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Effectiveness of Crime Prevention Through Environmental Design (CPTED) Principles in Urban Environments: A Case Study of New Mexico

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***Abstract*—In this study, 10 communities in the North Western area of New Mexico are used to examine the efficacy of Crime Prevention Through Environmental Design (CPTED) concepts in urban settings. The research looks at the connection between crime rates and urban architecture in Luna by combining secondary data from the Unified Crime Report (UCR) with findings from earlier studies on topography and architectural features. It is accepted that several CPTED initiatives have limitations, such as dependence on secondary data and the need for more thorough research, even while they show promise in lowering crime and improving safety. Among the recommendations are the inclusion of primary data collecting and the consideration of socioeconomic issues. Policymakers, urban planners, and community stakeholders may establish more fair and effective methods to promote safer urban environments by considering these recommendations. By providing insights into the challenges of creating surroundings that support community safety and well-being, this study adds to the continuing conversation on crime prevention and urban planning.**

Keywords—Crime Protection, Spatial Analysis, surveillance, reinforcement.

I. INTRODUCTION

The concepts of Crime Prevention Through Environmental Design (CPTED), which aims to create surroundings that deter criminal activity and enhance community safety, have become more important in urban planning and crime prevention. Thus, it is critical to comprehend the efficacy of CPTED concepts as urban populations rise and cities encounter a variety of issues regarding safety and crime [1]. With an emphasis on the state of New Mexico specifically, this study explores the applicability and efficacy of CPTED concepts in metropolitan settings.

With its varied urban environments that span from thriving metropolises to tiny villages, New Mexico offers an exceptional context for investigating the application of CPTED concepts [2]. This study aims to shed light on the actual implementation of CPTED tactics and their effects on crime rates and public perceptions of safety by evaluating a variety of metropolitan locations across the state.

This study's main goal is to assess how well CPTED concepts work in New Mexico's metropolitan areas to improve safety and lower crime rates. We want to evaluate the degree to which CPTED techniques contribute to crime prevention and community well-being by undertaking a thorough investigation of specific locations. Furthermore, this study aims to pinpoint any obstacles or constraints related to using CPTED concepts in various metropolitan settings.

This study's justification comes from the growing realisation of how crucial it is to create living, safe urban settings in the face of increased worries about security and crime. Cities are under growing pressure to implement creative strategies to reduce crime and advance public safety as urbanisation trends pick up speed worldwide [3]. This research aims to influence future urban planning projects and add to the body of information on successful crime prevention techniques by looking at the real-world implementation of CPTED principles in Albuquerque, New Mexico.

This research builds on the FBI Crime Data Report by using a qualitative methodology to accomplish the stated goals. Using a mix of official crime statistics from FBI Crime Data Explorer [4] and a handful of previous research, data on crime rates and spatial attributes are gathered. Subsequently, implementation data will be compared using contextual analysis to assess the effect of CPTED techniques on crime rates and safety perceptions in New Mexico. The present study strives to offer significant insights into the efficacy of CPTED principles in urban areas by utilizing a rigorous research approach and concentrating on objective applications in New Mexico. The findings might have

ramifications for policy, practice, and future research endeavours.

II. CPTED PRINCIPLES

Crime Prevention Through Environmental Design (CPTED) principles constitute a multifaceted approach to reducing crime and enhancing safety by manipulating the built environment. While these principles have been widely embraced in urban planning and criminology, a critical examination reveals both strengths and limitations in their application.

PILLARS OF CPTED

1. NATURAL SURVEILLANCE

Maximizing visibility within urban spaces to facilitate informal surveillance is a cornerstone of CPTED [5]. By ensuring that potential offenders perceive a risk of detection, natural surveillance aims to deter criminal behaviour [6]. However, some will argue that the effectiveness of this principle is contingent upon factors such as population density, land use patterns, and social cohesion [7]. In densely populated areas with high levels of activity, natural surveillance may be inherently stronger, whereas in more isolated or disinvested neighbourhoods, achieving adequate surveillance can be challenging.

Thus, natural surveillance refers to the use of architecture to create spaces that are easily viewed by residents, neighbours, and bystanders [8] and [9]. The most famous exponent of this approach is Jacobs, who reasoned that "eyes on the street" would deter crime [8].

In another perspective of natural surveillance, private individuals are responsible for the majority of crime prevention rather than state or security agencies [10]. However, several legal scholars [8], [11] and [12] focus on entities of the state, forgetting that the public peace sidewalk and street peace--of cities is not kept primarily by the police, necessary as police are. It is kept primarily by an intricate, almost unconscious, network of voluntary controls and standards among the people themselves, and enforced by the people themselves. In some city areas public housing projects and streets with very high population turnover are often conspicuous examples keeping of public sidewalk law and order is left almost entirely to the police and special guards [13]. There are locations where civilization is undeveloped and unenforced, and no number of police can bring serenity back where it has collapsed [14].

