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EVALUATING SCHOOL SAFETY USING ENVIRONMENTAL DESIGN

By
Wade Denny Key, Jr.

A Dissertation Submitted to the
Gardner-Webb University School of Education
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Education

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Approval Page

This dissertation was submitted by Wade Denny Key, Jr. under the direction of the persons listed below. It was submitted to the Gardner-Webb University School of Education and approved in partial fulfillment of the requirements for the degree of Doctor of Education at Gardner-Webb University.

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Abstract

EVALUATING SCHOOL SAFETY USING ENVIRONMENTAL DESIGN. Key Jr., Wade Denny, 2021: Dissertation, Gardner-Webb University.

A case study was conducted to establish baseline data in determining the efficacy of the safety and security program at two rural high schools. Using a publicly available Likert scale survey provided by the Centers for Disease Control (CDC), district and school leaders were surveyed to determine their perceptions of safety and security on the two campuses. The adult subjects were subsequently interviewed to elicit deeper meaning behind their scores. A second survey was administered to former students to provide compare/contrast data. Utilizing the data from the surveys and interviews, the district was able to determine those things it is doing well as well as those areas in need or missing altogether from the safety and security program. Based on CDC scoring recommendations, each of the two campuses was determined to be safe for students and staff. The data from the surveys have informed the district regarding next steps for its safety and security program; however, the data are site-specific and are not intended to be used to compare the two schools—they only measure each location's unique program. The CDC survey is a valuable tool that can be used to measure safety and security on any school campus.

Keywords: crime prevention through environmental design, CPTED, natural surveillance, mechanical surveillance, territoriality, access control, safety and security, logic model, risk perception, risk theory

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Chapter 1: Introduction

Introduction

In the realm of public education, there is no more important duty than providing for the welfare and safety of our students. The National Association of School Psychologists (NASP, 2013) has done extensive research into studies concerning student well-being and asserted, “Safety is essential to student well-being and learning. Students who do not feel supported and safe at school, both physically and psychologically, cannot learn to their fullest potential” (p. 1). The purpose of this study was to conduct a program evaluation of the safety and security program of Southeastern County Schools (SCS). The data collected from this program evaluation will inform SCS as to those aspects it is doing well and the areas in which SCS needs to improve. Additionally, the data may provide guidance for other districts regarding assessment and implementation of environmental design strategies into their safety and security programs. The goal of the safety and security program is to provide a safe, secure campus for the students and staff while also maintaining a welcoming, secure environment. The following program evaluation provides evidence of how well this goal is being accomplished.

In light of the school tragedies that have taken place in recent decades and as part of the 2018-2019 budget process, the state of campus security in SCS was of significant concern. In determining the needs of its schools, it was important to also address concerns that were brought to the fore by the Marjory Stoneman Douglas High School shooting in Florida (February 2018). Though there was not a significant outcry, some members of the local community wanted to know what SCS was doing to address security on its campuses. As part of these discussions, an overwhelming need as seen by

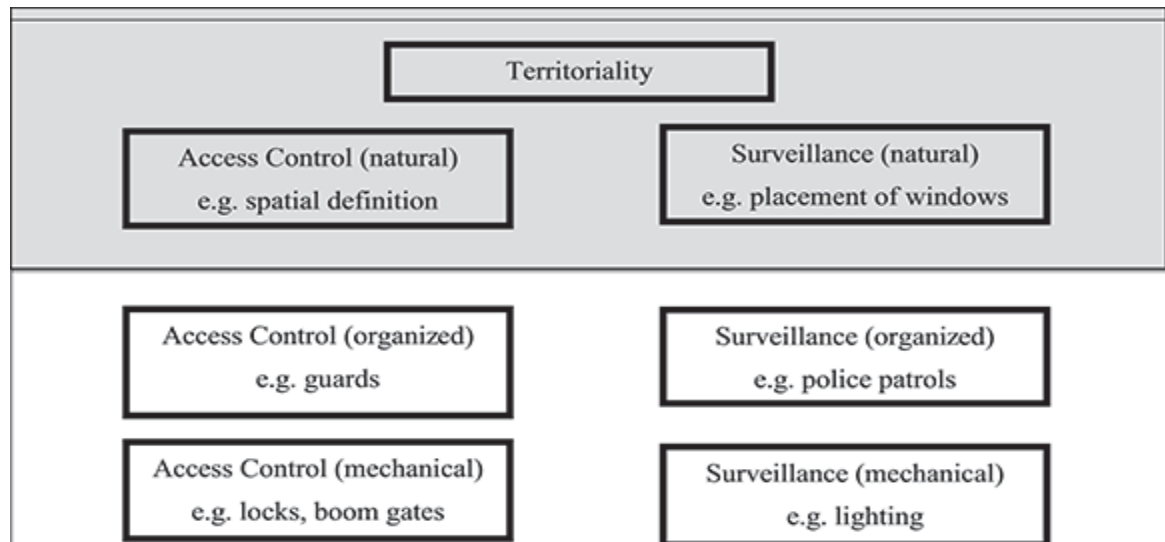
some of the district personnel was to address security at the LEA's high school campuses. This is also the area in which the county commissioners saw a need and subsequently allocated funds to begin addressing the concerns. Other than public opinion and specific knowledge of the campuses, a formal baseline analysis of campus security in the district had never been conducted. As such, a primary goal of this research was to establish a baseline for the current state of school and campus security for SCS. The baseline evaluation conducted herein should be used to inform the district's current state of campus safety and serve to inform the district of next steps in the evolution of its safety and security program.

To establish the baseline for SCS's safety and security program, this research utilized an assessment designed by the Centers for Disease Control (CDC). With permission from the CDC (see Appendix A), the Crime Prevention Through Environmental Design (CPTED) School Assessment (CSA; see Appendix B) survey was administered to school- and district-level personnel to obtain information concerning the current perception of security at the district's two high schools. CPTED, upon which the survey is based, involves using structural (walkways, signs) and environmental (landscape design) factors to design-in security and design-out opportunities for crime (Cozens & Love, 2017; Parnaby, 2006). The concepts involved in CPTED, to be elaborated on in Chapter 2, are based on increasing supervision and reinforcing a sense of ownership for the inhabitants without creating a fortress-like atmosphere (Cozens & Love, 2017).

The three essential facets of CPTED are natural surveillance, access control, and territoriality (Schneider, 2010). Natural surveillance is simply being able to observe or

supervise an area (Schneider, 2010). If areas are overgrown with landscaping, for example, sightlines are disrupted and supervision is compromised. Access control pertains to limiting the areas in which individuals or groups can enter a specific area or site (Schneider, 2010). Access control can be achieved through gates, card-control entry systems, and traffic patterns. Territoriality is simply the idea of establishing boundaries and the inhabitants' sense of ownership that is created within those demarcated areas (Schneider, 2010). Well-manicured grounds indicate to likely offenders that the inhabitants care about their space and are more likely to be monitoring or supervising an area.

In each of the three aforementioned CPTED concepts, there are mechanical, natural, and organized aspects. Natural surveillance is human, but mechanical surveillance utilizes devices such as cameras. Door and window hardware are mechanical access controls, whereas shrubbery and signage are passive and considered natural access control. Organized aspects of CPTED involve placing persons in the environment whose sole responsibility is to surveil the property (Cozens & Love, 2017; Schneider, 2010). Examples of organized control or surveillance are security guards or patrols. Figure 1 represents the concept of CPTED territoriality and the aspects involved with establishing and controlling a delineated area. Assessing the principles of CPTED will provide a baseline analysis of campus security at the two high schools and provide guidance to the district in designing future aspects of its safety and security program.

Figure 1*CPTED Principles*

Note. Taken from *The Dark Side of Crime Prevention Through Environmental Design* (Cozens & Love, 2017).

Overview of the Problem

School security enhancements are often implemented in reaction to an event or incident. As such, grants or local allocations are often provided to address needs based on these occurrences and, all too often, already limited school budgets are stretched even further (Brown, 2015). Rarely do these allocations take into account maintenance and replacement costs when systems or parts begin to fail (Brown, 2015). Ken Trump, the president of National School Safety and Security Services, stated, “Schools should be cautious not to add devices just for ‘security theater’—creating an illusion of security to make people feel safer” (Brown, 2015, para. 5). Even as a reaction to a major event, school districts need to exercise caution and explore multiple options before investing limited funds in security enhancements. Brown (2015) also added that technological security enhancements can be an asset as a deterrent or investigative tool, but districts

should not limit their focus to only technological enhancements.

Much of the reactionary nature to school security enhancements and grants or funding allocations is based on school shootings and the public's reaction to the heinous nature of some of these events (Schwartz et al., 2016; Warnick et al., 2018). It bears noting that although school shootings are particularly devastating in nature, they are rare. In a July 2017 report published by the National Institute of Justice (NIJ), from 1992 to 2013, crime in K-12 public schools decreased on the national level. As indicated in Table 1, total victimization rates and violent victimization rates both declined significantly over that time period.

Table 1

National Student Victimization Rates Comparison

	Total student victimization rate	Violent student victimization rate
1999	181/1000	68/1000
2013	55/1000	37/1000

Note. Taken from NIJ Summary of School Safety Statistics (Carlton, 2017).

Since 1998, the National Center for Education Statistics (NCES) has released a yearly report titled *Indicators of School Crime and Safety*. The 2017 report, published in March 2018, acknowledged, “Our nation’s schools should be safe havens for teaching and learning free of crime and violence” (Musu-Gillette et al., 2018, p. iii). The report proceeded to state, however, that the only true way to effectively address school crime and victimization is to have an accurate picture of data related to the extent and nature of the problem (Musu-Gillette et al., 2018). The trend data, in light of exposure garnered by extreme, isolated events, show that school crime victimization is actually on the decline

(Carlton, 2017; Musu-Gillette et al., 2018). Although most of the summarized data are comprised of 2015-2016 information due to data collection sources and timeliness of reporting, among the more notable aspects of the Musu-Gillette et al. (2018) report are the following:

- Nationwide, there were 47 student, staff, and non-student deaths, which included 17 suicides and two legal intervention deaths.
- Of the 1,168 homicides of school-age youth, 20 occurred at school.
- Students aged 12-18 experienced 749,900 victimizations (theft and non-fatal violence) at school, which is a ratio of 29 incidents per 1,000 students (38:1000 for males, 20:1000 for females).

To support the information gleaned from the Musu-Gillette et al. (2018) report, the NIJ also reports on school crime statistics, and their findings are similar. Overall, the NIJ asserts that crime at U.S. public schools is on the decline. Admittedly, “high-profile incidents of violence have...raised concerns about the safety of students” (Carlton, 2017, p. 1), and this has influenced the public perception of what is actually occurring in public schools. As is typical of the reaction to school shootings and a trend noted by other researchers, school officials and the public tend to be more focused on shootings than other types of school crime. As a result, since the Columbine shooting in 1999, schools have significantly increased their use of visible security measures such as closed-circuit cameras, locked doors, and resource officers (Kennedy, 2016). The data analyzed by NIJ tell an interesting story; however, regarding staff supervision and locker checks, these security measures have increased little, if any, during this same time period (NIJ, 2017).

Statement of the Problem

SCS is a small, rural school district located in northwest North Carolina. There are approximately 5,600 students attending 14 schools (eight elementary, two middle, two high, one early college, one alternative). There are two high schools in Southeastern County, Eastern High School (EHS; Appendix C) and Western High School (WHS; Appendix D), that serve a combined average daily membership of approximately 1,500 students. Both high schools were initially completed and opened in 1967, and all of their original facilities are still in use with a few additions. The county in which they are located has four incorporated towns: two feeding EHS and two feeding WHS. EHS, at 165,000 square feet, houses approximately 900 students; while WHS, at 145,000 square feet, is attended by approximately 600 students.

When the high schools were originally constructed, their layouts were very similar. The original design had five separate buildings around a central courtyard. The buildings were connected by a covered walkway that encircled the perimeter of the courtyard. There have been additional buildings constructed at each site since 1967 to accommodate growing enrollment numbers; however, there are no immediate plans to add more structures due to declining enrollment trends. Both schools have large student parking lots that are located between the school buildings and the main roads on which they are located. The athletic fields are located adjacent to the buildings and student parking, with only one field at EHS not immediately accessible from parking areas or a primary campus building.

A unique element of the design of the two schools is that the main office is located in the building furthest from the road (see Appendices C and D for office

locations); therefore, most times of the day there is little adult supervision on the front of the campus. A School Resource Officer (SRO) works out of each school, but their workspaces are also located on the rear of the campuses so they are close to the administrative offices. Visitors often drive around to the rear of the school when trying to reach the offices, even though there is designated visitor parking located on the front of the campuses next to the school buildings.

Combined with the locations for the administrative offices, the visitor parking has created cause for concern in recent years. With scant supervision on the front of the campus, visitors who use the designated parking at the front of the campus then walk past occupied school buildings and across a courtyard before their presence is known. At certain times of the school day, this often puts visitors in close contact with students long before administrators or other staff members may be aware of their presence.

At the March 2018 local board meeting, which was held 2 weeks after the shooting at Marjory Stoneman Douglas High School in Florida, one of the board members referred to the district's high schools as an "easy target" (Anonymous, personal communication, March 5, 2018). The SCS superintendent mentioned specifically the idea that our campuses are open, the adults are in the back and the students in the front, and there are multiple buildings. A second board member explained how he had visited one of the campuses and walked around for several minutes before an adult acknowledged his presence. The prospect of this occurring with someone who had ill intentions caused him to question what more could be done to secure our campuses. A secondary concern expressed by the board member was how vulnerable the student body could be during break time or class changes when there are significant numbers of students in the

courtyard. These students, he felt, were “fish in a barrel,” and the district should begin investigating ways to more closely monitor, or altogether close, the courtyard.

In examining the appendices, it is worth noting that there are multiple entrances into each of the high schools. WHS (Appendix D) has two entrances from the main road to the south and a separate entrance north of the football field from a side road. EHS (Appendix C) has even more complex access points: a driveway on the western edge of the campus from the main road to the north and a second shared driveway accessed from the north on the eastern edge of campus. The eastern driveway is shared with the middle school to the immediate east. There is also a short driveway that accesses a separate student parking lot from the north and a third access point from the eastern side of the middle school (not shown in Appendix C) that allows access to the rear of the high school campus. To further complicate matters at EHS, there is a secondary student parking lot that does not use any of the aforementioned access points, instead relying on a single entrance off of the main road. It bears noting that the secondary student lot does not have direct vehicular access to the physical school facilities. Combined, there are seven access points between the two schools, each of which has historically been open and accessible before, during, and after school.

SCS elementary and middle school campuses are largely single or connected buildings. In the instance of a stand-alone structure, the district’s safety protocol stipulates that exterior doors remain locked at all times. The elementary schools have had buzz-in systems for the past few years, and these same systems were installed in the middle schools in August 2018. Buzz-in systems allow exterior doors to be locked so visitors enter only when “buzzed in” by an adult staff member. The high schools,

however, are a different world altogether. Locking the exterior doors is not an option at this time because high school involves frequent class changes and freedom of movement not necessitated at the other schools. The exterior doors that open onto the central courtyard are unlocked during the hours the schools are in operation, while the exterior doors that open to the perimeter of the campuses are to remain locked. If the high schools had card entry systems, it would be possible to keep all doors locked during the school day. This option, however, has been investigated and determined to be cost-prohibitive.

Local Area of Concern

Looking at Table 2, based on school environment statistics taken from the 2016-2017 North Carolina School Report Cards, SCS's two high schools are not violent or dangerous as compared to other high schools in the state. The 2016-2017 state average for criminal acts per 100 students was 1.21. EHS and WHS both came in well under the state average: 0.0 and .70 per 100 students respectively. Further, for the same year, the state average for short-term expulsions was 17.75 per 100 students. Again, EHS and WHS were both well below the state average with 9.42 and 3.65 per 100 students. Neither school had long-term suspensions or expulsions for 2016-2017.

Table 2

2016-2017 LEA School Environment Statistics (Per 100 Students)

	Criminal acts	Short-term suspensions	Long-term suspensions	Expulsions
EHS	0	9.42	0	0
WHS	.70	3.65	0	0
Local LEA	.24	6.22	0	0
State Data	1.21	17.75	.09	0

This does not mean, however, that the district is willing to take a wait-and-see

approach to address monitoring or security issues. The campuses are large and designed based on an open concept, which has been acknowledged by the superintendent and school board during open comments during at least two board meetings, but the district and its board members want the campuses to continue to be welcoming to visitors, students, and the school community at large. Erickson (2010) stated that campuses “must be both secure and welcoming” (Secure, Yet Welcoming section, para. 1), and it is very important that the district also acknowledge this aspect as it attempts to enhance supervision and security on the two high school campuses. As a second board member stated at the March 2018 meeting, he is “willing to listen to all ideas and while nothing would be 100% effective, we can try to prevent tragedies the best we can” (Anonymous, personal communication, March 5, 2018).

As part of the 2018-2019 capital outlay budget request, the local board of education requested funding from the commissioners to construct or modify structures on the two high school campuses. The primary function of these structures was to house an adult who could provide supervision at the main points of entry for each campus. Funds were subsequently allocated to provide structures on the front of the high school campuses, and they were put into service in August 2018.

The next issue was to determine who would occupy the structures. When the campus monitoring position was first discussed, the superintendent was presented with the option of stationing the SROs inside the monitoring stations. This same scenario was presented to the principals, but they were not in favor of this idea. They view the officers as deterrents and prefer they be among the students when possible. The district eventually agreed to utilize classified part-time personnel already in the system to work in the

monitoring stations. With construction of the structures and authorization of the personnel, two facets of CPTED were immediately addressed: natural surveillance and access control.

