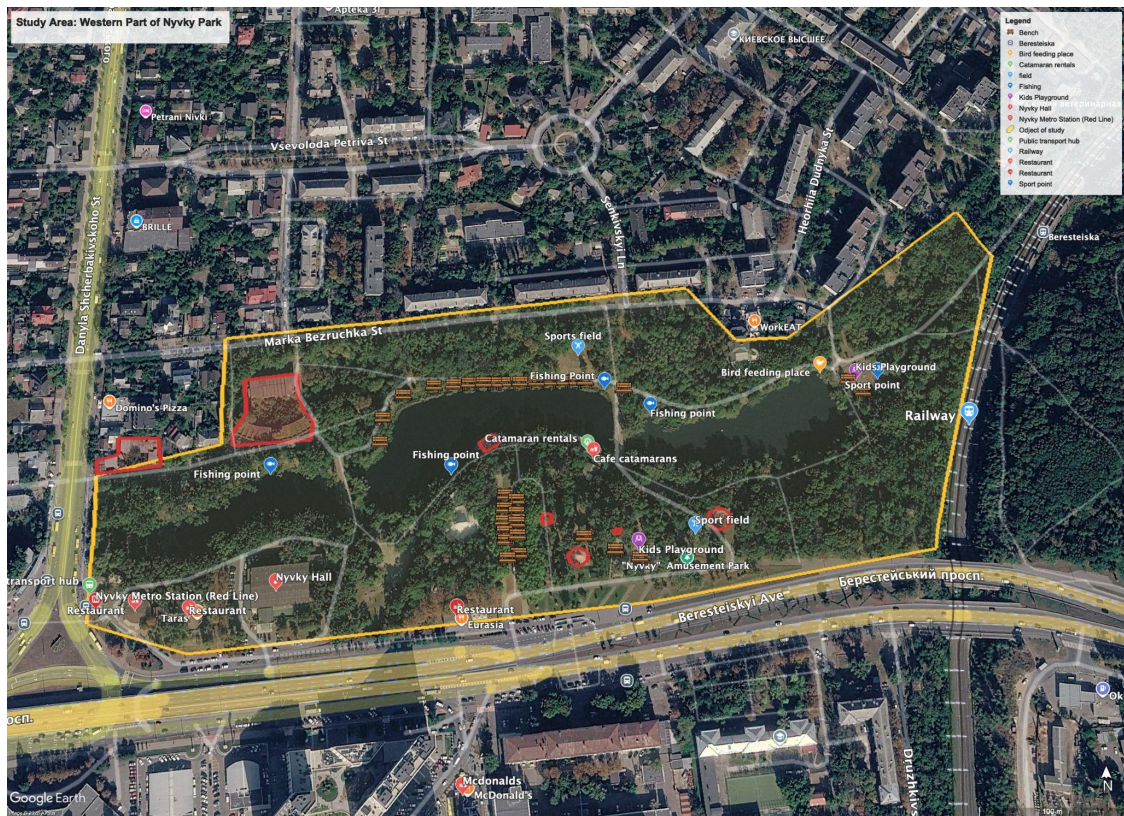


Figure 3. Map showing the park's attractions, abandoned areas (marked in red), and activities

All criteria were scored on a scale from 1 ("very poor/absent/critical condition") to 5 ("best practice"), with the option to score "-" if the criterion did not apply to a zone (for example, assessing playground conditions in Zone 1 where there are no playground). Although the scores are subjective opinions from field observers, their strength lies in their comparability across Zones/domains and ability to triangulate with survey responses.

Additionally, the spatial distribution of issues was documented using Google Earth: 8 official entrances and 3 informal ones were mapped out, as well as benches available for use, neglected areas (also, the territory of the former amusement park in Zone 5 and the burned down café "parus", which according to unofficial sources belongs to company linked to former Kyiv City State Administration deputy head Denys Komarnytskyi). These entries serve as the base map for figure a in the Results section and are shown on Figure 3.

The complete checklist used is located in Appendix A.

Resident Survey

The five thematic blocks that the Resident Survey is structured into are shown below.

Block 1 (Use of Parks), is concerned with the patterns of usage - frequency of visits, when those visits occur and what happens during each visit.

Block 2 (Safety Perceptions) uses the five-point likert scale for perceptions of the entire Park, by zone within the Park (as identified through the Audit), and by Evening Usage.

Block 3 (Reasons for Non-Usage/Disuse), examines why some people don't or won't go to the Park; this includes fear of crime, inability to access physically, no attractions, state of maintenance.

Block 4 (Priority for Interventions), provides the range of options available from the Scenario Framework and asks residents to assess the potential for each option to have an impact on them personally using a four point rating scale; i.e. "I would not be affected", "I might visit slightly more", "I may visit a bit more", and "It will make me want to begin visiting regularly".

Block 5 (Demographic Information) asks questions regarding age, sex, distance from the Park and self-assessed ability to move.

The central result of this study was a dramatic fall in the perceived level of safety as the hours moved from daytime to night-time. Daytime levels of 3.69 on a five-point scale fell dramatically by 25.7 % to night-time levels of 2.75. The number of people feeling unsafe in the evenings rose to 45%, whereas only eight percent did so in the daytime. The main reasons cited for going into the park less frequently were that there were dense bushes (meaning you could not see anyone around you), the lighting was inadequate, and/or the pathways needed repair. The need for better lighting was identified through the "open ended" questions of what respondents considered to be the three most important ways in which they would like to see the park improved. However, when respondents were asked how their perception of the desirability of visiting the park would increase if certain improvements were made, then repairs to the lakes, improvements to the pathways, and installation of additional benches led the way. A further analysis is presented in the "Results" section.

MCDA Framework

The Weighted Sum Model (WSM) was chosen for use with Multi-Criteria Decision Analysis (MCDA) because it is the most simple and transparent MCDA model that can be used when the results are intended to be shared with a larger group of people such as community members, journal reporters, district administrators etc. In order to calculate the Composite Score ($S(i)$) for each of the seven criteria j in the WSM model, you first calculate the weighted sum of scores across all 7 criteria.

The formula to do this is:

$$S(i) = \sum_j (w_j \times \text{score}(i,j))$$

where w_j is the normalized weight of criterion j ($\sum_j w_j = 1$), and $\text{score}(i, j)$ is the rating of intervention i according to criterion j on a five-point scale (1 = worst; 5 = best). Crucially, for the three “inverse” criteria (“implementation cost,” “maintenance costs,” “risk of failure”), the scale is reversed: a score of 5 means “very low cost/expenses/risk,” and 1 means “very high.” This allows the scores to be summed directly without additional mathematical transformation (such as 6-score or min-max normalization), which keeps the method intuitively understandable.

Step 1. Developing Residents' Weights Using Survey Data

Section 4 of the Resident Survey included an instruction for respondents to “allocate” 10 points across seven criteria, based upon Stirling's (2006) “instructions on priority allocation”. Literature has demonstrated that one potential drawback of the method is also observed here: a large number of respondents did not follow the exact “budget” and instead used their ratings to express more absolute rankings (“this is important - 10; this is not very important - 2”). Therefore, these scores were taken as representing respondents' relative priorities rather than adhering to the specific 10 point limits. The averaged raw scores for the seven criteria listed below, by decreasing value, are as follows:

- low risk of failure - 4.74;
- low-cost maintenance - 4.57;
- impact on perceived safety - 4.48;
- speed - 4.42;
- low cost - 4.05;
- inclusivity - 4.04;
- motivation to visit - 4.00

Step 2. Normalization

Using “sum-to-one” normalization, the raw means become a weighted vector:

$$w_j \text{ residents} = \text{mean}_j / \sum_j \text{mean}_j$$

The total of the average raw scores is 30.3. Therefore, the normalized weights are between 0.132 (Motivation to Visit) and 0.156 (Low Risk); thus, all of the normalized weights fall within a relatively small range of 0.13-0.16. This is an interesting finding by itself: residents do not prioritize a specific criterion above others. Rather they want a solution that provides the least amount of risk and lowest cost for maintenance. A “flat” weighing pattern such as this is common among communities where there have been long-term neglects of public spaces, priorities will include nearly every aspect of what was neglected.

Step 3. Expert Weights

The values in the matrix are different than the original matrix due to a difference in how we defined our weights. Specifically, the weights that were originally used were weighted with respect to the independent variable(s) from which they came and thus would correspond to the dependent variable(s). In particular, all three weights relating to the criteria we consider to be related to the two dependent variables of safety (0.25) and attractiveness (0.20), as well as the third criterion of inclusivity (0.15) have high or relatively high weights compared to those associated with either speed (0.08) or operating costs (0.07). This approach is methodologically justifiable because the questions asked of the authors relate to safety and attractiveness and therefore the weights of the expert vector should also relate to these issues. At the same time it seems reasonable to assume that city residents who may be most interested in seeing if there is an ability of the district to support long term sustainability of the interventions over time will be equally concerned with both speed and cost.

Step 4. Hybrid Vector

The final weights are calculated as the simple average of two normalized vectors:

$$w_{\text{final}} = (w_{\text{residents}} + w_{\text{expert}}) / 2$$

This type of weighting is standard for socio-environmental projects, where a balance must be struck between an “objective” research task and the “voice of the community” (Stirling, 2006). Final weights: C1 safety — 0.199; C2 attractiveness — 0.166; C3 inclusivity — 0.142; C4 cost — 0.117; C5 speed — 0.113; C6 service — 0.110; C7 risk — 0.153.

Step 5. Sensitivity

To test the stability of the ranking, three alternative aggregation methods were calculated: (a) residents’ weights only; (b) expert weights only; (c) a 50/50 hybrid. The top 5 interventions in all three variants remain within the top seven of the ranking—this means that the relative positions are robust to the method of weight aggregation. This is important because if the choice of aggregation method radically changed the order, the interpretation of the MCDA would lose credibility. Instead, the stability of the top indicates that the cheap, quick, low-risk interventions of Scenario 1 (benches, signs, bush trimming, cleanup) are objective winners, not an artifact of parameterization.

Scenario Structure and Intervention Packages

Each of the three scenarios offers an internally coherent and self-contained approach with its own underlying theoretical premise (i.e., a logical chain of cause and effect) — from physical changes to changes in behavior to demonstrable results in terms of safety and aesthetics. The rationale as well as the inclusion/exclusion criteria for the elements of each scenario are described in detail in what follows.

The different scenarios in the study are organized as "nested" or embedded scenarios. That is, the additional elements of Scenario 2 will be built upon the elements included in Scenario 1. In addition, the components of Scenario 3 will include all those elements in both Scenarios 1 and 2. The methodological use of these nested structures has at least two benefits. Firstly, by using nested structures, decisions can be made about the future with respect to budgeting since decisions regarding one scenario do not necessarily need to reverse work done as part of another previous scenario. Secondly, because each phase of restoration cannot begin until that which came before it is resolved (or addressed), this methodology is consistent with how restoration projects occur within an organization (Brooks & Haynes, 2021).

Scenario 1 (Basic Package, 0-6 Months, Approximately 2.8 Million UA): Emergency Response

To address the greatest emergency shortages that are directly causing people to avoid the park.

Criteria for inclusion in the package include:

- (A) No documented design and cost estimates;
- (B) Timeframe ≤ 6 months;
- (C) Direct relationship to the most frequently mentioned reasons for avoidance of the area;
- (D) Low Risk of Failure.

Items included in the package: Trimming Bushes (CPTED - Restored Sightlines); Repairing Pavement in Priority Areas; New Benches; Wayfinding System; Basic Cleaning Program; Maintenance Contract (Annual). Reasoning Based On Specific

Dense shrubs that made it difficult to "see who was around" were identified as a reason for avoidance by 69% of respondents, therefore, trimming the bushes is an immediate priority; The condition of the pathways (mentioned as a problem by 53%) appeared consistently throughout open ended responses along side scenarios of injury and seniors avoiding the park; 65% of respondents stated that new benches would cause them to noticeably or significantly increase visits to the park; There are no signs in the park (Score

of 1 in all areas), Therefore Signs Are Extremely Cost Effective; 42 Respondents Asked About A Cleanup Program (Second Most Frequently Mentioned Barrier).

Scenario 2 (Optimal, 6-18 months, approximately 12.4 million UAH): Moving from acceptable to desirable

The reasoning behind this package is to address the nighttime safety deficit, to create an inclusive infrastructure from the ground up, and to get the population to stay longer.

The inclusion criteria for the package are:

- (A) 6-18 month timeline;
- (B) moderate cost;
- (C) addressing structural deficits ("safety floor," accessibility, activities);
- (D) increasing dwell time/ attracting new users.

Included in the package: high-quality pedestrian lighting throughout the entire network; public restrooms (with modifications for persons with disabilities); drinking fountains; accessible entries/ramps; quiet gaming spaces (chess, backgammon); equipped resting areas adjacent to the water; SOS emergency call stations; bicycle parking.

I consider lighting to be in this package despite the average CER, residents want to use the park also at night (19 of the respondents stated that they would primarily like to utilize the park in the evenings), however the evening hours represent the time period where there is an increased perception of danger (average 2.75 vs. 3.69 daytime). Public restrooms were identified as a barrier 38 times in both respondent comments and direct comments. Ramps and accessible entries — respondents explicitly asked for these types of access via in-person communication. Quiet gaming spaces — a low cost activity for the older demographic which could reduce "social isolation", and similarly teenagers expressed reasons related to their specific age demographics regarding what type of space they needed.

Scenario 3: Maximum (18 + months), approximately 41.4 Million (UAH)

The rationale behind this package is that it includes system wide transformation requiring long-range planning and cost estimating and permitting processes. The items included in the package are: lake cleanup and ecosystem restoration (most expensive item, but also most desirable to local residents), an inclusive playground, a skatepark, kiosks/retail space for veteran owned businesses, and a network of bike paths throughout the park.

Based upon an open ended survey question regarding what is important to you and your family, lake cleanup was identified as one of the top three things you want done in your community (a direct result of summer swimming or odor issues, as stated by many respondents). New playgrounds exist because existing playgrounds are rated at 3 out of 5

and there are no other options available for young children in the area. Skateparks were directly requested by teenagers, who have no relevant activities available within the park or outdoor recreational spaces (basketball, volleyball, paddle ball, etc.). The inclusion of kiosks/retail space for veteran owned businesses provides both an economic function and social inclusion for veterans. Bikepaths were identified as being needed by 17-20% of all respondents and provide a means of functional mobility.

The following several well-known interventions from the international literature were deliberately left out.

CCTV — its effect on crime related fears is substantially less effective than has been stated in the literature (Welsh & Farrington, 2009) and the possibility for creating a culture of surveillance during wartime is particularly high.

Active concerts/festivals — these are at an operational level of intervention and should be designed and implemented independently as their own program.

Commercial restaurants/park area – This would conflict with both the nature reserve designation of some of the land and also with comments by a number of respondents concerning preserving the "natural" or authentic character of the park.

Parking lot — one respondent mentioned that having cars may actually discourage people from coming rather than encourage use.

Cost-Effectiveness Analysis

Cost-Effectiveness Analysis (cost effectiveness ratio - CER) is the easiest tool to make an economic evaluation of interventions, because it does not require the conversion of social benefits into monetary values (drummond et al., 2015). CER useful in situations where the money valuation of outcome is too arbitrary or politically controversial (for example estimating the value of human life in security projects). The CER gives a practical answer to the following question: "where should we next spend one million hrvn with minimal risk?"

Formula and justification for the effect metric

$$\text{CER} = \text{cost of expected implementation (UAH)} \div \text{expected proportion of users reached (\%)}$$

The denominator – the proportion of respondents who in Block 4 of survey have assessed the pertinent intervention on a 3 (yes, noticeably more often) or 4 (yes, significantly more often/regularly) scale point from four possible options. That is, this is a proxy metric for stated preference, not revealed preference, which is the basic methodological constraint of any ex ante evaluation of improvement of urban environment. Alternatives: (a) focus groups with simulated scenario – expensive and not developable; (b)

comparative study in other park - impossible under wartime conditions; (c) one to one assumption (1% residents -> 1% visitors) – optimistic.

Why "3-4" threshold, not the average score?

An alternative denominator - the avg. Rating on 1-4 scale - will yield less distinct picture, as it obscures the distinction between "indifferent" (1) and "significantly more often" (4). The "noticeable/more often than before" threshold identifies the cohort with the biggest behavioral elasticity and is consistent with the logic of CER: we want to know not what everyone thinks about but how many people will change their behavior as a result of the intervention.

CER has one important limitation in our case: it measures the number of visitors (attractiveness) but not the level of feelings of safety (safety as a "base"). For pedestrian lighting this leads to paradoxical results: CER = 63000 UAH / 1 % coverage, therefore lighting is middle-ranked. However, the survey shows that lighting is top reason for deterrence (65 % all mentions), and top priority in open-ended questions (27 mentions). Discrepancy is explained by fact that for many respondents lighting is a condition necessary rather than motivator: without it park does not exist at all in evening landscape, but it is exactly this that does not "make people want to visit more often", because it is basic condition, not activity. Therefore, in our interpretation we regarded lighting as a compulsory "safety base" for Scenarios 1-2, and therefore they must not be excluded from programme despite unfavourable CER.'