In addition, empirical studies of burglary confirm that the surveillability of an area is a major predictor of its crime rate [15]. For instance, crimes at universities or other institutions are more likely to occur in places with poor visibility, large bushes, and no buildings across the street [15]. A report establishes that damage to bus seats in London is higher on upper decks of buses than on lower decks, and higher in back seats than in front ones, due to lower visibility in those locations [16]. In the report, they interviewed certain crime suspects and these lawbreakers reveal that "robbers are very conscious of architectural features" and that favourite locations are the narrow and enclosed pathways where visibility is poor and witnesses nonexistent.

Hence, three principal mechanisms were propounded to be used to facilitate natural surveillance: diversity of building use, building design, and lighting [17]. On the diversity of use, Fincher and Jacobs [18] argued that diversity of use would bring people outdoors and increase natural surveillance. To generate adequate diversity, each city district should serve more than one primary function, and each function should occur during a different time of day so that there is some consistency in population throughout the day [19].

Deductively, to plan for diversity, a city cannot simply add a few incentives for businesses to operate in a particular locale; rather, it must cultivate the type of residents who work in harmony with the character of a given city district [20]. Such cultivation requires an understanding of the primary uses of city districts and aggressive matching of those uses with incentives for secondary uses. Generic plans for inner city development, such as central business districts and civic centres, tend to ignore local conditions in place of wide-eyed hopes of generating massive changes to areas.

Jacobs's views on building design and city planning are of course expensive and difficult to carry out all at once [21]. However, architects and researchers [22] and [23] have experimented with many designs that alter individual buildings to enhance natural surveillance at a lower cost. Here are a few examples: adding additional windows and placing them in high-traffic areas that look out onto public spaces; installing centralised air conditioning to eliminate the need for clunky window units that block natural surveillance; leaving hallway corridors and alleys topologically smooth to facilitate their visibility; setting buildings against each other so that neighbours can watch others across a street or courtyard (panopticon); using cul-de-sacs to facilitate natural surveillance in the fronts of buildings;' building front stoops and porches, and returning to World War I1 "three-generation style" housing (in which houses had a separate apartment underneath them that facilitated monitoring and reciprocal interactions) [24].

2. TERRITORIAL REINFORCEMENT

A second crime-prevention technique is to construct landscapes and buildings that create and reflect a sense of territoriality. Territoriality connotes ownership or stewardship of an area – it both provides an incentive for residents to take care of and monitor an area and subtly deters offenders by warning them that they are about to enter a private space [8]. Concern about territoriality should be balanced against the need for natural surveillance so that spaces are neither too open nor too closed. If they are too closed, bystanders and residents cannot self-police; if they are too open, intrusion and crime could increase [8].

This principle asserts that architects can work to create territoriality by manipulating both the internal and external features of buildings [25]. One way to accomplish this task is to use real barriers, such as locked doors and fences, and symbolic ones, such as a short series of steps or an archway. Real barriers are more effective against a determined criminal, however, they can impose heavy costs [25].

Symbolic barriers will often be sufficient to warn potential offenders and help build a sense of territoriality among residents [26]. An example of a successful symbolic barrier is an entrance raised by a few inches. Height can subtly convey distance and otherness. People are aware of minor gradations of elevation and may refrain from entry if they sense a gradual incline [8] and [27]. Different colours and textures of surfaces can also be used to demarcate public and private spaces.

Thus, establishing clear boundaries and fostering a sense of ownership over public spaces is another key aspect of Territorial Enforcement in CPTED. When residents feel a sense of ownership and responsibility for their environment, they are more likely to actively monitor and maintain it. However, territorial reinforcement can inadvertently contribute to social exclusion and reinforce inequalities, particularly in gentrifying neighbourhoods where newcomers may seek to assert control over public spaces at the expense of existing residents [28].

3. ACCESS CONTROL

Another aspect of effective architectural design is the use of structures that build communities (access control) instead of dividing them [8]. Erskine once remarked that the job of buildings is to improve human relations – architecture must ease them, not make them more difficult [29]. However, much architecture, particularly public architecture, does not maintain fidelity to such concepts [30]. Based on observation, if access control is not specified and distinguished in both the housing projects and other inner-city neighbourhoods, residents have difficulty identifying their neighbours [31]. They are, therefore, less likely to engage in reciprocal guardian behaviour (that is, checking out access control in case of intrusion).

Invariably, events in one part of the block or neighbourhood tend to be of little concern to those residing in other parts. Territoriality underlines the necessity of certain closures, whereas access control emphasises transparency and openness [32]. The goal of building community straddles this tension, suggesting that spaces that are either too open or too closed can be harmful and that the creation of semi-public space can generate feelings of commonality. With certain forms of architecture, individuals will feel less isolated and less compelled to commit crimes, residents will find it easier to distinguish strangers from others, and bystanders will be much more likely to prevent crimes or come to the assistance of a victim after a crime takes place [33].