To assist the monitors, and once most students have arrived on campus, custodians lock gates on all the secondary entrances (see Appendices C and D). During school operating hours, all traffic accesses the campuses from a single entrance instead of having multiple options. This also assists in keeping track of students who are entering or leaving campus throughout the school day. Before dismissal, the custodians unlock all the gates to aid in the flow of traffic leaving campus. In designing this protocol, the district has been very careful not to interrupt the flow of traffic onto campus so student drop-off and pickup procedures could remain largely unchanged.

The monitor is going to be the first individual students and visitors encounter upon entering either high school campus. It is not the expectation of SCS that the monitoring personnel have enforcement duties, as these responsibilities are the domain of school administration and the SROs. Summarized from the SCS superintendent's campus safety and guard buildings presentation from August 2018 (see Appendix E), a simplified checklist of the monitors' duties and expectations are as follows:

- Stop and greet all vehicles and persons who enter the high school campuses between 8 a.m. and 3 p.m.
- Ask the identity of the individual(s), their purpose, and direct them to the appropriate location.
- Advise the office via radio of the identity, purpose, and location of the visitors.

- Monitor foot traffic outside the perimeter of the school buildings, especially in the front parking lots, and notify the office of individuals outside of that perimeter.

Once the visitor's presence has been communicated to the office, the specific duties of the monitoring personnel essentially cease, and it becomes the responsibility of the school-based administrative staff or SRO to be aware of visitors and provide further assistance. As part of the training, monitors have also been provided with guidelines and information concerning the district's emergency and lockdown procedures. For their respective schools, they are the early warning system should they detect someone who may be determined to have ill intent or otherwise should not be present on the campuses.

SCS Safety and Security Program

A crucial step in creating a safety and security program was to transfer coordination of electronic surveillance responsibilities to the Safe Schools coordinator. The Safe Schools coordinator is paid through at-risk funds and was an existing position within the school system. In preceding years, SCS contracted for security services through a third-party dealer/installer. Beginning with the 2018-2019 school year, SCS took ownership of these systems at an immediate cost savings and turned them over to the Safe Schools coordinator. The Safe Schools coordinator is also responsible for monitoring and maintaining emergency procedures for threats, lockdowns, evacuations, and natural disasters; however, these are not at the core of this program evaluation. As it pertains to this study, the Safe Schools coordinator is responsible for updating and maintaining

the electronic fire and security systems.

The funding for updating the electronic systems came from cost savings due to eliminating the third-party monitoring contract and the security allotment from the 2018-2019 buildings and grounds allocation. There were no special funds set aside for electronic security due to the timing of the program's start; therefore, the initial security contract allocation from buildings and grounds local funds, totaling \$34,000, was utilized to enter into a direct monitoring contract and begin replacing surveillance equipment at some of the elementary schools. Natural and organized surveillance are fundamental aspects of CPTED, and SCS's goal of updating digital surveillance equipment to improve supervision is central to this concept.

Since this evaluation is dealing specifically with SCS's two high schools, a second resource utilized for the safety and security program was to modify two structures at each high school to enhance supervision at the front of the campuses. Fifteen thousand dollars were earmarked through 2018-2019 capital outlay expenses to modify existing structures, and these modifications were completed in time for the respective school year. Personnel then had to be provided to monitor the campuses. The decision was made to utilize existing part-time classified SCS personnel as campus monitors. To eliminate overtime, the workday is divided in half, evenly split between the two personnel at each campus. The total shift runs from 8 a.m. to 3 p.m. each school day, with the shift change occurring at 11:30 a.m.

The position pays \$12.50 per hour for a system-wide total of \$175 per day in wages paid. This will culminate in a total expenditure of \$29,400 for the 2018-2019 academic year. The monitors were also provided job-appropriate clothing, signage, and two-way radios at minimal cost, comparatively speaking. In concert with site-based administrators and SROs, each of the monitoring personnel received training regarding expectations, roles and responsibilities, and emergency procedures. Placing individuals in areas that were previously poorly supervised applies to the CPTED principle of natural surveillance. Combined with mechanical access control, locking secondary entrance gates in this instance, SCS has demonstrated utilization of natural and organized CPTED concepts to help secure the two high school campuses.

There are other CPTED-based goals for the SCS safety and security program; but due to budgetary constraints, they have not been implemented at the high schools. Of the steps listed below, many have been completed, while others are noted as being “in process.” A complete list of safety and security enhancements are as follows:

High schools only

- Manned monitoring stations
- Directional signage and location-specific signage for offices, buildings, and athletics facilities

All schools

- Bring camera/security systems “in-house”
- Upgrade security communicators—convert from landline to internet protocol (IP)
- Upgrade camera systems (in process)

- Modify landscaping to meet CPTED guidelines (in process)
- Streamline window and door hardware, simplify keying protocol (in process)
- Control access to property with locked gates during school hours
- Number windows so classrooms can be identified from outside the buildings (in process)

K-8 only

- Buzz-in monitoring systems (complete)
- All exterior doors locked during school day (standard SCS protocol)

Each of the aforementioned principles is grounded in CPTED ideology, specifically towards increasing supervision and controlling access to the schools and grounds. The goal for SCS is to fully implement each facet of the safety and security plan by the end of the 2020-2021 academic year. For the 2018-2019 school year, SCS only received \$.26/square foot for capital outlay expenses, so expedited implementation was not an option.

Purpose of the Study

A central aspect of security that is included in this program evaluation is focused on establishing a baseline analysis of adult supervision as it pertains to two rural high school campuses. Updating the existing security camera systems and creating clear sightlines around campus are two measures through which the district is planning to address adult supervision. Installing high-resolution, cloud-based cameras and controlling landscaping will mitigate “hiding places” and allow the adults on campus to see what is going on around them.

A second element included in the study is to control access to the campuses. Access is being controlled by securing gates at all secondary entrances so visitors and other members of the school communities are guided through a primary entrance. In addition to securing gates, additional signage—both directional and territorial—has been installed to assist visitors and guide them to the appropriate locations (e.g., main office, athletics facilities). As a result of these measures, an outcome of enhanced security the district is hoping to achieve is to make the campuses more secure, while also being careful not to affect the perception of the campuses as inviting, nurturing places of learning.

Research Questions

When enhancements have been considered, schools must acknowledge the public's perception when safety measures are being discussed or implemented. In concert with Erickson (2010), SCS is investing in enhanced security while also striving to maintain welcoming campuses for the immediate school community and the general public. A review of the literature demonstrates that there is such a thing as too much security, especially regarding mechanical security measures. Through utilizing the CDC CPTED security assessment, this evaluation is going to attempt to gauge staff and community perceptions as they pertain to measures already in place at the district's high schools. These perceptions will include evaluating mechanical and natural security measures, as well as the physical environment of each campus. Through establishing a baseline for security at the two high school campuses, this safety and security program baseline evaluation has attempted to answer the following questions:

1. Based on the principles of CPTED, how safe are the two high school

campuses?

2. Based on CPTED principles, in what areas (mechanical or natural) is SCS adequately implementing an effective safety and security program?
3. Based on CPTED principles, in what areas (mechanical or natural) does SCS need to improve its safety and security program?

Chapter 2: Literature Review

Does School Safety Matter?

According to the Readiness and Emergency Management for Schools Technical Assistance Center (REMS, 2018), operating under contract with the United States Department of Education, school safety matters to all members of a school community. Perceptions of school safety affect staff retention and parent satisfaction with their child's school or district (REMS, 2018). REMS even suggested that perceived safety may have a greater impact than actual safety in terms of enhancing academic achievement among students, implying that "when students feel safe, they are better able to focus on learning" (para. 1). The physical and emotional benefits of being comfortable in the school setting are critical in determining the conditions under which children learn best (REMS, 2018).

Even more revealing in student perceptions of safety, data quoted in the REMS (2018) report from NCES demonstrates that the parents of homeschooled children cite the school environment (perceived safety and culture) in 91% of their responses when asked why they homeschool. Of those, 25% list the school environment as their number one factor in deciding whether to attend public school or to homeschool their children (REMS, 2018). Also quoted in the REMS report was a study of New York City Schools in which safety was determined to be the most strongly connected factor in student academic performance. NCES confirmed the link between student perceptions of safety and academic achievement; however, NCES also noted that of those students who reported feeling safe at schools, 93.5% also reported having an adult at school who they believed cared about them (Musu-Gillette et al., 2018).

Does Enhanced Security Work?

School safety is making national headlines in today's media and often for the wrong reasons. The knee-jerk reaction of schools and organizations is to implement new measures or beef up existing measures to assuage the public perception of safety in schools (Schwartz et al., 2016; Warnick et al., 2018). As part of this reaction, federal and state grants often provide one-time funds for enhancing and improving security measures, but these measures are rarely funded forward to account for maintenance or training and mostly serve only to limit hysteria. Tanner-Smith et al. (2018) added, "To prevent crime and violence, many U.S. schools have increased their use of visible security measures such as security personnel, cameras, and metal detectors" (p. 104). Warnick et al. (2018) further added that the "target hardening" (para. 6) approach that is so often a reaction to a violent incident may exacerbate violence instead of preventing it.

A review of the literature indicates measures that can be taken to enhance school security, but it also delves into the perceptions of students and staff regarding school security and safety. Reingle Gonzalez et al. (2016) pointed out that there are two types of security on school campuses: actual and perceived. In discussing the role of the SRO on school campuses, Reingle Gonzalez et al. stated that as security measures are enhanced—the addition of SROs in this instance—the perceived security is viewed as a positive by school staff. Students, on the other hand, tend to perceive the additional officers as a negative because, in their view, the officers are only being added as a reaction to a need. Warnick et al. (2018) explained, "Filling schools with metal detectors, surveillance cameras, police officers and gun-wielding teachers tells students that schools are scary, dangerous and violent places—places where violence is expected to occur" (para. 7). In

essence, student perceptions of enhanced security measures are not having the intended effect of making them feel safer. The conclusion from Reingle Gonzalez et al., based on an analysis of prior research, indicated,

Implementation of more security measures may not be an effective policy, as results almost uniformly suggest that the presence of more structural safety measures (e.g., more cameras, video recorders, metal detectors, and/or SROs, among others) results in a decline of student-perceived safety. (p. 450)

As the previous statement shows, Reingle Gonzalez et al. asserted this is the view generally held by students regardless of the structural security measure in question.

A second interesting perceptual outcome of target hardening is that teachers may change how they view students (Warnick et al., 2018). Instead of being children to educate and “nourish,” teachers may begin to view “students as threats to be assessed” (Warnick et al., 2018, para. 7), which can have significant educational implications. This perceptual shift among staff and students can have disastrous consequences for academic and social/emotional outcomes and needs to be avoided where possible.

Tanner-Smith et al. (2018) analyzed multiple studies regarding enhanced security measures and indicated that enhanced measures are not a deterrent to violent incidents but may increase the likelihood of those incidents occurring. Increasing safety measures at schools is typically a blend of several measures that increase supervision but may not alter the behaviors they were put in place to monitor. On the contrary, Tanner-Smith et al.’s research analyses revealed the following:

Overall, the results indicated that some patterns of school security utilization were associated with increased exposure to crime and violence at school. We found no

evidence that any pattern of visible security measure utilization was consistently associated with reduced exposure to crime or violence at school. (p. 113)

It bears noting that even though the findings revealed an increase in exposure to violent incidents, Tanner-Smith et al. failed to determine whether this was the result of increased supervision from the security measures put in place or an actual exacerbation of antisocial or aggressive behaviors from the students. From the standpoint of Tanner-Smith et al.'s analysis, it could be argued that the security measures were serving one of the functions for which they were put into place—to detect problems—but it does not appear they were much of a deterrent.

Programmatic Approach to School Safety

Though dated, a 2005 study by Ron et al. recommended a programmatic approach to enhancing safety in schools. Ron et al. approached safety from a best-fit standpoint while noting that concrete measures (more cameras, more personnel, metal detectors) were one-size-fits-all and may not be the best option for many schools or districts. One of the many programs rated as effective by the National Association of Social Workers is the Seattle Social Development Project. This cohort project, begun in 1981, follows children from first through 12th grades and includes parents and families in program design and implementation. It is tailored to meet the needs of individual students and their families as they progress through school. The program addresses antisocial and aggressive behaviors while simultaneously trying to build attachments to the school. Based on self-reported data, the program was shown to be highly effective at all grade levels and is still in use today. Many of the programs outlined by Ron et al. are intervention-based and have the following common characteristics:

- Raise awareness of responsibility of students, teachers, and parents regarding the types of violence in their schools
- Create clear guidelines and rules for the entire school
- Target the various social systems in the school and clearly communicate to the entire school community procedures to be followed before, during, and after violent events
- Focus on getting school staff, students, and parents involved in the program
- The interventions fit into the normal flow and mission of the school
- Use faculty, staff, and parents in the school setting to plan, implement, and sustain the program
- Increase monitoring and supervision in non-classroom areas

As can be noted in the common characteristics above, the staff are trained in how to work with the events, students, and parents; but more importantly, the parents themselves play a pivotal role in developing and sustaining this meaningful program.

The Role of Adult Supervision in School Safety

Educators assume a legal requirement to supervise students when they take their job; however, it warrants mention that few educators consider the process of supervision as anything more than a rote task for the role they hold (Bliesner & Armes, 2017).

Parents, on the other hand, expect schools to provide a level of supervision that is similar to what is provided in the home. Educators serve students in the absence of the parent—“in loco parentis” —and, as such, have a legal obligation to provide a modicum of supervision (Bliesner & Armes, 2017). As bullying and harassment issues have continued to rise, so have the obligations of the academic environment within which teachers work. The

demands of teacher roles, combined with the public's focus on bullying, harassment, and other school issues, have forced teachers and school districts to rely on "both the presence of 'generally good kids' and a historic lack of problems" (Bliesner & Armes, 2017, para. 10).

The convergence of academic demands, tragedies in the national spotlight, and the prevalence of increased claims of bullying and harassment have increased liability for school districts and educators alike (Bliesner & Armes, 2017; Russo, 2014). Litigation has increased the pressure on districts and personnel to adequately supervise students and be "reasonably" aware of anticipated harm. The litmus test generally applied by courts is that an educator should provide better care than a reasonable adult but less than a reasonable parent (Russo, 2014). If a tragedy or other incident should occur, this delineation creates a tremendous burden for school districts that fail to supervise their students accordingly or do not address harms that any other individual could reasonably foresee (Russo, 2014).

For schools that are trying to determine the appropriate level of supervision for a given area or activity, they need only ask themselves if the supervision they have applied is defensible in court (Bliesner & Armes, 2017). Many schools and districts rely on surveillance equipment to provide this supervision for their campuses, yet cameras often only provide a record of an event or incident that has already occurred (Schwartz et al., 2016). Adequate supervision of students, however demanding on the profession, is a measure that costs nothing but can prevent incidents from happening in the first place (Bliesner & Armes, 2017).

General supervision is a standard that should be applied any time students are in

buildings (Bliesner & Armes, 2017), and this refrain has been reiterated in SCS district leadership meetings. Before, during, or after school, this level of supervision should apply. Professional expectations are also growing, and when this occurs, other teacher responsibilities may become less of a priority. The balancing act of demands, in turn, “exacerbates the challenges of effective supervision” (Bliesner & Armes, 2017, para. 9). Several factors play a role in sufficient supervision; among those factors are having an adequate emergency plan in place (Essex, 2012), knowing which areas may promote disruptive behavior (Bliesner & Armes, 2017; Essex, 2012), and knowing when to recognize the need for more supervision or intervention (Essex, 2012). Essex (2012) stated further that there are two questions any school employee should ask themselves to determine if their own efforts are sufficient:

1. Can your supervision be reasonably defended to the parent or guardian of an injured student?
2. Can your supervision be defended in court?

For these reasons, the design of school campuses must be modified and enhanced to facilitate adequate supervision from all the adults on campus (Russo, 2014).

Secure School Components

The immediate school community and the public at-large need to know that districts take the security needs of their schools seriously and that they are doing everything within reason to protect every community’s most valuable asset, the students (NASP, 2013). Erickson (2010) noted several security measures schools can use to address safety and security. Appropriately, the measures outlined by Erickson are not intrusive and fall within the findings established in the literature that has been reviewed

so far. In particular, Erickson embraced an approach called CPTED, in which the built environment enhances security without being intrusive or burdensome. Among Erickson's recommendations were

- A welcoming site entrance with appropriate signage
- Easily identifiable vehicular and pedestrian pathways to route visitors toward designated areas
- Designated and ample visitor parking
- A well-marked main entrance to the building(s)

There are other design aspects noted by Erickson (2010) that affect the building envelope without, again, being intrusive. Erickson repeated the theme of planning throughout his article, stating specifically, "Committees creating strategic plans...are critical for healthy learning environments, and [they] try to identify facilities improvements that achieve that goal" (para. 2). Controlled entrances, high-definition cameras (not more cameras), low-height lockers, and proper maintenance of door and window hardware are among the list of suggestions Erickson made for incorporating security measures into the built environment. Each of these measures can be incorporated into a school's safety plan and design without making students feel as though they are being constantly monitored, providing the secure and welcoming environment Erickson espoused as necessary for learning.

Spicer (2017) built on the CPTED concept and advocated utilizing the built environment to enhance security using natural surveillance and access control. An element of CPTED Spicer believed is critical to security is "territoriality," which is a "clear delineation of space [that] creates a sense of ownership for legitimate users"

(Territoriality section, para. 1). The idea of territoriality clearly marks areas, but Spicer did not recommend erecting barriers to do so. Instead, Spicer advocated for the utilization of walkways, shrubbery, and controlled entrances to create the barrier. These less-intrusive barriers create natural patterns of campus egress and ingress that legitimate users acknowledge and identify those persons not using them properly as individuals who may not need to be on campus (Spicer, 2017). “Situational awareness” is another idea shared by Spicer and Erickson (2010). There is no replacement for active, responsive adult supervision because, as Spicer elaborated, “You cannot change that he is coming, but you can determine when you observe his intent” (Situational Awareness section, para. 2).