Limitations of CER

Important limitations of method are: (1) proxy for effect capture intention, not action; (2) metric does not account for multiple benefits from single intervention (e.g. Repair paths provides both safety, accessibility and attractiveness); (3) metric penalizes dear interventions with broad but "diffuse" effects (lake cleanup), and rewards cheap interventions with narrow but highly concentrate effects (bike parking). Therefore, CER is used in the decision process not as sole criteria but as one of three components together with MCDA and qualitative analysis of open ended response.

Sources of cost estimates: Prozorro, similar municipal projects, industry reference guides

Estimated costs for the interventions came from four independent data sets that were checked for accuracy across all categories of work. Calibrated by vendor literature and/or industry standards, seven interventions had limited or no similar past experiences to draw upon (e.g., inclusive playgrounds, skate parks, bike paths within the park); for the majority of other items, the primary calibration reference point were tender documents available on the Ukrainian public procurement platform Prozorro (<https://www.prozorro.gov.ua/>).

The primary source of verified pricing for works and materials in Ukraine is Prozorro's

(prozorro.gov.ua) electronic public procurement system. Therefore, Prozorro tenders from 2023-2025 were used for calibration in the following categories (using samples from KEKV and DK 021:2015 as the basis):

- LED lighting for public spaces — range of 5,000–50,000 UAH per fixture, including pole and installation; for the pedestrian network in the western part of the park (≈ 10 ha, approximately 100–140 poles at a standard height of 25–35 m) — an average estimate of 3–4 million UAH for the entire network was obtained;
- park benches with installation — 5,000–15,000 UAH per unit; approximately 40 new benches amount to 0.3–0.6 million UAH (600,000 UAH has been budgeted, including concrete foundations and vandal-proof fastenings);
- repair of pedestrian walkways (paving stones / asphalt concrete) — 800–2,000 UAH per m^2 , for priority sections (approximately 800–1,000 m^2) — 1–1.5 million UAH;
- modular public restroom adapted for people with disabilities — 600,000–1.5 million UAH depending on configuration;
- drinking fountains — 30,000–60,000 UAH per unit; 3–4 units — 200,000–300,000 UAH;
- signage / navigation system — 5,000–30,000 UAH per element; a complete system with 15–25 signs and two park maps — 300,000–500,000 UAH;
- bike racks — 8,000–25,000 UAH per rack for 6–8 bikes; for 8 entrances — 150,000–200,000 UAH.

Source 2. Examples of similar municipal parks in Kyiv. Benchmarks of the most costly (capital expenditure) were taken based on some recent examples of publically available Kyiv park projects:

- Vidradnyi Park — cleaning and landscaping the lake; 2023-2024 tenders, total cost 82.8 mln UAH (Kyiv City Council, Prozorro). A smaller lake area was assumed as compared to our example, thus the initial budget estimate for the major part was made at 15–20 mln UAH, with an option for enlargement.
- Yunist Park (Darnitskyi District) — landscaping with elements of inclusion; 2022 – 2023 contracts, total value approximately 16.3 mln UAH.
- “Natalka” Park — complete renovation in 2018–2020, total cost approximately 195 mln UAH (our example has much smaller size — 9 hectares, first phase).
- “Volodymyrska Hill” Park — inclusive development of accessible paths throughout historical areas; 2022–2023 projects for approximately 45 mln UAH.

Resource 3. National standards of Ukraine (DBN, DSTU, compilation of estimated cost). The costs of works were checked using "Collection of standard estimations" of the Ministry of community development and territorial policy (SNbD-UKRAINE), which contains the unit rate for typical activities, i.e. lawn laying, tree planting and other land-scaping installations. As well as DBN/DSTU, this resource has been used to check the prices received via Prozorro.

Resource 4. Catalogues of manufacturers/suppliers. Since there are very few manufacturers/suppliers in Ukraine for products that are intended to have an exclusive use (inclusive play ground equipment, elements of skate parks, etc.) and public catalogue resources were used – KOMPAN Ukraine, Indigodecor, Prostirparku, Naturasvit, Vorox (for the production of elements of skate parks). This resource is the least reliable one – it can be assumed that a supplier provides their prices in catalogue at a higher level than those provided during tenders – therefore a multiplier of 0.7 was introduced into catalogue prices for this type of product.

All estimates shown should be viewed as a 'band-of-magnitude' – suitable for prioritisations/rankings/package formation however too vague to form the basis for documentation of tenders.

Reason for variability: (a) Inflation within the construction and infrastructure industry in Ukraine fluctuates by approximately 15–20 % p.a. over 2024–2026 due to ongoing war; (b) War affects supply chains, labour force availability and logistical issues; (c) Each tender may depend upon its technical specification/quality requirements and contract terms; (d) A portion of costs will be funded via grant mechanisms (i.e. recovery programmes), which may alter the cost estimation structure.

Therefore decisions regarding levels of funding should be made on the basis of both project documents and documentation of the cost estimation, whilst the indicative costs indicated within this study provide a means of comparative analysis rather than a contractual estimate.

Ethical Considerations and Limitations

Ethical Considerations

The study gathers primary data from individuals via a survey. Individuals were given an option to participate in the study. If an individual chose to participate, he or she was asked for his or her consent before participating in the survey. He or she was advised that his/her responses would remain confidential and that the information gathered would be utilized strictly for the purposes of this thesis.

Limitations of the Study

I have identified several limitations of my research. Four of these limitations will likely impact the results of my study the greatest.

First, the sample selected was a quota sampled, rather than randomly selected. This limits me from being able to assert with certainty that the findings of this study represent the views and attitudes of the total population within the catchment area. Therefore, I view my findings as representative of how attitudes and concerns regarding the future development of Nyvky Park are perceived by the residents of this particular community.

Second, this is an ex ante evaluation. That is, the projections related to alternative scenarios are predicated upon evidence drawn from other similar settings and/or based upon expert judgment. They do not reflect what actually occurred (i.e., measured post-construction) at Nyvky Park. The validity and reliability of such estimates depend greatly on how accurately the evidence drawn from other settings reflects conditions at Nyvky Park.

Third, the data collected for this study are being collected during wartime. The uncertainty created by air attacks, forced displacements, and the stress experienced by living in a city under attack could potentially influence who chooses to visit the park, who agrees to complete the survey, and how they respond. While I am unable to account for such influences on my part, I did recognize the potential for such influences.

Fourth, the estimated costs associated with each of the possible construction alternatives presented were derived from previously completed, analogous municipal construction projects in Ukraine. As such, there exists considerable variability within the construction sector due to factors such as construction sector volatility, supply chain disruption issues, etc. Such volatility makes it difficult to estimate costs with precision at this time. Therefore, while I provide estimated costs for each of the alternative project proposals to assist with ranking options, I recommend that readers consider these estimates to be order-of-magnitude estimates - suitable for use as a basis for evaluating alternatives and establishing priorities but insufficient for developing a formal request for proposal document.

RESULTS

Park Diagnosis: Spatial Audit Findings

The overall average score for the western part of the park is 2.66 out of 5 falling between “poor” and “satisfactory.” The breakdown by domain (Table 1) immediately reveals the nature of the problem: it is not evenly distributed but concentrated in three domains that form the infrastructural core of the public space.

Table 1. Average scores by CPTED domain (scale 1–5)

Domain (CPTED category)	Average score	Rating
Lighting	1,99	Critical
Access and amenities	2,32	Weak
Maintenance and cleanliness	2,42	Weak
Natural surveillance / sightlines	3,00	Satisfactory
Connectivity and route legibility	3,12	Satisfactory
Conflict markers / avoidance	3,23	Satisfactory

This is an important methodological finding. The park does not have a "crime-prone" environment (domain 6—acceptable; domain 2—acceptable) since there are no crimes or "unwanted" elements. It's a matter of abandonment and inadequate services. As mentioned earlier in the Literature Review Section, fear in open public spaces is generally caused by neglect, and the park demonstrates neglect through broken pathways, dark areas, poor signage, empty benches and vacant areas for seating.

It has been identified that there are no accessible or inclusive facilities present within the Park—therefore it cannot be said that it is simply an issue of the quality of the available options, as opposed to a total lack of such options. The six lowest rated items were; drinking fountains, public restrooms (inclusive of those for people with disabilities), signage/wayfinding, covered rest areas, bike parking, and emergency lighting. These items were also supported by respondent comments which have been reviewed in the survey responses section.

Table 2. Average score by zone

Zone	Average score	Rating
Zone 1	2,15	Critical
Zone 2	2,27	Critical
Zone 5	2,66	Weak

Zone 8	2,69	Weak
Zone 3	2,78	Weak
Zone 6	2,81	Satisfactory
Zone 4	2,88	Satisfactory
Zone 7	3,10	Satisfactory

The worst physical conditions were identified in zones 1 & 2 – the outlying areas with inadequate lighting, uneven surface material and obvious deterioration. Zone 7 has been partially renovated and is the "best" condition (3.10) but still just meets the minimum acceptable standards. This indicates a system-wide issue as opposed to an isolated one.

Spatial analysis done in Google Earth provides supplemental geographic information to assess the scores. Formal entrance points total eight (stairways that do not have a ramp – most are not accessible by individuals who use wheelchairs; there are only two non-permanent or semi-usable pathways to the bodies of water - both of which are in very poor conditions); there are also three informal entry points (unintentional paths made through the natural vegetation). The placement and number of benches as well as their physical condition vary greatly throughout the area. Zones five (the location of the old amusement park) and eight (an area adjacent to the railroad tracks) show the highest concentration of neglect. Other items noted on this layer include: an abandoned circus arts museum in zone 5, abandoned food vendors/restaurants, one restroom, abandoned attraction ticket booths, an abandoned shooting gallery, etc. This layer has been included in figure 3.

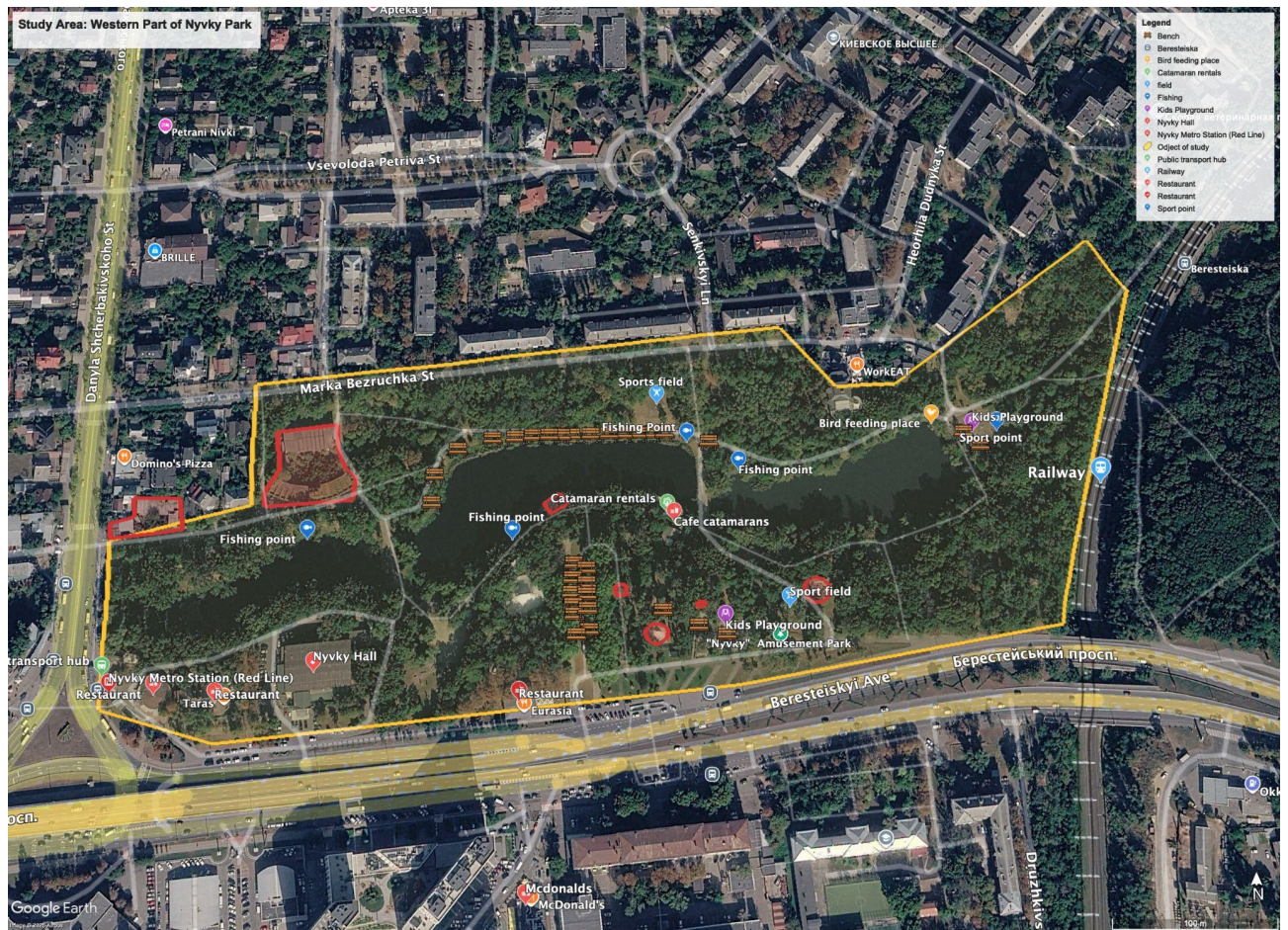


Figure 3. Spatial analysis of entrances, focal points, and activities, benches, and neglected areas (Google Earth)

Survey Findings

In this study, a total of 101 individuals were surveyed. Participants were recruited from a variety of platforms that included both online and off-line. For example, the survey was shared via several neighborhood groups on Facebook and Telegram (Nyvky, Beresteiska); as well as by on-site interviews conducted at high-traffic areas throughout the park and surrounding area (in particular at entrance points in the Nyvky area as well as the Beresteiska metro station). Table 3 displays a general profile of participants which indicates a preponderance of female respondents (63 percent); however, the sample is fairly evenly divided between those 18 – 35 years of age, and those 36 – 55 years of age; there is also a substantial number of parents with children (31 percent). With regard to geographic location, 46 percent of respondents reside within one kilometer of the park. In addition, an additional 28 percent reside from 1 – 1.5 kilometers away. As such, the demographic makeup of participants does provide a strong foundation for generalizing findings related to respondents' perceptions of safety. Women, elderly and family's with children have historically been viewed as being among the most sensitive population segments when it

comes to perceiving and evaluating the quality of public spaces (Koskela & Pain, 2000; Dymén & Ceccato, 2012).

Table 3. Sample Profile (N = 101)

Gender	Age	Distance from home
Women — 64 (63%)	18–35 — 39	< 500 m — 24
Men — 36 (36%)	36–55 — 38	500 m – 1 km — 22
Other / No response — 1	56–70 — 11	1 – 1,5 km — 28
Children under 14 (yes): 31	under 18 — 9	> 1,5 km — 18
Children under 14 (no): 66	70+ — 4	Another district — 9

Mostly, People Walk To The Park (there are 58 people living near the park) confirming that the park is the local place of choice for many residents (Giles-Corti et al., 2005). As for how often the visitors visit this location, we see wide distribution: every day or nearly every day — 16 people; a few times per week — 19 people; a few times a month — 27 people; almost never — 21 people; I haven't been there for a long time — 15 people; Never — 3. What is interesting here, is that 37 respondents don't give an answer about what time they usually go to the park. Among all the rest, who gave answers, the majority of them prefer going in the evening (from 4 pm to 8 pm) — 19 people.

The main finding based on data is that there was a significant drop off for residents' perceptions of feeling safe within the park after sunset. This decrease can be seen by looking at Table 4. When the sun is out, or during the day, the average resident rates their level of safety as 3.69. At this same time, when it gets dark, the average rating of safety declines to 2.75. In terms of actual numbers, this represents a 0.94 point difference across a possible five ratings. In addition, the percentage of residents who felt unsafe decreased dramatically. Residents rated themselves with either a one or two rating (on a five rating scale), which represented an "unsafe" category, went up from eight percent during the day to forty-five percent at night. Conversely, residents who rate themselves four or five, representing "safe," dropped from fifty-nine percent to twenty-three percent. There were also greater differences between individual experiences regarding how safe they felt in the evening. A larger standard deviation (1.15 vs. 0.95) exists for the nighttime ratings than daytime ratings. This large standard deviation suggests that, while some residents see the park as entirely un-safe at night (the lowest ratings); other residents are much less likely to perceive the park as unsafe at night (the highest ratings).

Table 4. Sense of Safety by Time of Day

Time of Day	Average (1–5)	Unsafe (1–2)	Safe (4–5)
Morning/daytime (6:00 AM–7:00 PM)	3,69	8%	59%
Evening/nighttime (after 7:00 PM)	2,75	45%	23%

Zone 2 (2.84), which is "the railroad," and Zone 8—"the road to the railroad"—(2.85) are the two areas in the city that have been rated as having the lowest level of public safety. These findings match perfectly with the worst scores obtained by those two zones during the spatial audit. Therefore, there appears to be a very good correlation between subjectively-rated public safety data and an objective measurement.