Controlling access to urban spaces to regulate the flow of people and vehicles is essential for preventing crime. This involves measures such as controlling entry points, installing barriers, and implementing surveillance systems [34]. While access control can effectively limit opportunities for crime, it also raises concerns about social equity and the right to public space. Excessive security measures can create a perception of exclusion and restrict the mobility of marginalized populations, undermining the principles of inclusivity and accessibility [35].

4. MAINTENANCE AND MANAGEMENT

One of the more obvious ways in which architecture can prevent crime is by strengthening targets against attack through maintenance and management [8]. Some of the maintenance and management techniques are easy to employ, such as placing deadbolts lower on door frames, having doors in vulnerable locations swing outward, raising fire escapes to put them out of easy reach, and reducing the size of letter-box openings [36]. Modern technology permits targets to be hardened in ways that are not obvious to the public. Strong plastics, graffiti-resistant paint, and doors with steel cores are a few examples. Due to these developments, architects can conceal their efforts to reinforce targets and prevent giving the impression that crime is widespread [8]. The point here as described by scholars [6], [8] and [37] is that appliances and building maintenance and management are important features that distinguish various architectures of crime control. Substantial evidence reveals that such security measures decrease crime in post offices, banks, and convenience stores because these

places are considered to be highly maintained and managed [38]. For instance, when a part of the New York town of Harlem applied design principles to its housing projects (including the repair of doors and locks, better fencing around dwellings, and strong illumination), burglaries dropped by seventy-eight per cent [39].

III. CPTED AND NEW MEXICO

Maintaining the physical environment and actively managing public spaces are critical for sustaining the effectiveness of CPTED strategies. Neglected or poorly managed spaces can signal disorder and attract criminal activity, undermining efforts to create safe and inviting environments. However, the responsibility for maintenance and management often falls on local authorities, whose capacity and resources may be limited, particularly in economically, geographically or politically disadvantaged areas [40].

While the principles or pillars guiding CPTED offer valuable guidance for designing safer cities, their implementation must be informed by an understanding of local conditions and community dynamics, population density, development, and planning [41]. In the context of this study focusing on New Mexico, several factors merit consideration.

First, New Mexico's diverse urban landscapes, encompassing bustling cities, suburban communities, and rural towns, present a range of challenges and opportunities for implementing CPTED principles. The effectiveness of natural surveillance, territorial reinforcement, access control, and maintenance and management strategies may vary depending on factors such as population density, socioeconomic disparities, and cultural norms.

In addition, the study's emphasis on empirical analysis provides an opportunity to assess the practical impact of CPTED interventions in New Mexico's urban environments. By examining crime rates, safety perceptions, and community engagement efforts, the research can offer insights into the practical effectiveness of CPTED principles and identify areas for improvement.

Finally, the critical qualitative and descriptive perspective adopted in the study acknowledges the inherent tensions and trade-offs involved in implementing CPTED strategies. Balancing the need for crime prevention with concerns about social equity, inclusivity, and community empowerment requires careful deliberation and collaboration among stakeholders [42]. By critically evaluating the principles of CPTED in light of these considerations, the study aims to contribute to more holistic and sustainable approaches to urban safety and well-being in New Mexico.

IV. OVERVIEW OF ALBUQUERQUE, NEW MEXICO AND ITS ENVIRONMENT

Many people consider Albuquerque, New Mexico, to be a beautiful place to call home. Its picturesque setting, tucked away at the foot of the Sandia Mountains, is quite breathtaking. With more than 300 sunny days annually, it is situated at a height of more than a mile [43]. Over the years, its citizens have taken advantage of the city's proximity to vast national parks, four distinct seasons, and an illustrious past. With a population of 905,049 as of 2019 [44], the New Mexico metro region has one of the greatest per capita concentrations of Masters and PhD level inhabitants in the nation [44].

However, its pleasant climate, scenic views, and kind populace are not frequently featured in national news articles. New Mexico has been dealing with a long-standing issue of crime for many years. Albuquerque, New Mexico was listed as the ninth Most Dangerous City in America [45].

Unfortunately, the city has been seeing a sharp rise in both violent and non-violent crime despite the advancements in popular education. Together with this, the nation has one of the poorest public education systems—USNews ranked it 48 out of 50 in 2018 [46]. This significantly undermines the progress that a vast many of community members have made. When the Department of Justice launched an investigation into the Albuquerque Police Department (APD) for excessive use of force in 2013, other serious issues began to surface. Every city with a population of more than 50,000 had double-digit increases in violent crime, according to the data. During that period, Albuquerque had a 36% growth [47].

This, together with poor leadership, caused a spike in crime from which the city is still recovering. Numerous signs suggest that crime is still increasing. According to an article on CBS News, Albuquerque's violent crime rate increased by 15.5% between 2015 and 2016 and by another 23.1% between 2016 and 2017, making it one of the cities with the greatest rises in history[48]. The problem has gotten so bad that the Albuquerque Police Department (APD) has designated violent crime as a public health concern for the city's residents in 2019 [49]. The New Mexico governor also had to step in due to violent violence in Albuquerque.