The website for the North Carolina Department of Public Safety (NCDPS, n.d.) has a page devoted to CPTED concepts. Specifically, NCDPS lists natural surveillance, natural access control, and territorial reinforcement as instrumental concepts in environmental design. NCDPS developed these concepts further into the three Ds:

- Designation—All space has a designated purpose
 - Does the designated purpose match the intended purpose?
- Definition—The space and how it is defined also define the acceptable behaviors
 - Is the space clearly defined?
 - Is it easy to tell who owns the space?
 - Are there any signs noting territorial or behavioral expectations (i.e., Do Not Enter)?
- Design—Space is designed to support or control behaviors

- Is there confusion between the design and the behaviors?
- Does the space support the desired behaviors?

According to the International CPTED Association's website, CPTED is a concept that was coined in the 1970s by C. Ray Jeffery. The International CPTED Association continued by defining CPTED as,

A multi-disciplinary approach for reducing crime through urban and environmental design and the management and use of built environments. CPTED strategies aim to reduce victimization, deter offender decisions that precede criminal acts, and build a sense of community among inhabitants so they can gain territorial control of areas and reduce opportunities for crime and fear of crime. (para. 1)

Initially designed for urban planning and law enforcement agencies to deter urban crime, CPTED concepts have found themselves becoming more prevalent in many other settings due to the relatively low cost of implementation as compared to more mechanical security measures (Sutton, 2016). Also referred to as “designing out crime,” CPTED is a site-based security implementation program that can be tailored to meet the needs of each unique space in which the principles are applied (Lasky, 2013; Reynald, 2011) while avoiding the fortress-like characteristics of many other security enhancements. The hallmark of CPTED is that it is built around crime prevention instead of being a reaction to an event or incident.

The three primary facets of CPTED are natural surveillance, access control, and territoriality (see Figure 1). Natural surveillance simply means the ability to see what is going on. The surveillance is “natural” because it is creating a physical environment that

is easily observable by its inhabitants. Eliminating secondary access points to buildings, moving furniture so those access points are more visible to school personnel, or eliminating viewing obstructions are examples of increasing natural surveillance (Schneider, 2010).

Access control pertains to determining who does and does not have access to your school. To state the definition more simply, “The fewer the entry points, the less pressure the school is under to try to staff them” (Schneider, 2010, Access Control section, para. 4). Access control also pertains to ensuring properly operating door and window hardware is installed in the school. Though most access points should remain locked, egress is also vital in the event of an emergency, and improperly operating door and window hardware makes points more difficult to lock and unlock if an incident were to occur (Schneider, 2010, Access Control section, para. 5).

The third concept addressed by Schneider (2010) is territoriality. Territoriality is establishing clear boundaries that denote ownership. Proper signage that directs visitors to the appropriate location is one example of territoriality. Fences, shrubbery, and sidewalks also help establish the concept of territoriality by clearly defining appropriate areas and ownership. To clearly establish territoriality, maintenance is critical because “any unkempt part of the campus sends a message that no one is particularly concerned about or possessive of that part of the school” (Schneider, 2010, Territoriality and Maintenance section, para. 3).

Perceptions of Security

There is a balance that must be achieved in security enhancement implementation. Dorn et al. (2014) reiterated a common idea prevalent in creating safe schools: Schools

are places of learning, even after safety and security measures are implemented. A positive school environment becomes a part of school security as the citizens of the school community become more connected to the buildings (Dorn et al., 2014). As pressure increases from random, targeted acts of violence in schools, the public and, at times, government entities want to see security measures beefed up (Warnick et al., 2018). Research tells us, however, that this may have a negative effect on those inside the buildings.

Target hardening has the unintended effect of changing how teachers, students, and administrators view one another, which has important consequences for educational outcomes (Warnick et al., 2018). We have established that schools are places that should facilitate learning; but as we design safety and security into our school buildings, we must be careful not to inhibit the educational process while also reinforcing to the school community that their safety is a priority (Dorn et al., 2014; Kennedy, 2003; Warnick et al., 2018).

REMS (2018) noted that student perceptions of safety may be more impactful on academic outcomes than actual safety. Utilizing measures that are nonintrusive (cameras, locked doors) has less of an impact on achievement due to minimal interaction with students (Perumean-Chaney & Sutton, 2013). A combination of layered security factors may be more effective in reducing the potential for offenses to occur, but they also can have the unintended consequence of making students feel less safe (Perumean-Chaney & Sutton, 2013). As schools determine which measures to incorporate into their safety and security planning, they must be careful not to design places where there becomes an expectation of violence (Warnick et al., 2018). Fennelly and Perry (2014) more

succinctly made this point by stating, “Students must be safe without feeling as if they are in a prison” (p 14).

Theories of Security

Smith and Brooks (2013) asserted that the term “security” lacks the required body of knowledge to be classified as a discipline. This is not attributable to a lack of knowledge, per se, but to the fact that security is “cross-disciplined” and encompasses knowledge from many different fields. Further, Smith and Brooks stated that the concept of security has multiple definitions and is ever-evolving. Security is, by its nature, lacking in theories due to the multi-faceted manners in which it is applied: personal, organizational, national, and international (Smith & Brooks, 2013). The commonality in security research is that it is a “human characteristic that is objective, perceived, expected, and demanded by people” (Smith & Brooks, 2013, p. 2), no matter the form in which it is applied. A second admission is that it will involve the protection of some asset, which is determined by the organizational level to which security is applied. The idea of asset protection, according to Smith and Brooks, is the primary objective of security. In its applicability to this program evaluation, the assets are primarily the inhabitants of the school and school community as well as the tangible, though lesser, assets of school and personal property.

A focus on the safety and security of individuals “is important for anyone concerned with developing and using the human potential” (Smith & Brooks, 2013, p. 9), which, understandably, is a fundamental objective of educational institutions. Smith and Brooks (2013) differentiated between the concepts of safety and security: Safety is an internal threat (accident), while security is an external threat (attack). More succinctly

stated, “Security is an outcome of risk” (Smith & Brooks, 2013, p. 10). For the purposes of applying theory to an evaluation of the SCS safety and security program, the two terms will be used to identify the same basic concept of students, staff, and the larger school community being protected from harm, internal or external.

Maslow’s hierarchy of human needs applies well to the discussion of security (McLeod, 2018; Smith & Brooks, 2013). This needs-based theory focuses on human motivation and is broken down into five levels. The most basic level, physiological needs, is required for survival (McLeod, 2018; Smith & Brooks, 2013). Without the basic needs of food and water, for example, one simply cannot survive (McLeod, 2018; Smith & Brooks, 2013). As a need is mostly fulfilled, people can move to the next level of the hierarchy which, in this instance, is safety and security (McLeod, 2018; Smith & Brooks, 2013). Still considered a basic need by Maslow (McLeod, 2018), safety and security include the concepts of order, law, and freedom from fear and the elements (McLeod, 2018; Smith & Brooks, 2013). As such, for human beings to progress through the last three levels and achieve their fullest potential, their need for safety and security must be satisfied (McLeod, 2018; Smith & Brooks, 2013).

During the 1990s, a new line of thought regarding human security developed out of Europe—the Copenhagen School of Security Studies (CSSS). CSSS had existed for several years prior, but most of the work produced during the early years was based on military and international security. The 1990s refocused some of the work of CSSS towards human security and helped form a significant basis for current security thought (Lukas, 2016). Three primary questions determine “security reality,” according to CSSS: (a) Whose security? (b) Security of which values? and (c) Security against what? The

premise of the questions is to determine the asset or object being protected, what or how it is being protected, and the potential threats that exist that could affect the asset (Lukas, 2016). The shortfall of CSSS is that it can identify what is to be protected but it fails to provide solutions for how to protect the asset due to its foundation in protectionist military policy (Lukas, 2016).

Risk theory was initially developed as part of the actuarial industry (Smith & Brooks, 2013). Recent events, however, have provided the basis for risk theory to be applied in reference to safety and security. The crux of risk theory states that the worst possible risks should be identified and measures put in place to counter or prevent those threats (Lukas, 2016; Smith & Brooks, 2013). Essentially, the focus of risk theory is to be preventive and try to ensure the security event does not happen. The measures established should protect and prevent harm to the asset; additionally, they should minimize the negative impact on the asset in the event an action cannot be prevented (Lukas, 2016). The size of the negative impact has a direct bearing on the significance of the threat and the probability that it could occur (Lukas, 2016). By measuring the significance of the negative impact as well as its probability, risk theory has helped form a sound basis for modern safety and security theory by providing methods to assess the vulnerability of an asset and establish measures by which the asset will be protected from harm (Lukas, 2016).

Tying in closely with risk theory, the theory of risk perception grew out of the nuclear proliferation of the 1960s (Roeser, 2012). The fear of a devastating nuclear attack, though minute in probability, created the opportunity for researchers to begin to discern how society, both collectively and individually, viewed these threats (Gorman,

2018; Roeser, 2012). The basis for research into risk perception is to determine how people formulate and respond to risk (Gorman, 2018). Bialostok (2015) asserted that humans are so predisposed to risk that they are subconsciously attempting to control for the possibility of harm. Risk perception theory holds that there is an element of control involved in how individuals and groups ascertain risk (Gorman, 2018; Ropeik, 2012). Some risks are “catastrophic,” with immediate, devastating effects, while others are “chronic,” spread out over time and less impactful as a whole (Ropeik, 2012).

Catastrophic risks are not under the control of those affected and have the potential to be heavily covered by the media, which can certainly exacerbate the impact (Bodemer & Gaissmeier, 2015; Roeser, 2012). An example cited by Bodemer and Gaissmeier (2015) noted that far more people die from auto accidents than airline accidents; however, they noted that people are often more fearful of airline accidents due to the amount of control they have over their own automobiles and subsequent lack of control they can exercise over an aircraft. Media coverage and the potential for high casualties, therefore, predispose individuals to view airline travel as a greater risk. When the devastation from a catastrophic event involves harm to children (school shootings), the risk is further amplified (Ropeik, 2012). This program evaluation involves perceptions of security at two rural high school campuses and the subsequent measures taken to mitigate risk. Logically, the theory of risk perception will figure prominently in the baseline analysis conducted herein.

Risk Perception Theory

A theory that affects the effectiveness of any security or safety program is Risk Perception Theory. A relatively new theory that developed out of the nuclear

proliferation of the 1960s (Gorman, 2018), Risk Perception Theory acknowledges the social and cultural factors that play into how individuals and groups perceive risk or the potential for risk (Bialostok, 2015; Slovic, 1987). The basis for Risk Perception Theory lies in a set of beliefs or norms held by a particular group and the subsequent assumptions that have been formed through association with that group (Bialostok, 2015). Therefore, something that is perceived as dangerous and how much risk should be attributed to that object or situation is a result of social learning (Bialostok, 2015).

Douglas and Wildavsky (1982) argued that the perceived social construct of risk is a social mechanism utilized by “elites” to maintain control over a group. Those things that are determined to be dangerous by society will then manifest in smaller groups and individuals as a means of behavior control and modification (Douglas & Wildavsky, 1982). The result of the social construct of risk is that there ostensibly will be greater social cohesion which, in turn, makes those deemed as not belonging easier to identify (Douglas & Wildavsky, 1982). Bialostok (2015) added to this by stating that this social construct will also reveal the value a given society places on certain behaviors and priorities, whether they are physical or symbolic.

A result of this mode of social control is that what one society views as a risk or dangerous may be entirely disregarded by another society (Bialostok, 2015; Douglas & Wildavsky, 1982). A significant factor in this mode of risk perception is that implicit biases against other persons or events can develop out of the social construction of risk, especially when the perception is relying on intuition and is not based on factual information or data (Slovic, 1987). When new evidence is presented that contradicts or counters previously held beliefs concerning risk, the initial perceptions held by the group

or individual are not likely to change. Instead, the new information, regardless of relevancy, is prone to be dismissed (Slovic, 1987).

A sector of risk perception research details the voluntary versus involuntary characteristic of risk perception (Bialostok, 2015; Gorman, 2018; Slovic, 1987). To reiterate, an example of voluntary versus involuntary is weighing the risk between riding in an airplane versus driving a car. Statistically, driving a car is more hazardous, but people tend to fear flying more than they fear driving (Bodemer & Gaissmeier, 2015). The basis for this perception of risk is that driving is voluntary, and people can exercise control over their vehicle; whereas flying, though voluntary, leaves little control to the passengers (Bodemer & Gaissmeier, 2015; Gorman, 2018). Furthermore, the effects of a plane crashing (high casualties) are far more catastrophic than those of a single vehicle, which lends considerable weight to the perception (Gorman, 2018).

Slovic (1987) stated, “Some events make only small ripples; others make larger ones” (p. 283). Slovic added that the challenge is to determine the characteristics of risk events and learn how to manage the impacts of those events. Interestingly, Slovic further elaborated that “there is wisdom as well as error in public attitudes and perceptions” (p. 285). By most definitions, risk includes the probability of an event happening multiplied by the magnitude of the event; therefore, it is important to determine whether the occupants of a given “society” are more concerned with the probability or the consequence (Olstedal et al., 2004). Following is a detailed description of the factors that determine risk perception, including the aforementioned factors, as determined by Fischhoff et al. (2000):

- Voluntariness of Risk—Is the risk voluntary or involuntary

- Immediacy of Effect–Is the risk of death likely or immediate
- Knowledge of Risk–Are the risks known by those being exposed
- Knowledge of Risk–Are the risks known by the experts/science
- Control Over Risk–To what extent can an individual or group avoid the risk
- Newness–Is the risk new or is it familiar
- Chronic–Will the risk be singular in effect or catastrophic
- Common–Do people reasonably live with the risk or dread the risk
- Severity of Consequences–How likely is it that the risk will be fatal

The social context of risk, the school grounds and facilities of two rural high schools in this instance, constitutes a significant basis in the construct of perceptions (Olteidal et al., 2004). Furthermore, trust is also a function of risk perception (Olteidal et al., 2004). Regarding schools, the school community (students, staff, and their families) assumes that those responsible for the well-being of the occupants have taken the necessary steps to ensure each individual's safety (Bliesner & Armes, 2017). The degree to which they make this assumption is indicative of the level of trust placed in the decision makers and, thus, will weigh into the perceptions demonstrated within this research (Olteidal et al., 2004).

CPTED as Theory

The development of CPTED as a crime prevention model is significant as a theory and will likewise form the basis for the SCS safety and security baseline program evaluation being conducted. The underlying reason for this program evaluation—to manage the ripples that emanate from risk within two specific high school environments—is based solely on the perceptions of the inhabitants. The premise of CPTED, that taking

certain actions can prevent crime, is indicative of theory due to the if/then nature of CPTED principles; for example, IF security cameras are installed, THEN likely offenders will be more hesitant to commit an act (Adler & Laufer, 2013). Therefore, the measures implemented utilizing CPTED as theory will presumably affect the behavior of the inhabitants and non-inhabitants. As a preventive measure used to deter crime, CPTED intertwines the physical environment with the “organisms” within that environment and theorizes that the design or structure of one will alter the actions of the other (Adler & Laufer, 2013). Whereas most areas of law enforcement are a response to crime and the measures taken are often temporary, CPTED as theory stipulates that design of the environment will prevent crime (Armitage & Monchuk, 2017). Furthermore, as part of the built environment, the measures taken will more likely be permanent (Armitage & Monchuk, 2017).

A second theoretical perspective of CPTED as theory is that by taking steps to alter the behavior of the offender, the behavior of the inhabitants will also be altered (Adler & Laufer, 2013). As the inhabitants perceive they are in an increasingly safe environment, CPTED theory states they will also take greater ownership in their environment and, as a result, the opportunity for others to commit crimes is further reduced (Armitage & Monchuk, 2017). Ownership, in terms of how the inhabitants view their environment, creates another mode of surveillance as the inhabitants become more protective of their area or location. In a recent study by Armitage and Monchuk (2017), a survey of offenders demonstrated that surveillance, mechanical and human, was the most significant deterrent in regard to why a particular place or item was not targeted.

The primary focus of CPTED theory is that by altering the built environment,

offenders will be deterred. The secondary focus, altering the perceptions of the organisms operating within the environment, is a logical extension of Risk Perception Theory and demonstrates how closely related the two theories are. Based on the assertions of Armitage and Monchuk (2017), the measures implemented through utilizing CPTED principles, therefore, affect the perceptions of both the inhabitants and the offenders, incorporating elements of each theory into the idea of security.

Parnaby (2006) cautioned that CPTED as theory distinguishes between “normal” and “abnormal” users. To define the terms, Parnaby succinctly stated that normal users are the ones who are desired in a space and abnormal users are those whose presence is deemed less desirable. As such, perception plays a role because of the weight given to personal opinion and the potential for discrimination (Parnaby, 2006). When CPTED principles are utilized, Parnaby went on to rationalize that “one’s own risk becomes the means by which individuals can fulfill their end of a crime prevention partnership” (p. 14). Regarding the perspectives of individuals, Parnaby added that the application of CPTED plays a significant role in determining “what it means to be a responsible citizen” (p. 16). As a theory, the implementation of CPTED is purported to deter and reduce crime by impacting the perceptions of the inhabitants and the likely offenders.

CPTED first and foremost is a crime prevention strategy. As a theory, the presumption of those utilizing CPTED strategies is that the steps taken will alter the behavior or perceptions of those who come into contact with an enhanced location. NASP (2013) asserted, “Effective school safety programs begin by identifying potential areas of risk and implementing physical and psychological safety prevention measures” (p. 3). The premise of the parallel investigation conducted herein was precisely that: to identify

areas of the two school campuses that are effectively mitigating risk and to determine areas in which improvement may be needed. As perceptions of the offenders and inhabitants determine to a great extent how safe a space may be, the baseline program evaluation conducted herein was based squarely on CPTED principles. Through assessing natural surveillance, territoriality, and controlled access, this analysis gauges the existence and likely effectiveness of how CPTED principles are being implemented.