The data collected provided insight into the issues with the park. However, it's the qualitative survey responses that gave the issue a name. Out of 83 participants that responded to questions regarding avoiding the park, the most common reasons for doing so included: heavy brush creating a barrier of vision when observing surroundings (69%), insufficient light/no light at all (65%) , lack of people/feeling lonely (63%), suspicious persons or negative behavior (58%), deteriorated walkways/pathways (53%), and evidence of vandalism/neglect (43%).

These percentages take on a whole new level of relevance in relation to individual accounts. One example is a woman that walks alone in the park describing her experience with daytime fear:

"Once, it was frightening to be near the lake during the day. Two people were drunk, and they started talking obscenely to me, while we had just a couple of people walking by, so I was completely isolated. As you can tell from my description, it has many overgrown weeds/bushes, unmowed grass—it is really a danger zone—everything is basically being neglected. Such a beautiful spot is now in disrepair due to lack of care—no one seems to care about this location."

Another participant described his concerns about his nighttime route:

"I believe if the road to the train station (commuter rail), the stairs leading to Beresteiska Street, and the path from the metro station through the park past the Green Theater had better lighting installed, then this area would not feel as creepy. Right now, much of it is unlit at night, and people have been known to relieve themselves or defecate behind corners or in the bushes. To make this better—lighting should be added and some of the bushed need to be removed."

In combination, these three examples represent the central theme of this paper—that physical and social elements of public spaces support each other: neglect of plants create an

environment where undesirables will present themselves; those undesirables scare away regulars, thus increasing the "vacuum" of authority--the "downward spiral" discussed in Chapter 3 of both Jacobs (1961) and Newman (1972).

The audit highlighted the importance of lighting (1.99); respondents ranked dense brush and poor lighting as their first two reasons. The degree to which the qualitative responses matched the findings of the audit is extremely rare. Furthermore, 63% of respondents who mentioned "lack of people and loneliness" indicated that another important reason for avoiding the park—the social factor—is simply that there are too few users. This is consistent with Jacobs' (1961) argument regarding "eyes on the street."

Among the factors that limit the number of times a person may visit the park, one of the most important is accessibility.

A woman who has suffered a stroke explains:

"Two years ago, I had a stroke. It's difficult for me to go to the park as the staircase is slippery and uneven, and the pathways leading to the park are full of potholes. I'm afraid of tripping and falling. Furthermore, the benches are not equally distributed along the pathways. As I am unable to walk for extended periods of time, I require somewhere to rest. In the past, I would regularly visit the park. If the entrance to the park were made easier to access and if additional seating areas were added, then I may once again be able to visit."

An elderly man comments on his difficulties climbing the stairs and the lack of alternatives:

"Unfortunately, due to my poor health, I find it increasingly difficult to climb these stairs. This could be a very enjoyable area for me to spend time walking with my grandchildren. However, they will need to ensure that both entrances provide easy access."

A mother with a young child states her inability to enter the park using her stroller.

"The ramps do not exist at either of the main staircases therefore making it difficult to enter the park with a stroller. Or you must navigate through Zone 7 via the single existing ramp."

These three voices are not a statistical normative voice, however, rather actual voices which define the needs for developing Scenario 2. Making the park accessible does not mean meeting some hypothetical standard but rather returning these three types of users to the park: older adults with limited mobility, veterans and disabled persons, and families with toddlers.

The responses from visitors are direct examples of how the park relates to the ongoing war. One such response is from a veteran who suffers from PTSD:

“On principle, I avoid dark areas as I am a Veteran and suffer from PTSD. I really enjoy the quiet morning area around the lake, but they need to clean it up. They bloom in the summer.”

The above is a clear example of how three distinct concepts can coexist: (a) the park as a place for healing or recovery (Kaplan & Kaplan, 1989); (b) a specific limit on the ways in which this particular user group uses the park because of PTSD — in other words, for this person, lighting is no longer a convenience feature it is now necessary to their physical well-being; (c) a desire for minor upgrades so that this "special area" will functionally meet their needs. Scenarios 1 through 3 all relate to the needs of one group of users.

Twenty-one visitors mentioned that anxiety and stress were factors in their reduced visit frequency. Connelly and Tanner (2020), identified anxiety/stress as major limiting factors in visitor behavior in parks. Therefore, when funding a park during a time of war, it is not just supporting urban recreation but also investing in community mental health.

When asked, "If the park were brought to standard, how often would you visit?" 82% answered that they would visit it more frequently than before (35- "Much More Frequently," 42- "A Little More Frequently", 5- "Would Start Visiting"). This is a quantifiable example of the core premise of this research study: the park is losing visitors not because people do not want to use the park, but rather because of the physical condition of the environment. Additionally, respondents' written commentary adds clarity to these findings.

"I stopped going to the park because of the cars. Before, I would walk through it every day to catch the bus. The park is dirty, and there are no activities available to participate in. Plus, the lighting in the park is poor at night. [...] If they make some changes to the park and clean it up, maybe I'd go back just to take a walk."

The language here is significant: "Just to Take a Walk." This shows that this respondent has already changed their perception of what purpose this park serves to them. They envision this park as being a place they can spend time, not just travel through.

Another younger female:

"I enjoy looking at the views out of the park. I enjoy drawing those views. However, I have to draw over the gross parts. I also enjoy birdwatching and sitting by the water. It would be nice if they put more areas to sit by the water so I could swim in the park during the summer."

A young male does not currently see himself using this park:

"My friends and I will visit this park if there is something for us to do there. Currently, we mainly drive through this area on our way to McDonald's. However, when I was younger my parents and I would walk in this park together. We would play baseball in this park. We even rode catamarans in this park. I do not feel like I am part of the community here."

This final statement essentially captures all of the issues mentioned above. This is an example of social appeal in its simplest form. This is exactly what scenario #3 attempts to accomplish, providing activation elements (skatepark, kiosk, inclusive playground, restored water features) which help to recreate this park as a destination.

In terms of what is most likely to reduce one's fear, that is not exactly the same as which improvements are most likely to increase one's desire to visit this park. When respondents were asked in an open-ended format for their "top three" items they felt needed improvement at the park, by far and away the most frequently mentioned was lighting (a total of 27) followed by cleaning up the lakes, fixing the trails, adding benches, and keeping the greenery maintained. On the other hand, when respondents answered a series of multiple choice questions assessing the degree to which various improvements would affect their desire to visit the park more often (see Table 5), it appears that the parks' environmental conditions and comfort features ranked first; such things as lake cleanup and water front area usage for recreation (69%), bench additions, trail repair (each 65%) and a public restroom (63%).

Table 5. Impact of interventions on the desire to visit the park more often (share of ratings 3–4 out of 4)

Intervention	% “noticeably / significantly more often.”
Lake cleanup and water body maintenance	69%
Developed waterfront recreation areas	69%
New benches and rest areas	65%
Pathway repairs	65%
Public restroom (including accessible facilities)	63%
Regular maintenance of greenery	57%
Pathway lighting	55%
Shrub trimming (line of sight)	55%
Quiet play areas / accessible entrances	52–53%
Signage, bike racks, skate park (lowest)	33–37%

The differences between "reducing fear" and "creating an incentive to visit", have immediate ramifications on the overall design process. In this context, lighting acts as a method to reduce fear (threshold for safety), whereas water features, walking paths, benches and restrooms act as methods to create incentives for visiting (reasons to return). Both types of intervention are essential; one type will prevent users from leaving and the other will promote user interaction. It is therefore clear that justifying lighting as a required

component of scenarios 1-2 for safety reasons is valid, although it would be less effective than comfort-oriented interventions in creating visits per hryvnia (CER).

Two other comments express concern about "over-engineering" — i.e., excessive renovations that destroy the very things that people love about the park. One is from a thoughtful observer who writes:

"I think the biggest asset of the park is its incredible amount of natural wilderness. I would hate for the upgrades to affect that. So many paved walkways, so many ornamental plantings and landscape designs, so much over-brightened lighting, all of which could detract from the unique qualities of the park."

Another comment comes from an older gentleman who provides a historical perspective on the park:

"Nyvky has a totally different spirit and size from most parks in Kyiv. Sometimes I feel like when you compare us to newer parks in Kyiv, we can't even compete. Please let them update the park to reflect today's modern world, but please don't take away the old essence of Nyvky."

The voices above represent a cautionary note against wanting to turn Nyvky into Natalka (i.e., transforming the park into a highly commercialized area with hardscape, kiosks, etc., and lots of light), however, there are ways to intervene in such a way that the park preserves its wildness in the east section, and interventions in areas of high usage should be subtle. To accomplish this within the framework of decision making, the design brief needs to specifically require architects to focus on "soft" solutions and limit hardscape.

Scenario Development

Three nested development scenarios for implementation based on an audit and survey, as well as spatial mapping, have been developed. Each scenario has its own Theory of Change, budget, and timeline. The nesting of the development means that each subsequent scenario includes all of the prior scenarios plus additional intervention. For example, Scenario 2 includes all the interventions of Scenario 1 but also includes new interventions. Finally, Scenario 3 is inclusive of both Scenarios 1 and 2, and also includes capital expenditures.

Scenario 1 — Baseline (0-6 months, ~ 2.8 Million UAH)

The goal of this scenario is to deal with the most critical safety and maintenance issues to stop the active repulsion of visitors.

Package: CPTED by trimming bushes to provide sight lines. Repairing pavement in priority zones (zones 1, 2 & 8). Install about forty benches. A simple wayfinding system will be installed. Establish a basic annual cleaning and maintenance program.

Theory of Change: As visibility and cleanliness are restored, and basic wayfinding is introduced it will reduce feelings of abandonment/neglect/isolation → increase daytime pedestrian traffic → improve perception of security through presence of "eyes on the street" (Jacobs, 1961) → improve overall perceptions of security (especially in zones 1, 2 & 8) which are the least secure and least visited.

Scenario 2 — Optimal (6-18 months; in total approximately 12.4 million UAH)

This scenario involves all of the interventions included in the base scenario plus several others that relate to activation, inclusiveness and connectivity.

These are the inclusion of high-quality pedestrian lighting throughout the entire route, accessible public toilets and drinking fountains, entrance and ramp accessibility, designated quiet play areas for senior citizens, water front recreational spaces with equipment, SOS emergency phone booths and bicycle parking.

Theory of Change: Sufficient quality of lighting overcomes nighttime barrier → Park now becomes usable at night when people want to go to parks (therefore demand exists) → Inclusive design allows families with young children, older people and people with physical limitations to once again come to the park → A greater diversity of users leads to an extended period of time that people stay in the park and therefore a positive feedback loop "Safety ↔ Attractiveness" is created."

Scenario 3 — Maximum (18+ months, approximately 41.4 million UAH)

Transformation with long-term sustainability. Lake cleanup and eco-restoration. An inclusive playground. A Skate Park. Kiosks/Small Retail Spaces for Veteran-Owned Businesses. Bike Path Network in the Park. A Model of Regular Maintenance.

Theory of Change: Cleaned-up water bodies + an integrated Program transforms this "throughway" Park into a Destination → Duration and Diversity of Use are dramatically increased → This is Restorative Infrastructure for the Community During Wartime (Connelly & Tanner, 2021; Davoudi et al., 2012). In addition to that, it will restore the Cultural Role it had before the 1990s.

MCDA Prioritization

18 Initiatives are ranked against 7 criteria (with scores from 1 to 5), utilizing WSM with a Hybrid Weight Vector (50% Resident Priorities & 50% Expert Assessment), the steps involved in Normalization are defined within the Study Methodology. Cost, Service and Risk Criteria; A "higher score" equates to "better Performance" (e.g. 5=Lowest Cost; 1 = Highest Cost). Ranked by the overall Composite Score "S(i)" as shown in Table 6 (Descending Order).

Table 6. Composite MCDA scores (50/50 vector), ranked in descending order

Intervention	Scenario	S(i) composite
New benches and seating areas	1	3,87
Shrub trimming (CPTED)	1	3,66
Signage system/wayfinding	1	3,65
Quiet play areas	2	3,60
Pathway repairs (priority sections)	1	3,49
Cleaning and maintenance program	1	3,43
Pedestrian lighting (entire network)	2	3,31
Kiosks / small retail units (veterans)	3	3,28
Bicycle parking	2	3,17
Waterfront recreation areas	2	3,16
Drinking fountains	2	3,13
Accessible entrances and ramps	2	3,08
Public restroom	2	3,02
New playgrounds	3	2,99
SOS stations	2	2,60
Network of bike paths	3	2,57
Lake cleaning and restoration	3	2,41
Skate park	3	2,40

Although this interpretation should be viewed with some concern, especially in regards to the three items ranked at the lowest on the list, "Lake Clean" was ranked almost the last (2.41), not because cleaning up lakes has no value, but because although residents found lake clean-up most appealing (69%), its high costs, slow implementation rate and technical risks all have a negative impact on the overall composite score. The WSM methodology has a shortcoming; it awards for the "low hanging fruit", while devaluing transformational, but expensive solutions. In this regard, results from MCDA must be examined qualitatively and in combination with the logic used in the development of scenarios where large-scale projects were intentionally placed within Scenario 3.

The cost-effectiveness

The Cost-Effectiveness Ratio (CER) is expressed as the estimated costs of implementing the intervention (in UAH) per proportion of respondents rating the intervention as 3-4. Therefore, a lower CER is associated with a greater level of cost-effectiveness.

All estimates are very rough (orders of magnitude) based on Prozorro estimates for specific categories (e.g., LED lighting, benches, landscaping); additionally, all were also calibrated using municipal project data and publicly available information regarding "very expensive" items (the total value of tenders for lake dredging at Vidradnyi Park, e.g., approximately 82.8 million UAH, and the total for landscaping at Yunist Park, e.g., approximately 16.3 million UAH).

Table 7. CER by intervention (UAH per 1% coverage), by growth

Intervention	Effect, %	Scenario	CER, UAH / %
Shrub trimming (CPTED)	55%	1	2 166
Bicycle parking	37%	2	4 098
Drinking fountains	47%	2	5 376
Quiet play areas	53%	2	5 714
Cleaning program (annual)	57%	1	8 711
New benches (≈40 units)	65%	1	9 188
Signage / wayfinding	37%	1	10 929
Public restroom	63%	2	14 196
Pathway repairs (priority)	65%	1	18 377
Kiosks/small retail units (veterans)	50%	3	20 202
SOS stations (network)	48%	2	25 263
Waterfront recreation areas	69%	2	25 974
Accessible entrances and ramps	52%	2	29 126
Inclusive playground	42%	3	60 096
Pedestrian lighting (entire network)	55%	2	63 177
Network of bike paths	41%	3	98 522

Skate park	33%	3	107 034
Lake cleaning and restoration	69%	3	259 740

The CER will provide a definitive answer to "Where should the first million hryvnia be allocated?": The highest Return per Hryvnia will come from Shrub Trimming, Small Amenties (Drinking Fountains, Play Areas), Cleaning, Benches, and Signage – which are basically all the elements of Scenario 1. The lowest Return will come from Lake Cleanup ($\approx$ 260,000 UAH / 1% Coverage) and other Capital Elements in Scenario 3.

A very important note about Lighting. In terms of the CER, Pedestrian Lighting will appear to have a relatively low Return ($\approx$ 63,000 UAH/%) since the metric looks at the increase in visits, not the decrease in fear. Nevertheless, Survey Data indicates that Fear of Crime is the Number One Reason People Avoid Using Parks and Open Spaces; and that Lighted Pathways rank First among many Park Users' Priorities for Improving their Experience when using Parks and Open Spaces. Therefore, our Recommendation is: Do Not Exclude Lighting Due to High Cost in the CER; Instead Use it as Mandatory "Safety Floor" For All Comfort-Enhancing Interventions Under Scenarios 1 & 2; Evaluate Separately.

SWOT Analysis of the Renovation of the Western Part of Nyvky Park

The strategic orientation of SWOT enables it to complement both CER and MCDA, since SWOT considers the context in which the rehabilitation process is to be carried out and identifies the internal and external circumstances that can support or undermine the program's success. In no way does SWOT replace an economic assessment; however, SWOT provides additional information upon which decisions about the rate at which, the order in which, and the organizational structure under which the project is to be implemented may be made.

Table 8. SWOT Analysis of the Renovation of the Western Part of Nyvky Park

Strengths	Weaknesses
• Excellent location with access to metro and major roadway (Berezestsky Avenue); 5/5 in all zones on criterion 48, appendix a. • Significant cultural value; opened in 1954, designated landmark since 1972. It is important to many families as they recount memories of visits here. • Large number of maturity trees and water features for unique recreation experience. • There is considerable demand that has not been filled as respondents have identified their willingness to visit more often or start visiting (willing = 82%).	• The Park has fragmented management. Several organizations have authority over the park such as the municipal organization (Kyivzelenbud), private owners of property, such as the burned down Parus cafe, and land owners. • Under funding of regular maintenance – because the budget of Kyivzelenbud is distributed among many locations. • During war time there are competing uses for limited budget to meet both military/defense and other important infrastructure needs.