Although the City of Albuquerque has earned a bad reputation for crime, the recent data still provide a different image than what most residents are aware of. Numerous of these accidents take place in highly

targeted locations. In every metropolis, this is to be anticipated [44]. However, because of the extremely high rates of crime in certain districts, the city is perceived as violent overall [44]. While crime may not be a regular occurrence for someone living in the Northeast Heights, it can be for someone living in the International District or Northwest[44].

As previously indicated, New Mexico has unique geographical and architectural characteristics that can have a variety of effects on crime rates. Comprehending these attributes is crucial for conducting a thorough analysis of the correlation between urban design and criminal activity inside the city.

a. ARCHITECTURAL PROPERTIES

1. Urban Sprawl: New Mexico is a prime example of the typical urban sprawl pattern, with low-density development dispersed over a large geographic region. This expansive design, especially in suburban regions with widely separated dwellings and little foot traffic, can lead to a rise in crime rates by providing options for anonymity and seclusion.
2. Mixed Land Use: The city's varied constructed environments result from the combination of residential, commercial, and industrial land uses. Mixed-use developments have the potential to promote informal social control, as well as surveillance and vibrancy. However, conflicts between various land uses may arise in poorly planned mixed-use zones, which might exacerbate chaos and criminality.
3. Architecture Styles: Building layout, visibility, and access points are some of the ways that architectural design can impact crime rates in New Mexico. Buildings with narrow alleys obscured entrances, and few windows, for example, may provide opportunities for criminal activity by providing cover and escape routes. The state's architectural landscape reflects its rich cultural heritage, with influences from Pueblo Revival, Spanish Colonial, and modernist movements.
4. Gated Communities: New Mexico has a large number of gated communities, similar to many other cities in the Southwest, especially in affluent suburbs like McKinley, Hidalgo, and Albuquerque. Gated communities can provide inhabitants with a feeling of exclusivity and protection, but research and crime surveys from FBI Crime Report (2021) [4] demonstrate that they can also worsen social segregation and undermine social cohesiveness, which may increase crime rates both within and outside of their bounds.

b. TOPOGRAPHICAL PROPERTIES

1. River Valleys and Arroyos Albuquerque and its surrounding northwest counties in New Mexico are located in the Rio Grande Valley, which is known for its flowing rivers and arroyos (dry riverbeds). These natural elements might affect crime patterns by offering covert routes for illicit activities like drug trafficking and unlawful dumping. Particularly in arroyos, homeless populations may use them as temporary shelters, which fuels localised instability and criminality.
2. Mountainous Terrain: The Sandia Mountains to the east and other mountain ranges to the north and west encircle the city. These natural barriers can prevent urban growth and provide beautiful views, but they can also provide difficulties for law enforcement and urban planning. Alone places in the mountains might be vulnerable to unlawful activities including drug production, illegal dumping, and vandalism.
3. Elevation and Climate: The dry climate and high elevation (more than 5,000 feet above sea level) of Albuquerque have an impact on the city's built environment and outdoor activities. The city's sunny summers and pleasant winters stimulate social gatherings and outdoor activities, which can foster community participation and surveillance. But high heat and sparse greenery can also discourage people from walking and make them feel unsafe in some places.

V. EFFECTS OF TOPOGRAPHY AND ARCHITECTURAL PROPERTIES ON CRIME RATE

New Mexico's topography and architecture combine with economic, social, and environmental elements to influence the city's crime statistics. Urban expansion and inescapably isolated topographical characteristics may enhance crime risk [50], but other factors—like mixed land use and natural surveillance opportunities—may lessen it.

Comprehending these factors is crucial in formulating efficacious solutions for crime prevention that are customised to the distinct urban and natural terrain of these selected counties in New Mexico. Comprehending the correlation between crime and architecture is particularly crucial, given the growing realisation that traditional law enforcement

approaches are, at most, only marginally successful in combating crime.

It is in light of this that architecture has advanced significantly more than legislation during the past century; from steel to plastics, from cranes to bulldozers, we have created advanced machinery and instruments to alter the land's topography [8]. Architecture has always placed a strong emphasis on innovation and has been influenced by commercial factors that favour better, more affordable designs rather than adhering to established conventions [8].

The built environment's layout and character have the power to either promote or discourage crime. Since the architect is in charge of all architectural components, he has the power to use them to affect how people behave. This is a regrettable contrast to the current state of affairs in New Mexico.

Bentham's early research, which resulted in the criminal accounting principle, noted that criminals frequently weigh the advantages and disadvantages of their adventure. Actors will look for ways to carry out crimes when they provide an opportunity [51]. According to the Social Cognitive Theory of Crime, offenders are more likely to give up on their search for a more fulfilling commitment if they believe that the dangers much exceed the potential rewards [52].

Deterrence has therefore been seen to work, even when unfriendly architectural features are introduced to prevent particular social classes from entering specific areas. According to a study, a detailed examination of this mitigation strategy reveals glaring flaws. It occasionally tends to leave areas redundant in addition to keeping undesirable subjects out [53].