Conclusion

A review of the literature indicates that the obvious measures of school surveillance and security—more cameras, more SROs, and potentially metal detectors—may not be the best avenues for enhancing the safety of school campuses. Prior research analysis demonstrates they may have a detrimental effect on student well-being and fail to reduce acts of aggression or antisocial behavior. The literature does, however, demonstrate that planning and supervision are instrumental in making our campuses more secure. Architectural and landscape design elements can be effective in helping to monitor what the students are doing as well as assist in keeping tabs on others who are coming and going from our campuses. The principles espoused through CPTED, however, are effective and financially feasible first steps to take when it comes to mitigating risk on our high school campuses (Schneider, 2010).

Chapter 3: Methodology

Introduction

The case study conducted for this research was qualitative in nature. “One of the chief reasons for conducting a qualitative study is that the study is exploratory” (Creswell, 2014, p. 61), which applies to this study because the research was looking for descriptive information to form a baseline set of data for the safety and security program for SCS. The qualitative feedback provided will inform and guide the district’s leaders as they continue to implement the program. SCS wants their students to feel safe and secure without the changes being oppressive, but most importantly, the district wants to demonstrate to the school community that safety is a priority.

Logic Model for Case Study

The qualitative data obtained for this research is representative of a case study. The purpose of doing a case study is to provide a snapshot in time to ask “how are we doing” regarding safety and security planning while also highlighting areas in need of improvement (Creswell, 2014). Creswell (2014) noted that case studies are often used as an evaluation tool for a program, event, or person(s) due to the rich data that can be provided. Themes emerged from the data that were interpreted by a review committee and me, but the answers to “how are we doing” emerged from the committee’s and my interpretations (Creswell, 2014).

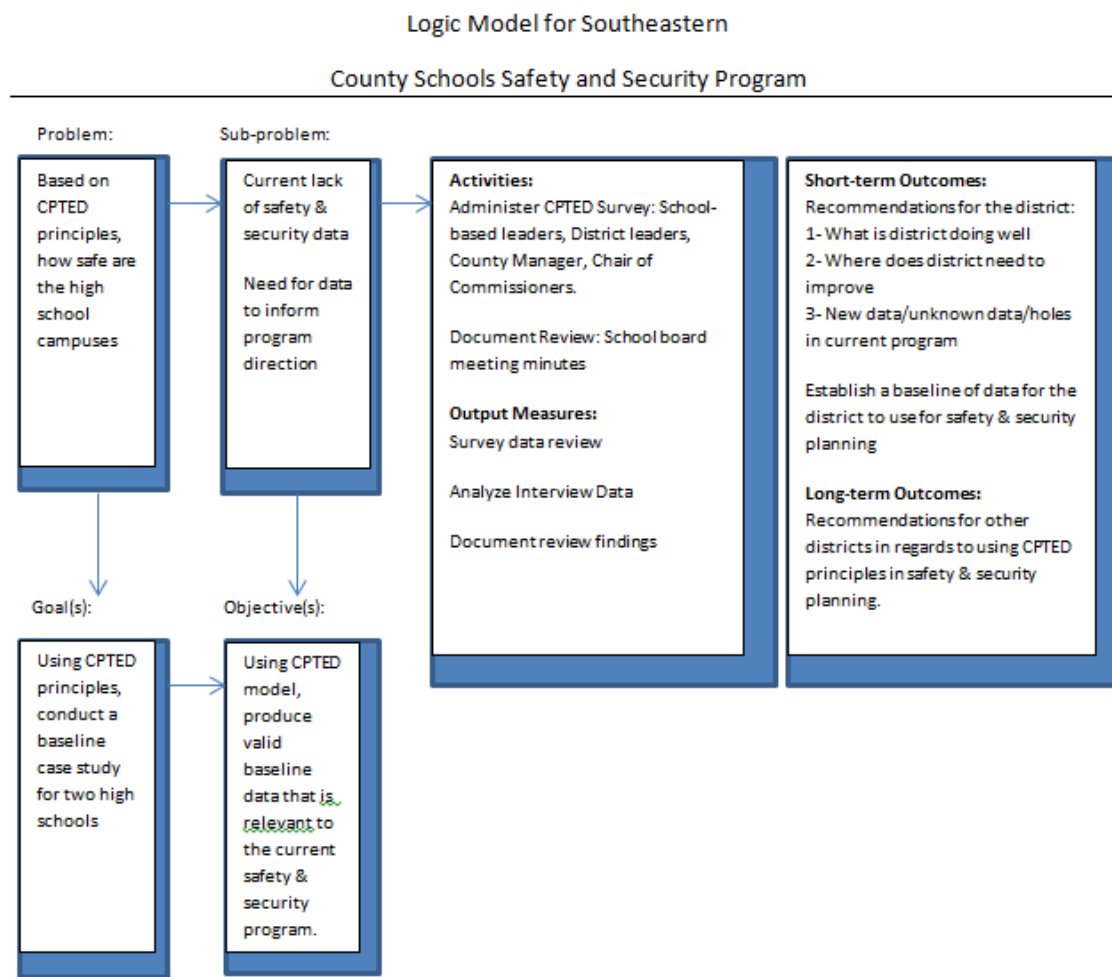
This case study was conducted utilizing a logic model, which provided “a graphical depiction of processes in real life that communicate the underlying assumptions upon which an activity is expected to lead to a specific result” (McCawley, 2001, p. 1). Another way of looking at a logic model is that it will describe a cause-effect relationship

(McCawley, 2001), the effects not being determined until after the case study has been conducted. The cause/effect relationship can also be depicted in a series of if/then statements: IF security cameras are installed in school cafeterias, THEN the number of lunchtime infractions will decrease.

According to the CDC (2018), using a logic model provides a “road map” that demonstrates shared relationships between resources, activities, outputs, and outcomes. In addition to the if/then statements prevalent in the logic model, the CDC adds what/so what to the discourse; this is “what” we are doing “so what” can we expect from those inputs and actions. As an evaluation tool, the logic model is adaptable and versatile, with a focus that can cover an entire organization, program, department, or subgroup of any of the three (CDC, 2018).

As the logic model applies to the SCS safety and security program, Figure 2 illustrates the process through which baseline data were collected and evaluated. The safety and security plan for SCS is still in its infancy, having only been seriously discussed since March 2018. Utilizing CPTED concepts due to their efficiency and typically low cost (Sutton, 2016), SCS has adopted the goal of making the high schools as safe as they can “reasonably” be. Grounded in CPTED principles, this is being accomplished by taking preventive steps that

- Restrict access to the campuses
- Expand visual access to the campus and student body
- Enhance electronic surveillance of the campus

Figure 2*Logic Model for SCS Safety and Security Program*

In instituting a safety and security program, the initial dilemma facing SCS was a lack of data concerning the degree to which their two high school campuses are safe. Even though the two schools being assessed were initially constructed in 1967, this was the first assessment of its kind for the school system in terms of rating multiple features of the campus and determining how they contribute to or hinder school safety. The instrument for the SCS baseline case study was the CSA. The survey,

designed by the CDC, provides for the survey participants to evaluate the natural and mechanical facets of school grounds regarding CPTED principles. Landscaping (natural) and camera systems (mechanical) are two examples of the many features the survey provided the opportunity to assess. The evaluations are based on a Likert scale, with participants rating features on a scale of 1 to 5 (5 being the highest agreement). Since no investigation has been conducted since the initial construction of the schools, the surveys provided baseline qualitative data to inform the district of any potential needs, which should help guide the program during its development and subsequent future implementation.

Participants

According to Edwards and Holland (2013), sampling in qualitative research is driven by the nature and context of the study and, due to accessibility factors, unlikely to be random. As such, the participants in this study were high school principals and the assistant principals, administrative assistants at each school, respective SROs, superintendent, assistant superintendent, director of secondary schools, maintenance supervisor, and Safe Schools coordinator. Each respondent is a pivotal player in the safety and security programs being established at the high schools, but they each approach the state of the built environment from varying perspectives. Voluntary participation was sought from the following individuals:

- Principals and assistant principals–Intimate day-to-day knowledge of the campuses, buildings, students, and personnel.
- Superintendent and assistant superintendent–Vested interest in

students and staff members being as safe as is reasonably possible.

- Director of secondary schools–A former principal at one of the high schools, this individual also has a vested interest in students and staff members being as safe as is reasonably possible.
- SRO–As an integral part of the security at each of the high schools, they also lend a unique perspective through their professional training.
- Administrative assistants–Unique perspective of safety and security due to being an extension of the “eyes and ears” of each campus as well as primary contact for the campus monitors.
- Safe Schools coordinator–Responsible for designing, analyzing, and monitoring security for the school system (cameras, lockdown procedures, fire systems).
- Maintenance supervisor–Chosen due to their acute knowledge of the layout and infrastructure of each of the campuses.

The persons chosen to be administered the surveys were selected based on the perspectives each brings to the table. Creswell (2014) stated that qualitative research should be a “holistic account” that factors in multiple perspectives and allows for a greater view of the issue to emerge. As outlined above, the perspectives are diverse in their origination, but their overarching goals should uniformly be the same—to provide a safe, secure learning and working environment for students and staff without

creating a fortress-like atmosphere.

Survey Methodology

With permission from the Institutional Review Board of Gardner-Webb University, the superintendent of SCS, and the CDC, the CSA was administered in two high schools, establishing a parallel investigation. It bears noting that the two schools were not being compared; information was gathered to inform only. The CSA was provided to the principal and assistant principal(s) at each of the high schools and they provided evaluations of their respective locations. Likewise, the SROs and administrative assistants completed surveys only for the location in which they work. The superintendent, assistant superintendent, director of secondary schools, maintenance supervisor, and Safe Schools coordinator completed two surveys, one for each school.

To eliminate bias, once the surveys were compiled and mean scores determined based on the Likert scale ratings, a committee reviewed the scores and Additional Observations sections to look for emerging themes or trends. Known as inter-rater reliability (Creswell, 2014; Marques & McCall, 2005), the committee was necessary to overcome any researcher bias that may knowingly or unknowingly have been inserted into the interpretation of the findings (Marques & McCall, 2005). Furthermore, the committee served as a “solidification tool” for qualitative studies, making the findings more generalizable (Marques & McCall, 2005). As raters of the survey instrument and the evaluations gleaned from the surveys, inter-

raters help establish validity for both due to having no other obvious connections to the evaluation (Marques & McCall, 2005).

The primary instrument—reflective of the process in a logic model evaluation—for this study was the 2017 CDC CSA. Using a Likert scale, the assessment makes statements about multiple features of the campuses and the respondents answered in a range of 1 to 5, with 1 being the lowest level of agreement with the statement. There are also two options for answering questions that are not scalable: Does Not Exist and Unable to Observe. For example, there is a question on the CSA regarding bike racks, which do not exist at SCS high schools; therefore, the respondent would answer with Does Not Exist. A teacher who has supervisory duties in the courtyard may not be privy to observing student drop-off and pickup at the schools. Since the teacher knows these activities exist but may not be able to directly observe them, they would respond Unable to Observe to the questions asking about those procedures. The CSA also provides an area titled Additional Observations wherein the respondents could elaborate further on topics or items that may require clarification or simply to note observations they feel were not adequately covered through the assessment.

The CSA is a tool designed to measure agreement with statements pertaining to school campuses. The assessment provides statements based on CPTED principles outlined in Figure 1 and also includes a glossary of terms to assist the respondents with clarification when necessary. There are nine categories assessed by the CSA:

1. Initial Impressions—statements to register your very first, overall impression of the grounds, buildings, and interiors.
2. The Grounds—statements pertaining to the outside areas of the school property

such as parking, student pickup/drop-off, and athletic areas.

3. The Buildings—statements pertaining to the physical parts of the building you can see from the outside such as entryways, windows, and doors.
4. The Interiors—statements pertaining to the space inside a building or buildings such as classrooms, corridors, and public areas.
5. Global Impressions—statements pertaining to the overall atmosphere or ambiance of the school to be completed after the physical assessment has been completed.
6. Additional Observations—an area to register any observations of the physical environment which has not been adequately covered in the assessment.
7. Surrounding Land Use—a list of land uses adjacent to the school property; i.e., properties observable from the school grounds.
8. Surrounding Land Use Condition—the same list of land uses to be rated for the overall physical conditions.
9. Assessment Day Information—notations regarding date, time, weather, and any unique factors that might affect observation fidelity.

Sections 7 and 8 of the CSA were omitted for the purposes of this survey because both schools are located in heavily rural areas and are surrounded by farmlands and sparse housing density. To address the intended purpose of this study, “Are our high school campuses safe,” we focused on the first six sections of the survey, which address the immediate school grounds and buildings inside the defined school perimeters, while still providing sections for additional respondent observations. In addition to omitting the aforementioned sections, the remaining sections (1-6) were modified to eliminate

statements with no applicability to the subject high schools. For example, Section 1 makes statements pertaining to exterior ramps, stairs, or balconies. Since only one of these three conditions exists at the respective high schools, questions pertaining to those obviously nonexistent physical characteristics were removed from the survey to eliminate the possibility of confusion.

Once the CSA was administered to the participants, the scaled responses were tabulated for mean scores in the aggregate and combined. The statements provided in the CAS are measured with a Likert scale and, as such, the responses were coded 1-5 based on participant agreement with the statement. The mean scores were then measured against a range proposed by the CDC, the survey's author. According to the CDC, the ranges are "general," but their guidelines for interpretation are as follows:

- Ratings of 1-2 are unacceptable and note items that need attention.
- Ratings of 3 are acceptable but may need scrutiny.
- Ratings of 4-5 are compliant with CPTED principles and do not warrant further attention.

In accordance with using the CSA and to promote ongoing research concerning school safety, aggregated responses from the survey will be provided to the CDC.

Interview Methodology

The review committee had two goals: interpret the responses to look for elements of safety and security that are performed well by the school district and to look for areas of need. Once these two themes were established, each of the survey respondents was interviewed to allow them to develop their responses further. Since an essential piece of qualitative

research is that it normally takes place in a natural setting (Creswell, 2014), it was critical for this evaluation that the surveys were completed on site. In turn, the respondents were provided with the opportunity to elaborate, above and beyond the survey questions and scales, on those things they were able to observe in each setting. Their responses were recorded, but notes were also taken during the interviews.

An analysis of the survey results may reveal anomalies in the data which, presumably, would be measures performed well and those in need of improvement. Since the survey is utilizing a Likert scale, to fully develop the areas in need of improvement, it proved beneficial to interview the participants to gain more insight into the ratings. To ensure reliability between the survey responses and details elicited through the interviews, member checking was utilized by providing the respondents with a copy of their survey responses before the interview being conducted.

The interview method utilized for this study was open questioning, which allowed the interviewees to express or elaborate “in their own words” the reasoning behind their ratings (McLeod, 2014). Assumptions may be made from the Likert scale ratings, but the intent of the study was to determine how well the district is administering its safety and security program as well as to find areas in need of improvement. To effectively determine next steps for the program, it was necessary also to gain a deeper understanding of participant responses, which was achieved through open questioning (McLeod, 2014).

In reviewing the data gathered through the CSA, an outlier is a score that was more than 2 points from a subcategory or statement-of-agreement mean. Due to the semi-

structured nature of the interview, there are questions that were asked, but they were based on the Likert scores from the survey, as explained above. Utilizing semi-structured questions also allowed me to better understand the perspectives and experiences of the respondents (Balbach, 1999). Since the nature of the case study being conducted was to determine what is being done well and what the district could do better, the questions followed a basic protocol:

- Based on your score of __x__ for (sub)category, what factors prompted or influenced your thinking?
 - Based on your score of __x__ for (sub)category, in which area(s) do you think safety and security can be improved?
 - What specific steps would you recommend to improve safety and security?
- (The first three questions are focused on outliers in survey responses and will be repeated based on the number of high and low outliers identified in the responses.)
- Do you have any concerns about campus safety and security that were not addressed in the survey that you would like to address now?

Being qualitative in nature, this study sought to describe the state of the existing safety and security program at two high schools. To best obtain these qualitative data, detailed descriptions were necessary to develop the basis for the survey scores. As stated by Alshenqeeti (2014), conducting interviews will “broaden the scope of understanding investigated phenomena” (p. 40) and provide more natural data. A second benefit of using interviews is that they may uncover information not addressed or accessible in the surveys (Alshenqeeti, 2014). The interviews should provide a second set of data

that can then be introduced to the review committee for solidification. It also bears noting that inter-raters must be cautious in interpreting information garnered through interviews because, if interpreted incorrectly, it could alter the validity and reliability of the program evaluation being conducted (Alshenqeeti, 2014). To eliminate researcher bias and to follow COVID-19 safety protocol, the interviews were not conducted in my physical presence.

Following transcription, the review committee looked for themes that emerged from the interviews. For this to take place, the committee used index cards to note any statements they deemed to be impactful or otherwise noteworthy. Whether positive, negative, or neutral, these statements were then grouped based on the CSA category or subcategory to which they applied. A separate grouping was set up to cover additional observations that were not accounted for within the framework of the survey. After a thorough review, the findings were presented as an integral part of the safety and security program evaluation for SCS.

Each of the interviewees was notified in writing of their voluntary participation for the survey, standard protocol for subject protection; however, their consent was also requested verbally at the start of the interview and recorded as part of the transcription.

Document Review Methodology

Creswell (2014) noted that conducting a document review can often provide a researcher with valuable “evidence” that is already written. As such, a review of meeting minutes from SCS Board of Education meetings was carried out. Meeting minutes can be a vital source of information if they are articulated well and occur in open sessions; however, Creswell is also careful to note that document review can be made difficult due to potentially limited public access, as would be the case with closed-session school board meeting minutes. The SCS Board of Education meeting minutes are available online and were downloaded from the district’s website.

The document review also included district-wide leadership meetings, which are held once a month and attended by school-based administrators and central office directors. These meetings are led by the superintendent and assistant superintendent and include directors, principals, and assistant principals. Leadership meeting minutes are not available online, but they are available upon request. The minutes from the SCS Board of Education meetings and district leadership meetings were reviewed by me and the review committee for statements and information relevant to the case study.