• There are several municipal projects in Kyiv that are completed using proven contractors (e.g., Yunist, Natalka, and Volodymyrska Hill parks). • This study provides the initial evidence base to address the argument that we don't know where to begin.”	• There is no consistent data regarding demographics or visitors in the Park -- makes it difficult to assess the impacts of changes. • Technical solutions for lakes are complex projects that require an independent environmental engineer to design. • Infrastructure that includes people with disabilities does not exist in the Park. Therefore all aspects would need to be built from the ground up.
Opportunities	Threats
• The international donor-funded rebuilding process will center around "social" or "softer" infrastructure that promotes community resiliency. • The ESCO model and energy efficiency programs help pay off the costs of installing LED lights through an initial small investment. • New accessibility regulations are being written into all future building codes (DBN V.2.2-40:2018 and the 2023 updates) so that accessible features become mandatory in all new projects — thus creating a legal framework for all future construction. • As a result of increased citizen participation in both the post-revolutionary and full scale periods — residents want to be involved in participatory budgeting and have oversight over the reconstruction process. • Supporting entrepreneurship among veterans. • Climate change is now a key strategy in which local municipalities use waterways and green spaces to reduce the effects of the urban heat island.	• Local budgets are having their spending priorities changed due to continued war, as well as potentially being forced to delay or halt funding for all other than defense related programs. • A 15-20% inflation rate per year (2024-2026), will further diminish the accuracy of current expense projections; therefore, actual costs in 2027 could be 30-50% greater. • There is an increasing possibility of developing land within the park's area: prior examples of developing areas designated for nature preservation in Kyiv (Sovski Ponds & Svyatoshyn Lakes) show us how easily this can occur. • Without a long-term maintenance program for reconstruction, the investment in your park will rapidly depreciate (as we have observed with the many parks which were reconstructed but lacked maintenance contracts). • Climate change creates an increased likelihood of flooding and/or degradation of water bodies. As such, it may result in cleanup of lakes only resulting in short-term outcomes — unless there is ongoing ecological monitoring. • The direct impacts of military operations on the park infrastructure through missile strikes or falling debris. • The potential for social conflict regarding "high profile" projects being implemented during wartime - the potential loss of reputation if public communications do not proceed in a manner favorable to the project.

A comparison across the four scenarios leads to three politically viable strategies. The first strategy is to implement Scenario 1-the low cost package. This is the most rapid political

victory. The rationale is that it will build credibility with all stakeholders involved in the project, and create the opportunity for additional investment. The second strategy is based on the intersection of Scenario 2's weakness (the lack of inclusiveness) and opportunity (new building codes). It creates a legal basis for making decisions regarding access-while there are many things that would be desirable under these conditions, this represents a "must do" as opposed to a "nice to do". The third strategy involves addressing Scenario 3's high risk factors associated with inflation and war. These two risk factors have been exacerbated by the weaknesses associated with Scenario 3. Therefore, I argue that the best way to address the risks associated with implementing Scenario 3 is through a carefully staged implementation. That means to begin with the elements of Scenario 1, and the inclusive aspects of Scenario 2. Then, when economic stability has returned, or if there can be assurances from donors of continued support, then consider implementing the costly elements of Scenario 3.

PEST Analysis: Political, Economic, Social, and Technological Contexts

Pest Analysis has to be used together with SWOT for the identification of those elements which can affect the feasibility of a redevelopment independently from its own internal aspects. As the situation at Nyvky Park in 2026 will certainly be very special (the war will continue; martial law will prevail; due to postponed local elections; because of rapid increase of international help), Pest allows to determine the components, which can either promote or prevent the project.

P - Political Context

The postponement of local Ukrainian elections due to martial law represents both an obstacle and an advantage; there is no window for election that would create a political demand for rebuilding or recovery efforts during this period, however, there are no electoral pressures to rush decision making and/or produce substandard results. In terms of financial independence from other levels of government, the Kyiv City State Administration has some freedom in spending money, although the "Kyiv Recovery 2025" strategy explicitly identifies investment in public space as one method of creating resilient communities.

At the national level of government, the Ministry of Community and Territorial Development (the former Ministry of Infrastructure), in conjunction with international organizations, is developing a "Rebuilding/Recovery Strategy," specifically focused on "new standards for quality of public infrastructure." There is therefore, a favorable policy and legal environment. However, at the national level of government, the updated State Building Codes (DBN) relating to accessibility ("Accessibility Regulations") (i.e., specifically DBN V.2.2-40:2018 with its 2023 revisions), create a legal mandate for inclusive design solutions i.e., it is now a matter of policy to ensure that all entrances and restrooms are designed to be accessible.

E - Economic context

Inflation in Ukraine from 2024–2025 has been estimated as being between 6.5% – 12% by the National Bank of Ukraine (NBU) but for 2026 will be in the range of 10-15%; Inflation in the building sector is anticipated to be even higher than the average due to pressures on supply chain availability and workforce availability and therefore we anticipate an inflation rate for this industry of 15-20%, which suggests that the cost estimates contained within this document could potentially be lower than those required 12-18 months later.

The exchange rate for the Ukrainian Hryvna to Euro in 2025 was between 43 UAH/EUR and 49 UAH/EUR and since many components used in LED lighting are imported into Ukraine, this exchange rate had significant influence on the ability of our client to acquire these products at reasonable prices.

From a financing perspective there are a number of possible avenues available to capitalize projects such as: The budget of the city of Kiev (which has limited funds); Targeted subsidies through specific DREAM mechanisms in the State Budget; Grant programs funded through international donor agencies; Private Charitable Foundations; and Participatory Budgets.

For small or low-cost items included in Scenario 1, it would be reasonable to expect that all costs related to participation can be covered through the Participatory Budget of the District.

S — Social Context

The social context is the most compelling reason for the reconstruction.

Firstly, latent demand has been supported through the survey results. 82% stated that they would be interested in visiting the park more often.

Secondly, the social function of the park has changed due to the war and many people have now found the park as one of the few accessible areas where they can relax, relieve themselves from their daily stresses, and experience some semblance of ‘non-war’ life. This can be seen through direct comments such as those made by a veteran suffering from PTSD who states he avoids dark areas "on principle" and an elderly person stating she would like to go for walks with her grand-children but because she has "bad legs," this limits the area she can safely travel. These quotes do not provide statistical evidence. However they describe very real life circumstances upon which the needs of the park will be based.

Thirdly, there is also a growing demographic within the user group including veterans, wounded soldiers, and displaced individuals who require a higher level of quality within public spaces.

Fourthly, the demographics of the local community are changing. 31% of our sample are parents with children aged 0 – 14 years old and therefore the park will need to include play facilities as well as other amenities to provide a safe environment. Finally, it was expected that female participants would have increased sensitivity towards the quality of public spaces (Dymén & Ceccato, 2012) and that females were overrepresented in our sample (63%) and reported a decrease in their perceived safety at night time (from 3.69 down to 2.75 on a five-point scale).

T — Technological Context

Over the last five years the technical environment for such work has changed dramatically. Today LEDs are the norm and the pay back time for them is four to seven years for low density pedestrian systems. Luminaries with motion detectors and dimmer switches offer designers an opportunity to create both safe and environmentally friendly spaces that will act as quiet zones at night for nocturnal wildlife. Solar powered autonomous luminaries may be appropriate for remote areas where there is no electrical service. The Prozorro electronic system allows for a standardized procurement process and provides a transparent platform to evaluate similar projects. Building Information Modeling (BIM) software options are available to all design firms in Ukraine. Open source geographic information system (GIS) software, including QGIS and Google Earth Pro, enable non-technical civic organizations to assess and analyze their neighborhoods on their own budgets, eliminating the need for expensive license fees. An open data community exists in Ukraine and has existed since 2015. Additionally, data from OpenStreetMap is sufficient for simple density assessments. Finally, social media platforms such as Google Forms (the method employed in this research), Telegram channels, and neighborhood Facebook groups have greatly reduced barriers to citizen engagement in planning efforts by replacing traditional public hearings.

DISCUSSION AND CONCLUSIONS

Summary of Findings

This study demonstrates that Nyvky is not a "dangerous" park from an illegal activity perspective but is instead a park that has been allowed to deteriorate due to a combination of systemic neglect of its physical environment and the poor management of the park through fragmented authority. Although this conclusion may seem almost trite upon first reading, it is quite methodologically significant because it fundamentally shifts the logic of the reconstruction process. Rather than addressing a law-and-order issue through additional video cameras, increased police presence or restrictive territorial controls, we are facing an issue of "generalized responsibility" (Kyivzelenbud + private property owners + no regulation for maintenance) whose manifestations will appear as tangible spatial indicators — darkness, overgrowth, potholes, lack of signs and lack of accessibility.

A high degree of convergence was achieved in the results derived from the use of three independent data sets — a spatial audit utilizing 68 CPTED/Bedimo-Rung criteria; a survey of 101 residents; and a spatial analysis in Google Earth. The spatial ratings that were found to be the worst (zones 1 and 2, lighting 1.99/5, access and amenities 2.32/5) were also associated with the highest percentage of respondents who felt unsafe in the evenings (45%), whereas only 8% reported feeling unsafe during daylight hours. The zones rated the lowest in the spatial audits directly correspond to the zones identified as being avoided by residents. Perhaps the most methodologically significant finding from this study is that a systematic spatial audit using both CPTED + Bedimo-Rung protocols represents a low-cost alternative proxy measure for assessing perceived safety.

A similar level of convergence was observed in the results derived from the utilization of three independent data sets — a spatial audit based on 68 CPTED/Bedimo-Rung criteria; a survey of 101 residents; and a spatial analysis conducted within Google Earth. The spatial ratings that were determined to be the poorest (zones 1 and 2, lighting 1.99/5, access and amenities 2.32/5) were also correlated with the largest number of respondents reporting feelings of unease when walking outside their homes at night (45%). Only 8 percent reported experiencing these same feelings when walking outside during daylight hours. Furthermore, the areas receiving the least favorable ratings during the spatial audits were identical to those that residents reported avoiding. As such, this finding represents one of the most significant methodological findings of this study: it provides confirmation that a systematic spatial audit that incorporates the CPTED + Bedimo-Rung protocols can represent a reasonable low-cost proxy for determining perceived safety in cases where a representative sociological survey cannot reasonably be completed or would be disproportionately expensive. For Ukrainian municipal practices, where completing a

large-scale sociological survey in each of Kyiv's approximately 140 parks is unreasonable, this represents an instrumentally relevant practical application.

The second set of results relates to priority setting. Using MCDA with a hybrid weighting vector (residents = 50%; experts = 50%), it was demonstrated that "low hanging fruit" comfortably ranks at the top: benches (3.87); bush trimming (3.66); navigation system (3.65); quiet play spaces (3.6); and repair of paths (3.49). Cost-effectiveness ratios (CER) supported this distribution in monetary terms: shrub pruning has a CER of $\approx 2,166$ UAH per one percent area covered, whereas lake cleaning has a CER of $\approx 259,740$ UAH per one percent area cleaned, indicating a difference in economic efficiency greater than two orders of magnitude. However, this is precisely where the limitations of this particular methodology became apparent: WSM and CER consistently favor inexpensive, fast-acting solutions and punish longer-term transformative solutions regardless of whether they offer significantly greater potential for social attractiveness (lakes scored 69 % "more likely to visit" — higher than all other alternatives). While this is not a shortcoming of this particular study, this is structurally a common limitation of methods in general, noted by Belton & Stewart (2002) and Munda (2008), but one that rarely manifests itself so obviously in applied studies. In addition to having established an embedded logical structure to the scenarios (costly transformative options were intentionally placed into scenario #3 not according to the MCDA score, but on the basis of the sequential political-economic logic of Brooks & Haynes (2021)).

Positioning in Academic Discussion

The literature reviews covered four different areas of research: (1) Active Parks and Public Space Quality (Bedimo-Rung et al., 2005; Gehl, 2010); (2) Perceived Safety vs. Objective Safety (Loewen et al., 1993; Lorenc et al., 2013); (3) Ex Ante Assessment / Scenario Planning (Van Der Heijden, 1996; Brooks & Haynes, 2021); (4) Multi-Criteria Decision Analysis in the Management of Public Spaces (Belton & Stewart, 2002; Stirling, 2006). As well as the post-socialist (Hirt, 2012; Stanilov, 2007), and military (Davoudi et al., 2012; Connelly & Tanner, 2021) contexts that influenced the study. The theoretical expectations that derive from these can be articulated into three theses: (a) Physical attributes of a given space determine both perceived safety and social attraction; (b) Perceived safety and social attraction will mutually support each other — the Jacobs Loop; (c) While the post-soviet military context may modify the relative strength and rate of the mutual influence of perceived safety and social attraction, it does not eliminate them. How do these expectations compare to what we found?

The first expectation was clearly supported. There is a very strong positive relationship between the physical audit of each zone and subjectively rated safety of that zone. The lowest scoring zones based on the audit were also those rated as least safe based

on subjective perceptions of safety. Thus, while our findings confirm the core principle of CPTED (Crowe, 2000; Newman, 1972) in a new context, they add an important distinction: the “Conflict/Avoidance Markers” category received a satisfactory rating in the audit. That is to say, there are no obvious signs of crime within the park; it is not signs of potential threats that create fear among visitors. It is instead signs of neglect that signal to visitors that the park is not being maintained properly that create fear. This shifts the discourse from the classic CPTED “Design Against Crime” paradigm to a more subtle approach that is consistent with Wilson & Kelling's (1982) “Broken Windows” Theory, although our study avoids making the causal assertions implicit in Wilson & Kelling's model. Our study does not demonstrate that neglect leads to crime (we cannot assess whether or not neglect actually increases crime since we do not possess crime statistics); however, it shows that under conditions of low objective crime risk, neglect alone creates sufficient cause for spatial avoidance, and thus generates all associated social consequences. Therefore, this finding supports Lorenc et al.'s (2013) assertion that investments designed to reduce fear typically yield greater returns than investments designed to reduce actual crime, though this assertion has historically lacked empirical evidence in a single case study as clearly as ours.

Our second hypothesis — i.e., that safety and attractiveness reciprocate one another — is confirmed indirectly and asymmetrically. We could not demonstrate the Jacobs Loop (this would have required a longitudinal study with measurements prior to and after the implementation of changes); however, we provide substantial correlative evidence of this relationship: nearly two-thirds of individuals who avoid visiting the park indicate that “there are too few people in the park, so it feels lonely,” and over eight-in-ten respondents indicated they would return if the park were renovated. These are empirical expressions of Jacobs' (1961) “downward spiral” in a post-conflict, war-torn environment where previously unexplored case studies exist. Branas et al. (2011) similarly demonstrated a comparable logic concerning abandoned lots in Philadelphia; however, studies of parks located in countries experiencing armed conflict are virtually absent from the literature. This project represents an initial step toward filling this knowledge gap.

We unexpectedly confirmed our third expectation — relating to specific features of the context. I hypothesized that martial law would elevate an individual's base level of stress/anxiety, increasing his/her sensitivity to spatial deficits. Data partially support my prediction: twenty-one respondents identified anxiety/stress as a primary reason for reduced visits, and a respondent whose experiences with Post-Traumatic Stress Disorder (PTSD) resulted in him using lighting as an example of a comfort feature that became a component of physical safety for himself provided additional insight into why I underestimated the magnitude of this effect. However, the fact that the distribution of responses related to motivations for visiting remained more consistent with previous peacetime-based studies (comfort/inclusiveness/aesthetics) rather than being significantly weighted toward solely security-related concerns is paradoxical in that it strengthens Kaplan & Kaplan's (1989) thesis regarding the park as a space of “re-attention.” During times of warfare, people seek

neither added security nor additional security features in the park; people seek a "non-war" experience. And, it is this "normalcy" that serves as a source for psychological resiliency. Therefore, this study supports Connelly & Tanner's (2021) position on parks as restorative infrastructure, providing an empirical illustration of this concept.

The need to discuss post-socialism and its legacy deserves particular attention. Hirt (2012) and Stanilov (2007) characterized post-Soviet cities as having large "ideologically-oriented" parks that are poorly suited for day-to-day, small-scaled uses. This study supported this assessment using the example of Nyvky (with 8 officially designated entrance/exit points without ramps and no accessible restroom facilities or accessible recreational activities), while simultaneously identifying a unique aspect: residents have no desire to make the park "western." The voices of an older citizen ("Nyvky has a distinct spirit and scale, don't make it like new Kyiv city parks") and a thoughtful observer who noted over-engineering in design, both provide important caveats to the literature on post-socialist reconstruction that are missing. From a theoretical standpoint, this provides an additional argument supporting the development of what Saville & Cleveland (2008) referred to as "context-sensitive CPTED," which currently represents a minor stream of thought within the CPTED mainstream.

In terms of the discussion on MCDA and participatory weightings, the "flat resident weights" (0.132-0.156) were the most surprising results of my study. Stirling (2006) had identified "flattening" of preferences as a significant methodological concern, but I had anticipated residents would select one or two dominant values (presumably most likely related to crime/safety). As opposed to my expectations, each of the seven criteria were scored similarly with little variability. The explanation I propose in this study (that these flat weights represent characteristics of "communities of chronic neglect," in which prioritization is no longer relevant because everything needs to be addressed) represents a theoretical contribution that I also would like to draw out separately. In fact, this is a newly identified diagnostic feature that could potentially be utilized as an indicator of "communities of chronic public space deficits" in future studies.