Thus, further research is required to see how well this fits into the CPTED story. Nonetheless, because it influences efforts to achieve both safety and cohesiveness in the local community, this study concentrated on crime prevention in architecture. The six broad features of first-generation CPTED concepts—territoriality, surveillance, access control, image/maintenance, activity support, and target hardening—are further clarified by research conducted in 2005 [53].

VI. METHODOLOGY

Among the 64 neighbourhoods in New Mexico, this study has selected 10 neighbourhoods to streamline the CPTED assessment and examine the variance of crime per capita between the country and the selected locations (neighbourhoods) as seen in Figure 1.

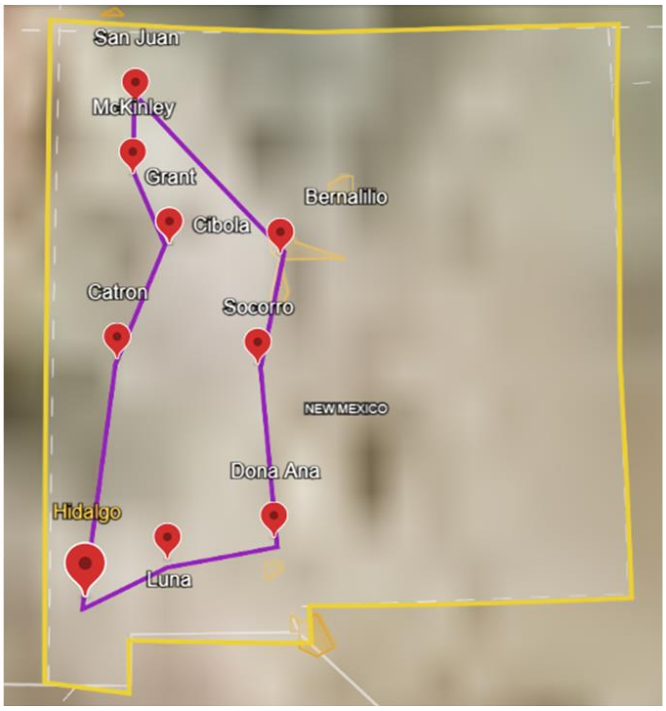

Figure 1. Selected Areas in New Mexico

The yellow polygon covers the New Mexico state area while the purple polygon with location drops covers selected counties for the CPTED Analysis herein.

Table 1 represents the selected counties, their topography and coordinates.

Locations	Coordinate
San Juan	$36^{0}_{40'00''N,}\ 108^{0}_{16'00''W}$
McKinley	$36^{0}_{01'27''N,}\ 108^{0}_{13'49''W}$
Grant	$36^{0}_{01'29''N,}\ 108^{0}_{16'20''W}$
Cibola	$35^{0}_{22'28''N,}\ 107^{0}_{54'18''W}$
Bernalilio	$35^{0}_{14'25''N,}\ 106^{0}_{36'05''W}$
Catron	$34^{0}_{21'18''N,}\ 108^{0}_{27'17''W}$
Socorro	$34^{0}_{17'20''N,}\ 106^{0}_{53'02''W}$
Hidalgo	$32^{0}_{20'31''N,}\ 108^{0}_{45'13''W}$
Dona Ana	$32^{0}_{42'47''N,}\ 106^{0}_{44'05''W}$
Luna	$32^{0}_{33'54''N,}\ 107^{0}_{50'34''W}$

Accompanying the coordinate representation above in Table 1 is the classification of spatial patterns of criminality in these counties. This becomes pertinent to evaluate how the architectural plan of these specified locations affects the level of criminality and security. This will also aid the understanding of the type of crimes dominant in each of the counties.

Table 2. Classification of Spatial Patterns of Criminality in Selected Counties in New Mexico according to the Uniform Crime Report (UCR) of the New Mexico Department of Public Safety (2020)

Location	Crime Frequency	Percentage
San Juan	236	6.08%
McKinley	1363	35%
Grant	171	4.4%
Cibola	216	5.6%
Bernalillo	361	9.3%
Catron	12	0.3%
Socorro	148	3.8%
Hidalgo	57	1.46%
Dona Ana	285	7.3%
Luna	1032	26.6%
10 Counties	**3881**	**100**

Table 3. Comparing Each Spatial Pattern of Counties' Criminality with the National Pattern

County	Crime Frequency	Percentage	National Crime Frequency	Percentage
San Juan	236	6.08%	369.8	100%
McKinley	1363	35%	369.8	100%
Grant	171	4.4%	369.8	100%
Cibola	216	5.6%	369.8	100%
Bernalillo	361	9.3%	369.8	100%
Catron	12	0.3%	369.8	100%
Socorro	148	3.8%	369.8	100%
Hidalgo	57	1.46%	369.8	100%
Dona Ana	285	7.3%	369.8	100%
Luna	1032	26.6%	369.8	100%