The document review is essential for establishing a stated need from the school district. Safety and security needs are typically addressed by local funding and the occasional grant. It is imperative through the document review, combined with the program evaluation, to develop themes regarding the current state of the safety and security program as well as to reinforce the future direction of the program, make recommendations for future enhancements, and determine appropriate funding levels for the program.

Data Analysis Methodology

Using the Likert ratings from the CSA, themes and trends emerged from the data concerning the immediate state of the safety and security program. Once analyzed, the trend data presented as part of this case study helped guide planning for implementation of the CPTED principles established as part of the original SCS safety and security program. In addition to those functions being performed well, short-term and long-range safety and security planning will benefit from the themes that emerged.

The survey responses were coded using the major categories, broken down by subcategories, further evaluated by statements of agreement within the subcategories, and then broken down by mean. Once mean scores were determined, the emerging themes were then divided based on the three levels established by the CSA: unacceptable, acceptable but needing scrutiny, and compliant. Categories and subcategories that perform in the 1-3 range were the primary focus of the interview questions. Likewise, if a subcategory had an overall acceptable score but one of the respondents scored it in the unacceptable range, that specific subcategory or statement of agreement score also bore out in the interview process. This is an example of the scoring outliers the review committee was looking for in interpreting the results, but these outliers weighed heavily in establishing the themes addressed in the interviews.

After the surveys were administered, Likert scores were tabulated and grouped based on mean scores and CDC guidelines for score interpretation: Ratings of 1-2 are unacceptable; ratings of 3 are acceptable but may need scrutiny; ratings of 4-5 are compliant with CPTED principles. Creswell (2014) stated that text data from qualitative studies are so voluminous that it is not possible to use them all when reporting findings.

Therefore, it becomes necessary to “winnow” the data; the data from the CSA were “chunked” by survey category:

- Initial impressions
- Grounds
- Buildings
- Interiors
- Global impressions
- Additional observations

Each of the above categories contains subcategories within which the chunks were further broken down based on subcategories and statements of agreement. For example, Interiors may have a mean score of 4.2, which would indicate overall compliance with CPTED principles. However, within Interiors is a subcategory for Access Control to Administrative Offices. If, for example, Access Control to Administrative Offices was to have a mean score of 2.2, indicating it is not acceptable and warrants further scrutiny, it became a subcategory that needed to be investigated through the interview process.

Outcomes

The primary outcome for the SCS in conducting the program evaluation was to establish a baseline set of data to inform the safety and security program. The survey attempted to identify facets of security the district is adequately performing as well as to identify shortcomings in the program. A third facet of the baseline data that were compiled is that the district may also uncover areas or characteristics of the program that have been overlooked altogether. The baseline data that were compiled, regardless of

strengths and weaknesses, should provide direction for the SCS safety and security program in short- and long-range safety planning.

As an evaluation instrument, the CSA is a thorough evaluation instrument in terms of identifying and assessing features and principles dictated by environmental design security planning. Through the program evaluation for SCS, it is hopeful that the district can utilize the results to enhance or alter facets of its own safety and security program to make it more effective. Furthermore, the data could be used to make recommendations to other schools or districts regarding effective and minimally invasive CPTED planning and implementation.

Limitations and Delimitations of the Study

It bears noting that the scores compiled from the survey were not compared between schools. The primary purpose of the case study that was conducted was to determine if the two high schools are perceived to be safe, not to determine if one is safer than the other. Since there is no comparison between the two schools, the evaluation is a parallel investigation and is representative of two different sets of exploratory information, with the results of the research relayed as such.

Nine respondents completed surveys for each school. Four respondents completed only a survey for EHS and four respondents completed surveys solely for WHS. The respondents who completed single-school surveys were the school-based administrators, administrative assistants, and SROs at each location. District-level staff—superintendent, assistant superintendent, director of secondary schools, maintenance supervisor, and Safe Schools coordinator—completed surveys for both schools. A greater number of respondents would have added weight to the conclusions drawn from the survey;

however, due to the length and depth of the survey, involving respondents who lacked prior knowledge of the campuses would have been cumbersome and inordinately time-consuming for the individuals involved.

In determining next steps and possibilities for future research, it is important to convey that the information gleaned from the case study involved two different evaluations. Attempts to replicate the findings to other schools or settings will not be valid and will require their own site-specific evaluations and interpretations. Furthermore, this study measured the perceptions of safety and security on two campuses, as determined by the observations and scaled scores provided by staff and district leaders. As such, there was no determination being made as to actual safety that exists on either campus.

Permissions

Permission to conduct the research described herein was requested from the Institutional Review Board at Gardner-Webb University and the superintendent of SCS. As participants in the evaluation, the principals were notified of the evaluations and their participation was requested. Per the CDC, no permissions are necessary to use the CSA (see Appendix A). Once the requisite permissions were granted, the survey respondents were provided a consent form with the following conditions (Creswell, 2014):

- Participation is voluntary and no compensation will be provided.
- They may withdraw from the study at any time.
- A clear outline of the study's purpose and how the data will be collected.
- The responses will remain confidential, and any data will be de-identified.
- They will be notified of potential risks, if any, associated with the study.

- Potential benefits of the study.

Once these items were in place, the CSA was administered to the participants.

Chapter 4: Results

Introduction

For school districts that are dealing with tight financial resources, the applicability of this case study to other persons or groups is broad. For the 2016-2017 school year, the state in which the two high schools are located ranked 39th nationally in per-pupil spending, \$2,300 below the national average. The county in which the two high schools are located has a property tax rate of \$.66 per \$100 of assessed value, ranking 43rd lowest of the state's 100 counties. The capital outlay budget for the entire district, encompassing almost 1,000,000 square feet, in which the two schools are located was \$240,000 for 2017-2018 and \$256,000 for 2018-2019. These figures are all important because school funding is less than ideal in many states and school districts. Fewer funds mean school facilities are having to do more with less, and this includes updating security and safety features at aging school facilities (Larkin & Matson, 2016).

Security features can be designed into new buildings: controlled access or single-entry buildings, state-of-the-art closed-circuit cameras and internet access, ample natural lighting, and windows. However, when the buildings were designed for a time in which these same characteristics were not as important, providing a safe, secure academic environment for students and staff can be expensive and burdensome (Larkin & Matson, 2016). Physical design plays a pivotal role in campus security, and 50-plus-year-old spaces are not always compatible with 2020 concerns or needs (Larkin & Matson, 2016). Overall trends for school crime and violence are declining, but districts still must prepare for situations that were not of significant concern 50 years ago (Kennedy, 2016; NIJ, 2017). The concern for SCS is designing enhancements that can utilize the facilities as

they currently exist without creating a fortress-like atmosphere for students and staff.

Many of the environmental and CPTED principles being implemented for the schools that are central to this study are based on increasing adult supervision by creating opportunities for adults to be able to see more space. Over 90% of U.S. public high schools have installed closed-circuit cameras (Musu-Gillette et al., 2018), but cameras mostly serve as a record of an event that has already occurred (Schwartz et al., 2016). Cameras demonstrate to the school community that steps are being taken to enhance security; however, they do little else to increase the perception of safety for students (Perumean-Chaney & Sutton, 2013).

Context of the Study

The context for this study is two rural high schools in northwest North Carolina. The schools were constructed on virtually identical footprints, and both opened in the same year, 1967. The reason these two schools were chosen for this study is that they both are built on an open concept with multiple buildings around a central courtyard. Although in a rural setting that is predominantly agricultural in use, the array of buildings on each campus can also be accessed through multiple points around the perimeter. The nature of any high school campus—age of students, class changes, freedom of movement—presents challenges; when the buildings, parking areas, main offices, and athletics facilities are aged and spread out, the challenges are magnified. A program specific to the two high schools and that focuses on enhancing inhabitant perceptions of safety and security is at the core of this case study.

Through utilization of the CDC CSA, the CPTED School Conditions Audit (hereinafter, Audit; Appendix F), CSA respondent interviews, and document review, I

attempted to answer the following questions:

1. Based on the principles of CPTED, how safe are the two high school campuses?
2. Based on CPTED principles, in what areas (mechanical or natural) is SCS adequately implementing an effective safety and security program?
3. Based on CPTED principles, in what areas (mechanical or natural) does SCS need to improve its safety and security program?

By answering these questions, I determined what SCS is doing well, identified areas in which improvement was needed, and ascertained any additional measures that could enhance the overall perception of safety on the two campuses. It is worth noting that the safety and security program being evaluated is a program that is designing preventive measures—based squarely on CPTED principles—into the school facilities and is not in response to an incident or event.

Instruments

To conduct the case study, two surveys were administered: the CSA and the CPTED Audit. The impetus behind conducting separate surveys was to provide two sets of data that could be compared and contrasted against each other. Reingle Gonzalez et al. (2016) pointed out that students and staff often differ in their perceptions of security, actual and perceived. Warnick et al. (2018) also argued that perceptions of security affect workplace satisfaction for adults, while also having an impact on academic and social-emotional outcomes for students. Both viewpoints lend themselves to establishing baseline data from which SCS can continue to implement and improve upon their existing safety and security program. Therefore, two sets of data from which to work are

seemingly invaluable for this study.

The CSA was administered to the adults participating in the case study. Individuals in similar roles at each school completed a survey for their respective school, while district-level leaders completed surveys for both schools. Once survey results were analyzed for responses more than two points from the mean, as well as those factors that were rated favorably or poorly, interviews were conducted with each of the respondents to better understand the rationale behind their responses. The principal for EHS is notably absent from Table 3. Approximately 2 months before survey administration, I became the principal at EHS, and the former principal moved to the district office as the director of secondary schools. For a distribution of the surveys, refer to Table 3.

Table 3

Distribution of CSA for SCS

CSA participants		
EHS	EHS and WHS	WHS
Asst. principal	Superintendent	Principal
Asst. principal	Asst. superintendent	Asst. principal
School resource officer	Director of secondary schools	School resource officer
Administrative asst.	Maintenance supervisor	Administrative asst.
	Safe Schools coordinator	

The CPTED Audit was administered anonymously to former students from each school. Students solicited were 2019 and 2020 graduates. These students were solicited based on their time of attendance being before and during implementation of the SCS safety and security program. Solicitations were placed on district and school social media sites. Initially seeking a total of 50 respondents, 70 surveys were completed: 27 surveys for EHS and 43 for WHS. Ironically, EHS, which garnered significantly fewer respondents, has an enrollment that is approximately 33% greater than WHS year to year.

After the data were compiled in summary form, a review committee analyzed the ratings and comments from the CSA and the CPTED Audit. The review committee was comprised of two retired teachers, one from each school, with firsthand knowledge of the layout and identifying characteristics of each campus. A current district employee with knowledge of the safety and security plan but lacking decision-making responsibilities also participated in the review committee. The role of the review committee was to analyze the data for common themes, contradictory statements or ratings, or any other information that may appear anomalous or otherwise pertinent.

COVID-19 Protocol

It bears noting that the research described in Chapter 4 occurred during the COVID-19 pandemic. EHS and WHS opened the school year in August 2020 operating under Plan B as set forth by the North Carolina Department of Health and Human Services (NCDHHS, 2020). The guidance from NCDHHS was issued initially in June 2020 and remained a living document, with the most recent update as of this writing being March 24, 2021. Referred to as the Strong Schools NC Public Health Toolkit, the publication provided public schools with recommendations and best practices for navigating the 2020-2021 pandemic-related school year.

EHS and WHS both opened under Plan B, which directed schools to utilize in-person instruction with classroom capacities based on a predetermined number of students per 1,000 square feet. Both high schools opened for in-person instruction in August 2020 while operating under a cohort plan. Students with last names beginning with A-K were considered A cohort, and last names L-Z were placed in the B cohort. The A cohort attended school on Monday and Tuesday of each week, Wednesdays were

remote learning days for all students, and the B cohort attended school on Thursday and Friday. Additionally, a virtual option was added for the district's high schools. This was done to accommodate families or students who did not feel safe returning to school.

Roughly 20% of the district's high school students chose the virtual option.

Operating under Plan B with limited capacities, best practices from the NCDHHS Strong Public Schools Toolkit were also implemented. Among these safety and sanitation procedures were

- Temperature screening for all persons entering campus
- Screening questions or attestations for all persons entering campus
- Mandatory mask-wearing for all persons on campus
- Social distancing of at least 6 feet between persons in all areas of the campus
- Sanitizing of high contact surfaces between class periods and at the end of each school day
- Fogging of all classrooms, hallways, restrooms, and office spaces each Tuesday and Friday afternoon
- Students eating prepackaged meals in classrooms
- Installation of hand sanitizing stations at each entry/exit on campus

The above list is not all-inclusive, but it is offered to provide a reference point for how the two high schools were operating daily. The results as reported in Chapter 4 were compiled while the above protocols, and more, were instituted at each high school. The Plan B protocols were referenced in some of the comments made by the adults, either during interviews or as additional observations, but any impact on the ratings themselves is unknown at this time. It also bears noting that during the administration of the surveys

and while conducting interviews, each high school incurred a closure due to COVID-19 clusters being identified at the schools. One of the closures emanated from students, the other from adults.

Survey Responses

The primary question to be answered in this case study is how safe are the two high schools? To measure the degree of safety, the CDC (2017) recommended the following guidelines in analyzing the results of the CSA:

- Ratings of 1-2 are unacceptable and note items that need attention
- Ratings of 3 are acceptable but may need scrutiny
- Ratings of 4-5 are compliant with CPTED principles and do not warrant further attention

There are five major categories, each comprised of subcategories. The subcategories are further broken down into 28 specific areas or subjects. Each of those areas contains statements of agreement that are measured using a Likert scale, rating each statement 1 (lowest level of agreement) through 5 (highest level of agreement). The scores shown in Table 4 are mean scores derived from the statements of agreement for that particular line item. Overall, there are 267 individual statements of agreement throughout the survey, the number of statements varying by subcategory and subject area. Since a Likert scale is used to measure attitudes or perceptions, determining the “distance” between intervals is not exact but will still provide the reader with the necessary information for capturing the overall concept (Sullivan & Artino, 2013). We will discuss some of the more specific statements as we work through the results to determine those things the schools are doing well and areas that need attention.

The scores for each high school are listed in Table 4. The overall mean for each school—3.56 for EHS and 3.57 for WHS—demonstrates that safety and security implementation is acceptable; what is difficult to determine with the Likert scale is how much scrutiny the scores warrant. Among the scores in Table 4, only three categories at WHS scored 4 or better—Bus Unloading and Loading, Courtyard, and Cafeteria and Food Courts; there were no categories at EHS that scored 4 or better. In contrast, neither school had a mean categorical score below 3.09 (Buildings: Entries and Exits), with both schools scoring their lowest mean in the same category. Based simply on the CDC’s scoring guidelines, every category for both schools is, at the least, minimally acceptable according to CPTED recommendations. There are outliers among the statements of agreement, and we will address those later in the results.

Table 4*Summary Mean Scores by (Sub)Category/School*

CSA Category Descriptions with Mean Scores	EHS Mean	WHS Mean
<i>Initial Impressions (4 Statements of Agreement [SOA])</i>	3.81	3.75
<i>The Grounds</i>		
A. Grounds: Perimeter (6 SOA)	3.38	3.4
B. Ground: Points of Entry (6 SOA)	3.67	3.27
C. Grounds: Parent Drop-off/Pickups (9 SOA)	3.85	3.86
D. Grounds: Bus Unloading and Loading (8 SOA)	3.85	4.02
E. Grounds: Vehicular Routes (4 SOA)	3.7	3.86
F. Grounds: Parking Areas (10 SOA)	3.46	3.5
G. Grounds: Exterior Pedestrian Pathways and Gathering Areas (13 SOA)	3.45	3.75
H. Grounds: Exterior Athletic Areas (4 SOA)	3.19	3.16
I. Grounds: Other (5 SOA)	3.16	3.31
J. Grounds: General (16 SOA)	3.61	3.83
Grounds Mean Score	3.53	3.6
<i>The Buildings</i>		
A. Building(s): Entries and Exits (9 SOA)	3.09	3.09
B. Building(s): Exterior Walls (6 SOA)	3.54	3.71
C. Building(s): Courtyards (7 SOA)	3.65	4.09
D. Building(s): General (8 SOA)	3.47	3.28
The Buildings Mean Score	3.44	3.54
<i>The Interiors</i>		
A. Interior: Main/Visitor Lobby (13 SOA)	3.55	3.64
B. Interior: Student Entry Areas - Other Than Main Lobby (12 SOA)	3.27	3.44
C. Interior: Administrative Offices (8 SOA)	3.44	3.43
D. Interior: Corridors (14 SOA)	3.44	3.31
E. Interior: Restrooms (12 SOA)	3.57	3.6
F. Interior: Classrooms (10 SOA)	3.67	3.92
G. Interior: In-school Suspension Areas (3 SOA)	3.71	3.42
H. Interior: Cafeteria(s) and Food Courts (15 SOA)	3.92	4

(cont.)