This study has five main contributions.

Firstly, it contributes to the methodology of ex-ante evaluation of park reconstructions. It was demonstrated that CER is insufficient to be used alone as a basis for decisions about park reconstruction, because "hygienic" interventions-as-preconditions (lighting, elementary cleanliness) will structurally fail to be captured. To overcome this problem, a methodical working procedure is suggested: such interventions shall be placed within a special category of "compulsory minimum level of safety," and they are evaluated not according to CER, but according to territorial coverage plus compliance with DBN. This method can also be applied to other reconstruction projects of public spaces, and is therefore not limited to the particular case of Nyvky.

Secondly, there is a theoretical contribution. The concept of "neighborhood preference for flats" is formulated and made operational as an indicator of long-term

abandonment. Such an indicator can function as an early alarm signal in participation-oriented processes: when during a ranking of criteria, each criterion receives approximately the same weight, then the investment priority should be directed toward the restoration of basic functioning rather than choosing between alternative developmental ways through optimization.

Thirdly, there is an empirical contribution to the literature on post-socialist and wartime public spaces: this study offers a rare case study with the transparent combination of three data sources from one 40-hectare park located in the capital city of a country at war. Therefore, this study adds another description (Hirt, 2012; Stanilov, 2007; Connelly & Tanner, 2021) that contains detailed spatial diagnoses that are capable of supporting further comparative studies.

Fourthly, the results of this study contribute to the discussion regarding the reversibility of lost demand. Since 82% of respondents indicated that they would return, this finding challenges the excessively pessimistic hypothesis that post-Soviet parks with extended histories of disrepair have irreversibly lost their user base. This serves as a strong counterargument to the developers' rationale of "idle land--we'll develop it," that is frequently employed in Kyiv (e.g., Sovskie Ponds, Sviatoshyn Lakes, see SWOT/PEST).

Lastly, there is a practical management contribution. For the Kyiv City State Administration, Kyivzelenbud, the Ministry of Community and Territorial Development and potential donors a pre-fabricated, replicable diagnostic and prioritization procedure for similar parks in Kyiv (Syretskyi, Pushcha-Vodytsya, Park Vyzvolennia Partizan), that do not require large financial expenditures for research, is proposed.

Limitations

Limitations of the study should be presented truthfully and clearly. There are three possible levels of presentation of the study's limitations: the sampling level, the design level, and the context level.

Sampling limitations. In the sample, 101 residents were surveyed using a quota-targeted stratified sampling plan (gender x age x frequency of visits). The first issue here is that this was not a randomly selected sample. Therefore, the results cannot be statistically generalized to the whole population residing within a 1.5 km radius of the park. The second concern is the gender distribution of the sample. Of the sample size of 101 participants, 63% (n = 64) were females. I have provided theoretical justification for this gender imbalance. Historically, women have been more concerned about safety issues (Koskela & Pain, 2000; Dymén & Ceccato, 2012). However, the gender imbalance also indicates that male perspectives — especially from younger males — may have been under-represented in the sample. The third limitation relates to the representation of older adults in the sample. Only 15 participants (14 + 1) were aged 56+. Older people can suffer greater mobility restrictions and may have stronger demands for inclusion than other

segments of the population. Although qualitative voices (for example a woman who experienced a stroke; an older man talking about stairways) help address these concerns to a certain degree, it would not be wise to make quantitative summative conclusions for this group. The fourth limitation pertains to how the sample was collected. A number of participants (the number is unspecified) were recruited via social media sites (Facebook / Telegram), which likely biased the sample toward younger digital users. Participants collected off-site around the park were used to counteract this bias; however, the specific proportions of participants collected through each of these methods are unknown — this is a shortcoming of the research methodology.

Design limitations. The present study is an *ex ante* assessment. Thus, all predictions relating to the effects of various interventions are based upon: (i) extrapolation of findings from previous studies examining similar types of projects; (ii) judgments of experts; and/or (iii) self-reported preferences from residents. As such, there is a clear possibility of hypothetical bias (that is, individuals state they will visit the park more frequently than they actually do). Previous studies estimate this bias to be between 20-50% overstatement (Carson & Hanemann, 2005). Follow up assessments after implementation will therefore be required if Scenario 1 is adopted.

Note: Residency-based MCDA weightings were determined using the "allocate ten points" task. It appears that many participants (although not reported) failed to complete this task according to instructions (rating rather than budgeting). I accepted this as relative weighting, which is generally considered acceptable from a methodological standpoint (Stirling, 2006); however, this weakens normalisation and reduces reliability of the weightings. Furthermore, CER as a method systematically understates interventions having broad but diffuse effects (lakes) and overstates cheap interventions having a narrow but concentrated effect (bike parking). While this structural asymmetry is partially offset by the structure embedded in the scenarios, it is still not fully addressed.

Contextual limitations. The data collection occurred during a time when Ukraine was actively engaged in conflict (from March – April 2026). Conflict status affected three areas of data collection. Respondent composition — internally displaced persons, veterans experiencing PTSD and military family members may have been underrepresented in the sample. Emotional tone of respondents' responses — respondents may have projected background fear due to war conditions into their perception of safety in the park, potentially confounding park-related fear with background fear. Cost estimates — inflation rates in the construction industry ranged from 15-20 % per year (NBU, 2024-2026) thus costs estimated today are only valid until 12-18 months in the future. Decisions made between 2027-28 will need to take account of these changed circumstances.

Additionally: because reliable crime statistics for the park area do not exist (as described above in the conceptual framework), comparing subjective and objective measures of park safety will not be feasible in this case. This represents another major limitation for any CPTED type investigation.

Justification of Data Sufficiency

Although there were limitations mentioned previously to the overall quality and quantity of data presented, the volume of data and the manner in which the data was structured are adequate to support the major conclusions from this research for three interdependent reasons.

Firstly, the research design employed is an exploratory approach rather than an explanatory or confirmatory design. There is no intention to test causal hypothesis nor make claims of statistical generalization; instead, I have proposed a structural diagnosis of the park and a priority-based road map of interventions for the same. In terms of meeting this goal, N=101 with quota stratification based upon three parameters provides a sufficient foundation. As literature reference: in theory building case studies employing multiple methods (Eisenhardt, 1989), sample sizes of 50-150 units are commonly used for such designs, and thus this research fits within that framework.

Secondly, the primary findings of this research are supported by three independent sources: spatial audit ($68 \times 8 \times 2 = 1088$ total observations); survey (N=101 respondents $\times$ ~30 substantive questions); and spatial analysis using Google Earth (mapping of entrance, benches, and neglected areas). The agreement among the three independent measures of validity — especially in terms of the geographic location of problems — is sufficiently high that the likelihood of systematic error in the overarching diagnostic conclusion (i.e. that the park is deteriorating because of neglect, not crime) is low. Open ended response comments from the respondents also serve as a fourth measure that has achieved thematic saturation (i.e., themes emerged repeatedly—such as lighting, benches, walkways, and bushes—but not categories—the emergence of new categories ceased once approximately the sixty-first respondent had completed his/her comment, and therefore indicates adequacy [Guest et al., 2006]).

Thirdly, the decisions required as a result of this research are incremental and can be reversed. Scenario 1 (approximately 2.8 million UAH) includes trimming bushes, purchasing benches, cleaning, and signage. All of these activities are non-reversible; all require absolute certainty in quantitative estimates. To the extent that these decisions represent incremental reversibility and do not require absolute certainty in quantitative estimates, then the level of evidence required for these types of decisions exceed those currently practiced by both the district administration through intuitive decision making and/or public hearing processes. I do not intend to assert that the data developed here is sufficient to develop technical specifications to design lakes or a skateboard park—this is an activity that will likely require a subsequent separate engineering and environmental assessment.

How could we improve our sample size?

If funding allowed me to expand my sample size in five ways:

(1) I could increase my sample size from N=100 to N=250-300 so as to enable subgroup analysis (for example gender X age X distance);

(2) I could use formal focus groups with three targeted audience groups (seniors, families with children, veterans) to add an additional layer of validation;

(3) I could conduct pedestrian counts at various times and during seasonal changes to provide an objective surrogate indicator of current demand;

(4) I could interview representatives from Kyivzelenbud, the Kyiv City State Administration and private property owners to understand supply side constraints for managing the park. While these missing elements would enhance the accuracy of estimates and reliability of MCDA weights, they would not detract from the primary conclusions. Under wartime conditions and as a single author Master's thesis without access to funds to hire a field team, the amount of data collected represents a reasonable minimum number of subjects for an exploratory design and is reasonably sufficient to meet the claims made by this research.

Directions for Future Research

This study serves as an initial investigation and therefore identifies potential lines of inquiry based on the results of this study. These include at least six other distinct avenues for further research.

Firstly, a quasi-experiment ex-post evaluation could be conducted. If the project described in Scenario 1 occurs in the period between 2026-2027, the greatest service to the field of crime prevention would be to replicate the spatial audit and surveys 6 months and then again 12 months after all construction has been completed. Such evaluations would enable an assessment of how individuals have responded behaviorally (as opposed to their stated intentions), confirm the findings of this study, and evaluate whether the CPTED-CER framework can be used effectively in post-Soviet/post-conflict contexts.

Secondly, a comparative study of parks in Kyiv. By replicating the same process of audits/surveys/MCDA for Syrets Park, Yunests Park, Feofanias, and Holosiivs'ka Forest Park, it would become possible to identify which are common problems associated with Kyiv's post-Soviet urban parks versus what are the unique problems that exist within each of the individual parks. As well, it will begin to create the first systematic comparative database of parks in Kyiv. Ultimately -- a comparison of parks in Kyiv to parks in Lviv, Kharkiv, and Odesa.

Third, developing a CPTED protocol for wartime. The traditional CPTED model was created during peacetime in America and fails to consider factors related to veterans experiencing PTSD as a result of war time experiences, continuous air raid alerts, the draft of men into military service, and emergency shelter needs/evacuation routes. Creating a CPTED protocol that considers the above elements (including safe use of park structures in cases where they may be targeted by enemy fire) is a new inter-disciplinary area of research. It is also one in which this work merely provides an example of a first step toward creating such a protocol.

Fourth – gender and age-based disaggregations of fear of crime in Ukraine's parks. While this study illustrates the typical "women + older adults + disabled" fear patterns reported in Koskela & Pain (2000) and Valentine (1989); however due to limited sample size we were unable to perform a statistically significant test of intersectionality. Therefore conducting a study with N = 500+ focused solely on these demographic categories would greatly enhance the Ukrainian contributions to the fear-of-crime literature.

Fifth – a longitudinal study of the "Post-Socialist Trajectory". Nyvky Park was originally built in 1972. Documenting Nyvky Park systematically through historical documents/archives/newspaper accounts/resident memory/aerial photos from 1991-2026 would provide an unprecedented source of empirical information regarding the cyclical nature of abandonment/restoration of public spaces over long periods in post-Soviet cities -- something currently discussed primarily through case-studies with no longitudinal component.

Sixth – the relationship between Participatory Budgeting and MCDA. Another relevant line of research relates to identifying differences in distributions of weights identified for resident participation when comparing communities that participate in participatory budgeting with those that do not. If there exists such differences in weight distributions; this finding is fundamental to designing effective participatory budgeting processes across cities with different levels of democratic cultures.

Seventh – entrepreneurial programs for veteran entrepreneurs in parks. Scenario Three proposed kiosk locations for businesses owned by veterans. However this represents a hypotheses that require additional independent research including demand by veterans, regulatory barriers, and appropriate public/private partnerships. This constitutes an entire Master's thesis worth of material.

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APPENDICES

Appendix A — Spatial Audit Checklist and results

No	Audit Item	Rating scale: 1 = very poor / absent / critical; 2 = poor / significant deficiency; 3 = adequate; 4 = good; 5 = excellent / best practice; - = don't apply to this zone							
Domain 1. Lighting		Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8
1	Level of illumination on primary pedestrian routes	1	2	3	2	3	3	4	2
2	Level of illumination on secondary / informal paths	1	1	1	1	2	2	2	2
3	Lighting coverage at park entrances and access points	2	4	3	2	3	2	4	2
4	Lighting coverage in open gathering / rest areas	1	3	2	2	3	3	3	3
5	Lighting coverage around water features (lakes, streams)	1	-	2	-	-	2	3	-
6	Uniformity of light distribution (absence of harsh light/dark contrasts)	1	1	1	1	1	1	1	1
7	Physical condition of light fixtures (intact, functional, clean)	1	2	2	2	3	3	4	3
8	Colour temperature of lighting (warm white preferred for pedestrian comfort)	1	1	2	2	2	2	4	2
9	Presence of lighting on stairs, ramps, and level changes	1	3	2	2	2	2	3	2
10	Backup / emergency lighting or reflective path markers	1	1	1	1	1	1	1	1
Domain 2. Natural Surveillance and Sightlines									
11	Sightlines along primary routes (clear view ahead ≥ 30 m)	3	1	4	3	3	3	3	3

12	Sightlines from rest areas / benches to adjacent paths	-	2	3	3	3	3	4	3
13	Sightlines from park entrances into the interior	3	2	3	4	4	3	4	3
14	Blind spots created by dense, unmaintained vegetation (≥ 1.5 m height)	2	2	4	4	3	3	3	2
15	Blind spots created by built structures (walls, utility buildings, fences)	1	2	3	4	3	4	4	3
16	Blind spots created by terrain (slopes, embankments, depressions)	1	2	3	3	4	3	3	4
17	Visibility of the path network from adjacent streets and buildings	2	4	3	4	4	3	4	3
18	Presence of entrapment spots (areas with limited escape routes)	2	2	4	3	2	3	3	3
19	Visual permeability of vegetation (pruned to eye-level sightline standard)	3	3	3	3	3	2	3	2
20	Legibility of spatial layout (can a first-time visitor orient themselves?)	2	3	4	4	3	4	4	2
Domain 3. Maintenance and Cleanliness									
21	Condition of path / walkway surfaces (cracks, potholes, uneven surfaces)	1	2	3	4	2	2	5	4
22	Condition of path surfaces in wet conditions (drainage, puddling, mud)	1	2	3	3	3	3	4	3
23	Presence of litter, debris, or dumped waste	1	2	2	3	2	2	2	3
24	Condition of waste bins (sufficient number, emptied regularly, not overflowing)	1	1	2	3	3	1	2	1

25	Presence and condition of dog waste stations / bags	1	1	1	1	1	1	1	1
26	Condition of benches and seating (intact, clean, functional)	-	2	3	4	3	2	2	-
27	Condition of park furniture (fences, railings, signage, shelters)	1	2	3	3	3	4	3	3
28	Condition of playground equipment (if present in zone)	-	-	-	3	4	-	3	-
29	Condition of sports / exercise equipment (if present in zone)	-	-	3	-	-	-	4	-
30	Evidence of vandalism (broken elements, graffiti — distinguish artistic from hostile)	1	2	2	4	2	3	4	4
31	Condition of water features (lakes, drainage channels — cleanliness, odour)	2	-	2	-	-	2	2	-
32	General impression of resercher of care and maintenance effort	2	2	3	3	3	3	4	2
Domain 4. Connectivity and Route Legibility									
33	Coherence of the path network (logical connections, no dead ends)	3	4	5	3	3	3	4	3
34	Presence of dead-end paths or segments that force backtracking	3	4	4	3	3	3	4	3
35	Width of primary paths (adequate for two-way pedestrian flow + wheelchair)	4	4	5	4	4	4	5	5
36	Width of secondary paths (adequate for single pedestrian + pushchair)	4	4	5	4	4	4	4	4
37	Presence and condition of wayfinding signage (maps, direction markers)	1	1	1	1	1	1	1	1

38	Presence and legibility of regulatory signage (rules, prohibited activities)	1	1	1	1	1	3	1	1
39	Logical hierarchy of routes (primary / secondary / informal clearly distinguished)	4	4	4	4	4	3	3	3
40	Connectivity between park zones (east–west, north–south transitions)	4	4	4	4	4	4	4	4
41	Presence of shortcuts or desire paths indicating unmet connectivity needs	3	2	4	4	3	4	3	3
42	Transitions between park paths and adjacent street network (smooth, safe, visible)	3	2	3	3	3	3	3	2
Domain 5. Access and Amenities									
43	Number of park entrances accessible from the street network	5	2	3	4	4	4	4	4
44	Visibility and legibility of entrances from the street (can a passer-by see them?)	2	3	3	3	3	4	4	3
45	Physical condition of entrances (surface, width, barriers, steps)	2	1	2	2	2	3	4	3
46	Accessibility for wheelchair users and persons with reduced mobility	2	1	3	3	2	3	2	4
47	Accessibility for parents with pushchairs / strollers	3	1	3	3	3	3	3	4
48	Quality of connections to public transport stops (≤ 400 m walking distance)	5	5	5	5	5	5	5	5
49	Quality of pedestrian crossings on streets adjacent to park entrances	3	4	-	3	3	3	4	3
50	Presence and condition of benches / seating (quantity per 100 m of path)	1	2	3	2	3	2	2	1