Table 4. Characterization of the Development of the Counties

County	Population Density	Development Level	Planning Status
San Juan	42,911	Orderly Developed	Planned
McKinley	73,200	Not Orderly Developed	Not Properly Planned
Grant	34,588	Developed	Planned
Cibola	38,879	Developed	Planned
Bernalillo	23,074	Not Orderly Developed	Not Properly Planned
Catron	3,725	Not Orderly Developed	Not Properly Planned
Socorro	18,258	Not Orderly Developed	Not Properly Planned
Hidalgo	8,273	Not Developed	Not Planned
Dona Ana	13,243	Not Orderly Developed	Not Properly Planned
Luna	39,278	Not Orderly Developed	Not Properly Planned

VII. ANALYSIS AND INTERPRETATION

Based on the information gathered above from Tables 1 to 4, it can be concluded that neighbourhoods with high rates of crime and violence are typically impoverished and disadvantaged, particularly those with high levels of poverty, poorly planned developments, and disorderly development, such as Luna, Bernalilio, and Hildago. Luna, Bernalillo, McKinley, and Hidalgo are seeing a rise in crime and insecurity, which appears to be related to the city's uncontrolled growth. These chosen areas either lack a master plan or have one that is outdated and badly executed, which encourages random physical development—that is, improper development—especially in the core's older, impoverished communities. Because of their social and economic circumstances as well as the physical features of their neighbourhoods, many city dwellers are consequently more susceptible to instances of crime and insecurity. Petty theft or stealing and housebreaking or burglary are common crimes in Catron, Cibola, Luna, Dona Ana, Hidalgo, Bernalillo, and Grant. Other crimes are almost nonexistent or extremely rare and include assault, armed robbery, auto theft/snatching, rape, kidnapping, and murder, among other crimes.

Therefore, it is crucial to comprehend how crime and architecture are related, especially in light of the growing evidence that traditional law enforcement tactics are, at most, only marginally successful in deterring crime [8]. Since there are far fewer cleared crimes than reported crimes in the state, the official security system in New Mexico is utterly unable to contain the state's security issues. The primary causes of this are the poor cartography and architectural design in some of these counties, which makes it difficult to combat crime effectively, and the degree of isolation in some areas, which makes it easier for criminals to get around security measures.

In conclusion, many sociologists and legal professionals respond by concentrating on the legal requirements without considering the limitations imposed by physical space. The architect's engagement with the sites (counties) marks the beginning of the architectural design process. At this stage, the qualified architect may start thinking about how to avoid crime when designing his project. It has been suggested by academics that areas that are more well-planned and organised are less likely to experience crime than neighbourhoods that are formed randomly. This is inextricably linked to the apparent widening of the wealth gap between the affluent and the poor in the income distribution.

VIII. LIMITATION OF THE STUDY

Although the research on using Crime Prevention Through Environmental Design (CPTED) concepts in New Mexico's metropolitan areas offers insightful information, it must be acknowledged that it has limitations. These restrictions might have an impact on the research's overall robustness as well as the findings' generalizability and dependability. The use of secondary data is the first drawback. There may be restrictions when using secondary data from the

New Mexico Department of Public Safety's Unified Crime Report (UCR). Among them are:

- Data Quality: The validity of the study's conclusions may be impacted by variations in the precision and dependability of crime data gathered by law enforcement organisations. Crime statistics can be affected by problems including inconsistent data collection techniques, misclassification, and underreporting.
- Scope and Coverage: There's a chance that the UCR data won't include every criminal incidence or offer comprehensive details on certain crimes, apprehension and clearance in regions, or demographics. This constraint may limit the study's capacity to evaluate the effects of CPTED principles in various circumstances and conduct a thorough analysis of crime trends. For example, focusing on specific neighbourhoods and excluding certain demographic groups could skew the results and limit the study's external validity.

However, the apparent correlation between CPTED principles and crime rates may be masked by the existence of confounding variables, such as socioeconomic position, population density, or law enforcement practices. If these factors are not sufficiently controlled for in the study, erroneous findings may result, necessitating more primary and in-person inspection of these neighbourhoods. Therefore, the study's inability to directly examine and contextualise the physical environment and crime trends has been hampered by its dependence on secondary data and earlier research.

To overcome these constraints, methodological strategies, data sources, and analytical tools must be carefully considered. Transparency in reporting and result interpretation is also essential. Despite these limitations, the study provides insightful information on the efficacy of CPTED in New Mexico's metropolitan surroundings, laying the groundwork for further research and legislative initiatives.

IX. RECOMMENDATION

There is no denying that CPTED has a big impact on a place's security and crime rate, however, primary data-gathering efforts should be included in the research to improve the study's validity and depth. Rather than relying on agency or departmental reports, conducting surveys, interviews, or field observations in particular metropolitan locations can yield useful insights regarding local perceptions of safety, community participation with CPTED principles, and the efficacy of certain environmental design components. Subsequent research can provide a more thorough knowledge of the intricate connections between urban design and crime by combining secondary data with first-hand observations and qualitative data.