CSA Category Descriptions with Mean Scores	EHS Mean	WHS Mean
I. Interior: Auditorium(s) (4 SOA)	3.92	3.41
J. Interior: Gymnasium (6 SOA)	3.96	3.84
K. Interior: Locker Rooms (Men/Boys) (11 SOA)	3.29	3.31
L. Interior: Locker Rooms (Women/Girls) (11 SOA)	3.2	3.17
M. Interior: Libraries and Media Centers (8 SOA)	3.95	3.86
N. Interior: General (21 SOA)	3.55	3.5
The Interiors Mean Score	3.6	3.56
<i>Global Impressions (4 SOA)</i>	3.55	3.28
TOTAL MEAN SCORE	3.56	3.57

It has been noted throughout this study that the two high schools are very similar. They are in rural settings; they are open-concept designs with multiple buildings around a central courtyard; building layout and footprint are common (not identical); and both opened in 1967. Likewise, of the highest-rated categories for each high school, four of those categories are shared:

- Parent Drop-off/Pickups (3.85 EHS / 3.86 WHS)
- Bus Unloading and Loading (3.85 EHS / 4.025 WHS)
- Cafeteria and Food Courts (3.92 EHS / 4 WHS)
- Libraries and Media Centers (3.95 EHS / 3.86 WHS)

The exceptions to shared characteristics among the highest-rated categories are Gymnasium and Auditorium (3.96 and 3.92 respectively) at EHS. For WHS, Courtyards and Classrooms (4.09 and 3.92 respectively) are the two standalone categories with high mean scores. As pointed out by a member of the review committee, it is interesting to note that the categories receiving the highest scores are the same areas in which there is often a high density of students; the adults rating these areas hold the perception that these areas are among the most orderly and easiest to observe on the two campuses.

As with the highest-rated categories, the two high schools also share lowest-rated categories. The schools share three categories that were among the lowest-scoring:

- Exterior Athletics Areas (3.19 EHS / 3.16 WHS)
- Entries and Exits (3.09 EHS / 3.09 WHS)
- Locker Rooms (Women/Girls; 3.2 EHS / 3.17 WHS)

Separately, the lowest-scoring categories for each school that were not shared are Points of Entry (3.27) and Global Impressions (3.28) for WHS and (Grounds) Other (3.16) and Student Entry Areas—Other Than Main Lobby (3.27) for EHS. The review committee did not find any immediate commonalities between these areas other than to note that these areas may be more difficult to supervise, mechanically or naturally. Though the scores are still higher than 3 and Likert scales do not clearly define the interval, the review committee asserts that ratings closer to 3 are moderately acceptable but certainly merit more scrutiny than those closer to 4.

Detailed CSA Results

The mean scores listed in Table 4 reflect the mean scores for the subcategories of the CSA. For each of the subcategories listed, there are statements of agreement that are scored on the Likert scale. The mean score listed for the subcategory is a total mean score based on the Likert ratings for each individual statement of agreement within the specific subcategory. In this section, we will delve into the ratings for individual statements of agreement that are reflective of aspects of the safety and security program in need of significant attention (< 3). We will address the inadequate statements of agreement in the order in which they appear in the survey. They are listed (in bold font) by Category: Subcategory, followed by the statement number from the CSA, the actual statement of

agreement, and the mean score for the statement. As relayed below, the high school findings will be discussed per school, not summarily.

EHS

Grounds: Perimeter–7.4. The perimeter is secured in areas not easily monitored. Mean score–2.67. Mentioned several times throughout this case study, both high school campuses are in rural settings; they are surrounded by woods, farmland, and sparse housing. Scoring a 2.67, this mean indicates there is improvement needed in securing the perimeter of the EHS campus. As shown in Appendix C, the buildings are central to the property with ample land surrounding the campus. Other than the campus monitor near the primary entrance and a mobile SRO, there is little else to warn the inhabitants of an intruder. As noted by an assistant principal in the Additional Observations, “EHS is a safe place because of the community environment and people. A determined person could arrive on our campus unannounced and wreak havoc for a short time. We have plans in place to stop someone once identified.”

Securing secondary vehicular entrances only prevents vehicles from entering the campus; it does not limit foot traffic. The athletics fields are largely secured by fencing, but the rest of the campus is accessible from the road or woods around campus. As noted by the adult and student respondents, the woods around the campus provide cover if there were to be a need to escape, but they also provide an opportunity for a foot-borne intruder to enter campus.

A second factor impacting this mean, and noted by most of the respondents, is that the campus design allows for viewing of the central courtyard, but the areas outside the building perimeter are obscured by woods or a lack of windows. As stated by the

director of secondary schools, “These schools were built in the 1960s when surveillance and overall facility safety was not a primary concern.” Another assistant principal remarked starkly, “EHS is an open campus with entry from all sides.”

Grounds: Parent Drop-off/Pickups–16.1. Parent drop-off/pickup locations are clearly marked by signage, pavement, and curb treatments. Mean score–2.78.

Based on the statement of agreement, none of the details outlined exist at EHS. There is a years-long “habit,” according to an assistant principal, but there are no other markers. The COVID-19 pandemic altered these procedures temporarily, but with the return of students to campus full-time on April 6, 2021, the old “habit” procedure for drop-off and pickup returned.

Grounds: Parking Areas–46.10. Visitor parking areas are visible from adjacent buildings. Mean score–2.56. The highest Likert score for this statement of agreement was 5, with the most common (frequency) being 3. If not for the single 5, the mean score would have been considerably lower. When the adults were interviewed about this statement, to summarize, they responded that the parking was in the front of the campus and the administrative offices were in the rear of the campus. Only when visitors eschew designated parking do they park at the rear of campus in a relatively visible area. The maintenance supervisor added that the visitor parking is beside the building located furthest from the main office, noting specifically that visitors are “walking through the whole campus to get to the administrative offices.”

Grounds: Exterior Pedestrian Pathways and Gathering Areas–58.12. Public telephones are located in areas that are easily monitored. Mean score–1.75. This was the lowest score of the 266 statements of agreement, and understandably so. Being a rural

campus, public telephones are not something the review committee believed anyone would expect at either of the high school campuses. The frequency was Does Not Exist, but the representation of “public” telephone is what does not currently exist. There is one publicly accessible phone, and it is located in the main office.

Grounds: Exterior Pedestrian Pathways and Gathering Areas–48.2. There is a wayfinding system which includes signs; plant materials; and artwork, monuments, or other landmarks. Mean score–2.57; 62.3. Posted rules are located near exterior athletic area entries and exits. Mean score–2.89. At the time the surveys were administered, the school system was operating under the governor’s Plan B for North Carolina public schools—capacity based on classroom/venue square footage, masks, sanitizing, social distancing—and the survey respondents noted that much of what they saw around campus was COVID-19-related. One assistant principal noted that the signage, as observed, was “heavily influenced by COVID protocol.” The SRO offered a more objective view:

The signs that we do have do not stick out or get the attention of people. They are also small in size. The marquee that is at the front of the school is bland and is blocked by trees and the fence line.

Grounds: Other–64.1. Access to dumpsters is controlled. Mean score–2.67; There are no hiding places in or around dumpster areas. Mean score–2.22. As noted earlier, there are ample woods on and surrounding the EHS campus. The dumpsters are located next to a building but also on the edge of the woods. Behind the dumpsters are a set of steps that lead down a steep wooded hill. The maintenance supervisor noted these items in his interview, adding that there is no way to see anyone coming from the woods

in that direction because the “dumpsters also obscure the view of the woods behind them.” This was seconded by an assistant principal who remarked that there is no sightline into that section of woods due to the dumpster locations.

Grounds: General–69.1. The organization of the school campus is easily comprehended. Mean score–2.89. As previously stated by the director of secondary schools, little sense can be made from the design of the campus. He remarked that the campus was constructed at a time when priorities were different, adding that it is “essentially impossible” to secure either of the high school campuses “because of the layout.” Further, the SRO observed that the building interiors “present a tactical nightmare if there was an active shooter” (rectangular hallways, electrical/storage rooms and restrooms inside the rectangle, classrooms outside the rectangle). Regardless of where you stand in the original classroom buildings, two of the four hallways will be entirely obscured from anyone’s view.

Grounds: General–77.9. The grounds are easily viewed from school buildings. Mean score–2.89. Addressed previously with general statements about the campus perimeter, the SRO noted that seven of the nine buildings on campus do not have any windows that face the perimeter of the campus. The assistant superintendent also remarked that of the few windows that do open to the perimeter, many of them are obscured by blinds that remain closed at all times. According to the respondents, the only readily viewed area is the courtyard, which the review committee presumes to have been the focal point of the campus when it was initially constructed.

Building(s): Entries and Exits–85.1. The public entry is located adjacent to the administration area and visitor parking. Mean score–2.22. The second lowest of

the mean statement scores on the survey, this aspect has been addressed through other previously mentioned low score analyses. Public entry requires visitors to walk across campus before entering the main building, as noted by all but one respondent in their interviews. In summarizing this specific item, the superintendent succinctly stated, “The public entry and visitor parking are located in the main parking lot, which is not near the administration building.” The SRO observed that a visitor with scant knowledge of the campus could reach and walk into several other buildings before entering the main office.

Building(s): Entries and Exits–87.3. Extensive windows and glazed doors enhance natural surveillance of the public entry. Mean score–2.22. The administrative assistant, before installation of the campus monitoring station, was often the first adult to encounter campus visitors, which also means that a visitor had traversed the entire campus and likely encountered students on their way to the main office. There are windows into the lobby but no sightlines prior to the visitor physically entering the building. Specifically, this respondent stated,

The design and architecture of the building are a safety issue. The office is located in the last building on campus and visitor parking is in the very front of the school. Few windows in the actual design of the building and its location do not allow for surveillance of visitors.

There are two small windows in two of the administrative offices—the third has no windows—through which the courtyard is moderately visible but not the building entry or public entry. Though this statement had the second lowest score, the campus monitor now notifies the administrative assistant, SRO, administrators, and custodians of each visitor to campus (see Appendix D); therefore, although this item had a low score, it has

somewhat been addressed with the addition of the campus monitor and timely, consistent two-way radio communication from the front of campus.

Building(s): Entries and Exits–90.6. The design of emergency exits, such as the use of alarms, deters access from the outside. Mean score–2.71. The administrative assistant noted specifically in her interview that she felt secondary building doors were not always secured. One of the assistant principals stated that the verbal directive is for all secondary doors to be locked at all times, adding that the only doors to remain unlocked during the school day are the doors that face the courtyard. Interestingly, a cursory view of the EHS safety plan revealed that under normal conditions, classroom doors remain locked throughout the day. It fails to make note of exterior doors, regardless of whether they are facing the courtyard or secondary exits. The other assistant principal bluntly stated, “Once an incident started, we could be locked down in seconds, but the intruder can get in buildings.”

Interior: Main/Visitor Lobby–125.11. Motivational signs, temporary or permanent, herald accomplishments, reflect students. Mean score–2.89; Interior: Student Entry Areas Other Than Main Lobby–135.8. The entry areas are enhanced with plants, artwork, posters, and/or other physical means. Mean score–2.56; 137.10. Motivational signs, temporary or permanent, herald accomplishments, reflect student pride, give positive messages, and otherwise encourage student excellence. Mean score–2.78; and 138.11. Student displays include a wide range of student interests and cultural backgrounds. Mean score–2.56. The review committee combined these four statements of agreement due to one overwhelming theme throughout the interview process: a lack of student-centered displays throughout the entire campus.

Notably, as observed by the assistant superintendent, there are displays in the main lobby heralding athletics accomplishments; however, in the buildings at large (main lobby included), there is little else promoting clubs/organizations, motivational posters, or student displays of artwork or cultural awareness. The SRO remarked that other than the arts building and career and technical education building, “there aren’t really any other student interest displays.” The superintendent similarly stated, “During my visits to the school I have seen very little artwork or posters to enhance the appearance.” Further, an assistant principal noted that areas in which student displays could occur have been taken over by COVID-19-related material. The other assistant principal added,

If anyone came on campus and walked through the buildings, they would see that athletic achievements are well represented. We have entire walls covered with accomplishments. Where do I find the arts? What about awards in HOSA, DECA, Scholarships, Quiz bowl, Science Olympiad, outside interests—rodeo, race car driving, etc. We have a lot of students to spotlight.

According to the administrative assistant, a lack of space due to building design is one of the factors hindering the above statements. Interestingly, she added, “If by cultural backgrounds, diversity is implied, it is not wide ranged or visible on campus.” It bears noting here that EHS is 74% White, non-Hispanic, reflective of a presumed lack of diversity based simply on being far less diverse than the state average of 52% for the same time period. Though they were not all noted above, there are four additional statements of agreement related to the Interiors category that reference hallways/corridors which also scored less than 3, and they reveal the same trend as that just noted.

Interior: Restrooms—166.5. Restroom light controls are secured to prevent

unauthorized access. Mean score–2.33. Restrooms are difficult to supervise for obvious reasons, and a fundamental aspect of CPTED is adequate lighting so the inhabitants of a given space can see. As such, the Safe Schools coordinator was “shocked” to discover that restrooms at EHS had light controls that were accessible to students. Graffiti and other illicit activities occur in restrooms due to supervisory difficulties, according to the assistant principals, and appropriate lighting is necessary; but they each feel it should be more controlled. As the light controls currently exist, any student could turn the lights off in a restroom to conceal themselves or others and, likewise, engage in prohibited activity.

Interior: Locker Rooms (Men/Boys)–215.4. Lockers and/or locker doors are see-through. Mean score–1.75; Interior: Locker Rooms (Women/Girls)–226.4.

Lockers and/or locker doors are see-through. Mean score–1.86. Both of these items were combined due to very low scores. They were also combined because, when interviewed, the respondents were admittedly not entirely sure what the statements were referencing. The traditional lockers have been removed altogether and, if replaced, were replaced with cubby-style units with open fronts. Of the respondents, a majority of them remarked that they likely should have responded Unable to Observe.

Interior: Locker Rooms (Men/Boys)–216.5. Shower areas are easily monitored. Mean score–2.86; Interior: Locker Rooms (Women/Girls)–227.5.

Shower areas are easily monitored. Mean score–2.71. As with the prior statements regarding locker rooms, these items had low scores, but many of the respondents admitted they likely should have answered differently. Further, following COVID-19 protocol based on the governor’s orders, the showers were not utilized by any students or adults.

Interior: General–247.6. Staff and teachers have highly visible name tags.

Mean score–2.89. The EHS safety plan at all levels of security states, “Name tags will be worn by faculty at all times.” According to both assistant principals, a vast majority of the staff at EHS do not wear name tags, even though they have been provided.

WHS

Grounds: Perimeter–7.4. The perimeter is secured in areas not easily

monitored. Mean score–2.38. Much like its cross-county counterpart, WHS is in a rural area surrounded by farmland, woods, and sparse housing. The principal noted that there are houses in front of the school, mobile homes for itinerant farm workers beside the campus on a private side road, and “all areas are accessible to anyone [who] wants into our school.” The administrative assistant added that unless someone simply drives in the main gate during the day, they can otherwise enter campus from any other direction and not be seen.

Grounds: Points of Entry–14.5. Secondary pedestrian entries are secured

during school hours. Mean score–2. The district’s safety program, since installation of the campus monitors, is that all secondary campus entrances are secured during the school day. That this statement of agreement scored so low was surprising to the maintenance supervisor and Safe Schools coordinator. They both believed semantics played a role in the score but noted that pedestrians can enter campus from any point. Securing vehicular entrances does not stop foot traffic from entering campus at other locations. The Safe Schools coordinator added that the layout of the buildings did not help in this area either because it obscured sightlines to the perimeter of the campus, hampering detection of pedestrians entering campus.

Grounds: Parking Areas—45.9. Visitor parking is located directly adjacent to the main entry of the administrative offices. Mean score—2.75. Unlike EHS, WHS has two designated areas for visitor parking—a small section allocated for visitors within the student parking lot and spaces in the rear near the main administrative building. The assistant principal and Safe Schools coordinator noted that it may not be the best idea to have visitors and students in the same demarcated parking lot; but otherwise, there was parking beside the administrative office. Like EHS, the visitor parking in the student lot requires visitors to walk through the campus to enter the main office. Recent safety protocol requires visitors to stop at the campus monitor and identify themselves, and the monitor then notifies the office of the individual's name and purpose for being on campus (see Appendix D). This recent change in security procedures has made the actual location of visitor parking less of an issue.

Grounds: Exterior Athletic Areas—63.4. There are well-defined and easily monitored areas for storing backpacks, jackets, and other personal items. Mean score—2.38. The school-level administrators all agreed that most of the sports teams and their respective facilities have areas for the athletes to store their possessions. In the past year, metal structures have been installed at three different playing fields to help with this. What was not clear in the statement, according to the school-based respondents, is whether it was referring to the athletes or students in general. The Safe Schools coordinator added that for indoor athletics facilities, there were locker rooms available for storing items, but they were not well-monitored.

Grounds: Other—65.2. There are no hiding places in or around dumpster areas. Mean score—2.88. Like EHS, the dumpsters at WHS are located at the edge of the

woods, securing the view behind them. Unlike EHS, whose dumpsters are within 50 feet of a school building, the dumpsters at WHS are located on the back edge of campus, well over 300 feet from the nearest building. The review committee noted that the statement was not referencing the quality of the hiding place. As such, the director of secondary schools stated, “Anybody can get to the dumpsters at any point. They are not locked, and people can access them relatively easily.”

Buildings: Entries and Exits–85.1. The public entry is located adjacent to the administration area and visitor parking. Mean score–2. The superintendent noted that answering this question relied on what one’s perception of “public entry” may be—is it walking into the building perimeter or physically entering a building? Though it may not be near parking, public entry is located close to the main office. The doorway itself is not in view, but he added ample windows are overlooking the area from the administrative office. Based on other respondent interviews, this same ambiguity of the term “public entry” was noted and likely affected the score. The director of secondary schools further noted that, as with EHS, these schools were built at a time when sightlines and security were not priorities; otherwise, “the main offices would not have been located at the rear of the campuses.”

Building(s): Entries and Exits–87.3. Extensive windows and glazed doors enhance natural surveillance of the public entry. Mean score–2. To address this statement, the principal remarked simply that there are “too many blind spots.” At the time he completed the survey and participated in the interview, WHS was in the process of having a new camera system installed with high-definition cameras, cloud storage, and, more importantly, a greater number of cameras. He added that new cameras will be

essential for “revealing” some of those hidden areas and that will be a key determinant for placement of the additional new cameras.