51	Presence and condition of shelters or covered rest areas	1	1	1	1	1	1	1	1
52	Presence of drinking water facilities (fountains, taps)	1	1	1	1	1	1	1	1
53	Presence and condition of public toilets or sanitary facilities	1	1	1	1	1	1	1	1
54	Presence and condition of children's playground (age-appropriate, safe surface)	-	-	-	3	3	-	3	-
55	Presence and condition of sports / exercise infrastructure	-	-	3	-	-	-	3	-
56	Presence of bicycle parking / racks at entrances	1	1	1	1	1	1	1	1
57	Presence of dog-related infrastructure (waste bags, water bowls, off-leash areas)	1	1	1	1	1	1	1	1
Domain 6. Markers of Conflict or Avoidance									
58	Presence of broken glass, bottles, or sharp debris	2	1	3	3	3	4	4	3
59	Presence of hostile or threatening graffiti (distinct from decorative street art)	2	2	3	4	2	4	5	3
60	Presence of abandoned drug paraphernalia (syringes, packaging)	3	2	4	4	2	4	4	3
61	Evidence of rough sleeping or informal habitation	4	2	3	4	2	4	4	4
62	Evidence of alcohol consumption in areas not designated for it	2	3	2	2	2	3	2	4
63	Presence of aggressive or unleashed dogs without owners	4	4	5	5	5	5	5	5
64	Presence of persons whose behaviour creates visible discomfort for other users	4	4	3	4	3	3	4	3

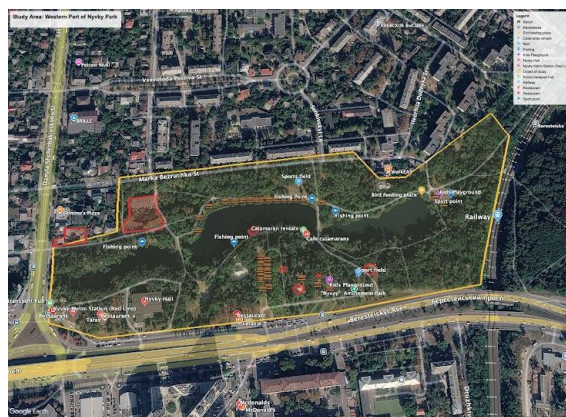
65	Audible indicators of discomfort (loud noise from traffic, construction, generators)	4	4	4	3	3	4	3	3
66	Olfactory indicators (waste, sewage, stagnant water)	2	2	2	2	2	2	2	2
67	Visible signs of recent fire damage (scorched vegetation, burned debris)	4	4	2	4	2	4	3	3
68	Overall feeling of personal safety when alone in this zone (auditor's subjective assessment)	3	2	4	4	3	4	4	3

Appendix B — Resident survey questionnaire and response distribution

Questionnaire

Block 1

Q1. How often do you visit Nyvky Park—the section between Danyla Shcherbakivsky Street and the railroad tracks? (The area is outlined in yellow)



- Every day or almost every day
- Several times a week
- Several times a month
- Rarely—less than once a month
- I haven't been there in over a year
- I've never been there

(If the answer to this question is “I haven't been there in over a year” or “I've never been there,” the respondent proceeds directly to the 3 block of questions)

Q2. When do you usually go to the park?

- In the morning (6:00–10:00)
- During the day (10:00–16:00)
- In the evening (4:00 PM–8:00 PM)
- Late in the evening or at night (after 8:00 PM)
- It varies — I don't have a set time

Q3. What do you usually do in the park? (You may select more than one)*

- Walking/hiking
- Running or exercising
- Relaxing by the lakes
- Fishing
- Walking with my child/visiting the playground
- Walk the dog
- Meet up with friends or family
- Just walk through—I need to get somewhere else
- Other:

Q4. How do you usually get to the park?

- On foot — I live nearby
- By bike
- By public transport
- By car
- Other:

Block 2

This section will help us understand how safe visitors feel in different parts of the park and which areas make them feel uncomfortable. Your responses will help us identify which areas require immediate attention.

Q5. How safe do you feel in the western part of Nyvky Park IN THE MORNING / DURING THE DAY (6:00 a.m.–7:00 p.m.)? (Select from 1 to 5)

Very dangerous 1 2 3 4 5 Very safe

Q6. How safe do you feel in the western part of Nyvky Park in the EVENING / AT NIGHT (after 7:00 p.m.)? (Select from 1 to 5)

Very dangerous 1 2 3 4 5 Very safe

Q7. Please rate how safe you feel in different parts of the park (1 = very unsafe, 5 = very safe; “Don’t know” if you haven’t been there):

(Your rating should take into account both daytime and nighttime conditions)



Created by the author for a residential survey using Google Earth, April 2026

	1	2	3	4	5	Don't know
Zone 1						
Zone 2						
Zone 3						
Zone 4						
Zone 5						
Zone 6						
Zone 7						
Zone 8						

Q8. Are there any areas in the park that you avoid? If so, why?



Created by the author for a residential survey using Google Earth, April 2026

	Poor or no lighting at all	Thick bushes —can't see who's nearby	Few people around, feeling of lonelines	Suspicious people or unpleasant behavior	Poor condition of the paths—risk of falling	Unclear how to exit this area	Signs of vandalism or neglect	Accessi bility (inclusiv ity) issues	I do not avoid this area
Zone 1									
Zone 2									
Zone 3									
Zone 4									
Zone 5									
Zone 6									
Zone 7									
Zone 8									

Q9. If you'd like, please describe a specific spot in the park where you feel uncomfortable, and explain why and how you think it could be improved. (Written answer)

Block 3

This section will help you understand what exactly is preventing you from visiting the park more often or using it at all. Your answers will reveal which issues most significantly impact your daily experience and what you should consider when planning changes.

Q10. What keeps you from going to the park more often? (You may select more than one option)

- It's dangerous—I'm afraid
- It's dark in the evening—no lighting
- The paths are in poor condition—mud, potholes
- No places to sit
- No public restroom
- No drinking water (fountains)
- There's nothing to do in the park
- It's inconvenient or difficult to get to the park
- Dirty, neglected, unsightly
- Far from my home
- Personal circumstances — health, work
- Wartime — anxiety, stress
- Nothing is stopping me — I go regularly
- Other:

Q11. If the park were fixed up, how often would you go there?

- Just like now
- A little more often
- Much more often
- I would start going—I don't go at all right now
- Hard to say

Block 4

This section will help you identify which changes to the park you consider most important. Your answers will reveal what has the greatest impact on safety, comfort, accessibility, and your desire to visit the park more often.

Q12. Below are some possible improvements to the park. For each one, please rate how much this change might influence your desire to visit the western part of Nyvky Park more often

	1 — No, I wouldn't go more often	2 — Maybe a little more often	3 — Yes, noticeably more often	4 — Yes, much more often / regularly
Lighting on all walking paths				

Landscape maintenance (trimming bushes to improve visibility)				
Signs and directional markers (currently missing)				
Emergency call buttons on isolated paths				
New benches and rest areas				
Pathway repairs				
Public restroom (including facilities for people with disabilities)				
Drinking fountains (with free drinking water)				
Skate park for teens and young adults				
Quiet games area (chess, backgammon, etc.)				
Kiosks and small retail units—specifically for veteran-owned businesses				
New playgrounds for children of various age groups				
Accessible entrances—ramps, accessible routes				
Bike paths through the park				
Bike parking areas near entrances				

Lake cleaning and water body maintenance				
Equipped rest areas along the shores of water bodies				
Regular maintenance of trees, shrubs, and lawns				

Q13. Of all the items listed, which **THREE** improvements are most important to you personally? (written answer)

Q14. Below are the criteria you can use to evaluate future improvements to the fleet. Imagine you have 10 points. Allocate them among the criteria based on what matters most to you. The more important a criterion is, the more points you can assign to it. If a criterion is not important to you, assign 0 points. The total sum of all points should equal 10.

	0	1	2	3	4	5	6	7	8	9	10
Makes the park feel safer											
Motivates me to visit the park more often											
Makes the park more accessible for people with disabilities, seniors, and families with children											
Can be implemented without significant costs											
Can be done quickly											
Does not require significant ongoing maintenance costs											
Has a low risk of failure or rapid deterioration											

Block 5

Finally, please answer a few brief questions about yourself. These are intended solely to help us better understand whether the needs and experiences of different groups of residents differ. All responses will remain anonymous and will be used only in aggregate form for the study.

Q15. Your gender:

- Female
- Male

- Other / Prefer not to say

Q16. Your age:

- Under 18
- 18–35
- 36–55
- 56–70
- Over 70

Q17. Do you have children under the age of 14?

- Yes
- No
- I prefer not to answer

Q18. How far do you live from the park? (approximately)

- Less than 500 m
- 500 m – 1 km
- 1 – 1.5 km
- More than 1.5 km, but I still walk or drive there
- I live in a completely different neighborhood

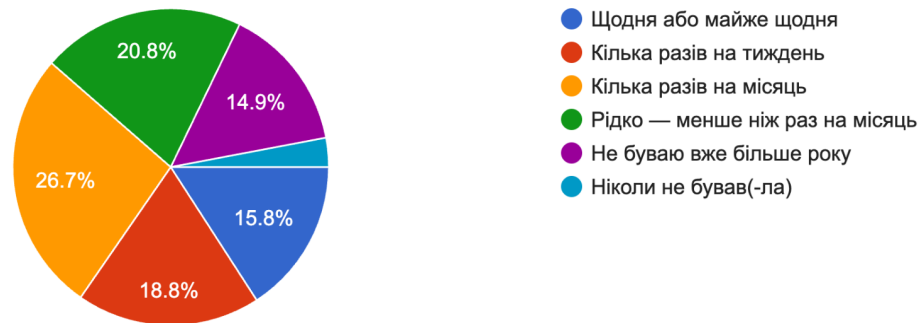
Q19. If you'd like, feel free to add any comments about the park that we haven't covered.
(Optional) (Written answer)

Results created by Google Forms

Q1. How often do you visit Nyvky Park—the section between Danyla Shcherbakivsky Street and the railroad tracks? (The area is outlined in yellow)

Як часто Ви буваєте в парку Нивки — тій частині між вул. Данила Щербаківського та залізницею? (Область виділена жовтим контуром)

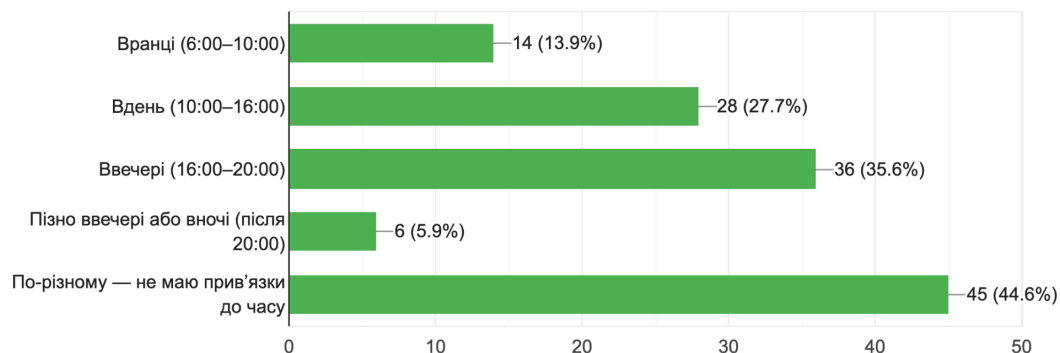
101 responses



Q2. When do you usually go to the park?

Коли Ви найчастіше ходите до парку?

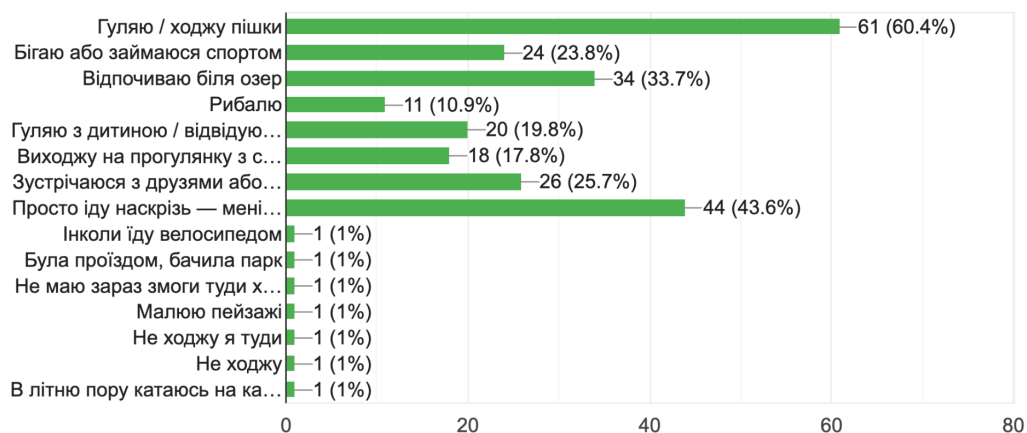
101 responses



Q3. What do you usually do in the park? (You may select more than one)*

Що Ви зазвичай робите в парку? (можна позначити кілька)

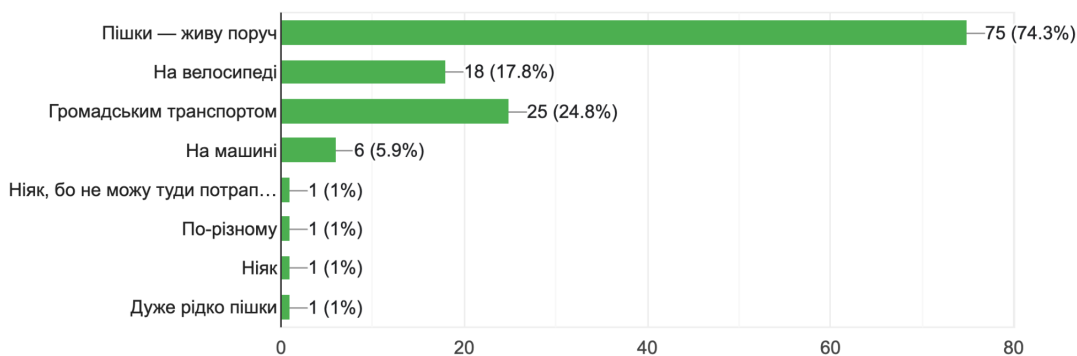
101 responses



Q4. How do you usually get to the park?

Як Ви зазвичай добираєтесь до парку?

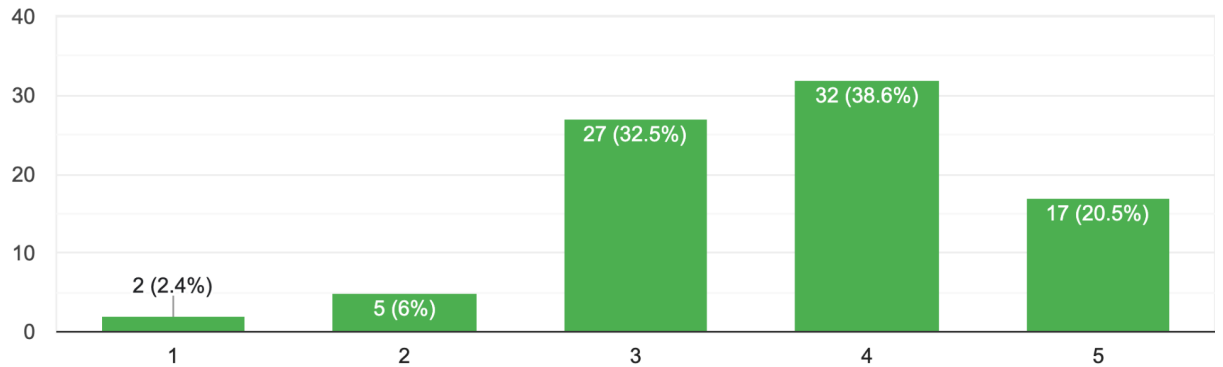
101 responses



Q5. How safe do you feel in the western part of Nyvky Park IN THE MORNING / DURING THE DAY (6:00 a.m.–7:00 p.m.)? (Select from 1 to 5)

Наскільки Ви почуваетесь безпечно в західній частині парку Нивки ЗРАНКУ / ВДЕНЬ (06:00–19:00)?