Furthermore, even though the study concentrates on the structural elements of urban planning and crime prevention, socioeconomic considerations are critical in determining crime trends and community vulnerabilities. Subsequent studies have to contemplate including socioeconomic determinants, like income brackets, educational achievements, and job prospects, into the examination to investigate how these elements collaborate with environmental design elements to impact criminal behaviour consequences. The project aims to enhance the knowledge of crime dynamics in urban contexts by taking a more comprehensive approach that considers the interplay between physical, social, and economic elements. This approach will also influence the development of more equitable and inclusive crime prevention methods.

REFERENCES

[1] Piroozfar, P., Farr, E. R., Aboagye-Nimo, E., & Osei-Berchie, J. (2019). Crime prevention in urban spaces through environmental design: A critical UK perspective. *Cities*, *95*, 102411.

[2] Purpura, P. (2007). *Security and loss prevention: An introduction*. Butterworth-Heinemann.

[3] Davies, W. K. (Ed.). (2015). *Theme cities: Solutions for urban problems* (Vol. 112). Springer.

[4] Federal Bureau of Investigation (FBI) Crime Data Explorer (2012-2021) https://cde.ucr.cjis.gov/LATEST/webapp/#/pages/explorer/crime/crime-trend

[5] Rothrock, S. E. (2010). *Antiterrorism design and public safety: reconciling CPTED with the post-9/11 city* (Doctoral dissertation, Massachusetts Institute of Technology).

[6] Armitage, R. (2018). Burglars' take on crime prevention through environmental design (CPTED): Reconsidering the relevance from an offender perspective. *Security Journal*, *31*, 285-304.

[7] Corcoran, J., Zahnow, R., Wickes, R., & Hipp, J. (2018). Neighbourhood land use features, collective efficacy and local civic actions. *Urban Studies*, *55*(11), 2372-2390.

[8] Katyal, N. K. (2001). Architecture as crime control. *Yale Lj*, *111*, 1039.

[9] Perkins, D. D., Wandersman, A., Rich, R. C., & Taylor, R. B. (1993). The physical environment of street crime: Defensible space, territoriality and

incivilities. *Journal of Environmental Psychology*, *13*(1), 29-49.
[10] Shearing, C. D., & Stenning, P. C. (1983). Private security: implications for social control. *Social problems*, *30*(5), 493-506.
[11] Ellickson, R. C. (1995). Controlling chronic misconduct in city spaces: Of panhandlers, skid rows, and public-space zoning. *Yale LJ*, *105*, 1165.
[12] Katyal, N. (2005). Community self-help. *Journal of Economy & Policy*, *1*, 33.
[13] Jacobs, J. (2007). The uses of sidewalks: safety. In *Urban Design Reader* (pp. 147-152). Routledge.
[14] Tiesdell, S., & Oc, T. (1998). Beyond 'fortress' and 'panoptic'cities—Towards a safer urban public realm. *Environment and Planning B: Planning and Design*, *25*(5), 639-655.
[15] Marzbali, M. H., Abdullah, A., Ignatius, J., & Tilaki, M. J. M. (2016). Examining the effects of crime prevention through environmental design (CPTED) on Residential Burglary. *International Journal of Law, Crime and Justice*, *46*, 86-102.
[16] Barnes, J., Brown, L., Morris, A., & Stuttard, N. (2019). Research into the safety of London bus passengers. *London Travel Watch.* https://londontravelwatch.org.uk/
[17] Low, S., Taplin, D., & Scheld, S. (2005). *Rethinking urban parks: Public space and cultural diversity*. University of Texas Press.
[18] Fincher, R., & Jacobs, J. M. (Eds.). (1998). *Cities of difference*. Guilford Press.
[19] Jacobs, J. M. (2012). Urban geographies I: Still thinking cities relationally. *Progress in Human Geography*, *36*(3), 412-422.
[20] Stone, C. N., & Sanders, H. T. (Eds.). (1987). *The politics of urban development*. Studies in Government & Public.
[21] Laurence, P. L. (2006). The death and life of urban design: Jane Jacobs, The Rockefeller Foundation and the new research in urbanism, 1955–1965. *Journal of Urban Design*, *11*(2), 145-172.
[22] Laurence, P. L. (2017). The unknown Jane Jacobs: geographer, propagandist, city planning idealist. In *Reconsidering Jane Jacobs* (pp. 15-165). Routledge.
[23] Campanella, T. J. (2017). Jane Jacobs and the death and life of American planning. In *Reconsidering Jane Jacobs* (pp. 141-179). Routledge.
[24] Cervero, R., Guerra, E., & Al, S. (2017). *Beyond mobility: Planning cities for people and places*. Island Press.
[25] Hillier, B. (2007). *Space is the machine: a configurational theory of architecture*. Space Syntax.
[26] Wortley, R., & McFarlane, M. (2011). The role of territoriality in crime prevention: A field experiment. *Security Journal*, *24*, 149-156.
[27] Hempton, G., & Grossmann, J. (2009). *One square inch of silence: one man's search for natural silence in a noisy world*. Simon and Schuster.
[28] Fincher, R., Iveson, K., Leitner, H., & Preston, V. (2014). Planning in the multicultural city: Celebrating diversity or reinforcing difference?. *Progress in Planning*, *92*, 1-55.
[29] Erskine, R. (1982). Democratic architecture-the universal and useful art: projects and reflections. *Journal of the Royal Society of Arts*, *130*(5314), 642-659.
[30] van Cleempoel, K. (2020). Fidelity and Freedom in the Theory of Adaptive Reuse: Thinking with TS Eliot and Walter Benjamin. *Writingplace*, (4), 30-47.
[31] Banerjee, T., & Baer, W. C. (2013). *Beyond the neighborhood unit: Residential environments and public policy*. Springer Science & Business Media.
[32] Bilgin, P. (2005). Turkey's changing security discourses: The challenge of globalisation. *European Journal of Political Research*, *44*(1), 175-201.
[33] Casey, E. S., Chaston, I., Dimendberg, E., Gorton, M., Gulick, J., Hillier, J., ... & White, J. (1997). *Philosophy and geography II: the production of public space*. Rowman & Littlefield Publishers.
[34] White, R., & Sutton, A. (1995). Crime prevention, urban space and social exclusion. *The Australian and New Zealand journal of sociology*, *31*(1), 82-99.
[35] Imrie, R., & Hall, P. (2003). *Inclusive design: designing and developing accessible environments*. Taylor & Francis.
[36] Ziegler, E. H. (2007). American cities, urban planning, and place-based crime prevention. *Urb. Law.*, *39*, 859.
[37] Crowe, T., & Fennelly, L. J. (2013). *Crime prevention through environmental design*. Elsevier.
[38] Welsh, B. C., & Farrington, D. P. (2009). *Making public places safer: Surveillance and crime prevention*. Oxford University Press.
[39] Bloom, N. D. (2014). *Public housing that worked: New York in the twentieth century*. University of Pennsylvania Press.
[40] Peterson, P. E. (2012). *The price of federalism*. Rowman & Littlefield.
[41] Gomez Torres, J. (2020). *Environmental Crime Prevention and Urban Design in Public Spaces in Colombia* (Doctoral dissertation, ResearchSpace@ Auckland).
[42] Spaaij, R., & Schulenkorf, N. (2014). Cultivating safe space: Lessons for sport-for-development