Regarding the issue of defining “public entry,” the maintenance supervisor observed that there are windows in the location(s) he would consider the public entry. Though not facing the perimeter of campus, pedestrian walkways for visitors are paralleled by buildings that have windows facing the walkways. They are classroom windows but windows nonetheless. In either scenario, there are windows open to the area; what is not visible is the entry door itself.

Building(s): General–107.1. Buildings are organized to promote natural surveillance of the school campus. Mean score–2.63. Like EHS, WHS is a multi-building layout surrounding a courtyard (see Appendix D). The superintendent noted again that multiple windows are overlooking the courtyard, but “they are not organized to overlook outer areas such as parking lots, fields, and outer sidewalks.” The assistant superintendent stated that “natural surveillance” (human supervision) simply is not possible due to the building layout, adding that the courtyard is visible but little else. The principal remarked simply, “Again, the layout of the buildings is an issue.”

Approaching this issue from another angle, the maintenance supervisor discussed how current design for high school campuses typically revolves around a single, often multi-story, building. This trend has developed for the very reason at issue here, being able to surveil a campus more adequately. He added, “It would be hard to situate multiple school buildings and still be able to have a good view of necessary areas.”

Interiors: Main / Visitor Lobby–121.7. Signs provide directions to major school areas, i.e., administrative offices, cafeteria, media room, auditorium,

gymnasium, etc. Mean score–2.75. WHS has a marquee in front of the campus that details announcements to passers-by. Once on campus, a sign instructs visitors to stop at the campus monitor, at which point they are directed where to go (see Appendix D). There is little else regarding directional signage on the WHS campus, as observed by the SRO.

Interiors: Corridors–150.3. There are no hiding places. Mean score–2.5.

Several of the respondents remarked about the layout of the hallways, asserting that the design of the buildings creates hiding places, per se. As with EHS, the hallways circle the buildings; restrooms and electrical/storage rooms are on the interior of the circle, and classrooms are outside the circle. The SRO mirrored the EHS SRO when he stated that there were poor sightlines inside the buildings due to this layout. The review committee also noted how the design limited vision to other hallways inside the buildings as well as to the entry doors.

Interiors: Corridors–156.9. There are authorized adults visible in the interior corridors during class changes. Mean score–2.75. The assistant principal noted that as a result of COVID-19 protocol, staff are typically in their rooms during class changes wiping down desks and other high contact surfaces, adding that in a normal school year they are more visible. This same observation was noted by the school-based respondents. At the time of survey administration, the district was operating under the governor's Plan B (50% student capacity) so there were fewer students to observe; however, the cleaning and disinfecting protocols required by this plan also made it tremendously difficult for there to be any adult supervision during class changes.

Interiors: Restrooms–166.5. Restroom light controls are secured to prevent

unauthorized access. Mean score–2.5. Like at EHS, the Safe Schools coordinator was somewhat surprised to realize the light controls were unsecured. The lights are multi-gang switches, much like you would find in a house, with stainless steel covers. Otherwise, they are freely accessible to any occupant(s) of the restroom.

Interiors: In-school suspension areas–185.2. In-school suspension areas are enhanced with plants, artwork, or other physical means. Mean score–2.5. Somewhat humorously, the response to this statement was generally along the lines of, “It’s ISS, why would we enhance it?” The ISS room is an old classroom that has since been divided into office space and an ISS area. There are some tables with desktop computers, but it is otherwise sparsely adorned.

Interiors: Cafeterias and food courts–198.12. Student displays and other artwork include a wide range of student interest and cultural backgrounds. Mean score–2.38. For the current 2020-2021 school year, students are not staying in the cafeteria due to COVID-19 protocol; they pick up their food and return to classrooms or sit outside. COVID-19 protocol aside, the mean score for this statement is notable only in that it does not reflect the corridors, classrooms, or lobby/office areas of the rest of the school. WHS scored well in statements regarding student displays as they pertain to other areas of the school. Whether created by the students or put in place for the students, the school is amply adorned with student-focused displays. The principal proudly reiterated this ideal: “Our signs promote teachers...they help educate students...and they also promote our student of the week.”

Interiors: Locker Rooms (Men/Boys) –212.1. Locker areas are easily monitored. Mean score–2.86; Interiors: Locker Rooms (Women/Girls) –223.1.

Locker areas are easily monitored. Mean score–2.88; 226.4. Lockers and/or locker doors are see-through. Mean score–2.25; 227.5. Shower areas are easily monitored. Mean score–2.88; 229.7. Light controls are secured to prevent unauthorized access. Mean score–2.75; 233.11. All areas of the locker room are in good condition. These items are all grouped together for two reasons: (a) the adult respondents all noted that locker rooms are, by their very nature, difficult to monitor; and (b) the women/girls locker room is currently undergoing a much-needed renovation that will address some of the aforementioned statements.

It bears noting here that at the time of the survey and interviews, shower areas in both locker rooms were not being utilized due to COVID-19 protocol. The district is operating under the governor’s Plan B for opening schools and, as such, it is recommended that there be no more than seven persons per 1,000 square feet of floor space (NCDHHS, 2020), which further limits locker room availability. This aspect aside, the assistant principal remarked that from a supervision standpoint, there are no cameras, and they would not recommend an adult be physically in the locker room(s) when students are changing or showering.

Interiors: General–246.5. Visitors have distinctive and highly visible name tags. Mean score–2.75. COVID-19 protocol and interim district policy do not allow visitors to campus. Parents may check students in or out of school, but no visitors are not allowed to linger on campus. Speakers, recruiters, and trade or educational sponsors are prohibited altogether under the current operational plan; therefore, name tags are not observable or necessary at the time of this survey. Per the respondents, the scores given were based on their experience before COVID-19.

Interiors: General–247.6. Staff and teachers have highly visible name tags.

Mean score–1.88. At the time the survey was administered, current year name tags had not yet been allocated.

Additional Observations and Interviews

The interviews conducted for this research ultimately were made more difficult by the COVID-19 pandemic and state-mandated protocols. On top of social distancing requirements, scheduling interviews was interrupted several times by school closures resulting from COVID-19 clusters appearing at the schools as well as quarantines resulting from exposure to a COVID-19-positive individual, exposure in the home from a spouse or child, or the interviewee themselves testing positive. Based on the individual circumstances, therefore, interviews with the adult respondents were conducted in-person, through Zoom meetings, or as written documents with follow-up phone calls.

Other than to remark on weather conditions or frequency of visits, the Additional Observations section of the surveys was not utilized by many of the respondents. To elicit deeper responses, the respondents were asked again for additional observations during the interviews. Including questions related directly to an individual's specific answer or ratings given on the survey, each respondent was also asked (a) if there was anything in the survey they felt was particularly relevant to EHS or WHS and (b) whether addressed through the survey or not, are there any areas they would like to see the district specifically focus on concerning safety and security at the high school(s). The most relevant statements are included below.

SRO: "Updated security cameras and more cameras throughout the buildings and campus. We currently have two buildings with cameras in them, out of nine."

Assistant principal:

We need to stress the importance of SRO's, mental health of our students and staff, and continue to build community bonds securing the alliance of school and home—open-door policy without fear of punishment or ridicule—if someone needs help, they should have a certainty that they can safely seek assistance from us.

Assistant principal: “I believe that there needs to be more focus on the security in our upper parking lot for students [see Appendix C]. Also, the open school grounds provide a myriad of possibilities for mischief.”

Principal: “We need a new locking system with ID badge entry.”

Safe Schools coordinator:

I would like to see the main campus perimeter have some visually appealing fencing added between adjacent buildings to help security of the main campus area. I have seen other school systems doing this and it would help our high school campuses' security greatly. Also, I would like to see interior doors in the courtyard have access control doors to allow the building to remain more secure throughout the school day.

Maintenance supervisor:

I think the most pressing issue is securing the perimeter around both high schools to keep unwanted visitors out. I also think both high schools need to have all doors locked at all times—the only efficient way that I see doing this is by adding access control to all buildings. This would allow student and staff access but eliminate the ability for just anyone to walk into a building.

Director of secondary schools:

I believe our schools do about as well as they can with keeping our campuses safe and secure. It is essentially impossible to ever fully secure EHS or WHS...but I believe the staff members at the schools do the best they can to keep their campuses safe.

Assistant superintendent: “I would like to see an increase in the number of cameras and means of surveillance to keep all students and staff safe from outside threats.”

Superintendent:

The high school campuses are difficult to secure due to the open nature of the school campuses and the situation of buildings being built around a central courtyard. I do believe that the district will need to investigate more efficient ways to secure buildings and the courtyard areas.

Student CPTED Audit Results

Former students were solicited to take the CPTED Audit. The Audit had 16 open-ended questions and 44 separate items that the former students rated as satisfactory/unsatisfactory. There were 27 respondents for EHS and 43 for WHS.

Open-Ended Questions

How safe was your high school? This is asking for your gut reaction to your school and campus. EHS–26/27 indicated they felt safe. WHS–36/43 indicated they felt safe. Comments: EHS–“I felt safe because it’s Eastern High School, but there could be extra measures and maybe a slightly more extensive security team.” WHS–“I think it’s pretty safe, there is always some kind of officer at the school and someone at the gate.”

Regarding campus safety and security, what are some things that you think

your school did well? EHS–9/27 referred to knowing who is coming on/off campus, 5/27 referred to keeping an eye on students, 3/27 mentioned SRO. WHS–15/43 referred to knowing who is coming on/off campus, 6/43 referred to SRO, 4/43 mentioned cleanliness of campus/custodians. Comments: WHS–“Our janitors at WHS were phenomenal with what they did for the school, I always saw them doing something and never relaxing.”

Regarding campus safety and security, what are some areas that you think your school could do better? EHS–9/27 remarked “don’t know” or “nothing”; 2/27 mentioned teachers carrying firearms; 2/27 referred to always knowing where students are. WHS–7/43 referred to “more cameras” or “more security”; 16/43 remarked “don’t know,” “nothing,” or “everything was good.”

Are there any items relating to campus safety and security that you felt were lacking or missing altogether? EHS–24/27 remarked “nothing” or “no.” WHS–4/43 referred to more SROs or armed guards; 35/43 remarked “don’t know,” “nothing,” or “everything was good.”

Were there any areas on campus that you believe are good hiding places? EHS–6/27 remarked “no,” 4/27 noted locker rooms, 2/27 noted baseball field, and 5/27 noted woods. WHS–19/43 remarked “no” or “not aware of any”; 5/43 noted field house/workout room.

Is there adequate lighting during the normal hours of operation? EHS–26/27 replied favorably. WHS–29/43 replied favorably; 10/43 replied “no” or “don’t know.”

Do the adults on campus provide adequate supervision during the school day? EHS–26/27 replied favorably. WHS–40/43 replied favorably. Comments: WHS– “I

would like to believe that they try their best to maintain a good amount of supervision throughout the day, but they can't keep an eye out for every single student.”

Do the adults on campus adequately supervise common areas in which students gather during breaks or between classes? EHS–26/27 replied favorably.

WHS–38/43 replied favorably. Comments: Where comments were added, one WHS graduate referred to seeing the SRO out walking around students. Otherwise, the comments referred to teachers being visible in the courtyard or hallways.

Were pedestrian routes through campus easy to identify? EHS–27/27 replied favorably. WHS–42/43 replied favorably. Comments: The one WHS student who did not reply favorably remarked that there should be directional arrows or lines on sidewalks.

As a side note, currently, there are directional arrows and lines due to COVID-19 protocol; however, having already graduated, this former student would not be aware of this.

Did having an SRO on campus make you feel safer? EHS–26/27 replied favorably. WHS–33/43 replied favorably; 9/43 replied “no” or “not really”; 1/43 stated that they do not remember ever seeing an SRO.

Did the guard hut make you feel safer? EHS–24/27 replied favorably. WHS–25/43 replied favorably; 16/43 replied “no” or “not really”; 2/43 indicated they did not know there was one.

Did the individual working in the guard hut make you feel safer? EHS–23/27 replied favorably, one of those remarking, “Yeah, loved him.” WHS–22/43 replied negatively, many of those noting that they were aware it was “just/only” one of the bus drivers.

Do trees or bushes interfere with being able to see certain areas of campus?

EHS-26/27 replied, “no/not really.” WHS-39/43 replied they do not impede sight; one stated they “added charisma” to the campus; and one remarked they may be good hiding places for intruders, but they could also be good hiding places for students if there was an intruder.

Do trees or bushes provide places where individuals could hide or not be easily detected? EHS-22/27 replied, “no/not really.” Two students noted the woods surrounding campus could be good places to hide. WHS-33/43 replied “no/not really”; 9/43 replied, “yes/somewhat.” Comments: WHS-“They serve a dual purpose, hiding place of a bad person or somewhere to hide from the bad person.”

While at school, did you know who to notify if you needed assistance? Every respondent from both schools answered favorably to this question.

Are buildings, offices, or classrooms easily identified with appropriate signage? EHS-27/27 replied favorably. WHS-40/43 replied favorably.

Unsatisfactory Responses

As previously noted, there were 44 items on the Audit that former students had to rate as satisfactory or unsatisfactory. Of 1,148 individual responses for EHS, only 116 (10.1%) were unsatisfactory. For WHS, 246 of 1,892 (13%) were unsatisfactory. Table 5 is not a complete listing of responses from the unsatisfactory/satisfactory statements; however, it does display those statements for which greater than 20% of the respondents deemed a statement unsatisfactory.

Table 5*Student Audit Unsatisfactory Responses*

	EHS 27 students	WHS 43 students
Hiding Spots	7 = 26%	15 = 35%
Courtyard	6 = 22%	< 20%
Student Restrooms	6 = 22%	< 20%
Evidence of graffiti on campus	11 = 41%	16 = 37%
Sign in front of school	6 = 22%	< 20%
Main office easy to identify for visitors	8 = 30%	9 = 21%
Emergency communication devices / hardware	6 = 22%	< 20%
Security cameras	< 20%	10 = 23%
Total U responses/total responses	116/1,148 (10%)	246/1,892 (13%)

The review committee chose the 20% threshold (11% of the statements) for reviewing unfavorable ratings based on it being a similar threshold for scores (12% of statement mean scores) below 3 on the CSA. As shown in Table 5, even at 20%, there were not that many statements rated unfavorably by a significant number of the former students.

After comparing the categories in Table 5 to the CSA and interviews, the review committee determined that the categories are relatively common between the two survey groups. The adults and former-student groups demonstrated that there are hiding spots on campus in the woods surrounding campus and in buildings. Additionally, the CSA revealed that there are hiding spots around the dumpsters.

The aforementioned groups' responses also demonstrate that the main office is difficult to identify. What cannot be ascertained from the former-student responses is the reason the office may be difficult to identify. An analysis of the adult responses indicates that office location—rear of the campus—is the primary issue; a lack of signage is a secondary concern.

The notable exception to inter-group agreement is “Evidence of Graffiti on Campus.” Former students from both schools identified graffiti/vandalism as their most significant concern, 41% and 37% respectively. The adults had opportunities to address campus graffiti/vandalism when they completed the CSA, but through the interviews, the adults who were queried on this topic noted that graffiti may exist in places or locations that are difficult to monitor. Of the adult respondents, one assistant principal at EHS noted the existence of graffiti/vandalism in restrooms and on columns that circle the courtyard. Otherwise, the rest of the adults did not comment on it or were unaware of its existence. The review committee also noted that adults and students have separate restrooms and determined that an adult could be unaware of graffiti or vandalism in a student restroom unless they were told explicitly of its existence.

There are five additional statements shown in Table 5 that are not shared by the schools but reached the 20% threshold with one of the schools. For EHS, those statements were courtyard, student restrooms, sign in front of school, and emergency communication devices/hardware. Interestingly, two of those categories were specifically mentioned by the CSA and Audit respondents from WHS as being positive aspects of their campus: courtyard and student restrooms.

As noted by the superintendent, the courtyard at WHS has mature landscaping, a memorial to veterans, and a statue of the school mascot. By comparison, the EHS courtyard is relatively stark, but he noted, “a lot has been done the past 4 years” in terms of its outward appearance. A few of the WHS former-student respondents commented positively on the trees and shrubs in their courtyard, while one of the EHS students remarked that the courtyard may have been nice “before the school cut everything down.”

Student restrooms are mentioned by former WHS students, specifically how clean they are. The same student who commented on how hard the custodians work also noted that clean restrooms show others how much they care for their school. EHS students, conversely, rated their restrooms as unsatisfactory (22% of the respondents). The review committee believes there is a relationship between restrooms and graffiti/vandalism; however, absent data proving otherwise, that will remain an assumption only.

EHS former-student responses revealed that the sign in front of the school is unsatisfactory (22%). The signs at the two high schools are almost identical, older signs with removable lettering. The sign at WHS is located at the road along a fence, unobscured by landscaping or trees. The sign at EHS is also located on the road along a fence; however, as noted by the SRO, it is obscured by trees and is difficult to see if someone is looking for relevant announcements or information. The review committee believes the EHS score to be a function of the landscaping; not the sign specifically, but again, this is an interpretation based on a review of the data, not stated explicitly.

The one measure that 23% of former students from WHS alone did not perceive favorably, security cameras, is presently being addressed by the district. At the time the surveys were administered, new cameras (and more cameras) were in the planning stages. To be installed at WHS initially, once the installation is complete at WHS, the same system will be forthcoming at EHS. For planning purposes, both schools should have new camera systems in place by June 30, 2021, the end of the fiscal year.

Summary

There were nine CSAs completed per school, with Table 3 outlining the adults who participated in the CSA process. A total of 70 CPTED Audit surveys were

completed by former students as a means of common-theme analysis between the two sets of surveys. The bulk of Chapter 4 was spent outlining those areas in need of improvement at EHS and WHS. Though a significant amount of the chapter was devoted to discussing those statements, to a lesser degree there was also an analysis of those areas in which the schools are deemed to be performing well.