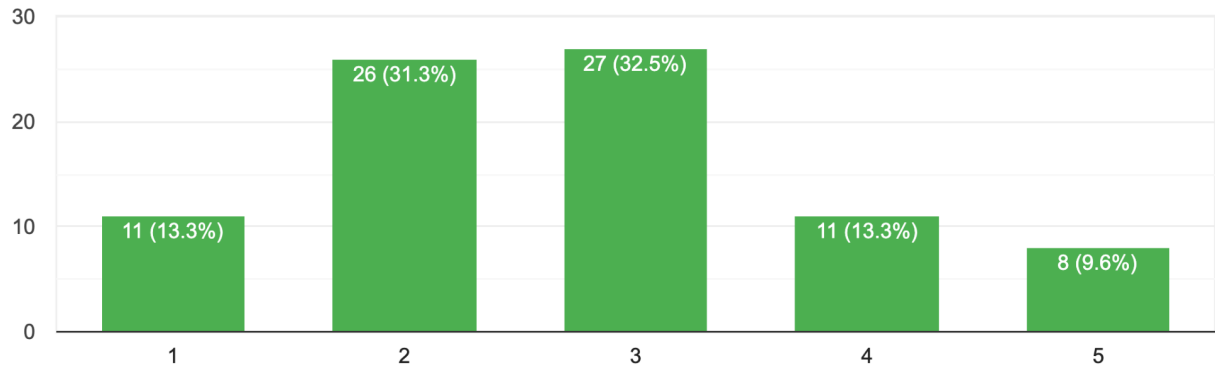
83 responses



Q6. How safe do you feel in the western part of Nyvky Park in the EVENING / AT NIGHT (after 7:00 p.m.)? (Select from 1 to 5)

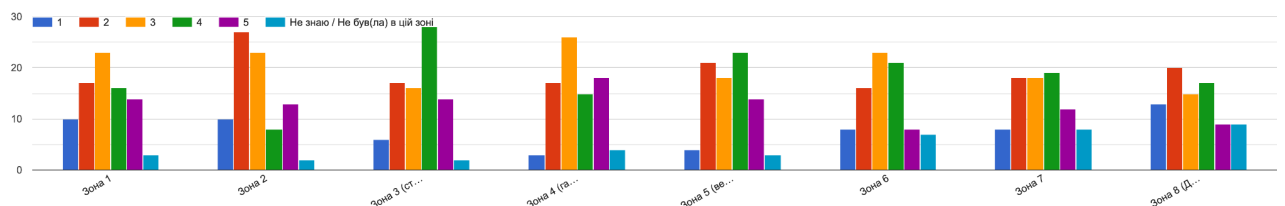
Наскільки Ви почуваетесь безпечно в західній частині парку Нивки ВВЕЧЕРІ / ВНОЧІ (після 19:00)?

83 responses



Q7. Please rate how safe you feel in different parts of the park (1 = very unsafe, 5 = very safe; “Don’t know” if you haven’t been there):
(Your rating should take into account both daytime and nighttime conditions)

Оцініть відчуття безпеки в різних частинах парку (1 = дуже небезпечно, 5 = дуже безпечно, «Не знаю» — якщо там не були): (оцінка має враховувати світлу та темну пору доби)



Q8. Are there any areas in the park that you avoid? If so, why?

Чи є місця в парку, яких Ви уникаєте? Якщо так — чому?



Q9. If you'd like, please describe a specific spot in the park where you feel uncomfortable, and explain why and how you think it could be improved. (Written answer)

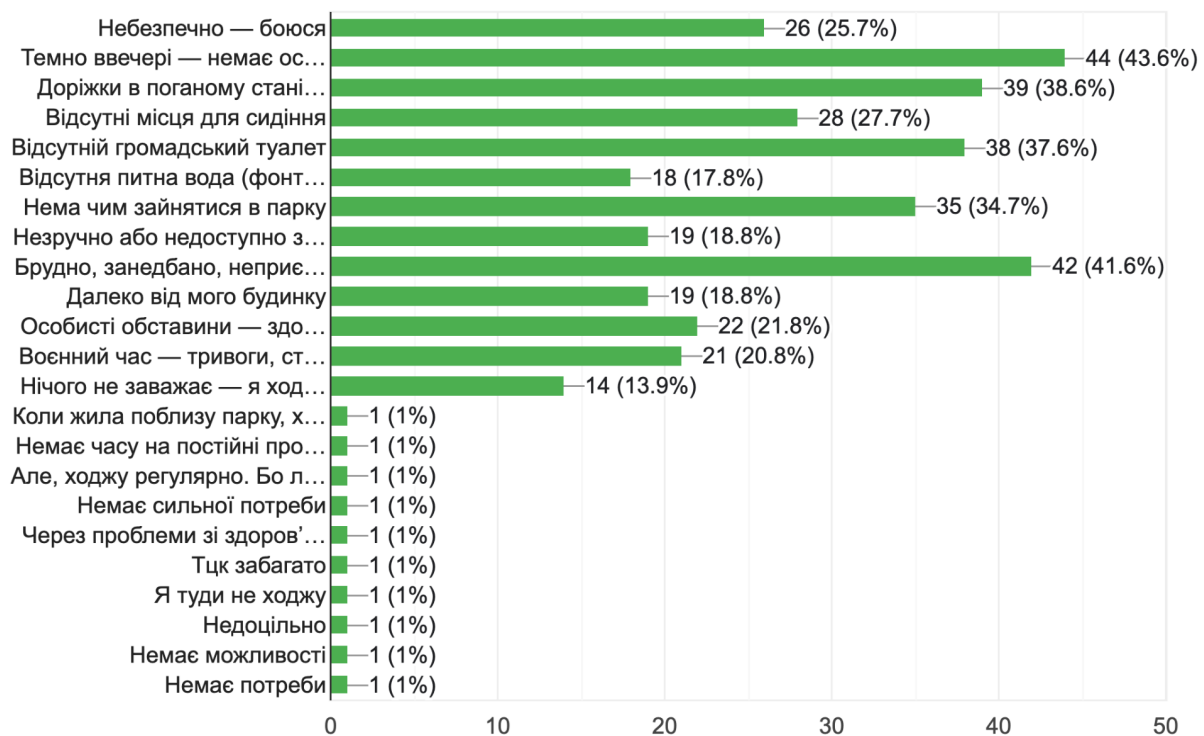
1	I don't like being near railroad tracks if I have to cross them.
2	I don't like that teenagers have started riding electric scooters in the park from time to time; this needs to be regulated somehow, perhaps by designating a separate bike path where they could ride
3	I feel uncomfortable because there are abandoned areas throughout the park, and I don't like the upper part near the avenue because it's quite noisy
4	Overall, nothing bothers me, but my parents worry that I shouldn't walk there in the evening
5	The stairs at the entrances have no ramps; it's hard to get in with a stroller, or you have to use the ramp in Zone 7
6	"The park is practically not maintained, with rare exceptions. Most of the fallen trees are just lying there, completely uncleared; there are piles of dry, broken branches, uncut grass, and trash; roots are just lying around, some still from winter. The lakes are covered in old leaves. No one is dismantling the burned-down restaurant."
7	All the stairs leading to the park are in terrible condition; the area is neglected. Aside from the beautiful nature, there are very few positives in the park. I only walk there during the day or with my husband.
8	Drunks constantly gather around the lakes, especially in the catamaran area; the sidewalks and steps throughout the park are in terrible condition. Meanwhile, the terrain there is very uneven, and you have to walk many kilometers to get out of the park onto a more or less level road. There's a lot of trash, the water in the lakes is stagnant and smells bad. There's only one playground, and it's in a state of disrepair.
9	Abandoned amusement park
10	They need to finally tear down that run-down "Parus" café
11	The road to the train station (commuter rail), the stairs up to Beresteiska Street, and the path from the metro station through the park past the Green Theater—it's creepy; it's often unlit in the evening, and you can see people urinating or defecating around corners or in the bushes. How to improve it: install proper lighting and clear out the bushes
12	It's uncomfortable mainly because of the neglect of the structures there and the poor lighting
13	"Zones 3 and 5 could have proper, functional stairs that would be comfortable to climb from the lower level; Zone 8 lacks pedestrian crossings over the railroad tracks—I don't know how safe that is according to safety regulations; Zones 2 and 6-7 have a lot of dirt and trash; if they were cleaned up, it would be more pleasant to be there. + All water bodies in all zones get dirty quickly, and there can be an unpleasant odor. Perhaps improving the

	condition of the water bodies is a key issue for the park's overall ecosystem"
14	It's uncomfortable everywhere; when the water blooms, it stinks terribly—it needs to be cleaned.
15	One morning, it was dangerous near the lakes because two intoxicated people were walking by; they wanted to talk to me, were using foul language, and I was alone—there were almost no other people around. It was very scary. Overall, there are a lot of bushes, the grass isn't mowed—it's dangerous, and everything is neglected. It's a real shame that such a wonderful place is in such a run-down state; nobody cares about it. Under the right conditions, this park could be turned into a wonderful place to relax!!!
16	The heavy litter throughout the park really detracts from the sense of comfort.

Q10. What keeps you from going to the park more often? (You may select more than one option)

Що заважає Вам ходити до парку частіше? (можна позначити кілька)

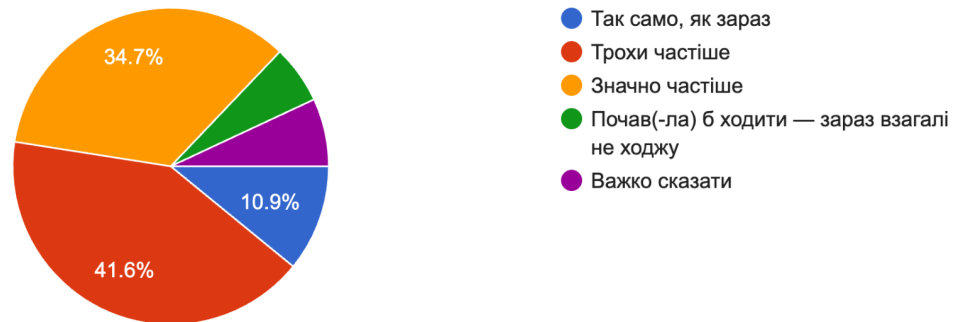
101 responses



Q11. If the park were fixed up, how often would you go there?

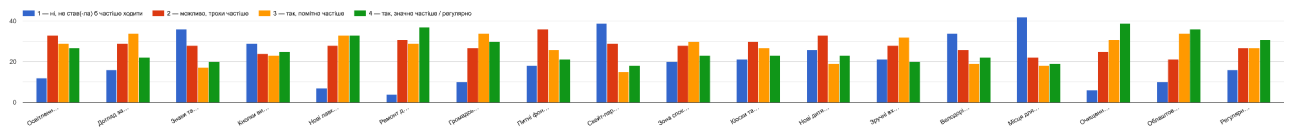
Якби парк привели до ладу — як часто Ви б ходили туди?

101 responses



Q12. Below are some possible improvements to the park. For each one, please rate how much this change might influence your desire to visit the western part of Nyvky Park more often

Нижче наведено можливі покращення парку. Для кожного оцініть, наскільки ця зміна могла б вплинути на Ваше бажання частіше відвідувати західну частину парку Нивки



Q13. Of all the items listed, which THREE improvements are most important to you personally? (written answer)

Догляд за парком та очищення/долядання за територією та озером
Зони для бізнесу, ігрові майданчики, можливості для велосипедистів
Облаштування зони навколо водойми, ну і догляд за ними
Освітлення, місце для відпочинку (лавочки), можливість придбати напої
Ремонт доріжок, питні фонтанчики, догляд за водоймами
Освітлення та догляд за рослинами. А також очищення озер на регулярній основі!!!!
Освітлення, чистота, нові зони відпочинку
Громадський туалет, очищення озер, облаштовані зони відпочинку на березі водойми
Очищення водойми, більше місць для відпочинку і дозвілля
Освітлення, підрізання дерев та кущів, відремонтовані пішохідні доріжки
Очищення водойм, регулярний догляд за рослинністю, ремонт пандусів, та доріжок
Освітлення, догляд за рослинами, туалет
Доглянутість, безпека, досуг

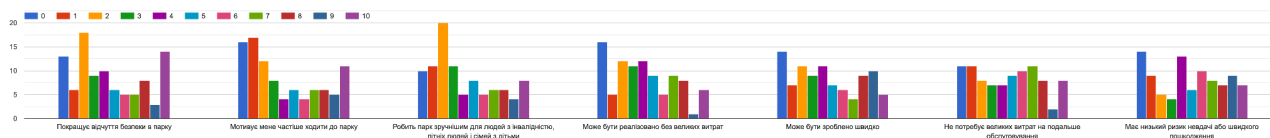
Догляд за рослинністю ,Облаштовані зони відпочинку на березі водойм ,Нові лавки та місця для відпочинку
Туалет,охорона(камери чи кнопки),освітлення
Благоустрій, дороги, освітлення
Очищення озер, освітлення, громадський туалет
Доріжки, лавки, освітлення
Не красти людей серед біла дня
Освітлення, кнопка виклику поліції та громадський туалет
Освітлення, ремонт доріг, місце відпочинку
Освітлення, догляд за рослинністю, ремонт доріжок
Очищення озер та догляд за водоймами, громадські безкоштовні вбиральні, щоб люди парк не обсирали і не обсикали !
Доріжки, догляд за водоймами та рослинністю
Туалет
Освітлення
Догляд за рослинами і озерами
Облаштовувати зони відпочинку
Освітлення, лавки, мафи
Зона відпочинку, місця для ігор, тротуари
Догляд за рослинністю парку та озером і більше скамійок
Очищення озер, Зручні входи, Та нові активності в парку (наприклад настільний теніс, або інші спортивні майданчики, бо зараз в парку мало активностей, особливо безкоштовних)
Догляд ще деревами, волейдами та місце відпочинку
Велодоріжки, вело парковка, питні фонтани
Щоб перестало влітку смердіти, додати активності в парку, та зробити нормальне освітлення, бо в мене поганий зір і я ввечері не бачу що навколо
Можливо кіоски, туалет та освітлення
Дит.майданчик, пандус, світло
Нові доріжки, нові лавки, доглянуті кущі
Охайні дерева та доріжки
Доріжки, лавки, зона відпочинку
Створення активних зон, створення активностей, покращення покриттів
Місце відпочинку, велодоріжки, пандуси
Освітлення, ремонт доріжок, зони відпочинку
Зробити нормальні паркові сходи, мені як людині похилого віку по оцим відремонтованим ходити важко і я туди не маю змоги спуститись. Додати місць для сидіння, бо востаннє там їх було недостатньо і слідкувати за смітниками

Регулярний догляд за деревами, за водоймою та місця для сидіння
Освітлення, гарні кущі, лавки
Освітлення, зона спокійних ігор, ветеранський бізнес.
Кіоски ветеранського бізнесу, пандуси, освітлення
Покращення доріжок, доступність та оновлення дитячих майданчиків
Відсутні
Чисті озера, Нормальне освітлення, встановлення додаткових лавочок для сидіння
Освітлення, очищення озер, зона ремонт доріжок
Більше місць для сидіння, краща дорога, більше освітлення
Освітлення, догляд за рослинністю, деревами, кущами, очищення озер
Туалет, вода, догляд за рослинами та водними об'єктами
Облаштовані зони відпочинку, догляд за деревами, кущами, газонами, громадський туалет
Безпека, комфорт та зона відпочинку для всіх вікових категорій
Освітлення, ремонт доріжок, підрізати кущі
Регулярний догляд за деревами, газонами, очищення озер, облаштування зони відпочинку біля водойм
Доріжки, освітлення, загальний зовнішній вигляд
Освітлення, підрізка кущів, туалет
Освітлення, приведення до ладу зелень (зараз трохи виглядає як клаптик лісу серед міста), класні велодоріжки
Зручні входи, комерція, облаштовані місця біля водойм
1, 7, 11
Безпека, чистота, місця для відпочинку
Нічого
Освітлення, догляд за рослинами, зона відпочинку біля води
Освітлення, кнопка виклику, догляд за рослинністю
Регулярний догляд за деревами, кущами, газонами. Очищення озер та догляд за водоймами. Освітлення на всіх пішохідних доріжках.
Зручність, комфорт, інфраструктура.
Зона відпочинку, пандуси, зона ігор
Ремонт доріжок, МАФи, освітлення
Нові доріжки та світло. Можливо ще місця для сидіння на обличчі
Дитячі майданчики нові, почистити озера, зручні входи бо важко з дит візочком
Освітлення, доріжки, чисті ставки та біо туалет
Освітлення, ремонт доріжок, доглянута рослинність
Чистий громадський туалет, комфортне освітлення, чисті та комфортні зони відпочинку

Озера почистити, Нові дит майданчики, Більше лавочок
Дитячі майданчики, доглянути за ним почистити озера, зробити освітлення
Мені не вистачає активностей, тому скейт парк, ігри, булоб класно нові класні спорт майданчики волейбол, баскетбол тощо
Нічого
Нічого
Нічого
-
Кінець війни
—
Кімнати для матері і дитини
Зручні спуски в парк для людей похилого віку, поручні, більше місць для сидіння, прибрати занедбаний стан
Знесення закинутих будинків, об'єктів, догляд за територією, очищення озер, щоб можна було купитись влітку
Я ходжу гуляти з друзями, в парку ми не гуляємо бо там нема чого робити і нам нема де зібратись нашою великою компанією, іноді ми ходимо туди смажити сосиски. Тому, придумати активності для молоді, передбачити барбекю зони, було б круто поставити настільний теніс
Освітлення на всіх пішохідних доріжках, Громадський туалет (зокрема для людей з інвалідністю), Нові лавки та місця для відпочинку
Освітлення на всіх пішохідних доріжках, Очищення озер та догляд за водоймами, Громадський туалет (зокрема для людей з інвалідністю)
Велопарковка біля озера, облаштовані місця для розміщення рибалок, посадити більше зелені навколо
Нічого
Очищення озер, нові активності в парку, більше місць для сидіння
Нічого
Нічого
Пандуси, доріжки, допомога інвалідам
Немає переважного покращення
Нічого
Почистити озера, зробити велодоріжки, прибрати сміття

Q14. Below are the criteria you can use to evaluate future improvements to the fleet. Imagine you have 10 points. Allocate them among the criteria based on what matters most to you. The more important a criterion is, the more points you can assign to it. If a criterion is not important to you, assign 0 points. The total sum of all points should equal 10.