projects and events. *Journal of Sport Management*, *28*(6), 633-645.

[43] Fein, J. (2024). *Slow Travel New Mexico: Unforgettable Personal Experiences in the Land of Enchantment*. University of New Mexico Press.

[44] Schiffer, D. (2019). Recent Violent Crime Dynamics and Spatial Patterns in Albuquerque, New Mexico.

[45] Edwards, R. (2019, November 22). 10 Safest Metro Cities in America. SafeWise. Retrieved from https://www.safewise.com/blog/safest-metro-cities/

[46] Stych, A. (2018, February 27). Why New Mexico struggles to rank higher in Best States ranking. Albuquerque Business First. Retrieved from https://www.bizjournals.com/albuquerque/news/2018/02/27/why-new-mexicostruggles-to-rank-higher-in-best.html

[47] Wilham, T. J. (2019, July 17). Violent crime skyrockets in cities who work with fed to curb police shootings. KOAT. KOAT. Retrieved from https://www.koat.com/article/violent-crime-skyrockets-in-cities-with-doj-consentdecrees/26347086

[48] Fieldstadt, E. (2019, March 11). The most dangerous cities in America, ranked. CBS News. CBS Interactive. Retrieved from https://www.cbsnews.com/pictures/themost-dangerous-cities-in-america/33/

[49] Dinelli, P. (2019, December 2). Mayor Keller "Cooking The Books" With "All That Stuff"; Keller and APD Chief Geier Looking Desperate With 4th Program In 9 Months; Time For Another Reorganization And A Few Terminations |. Pete Dinelli - 38 Albuquerque, New Mexico. PeteDinelli.com. Retrieved from https://www.petedinelli.com/2019/12/02/mayor-keller-cooking-the-books-with-allthat-stuff-keller-and-apd-chief-geier-looking-desperate-with-4th-program-in-9- months-time-for-another-reorganization/

[50] Cuff, D. (2000). *The provisional city: Los Angeles stories of architecture and urbanism*. Mit Press.

[51] Ozili, P. K. (2015). Forensic Accounting and Fraud: A Review of Literature and Policy Implications. *International Journal of Accounting and Economics Studies*, *3*(1), 63-68.

[52] Johnston, T. M., Brezina, T., & Crank, B. R. (2019). Agency, self-efficacy, and desistance from crime: An application of social cognitive theory. *Journal of Developmental and Life-Course Criminology*, *5*, 60-85.

[53] Cozens, P. M., Saville, G., & Hillier, D. (2005). Crime prevention through environmental design (CPTED): a review and modern bibliography. *Property management*, *23*(5), 328-356.