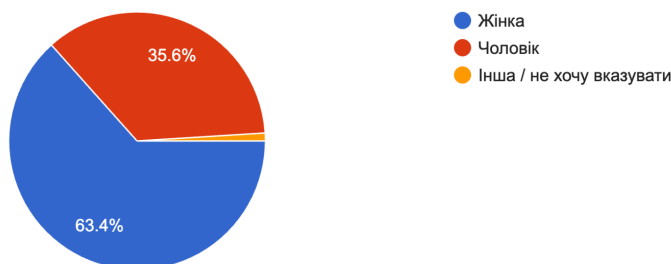
Нижче наведені критерії, за якими можна оцінювати майбутні покращення парку. Увавіть, що у Вас є 10 балів. Розподіліть їх між критеріями залежно від того, що для Вас найважливіше. Чим важливіший критерій – тим більше балів йому можна дати. Якщо критерій для Вас не важливий, поставте 0. Загальна сума всіх балів має дорівнювати 10.



Q15. Your gender:

Ваша стать:

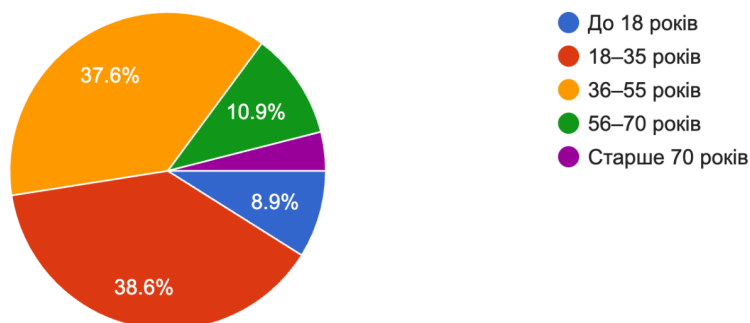
101 responses



Q16. Your age:

Ваш вік:

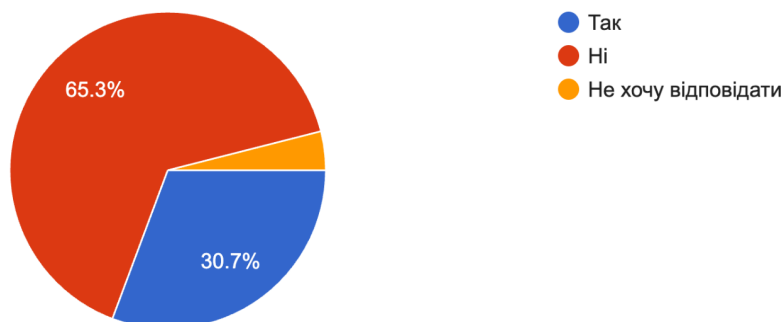
101 responses



Q17. Do you have children under the age of 14?

Чи є у вас діти до 14 років?

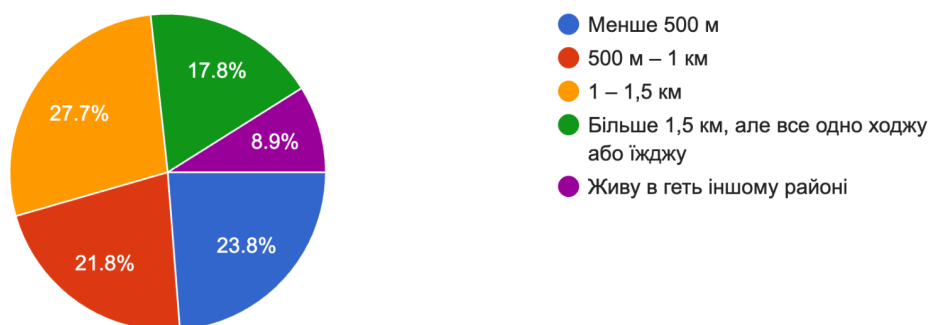
101 responses



Q18. How far do you live from the park? (approximately)

Як далеко від парку Ви живете? (приблизно)

101 responses



Q19. If you'd like, feel free to add any comments about the park that we haven't covered. (Optional) (Written answer)

На мою думку, велика цінність парку - багато недоторканої природи. Хотілося б, щоб покращення не зіпсували первинність. Забагато доріжок з твердим покриттям, занадто декоративні клумби і озеленення, занадто яскраве освітлення - все це зіпсує унікальність парку.

Було б дуже чудово якщо б ваша робота допомогла владі звернути увагу на наш парк. Адже це було б прекрасно привести його до ладу!!!!!!!
Дякую, що підняли таку важливу для мене тему!!!
Бо я дуже обожнюю на парк ❤️

Так як в парку знаходиться залізнична зупинка , то зробити і станцію нормальну.

Необхідно терміново почистити водойми і не пускати у парк приїжджих студентів, які надудляться пива і

ходять постійно у кущі...

Перестав відвідувати цей парк через появу авто, раніше використовував щодня для того щоб дійти до транспортної зупинки. Парк брудний і там нема чого робити + погане освітлення ввечері. Надаю перевагу іншим паркам наприклад, дитячій залізниці на Сирці або парку Наталка, для мене не проблема щоб поїхати погуляти доїхати на авто. Якщо цей парк зроблять, почистять, то може я б туди і знову ходив, але вже щоб гуляти

Це ж найстаріше, історичне місце, де колись відпочивали покоління киян цілими родинами. І мене свого часу водили сюди батьки, хоча жили ми тоді в Залізничному (нині Солом'янському) районі. Тут вирувало життя: працював Зелений театр, на якому проводилися концерти, сяяли ілюмінації тощо. Першу частину парку було відкрито ще у 1954 році, а статус пам'ятки він отримав у 1972-му.

Зараз його часто критикують.

Але ті, хто переїхав до Києва нещодавно або просто через вік не застав парк у часи його розквіту, не зовсім праві, коли порівнюють його з сучасними новими скверами, а тим більше з парками в інших містах.

У «Нивок» зовсім інша душа та масштаб. Часом здається, що на тлі нових локацій у Києві нашому парку просто ніяк «не можуть скласти ціну».

Нехай парк оновлять із урахуванням сучасності, але обов'язково збережуть його колишню автентичність. Мені важко, нажаль, зараз туди ходити, оскільки в мене хворі ноги, і це могло б слугувати чудовим місцем для моїх прогулянок з онуками, але порібно зробити доступні входи туди

Унікаю темних місць принципово, оскільки я ветеран і в мене ПТСР. Люблю тиху ранкову зону біля озер, але варто їх почистити бо влітку вони цвітуть.

Живу біля парку Веселка і у нас дуже красивий парк, я б навідувалася частіше з собакою до парку Нивки, але він дійсно занедбаний, навіть туалету немає, багато сміття, а там є на що подивитися і спогади з дитинства і природа красива, озера, хотілося б щоб в них можна було купатися.

Дякую

Дякую за опитування 

Контроль витрат на благоустрій

Дякую за дослідження. Сподіваюсь, що це справді щось змінить.

Ходжу в парк гуляти з дитиною, в цьому нема чого робити, тому надаю переваги іншим паркам та скверам на районі, якщо парк зроблять, буде дуже добре і буде дотакове місце для довгих прогулянок. Було б круто, якщо б зробили в парку дитячі майданчики такі як в Європі, або в закритих ЖК сучасні з різноманітними горками і лазилками для дітей

Зараз я ходжу транзитом в коледж через парк, і мені там немає чого робити, з друзями ми зустрічаємось в інших місцях, я б хотів, щоб з'явилися спортивні майданчики, цікаві ігри, мені як підлітку нема чого робити там

2 роки тому перенесла інсульт, зараз важко спускатись в парк, бо незручні сходи і парковві алеї з ямами мені легко перечипитись, окрім то лавочки для сидіння розташовані не рівномірно і я не можу довго ходити мені потрібно місце щоб присісти. Раніше я ходила майже щодня, якщо зроблять зручний вхід та більше лавочок, то я може і продовжу ходити, бо зараз без допомоги. туди не спущусь

Подобаються кривиди в парку, мені подобається їх малювати, проте мені доводиться опускати ті некресиві місця, ще подобається спостерігати за птахами та відпочивати біля води, було б найс якщо б зробили більше місць для відпочинку біля води і я б могла там влітку купатись

Ми б з друзями туди ходили, якщо б там було шо робити, а зараз переважно ходимо транзитом в мак. Але коли я був малим, то з батьками ми ходили гуляти на майданчик, грали в м'яч та катались на катамаранах. Я не відчуваю себе там частиною спільноти

Ми з друзями любимо проводити там час, коли ходимо в макдоналдс, але часто нам немає чим там зайнятись і ми також їздимо або ходимо в інші парки. Було б добре, якщо б цю частину привели до ладу

Appendix C — MCDA, CEA/CER Model for Prioritising the Reconstruction of the Western Part of Nyvky Park

Table C.1. Perceived safety in the western part of Nyvky Park by time of day

Period	Mean	Std. dev.	Share rated 1-2 (unsafe)
Morning / daytime (06:00-19:00)	3.69	0.95	8%
Evening / night (after 19:00)	2.75	1.15	45%
Decrease in mean score (evening vs daytime)	-0.94		

Note. Scale 1-5, where 1 = very unsafe and 5 = very safe. Source: Google Forms survey 'Safe and lively Nyvky Park', March-April 2026, Appendix B.

Table C.2. Mean safety score by park zone

Zone	Mean safety score
Zone 1	3.09
Zone 2	2.84
Zone 3 (pond with catamarans)	3.33
Zone 4 (Fairy-tale Meadow)	3.35
Zone 5 (upper area, former amusement park)	3.27
Zone 6	3.07
Zone 7	3.12
Zone 8 (route to the railway)	2.85
Average across all zones	3.12

Note. Values are calculated without 'Do not know' responses.

Table C.3. Frequency of visits to the western part of the park

Indicator	Persons	Share
Every day or almost every day	16	15.8%
Several times a week	19	18.8%
Several times a month	27	26.7%
Rarely (less than once a month)	21	20.8%
I have not visited for more than a year	15	14.9%
I have never visited	3	3%

Table C.4. Willingness to visit the park after improvement

Response	Persons	Share
Much more often	35	34.7%
Somewhat more often	42	41.6%
About the same as now	11	10.9%
Hard to say	7	6.9%
I would start visiting	6	5.9%
Share 'more often / would start visiting' (integrated latent demand)		82.2%

Table C.5. Consolidated spatial audit scores by CPTED domain

Domain (CPTED category)	Mean score
1. Lighting	1.99
2. Natural surveillance / sightlines	3.00
3. Maintenance and cleanliness	2.42
4. Connectivity and route legibility	3.12
5. Access and amenities	2.32
6. Markers of conflict / avoidance	3.23
Overall mean park score	2.68

Note. Scale 1-5: 1 = critical condition / absent, 5 = excellent condition.

Table C.6. Integral score by park zone

Zone	Mean score (all 68 criteria)	Condition
Zone 1	2.15	Critical
Zone 2	2.27	Critical
Zone 3 (pond)	2.78	Weak
Zone 4 (fairy-tale area)	2.88	Satisfactory
Zone 5 (upper area / amusement park)	2.66	Weak
Zone 6	2.81	Satisfactory
Zone 7	3.10	Satisfactory
Zone 8 (railway route)	2.69	Weak

Table C.7. Critical deficits recorded in all zones

Critical deficit
Uniformity of lighting (sharp light/shadow contrasts)
Emergency / backup lighting and reflective markers
Dog waste stations
Directional signage and maps (wayfinding)
Covered rest areas / pavilions
Drinking fountains
Public toilets / sanitary facilities
Bicycle parking near entrances

Note. The table includes items that received a score of 1 in all eight audited zones.

Table C.8. MCDA criterion weights

Criterion	Survey mean (0-10)	Residents' weight (norm.)	Expert weight (norm.)	Final weight (50/50)
C1 Impact on perceived safety	4.48	0.148	0.250	0.199
C2 Impact on social attractiveness	4.00	0.132	0.200	0.166
C3 Inclusivity	4.04	0.133	0.150	0.142
C4 Implementation cost (inverse)	4.05	0.134	0.100	0.117
C5 Speed of implementation	4.42	0.146	0.080	0.113
C6 Maintenance costs (inverse)	4.57	0.151	0.070	0.110
C7 Implementation risk (inverse)	4.74	0.156	0.150	0.153
Total	30.30	1.000	1.000	1.000

Note. The final weight is calculated as a 50/50 average of normalised resident priorities and the expert vector.

Table C.9. MCDA scoring matrix and composite score

Intervention	Scenario	C1	C2	C3	C4	C5	C6	C7	S(i) resident s	S(i) 50/50
Shrub pruning (CPTED sightlines)	1	4	2	2	5	5	3	5	3.75	3.66
Path surface repair (priority sections)	1	3	4	5	2	3	3	4	3.42	3.49
New benches and expanded seating areas	1	2	4	4	4	5	4	5	4.01	3.87
Signage system / wayfinding	1	2	2	4	4	5	5	5	3.89	3.65
Basic cleaning and maintenance programme	1	3	3	3	4	4	2	5	3.44	3.43
High-quality pedestrian lighting (entire network)	2	5	3	4	2	2	3	3	3.15	3.31
Public toilet (accessible, incl. PRM)	2	2	4	5	2	3	2	3	2.97	3.02
Drinking fountains	2	1	3	4	4	4	3	4	3.27	3.13
Accessible entrances and ramps	2	2	3	5	2	3	4	3	3.14	3.08
Quiet game areas (chess, backgammon)	2	2	4	4	4	4	4	4	3.70	3.60
Equipped rest areas near water bodies	2	2	5	4	2	3	3	3	3.12	3.16
Emergency call stations (SOS)	2	4	1	3	3	3	2	2	2.58	2.60
Lake cleaning and ecosystem restoration	3	2	5	3	1	1	2	2	2.25	2.41
New children's playground	3	1	5	5	2	2	3	3	2.96	2.99
Skate park for teenagers	3	1	4	2	2	2	3	3	2.42	2.40
Kiosks / small retail units for veteran-owned businesses	3	3	4	3	3	3	4	3	3.28	3.28
Bicycle path network through the park	3	2	3	3	2	2	3	3	2.57	2.57
Bicycle parking near entrances	2	1	2	2	5	4	5	5	3.47	3.17

Note. For C4, C6 and C7, a higher score means a better outcome: lower cost, lower maintenance burden or lower risk.

Table C.10. Cost-Effectiveness Analysis (CER)

Intervention	Scen.	Estimated cost, UAH (median of range)	Cost range (band)	Effect: % reached (ratings 3-4)	CER, UAH per 1% reached
Shrub pruning (CPTED)	1	120 000	low-medium	55.4%	2 166
Path repair (priority sections)	1	1 200 000	medium-high	65.3%	18 377
New benches (approx. 40 units, incl. installation)	1	600 000	medium	65.3%	9 188
Signage system / wayfinding	1	400 000	medium	36.6%	10 929
Cleaning and maintenance programme (one year)	1	500 000	medium (annual)	57.4%	8 711

Pedestrian lighting (entire network)	2	3 500 000	high-very high	55.4%	63 177
Public toilet (modular, PRM-accessible)	2	900 000	medium-high	63.4%	14 196
Drinking fountains (3-4 units)	2	250 000	low-medium	46.5%	5 376
Accessible entrances and ramps (2-3)	2	1 500 000	high	51.5%	29 126
Quiet game areas	2	300 000	low-medium	52.5%	5 714
Rest areas near water bodies	2	1 800 000	high	69.3%	25 974
SOS stations (network)	2	1 200 000	medium-high	47.5%	25 263
Lake cleaning and restoration	3	18 000 000	very high	69.3%	259 740
Inclusive children's playground	3	2 500 000	high	41.6%	60 096
Skate park	3	3 500 000	high	32.7%	107 034
Kiosks / small retail units (veterans)	3	1 000 000	medium-high	49.5%	20 202
Bicycle path network	3	4 000 000	high	40.6%	98 522
Bicycle parking near entrances	2	150 000	low	36.6%	4 098

Note. CER = estimated implementation cost divided by the expected share of reached users. Lower CER indicates higher cost-effectiveness.

Table C.11. Summary of the three reconstruction scenarios

Scenario	Horizon	Budget level	Focus	Estimated cumulative cost, UAH
Scenario 1 - Baseline	0-6 months	Minimum	Triage: critical safety and maintenance deficits	2 820 000
Scenario 2 - Optimal	6-18 months	Medium	+ Activation, inclusivity, connectivity (cumulative)	12 420 000
Scenario 3 - Maximum	18+ months	High	+ Capital transformation + management model	41 420 000

Note. The scenarios are nested: each subsequent scenario includes the previous one. Costs are indicative and reflect an order of magnitude.

Data source for Appendix D: prepared by the author based on the resident survey, spatial audit and indicative cost calculations for the proposed interventions.