Although there were several statements of agreement that scored below 3, as outlined above, no category or subcategory had a composite score of less than 3. Of the individual categories listed in Table 4, the overall lowest mean score was 3.09, shared by both schools for Buildings: Entries and Exits. Likewise, EHS did not have a single subcategory score 4 or higher; WHS had three subcategories score 4 or higher: Grounds: Bus Unloading and Loading (4.02), Building(s): Courtyards (4.09), and Interiors: Cafeteria(s) and Food Courts (4).

Overall, the total mean scores for the schools were 3.56 for EHS and 3.57 for WHS. Of the 266 individual statements of agreement on the CSA, EHS had a mean score of 4 or higher on 67 statements, while WHS had a mean score of 4 or higher on 74 of the statements. Based on CDC guidelines for scoring the CSA, both schools' total and categorical mean scores are "acceptable but may need scrutiny."

Based on an analysis of the data contained in the survey responses, areas in which students are dense are those that score the highest. The review committee asserts that this is due to there being an increased level of supervision in many of those areas. In areas that are difficult to see (perimeter of campus), the scores typically trend downward. In the more obscure areas (restrooms, locker rooms), the results demonstrate the lowest scores, again based on how well adults can monitor those areas. The committee also determined

a relationship in scoring between factors that obscure sightlines (buildings, woods) and those that enhance supervision (open common areas, signage, windows, and cameras).

Chapter 5: Discussion

Introduction

In assessing school conditions, it is also important to know the reasons why a particular school may have been designed in a certain manner. Different eras in school design carried with them a variety of priorities, which rarely included school safety as one of the primary concerns. Schools were designed primarily for function, communities, and community-wide use and as post-war technological and mechanical innovations.

Cited by the National Center for Education Statistics, in an October 1949 article from *Architectural Forum*, the editor noted that the greatest output of the war was “children, not tanks” (Baker, 2012, p. 10). By 1949, more than 7 million children had been born in the United States, taxing school districts across the nation. Post-World War II school design saw an emergence of the industrial school (Baker, 2012; Reid, 1951). These buildings were cavernous, multi-story buildings built around the booming economy that proliferated after the war. Vocational spaces were abundant so the schools could contribute to the industry’s need for workers, and architects were cognizant of designing areas for community use. Libraries, gymnasiums, and auditoriums were typically centrally located with offices and classrooms surrounding them, often on multiple levels (Reid, 1951). In addition, many of these schools were constructed in population centers where available land may have been sparse. The availability of land, or lack thereof, contributed to the development of the industrial multi-story school because building “up” required less space (Barrett et al., 2019). Reid (1951) further noted that it was recommended practice to design the centerpiece spaces with exterior access so the community could take advantage of their availability.

Figure 3

Example of Industrial School Design



Note. [https://en.wikipedia.org/wiki/Salisbury_High_School_\(North_Carolina\)](https://en.wikipedia.org/wiki/Salisbury_High_School_(North_Carolina))

From 1958 to 1968, an additional 2.3 million students were added to the student population in the decade and a half following the conclusion of the war (Baker, 2012). As population centers became more crowded, suburbs began to develop as people spread out. Following the shift in family mobility, school construction accelerated to meet this burgeoning need. Large interior spaces had been acceptable design principles, but they were ill-suited for addressing the population boom. Non-load-bearing dividing walls also began to appear in many of the urban/industrial schools as an “efficiency” measure used to turn large spaces into multiple rooms (Baker, 2012).

Reflective of urban sprawl, schools also began to follow the spreading out of the population by utilizing more land in their design. The subsequent need for more schools in the 1950s saw the development of one-story, flat-roofed structures. These designs featured more “components” that also lessened the cost of traditional school construction

(Baker, 2012). Due to post-war hostilities and to help justify the shift to one-story schools, the National Council on Schoolhouse Construction (1964) added that these buildings were also much easier to evacuate than their urban multi-story counterparts (Baker, 2012).

The finger plan school, which focused on maximizing sunlight in classrooms, developed during the 1950s from the need for maximizing construction expenditures. As fingers emanate from the hand, wings were built off central spaces. These wings were typically a single hallway with classrooms on one or both sides. Hallways began turning into covered walkways to also allow for exposure to fresh air (Baker, 2012). Designed to maximize sunlight entering the classroom, new architectural features began to emerge; sawtooth roof designs, floor-to-ceiling windows, and skylights became common design elements of these spaces (Baker, 2012).

Figure 4

Example of Finger Plan Design



Note. Baker (2012).

As new technologies began to emerge in the 1960s—primarily air management systems and fluorescent lighting—school design began a subsequent shift from fresh air

and sunlight. Floor-to-ceiling windows were phased out of school design in favor of solid walls with mechanical lighting. Further, with developments in heating, cooling, and ventilation systems, the need for operable, energy-inefficient windows was likewise reduced (Baker, 2012).

The open-school plan emerged from these technological and mechanical developments. School buildings became separate “pods” with little differentiation of the individual spaces within each building; a classroom in one building would likely appear and function similarly to a classroom in another building. Innovations in mechanical systems meant that multiple systems could be installed, eliminating the necessity of a single building being controlled by a very large, cumbersome system (Baker, 2012). The separate buildings were often constructed around a common area, which could consist of offices, a gymnasium or auditorium, or even an open courtyard. It is this open concept design that is most evidenced by EHS and WHS—multiple buildings surrounding a central space (courtyard) and minimal windows (see Appendices C and D).

Another factor influencing school design during the 1960s and 1970s was not related to technological or educational needs. Instead, escalating tensions between the United States and the Soviet Union led many districts to renovate or construct buildings that could be used as bomb or fallout shelters in the event nuclear arms were utilized (Ogata, 2008). For these reasons, separate buildings became the norm in school construction; if one building was damaged or destroyed, there would be other buildings available for shelter. To this day, school buildings in many districts are utilized as public gathering places or emergency operation centers in times of crises.

Recent trends in school construction are somewhat reflective of the era

immediately following the end of World War II. As buildings are being replaced or new schools are built, schools are seeing a shift back towards the single-building school design. Among the reasons given for this shift, finances and school safety are cited as the top two reasons for this shift. For obvious reasons, a single building can be controlled (access control) and observed (technology, cameras) more easily than multiple buildings; this is particularly pertinent in the decades since Columbine in which heinous acts of school violence have become more frequent occurrences (Musu-Gillette et al., 2018; REMS, 2018). Architects have been charged with designing schools that have highly controlled access points but are still welcoming and nurturing (Blad, 2018). Without it being overly stated, a single-building school (multi-story or modified “finger” plan) is the simplest way to actively monitor and control access to school buildings. As school design continues to trend towards a focus on safety, it is possible to foresee a time when the open concept campus may be a proverbial relic.

Effects of Violence on School Design

School safety has always been important, but the intense emotional effect and subsequent aftermath of school shootings tend to push these violent acts to the fore. Recent government data have demonstrated that violent incidents in schools have been on the decline since Columbine (NIJ, 2017), but the nature of the events maintains the public’s focus on these types of tragedies. The Columbine High School tragedy in 1999 led to the Safe Schools Initiative, a report on violent school incidents, co-authored by the U.S. Department of Education and the U.S. Secret Service (Ames, 2019). This report compiled statistics from violent school incidents from 1974 through 2000. In the incidents studied, 75% of school attackers had told a friend or classmate about their

plans, and 95% had developed a plan prior to the attack (Ames, 2019; NIJ 2002).

The NIJ followed up with the Comprehensive School Safety Initiative in 2016. This research analyzed school safety measures since Columbine, specifically focusing on technology and school needs. The major conclusion was that there is no single panacea for school safety. Instead, a combination of factors that are appropriate for each unique situation must be tailored to meet a school's needs (NIJ, 2017). According to Vossekuil et al. (2000), "Schools may make the best use of their resources by focusing on prevention" (p. 6) instead of relying on a forceful response from law enforcement or other governmental agencies.

CDC Recommendations for Safe Schools

The CDC designed the survey instrument used in this case study. As supporters of CPTED, the CDC recommends five key areas in which schools should focus to prevent violence from occurring:

- Natural surveillance—creating ways to supervise areas inhabited by students as well as those who may be entering campus.
- Access management—using signs and landscaping to limit or encourage access to and use of certain areas.
- Territoriality—creating a welcoming environment through the use of positive school signs, student work, and other vestiges of school culture.
- Physical maintenance—repair, maintenance, and upkeep of space; this demonstrates that the school cares and the area is being monitored.
- Order maintenance—adults are visible and observant without being threatening.

The purpose of the survey instrument is to determine those areas in which the school or district is performing well as well as to determine those areas in need of improvement. As demonstrated in the CSA (see Appendix B), all the statements being measured focus on at least one of the above-listed characteristics to determine how safe or secure a given location may be. Reflective of the NIJ's conclusion, each school is a unique entity, and a combination of the aforementioned factors must be considered in addressing any school's unique needs.

Vossekuil et al.'s (2000) report asserted that schools should focus on prevention; the CDC's guidelines align and support the same ideal. Schools are not fortresses but are institutions of learning in which students and adults should feel safe. Utilized properly, a school that incorporates CPTED principles into its planning should display one or more of the following characteristics:

- Creating a warm and welcoming environment
- Fostering a sense of physical and social order
- Creating a sense of ownership by students
- Sending positive messages to students
- Maximizing the presence of authority figures
- Minimizing opportunities for out-of-sight activities
- Managing access to all school areas

Research Questions

The case study conducted for this research used the CSA to determine the degree to which certain conditions existed, or did not exist, on two rural high school campuses. The survey was administered to district-level personnel, school-based administrators,

administrative assistants, and SROs and used a Likert scale to measure levels of agreement with statements. A second survey, the Audit, was administered to a random group of former students from each high school. This survey had short answer questions and individual statements or characteristics that the former students marked as satisfactory/unsatisfactory.

Research Question 1 was, “Based on the principles of CPTED, how safe are the two high school campuses?” Based on the total mean score for each school (3.56 for EHS and 3.57 for WHS) and using the score interpretation recommendations from the CDC, each of the high schools for which surveys were completed is considered to be safe.

According to the CDC scoring guidelines, a rating of 3 is acceptable but may bear scrutiny. Ratings of 4-5 are compliant and warrant no further attention. Based again on these guidelines, we can conclude that the schools’ safety and security practices are acceptable but may require continued scrutiny of minor significance. To reiterate the view of the director of secondary schools, he believes the schools are as “reasonably safe” as they can be, given the nature and layout of each campus. The design itself is prohibitive for being entirely secure, but measures have been put in place to extend the “eyes” of each campus. These measures include the addition of the manned campus monitoring stations at the main entrance to each campus—the initial step in the program following the shooting at Marjory Stoneman Douglas High School in Florida—and upgrading the camera systems for each school, an integral piece of the district’s safety and security planning.

The former student surveys are reflective of the information derived from the CSA. Of 1,148 total satisfactory/unsatisfactory responses for EHS, only 10% of those

were rated as unsatisfactory. For WHS, there were 1,892 responses, of which 13% were unsatisfactory. No scoring guidelines were provided for the student audit, but with positive response rates of 90% and 87% respectively, the review committee concluded that the students view their former schools as safe places. Of the students surveyed, each one of them knew where adults were on campus and how to get assistance, if needed. A significant number of them remarked about the visibility of the SRO and noted that they felt safe on the campuses (26/27 at EHS; 36/43 at WHS). Further, when asked what the schools did well, 22/27 at EHS and 32/43 at WHS remarked that the schools knew who was coming and going from campus; a majority of those students specifically mentioning the addition of the campus monitor.

Though not a comprehensive list, based on the interviews and survey responses from both test groups, areas or characteristics that were rated favorably include

- Addition of the campus monitor
- SROs are active
- Schools were well-maintained
- Buildings and athletics facilities are easy to identify
- Where high numbers of students may be concentrated, their movement was orderly and adults were available in a supervisory capacity
- Interior lighting was satisfactory
- Door and window hardware was in good working order

Research Question 2 was, “Based on CPTED principles, in what areas (mechanical or natural) is SCS adequately implementing an effective safety and security program?” Each adult respondent is aware that the perimeter of the campuses is open and

difficult to monitor. To address the openness, and reflected in the results of the student audit, the addition of the campus monitor was a beneficial step towards knowing who is coming and going from campus. This individual communicates via two-way radio the presence of any individual (student or adult) who enters campus. The communication is received by the SROs, administrative assistants, custodians, and administrators. Recent district safety planning has also directed the high schools to close secondary entrances during student hours; taking this step funneled all traffic by the monitoring stations. The addition of the monitor and closing secondary entrances was done as part of the district's safety and security program.

The adult respondents also felt that the school provided good supervision in areas in which students frequently gather. The courtyards, bus loading and unloading, parent pickup and drop-off, and cafeterias all scored well for the adult respondents. These areas typically have adults assigned for supervisory duties when students are present and, as such, are areas in which the former students also felt safe. They knew the adults were present and that they could provide assistance if it was needed. One member of the review committee noted that it looked like the adults followed the students in terms of supervision—where there were significant numbers of students, one could expect also to find seemingly adequate levels of supervision. Areas that were scored favorably by the adults were

- AM and PM student drop-off and pickup areas
- Bus loading and unloading areas
- Gymnasium/Auditorium
- Cafeterias

Research Question 3 was, “Based on CPTED principles, in what areas (mechanical or natural) does SCS need to improve its safety and security program?”

Though both of the high schools had what are determined to be adequate scores for safety and security implementation, there was broad agreement on those areas in need of improvement. Many of those areas are difficult to observe or supervise in a perfect scenario, so further discussion certainly would be warranted on how to address the shortcomings.

The lowest scored category by former students and, strikingly, one of the highest rated among the adults was regarding the presence of graffiti or vandalism on campus. The students overwhelmingly scored this as their lowest measure. Adults, on the other hand, rated the presence of graffiti or vandalism as acceptable. The review committee believes this to be due to the location of the graffiti or vandalism, typically areas that get little or no adult supervision. Restrooms and locker rooms are where the adults typically do not provide a great deal of supervision, for seemingly obvious reasons, and this is where the review committee presumes the disconnect exists—areas in which adults are normally present are areas that are not defaced or otherwise vandalized.

Athletics fields also were not rated highly by either surveyed group. They are detached from the buildings to begin with and, likewise, are scattered around the perimeter of each campus. With each high school having scant windows facing the perimeter of the campus, it is reasonable to foresee that supervision of those areas during school hours is difficult. Further, they also abut wooded areas on both campuses.

Noted as a particular area of concern by the adults, as well as a good hiding area by the former students, the woods are of particular concern. One administrative assistant

noted specifically the woods at the rear of the campus being her biggest area of concern because she felt they were the least observed/supervised area of the campus. Though they provide cover for a would-be intruder, a few of the student respondents noted ironically that the woods could also provide cover for students if an intruder were to enter campus and they needed an area in which to escape. Dumpster areas also scored low on the CSA because, at each school, they are on the edge of the woods and provide additional hiding areas for would-be intruders who would attempt to enter campus on foot from the woods.

Entry door security was another facet that scored as a presumed weakness.

Exterior doors facing the perimeter of campus are always locked per each school's safety plan. Doors facing the courtyards, however, are left unlocked during the school day. If an intruder were to evade detection, it was noted by administrators at each school that they could easily walk into any building and wreak havoc before detection. The Safe Schools coordinator and maintenance supervisor both also noted the courtyard-facing doors being unlocked, adding that discussions are being held to address how to secure those doors in a manner in which they would still promote the relatively free movement of students and staff.

Implications for Practice

One of the reasons for conducting this case study was to help determine next steps for SCS's safety and security program. Since the schools opened in 1967, there has never been a baseline set of data established regarding the efficacy of the program; therefore, this case study will help inform the district of where it currently stands regarding safety and security and also inform the district as it continues to enhance and improve school safety at its two high school campuses.

Foremost among the concerns of the adult respondents is the openness of the perimeter of the campuses. Further, with few windows facing the perimeter of each campus, there rarely is a set of eyes or cameras monitoring areas other than the primary entrance. The woods, dumpster areas, and athletics fields provide cover that receives little direct or indirect supervision during the school day. At each campus, there is sparse fencing around the perimeter of the campuses, and it is not feasible to encircle the entire campus; it is both cost-prohibitive and goes against CPTED principles for creating a warm and welcoming environment for students and visitors. One option that was introduced by the former director of operations and is supported by the Safe Schools coordinator and maintenance supervisor is to install decorative fencing between the buildings. Though this does nothing to secure the perimeter of the campus, it would prevent an intruder from accessing the courtyards or school buildings. The fencing would be decorative with gates at “normal” pathways into the main part of the campus to allow for free egress; ingress would be controlled by a buzzer system. During the school day, once a visitor has stopped by the campus monitoring station, a gate could be unlocked via a buzzer system similar to those used at the elementary and middle schools. There are also options available for the fencing that would serve the purpose of securing the inner campus but would also be aesthetically pleasing so as not to appear intimidating or fortress-like. For egress, the gates could utilize panic bars in the event of an emergency. According to the Safe Schools coordinator and maintenance supervisor, utilizing this option would greatly improve the security of the inner part of campus. Again, as with fencing around the perimeter, this option would certainly assist in controlling access to the campus but potentially would be cost-prohibitive.

A second option that is receiving serious consideration is to install card reader door entry systems on the unlocked doors facing the courtyards. Used as the primary entrances for the school buildings, the courtyard facing doors could remain locked throughout the school day, allowing entry into buildings with a student or staff entry card. These systems can also be set up on timers so they can be unlocked at class changes to allow for the free flow of students and staff. The maintenance supervisor believes “both high schools need to have all doors locked at all times and the only efficient way that I see doing this is adding access control to all buildings.” Though expensive, as many mechanical measures are, installing card reader systems so doors can remain locked is not as cost-prohibitive as decorative fencing that is connecting buildings. According to the Safe Schools coordinator and the maintenance supervisor, this option is currently being seriously evaluated as a next step in securing the school buildings.

Russo (2014) asserted that districts must enhance and improve the design of their campuses to facilitate supervision. In step with this idea, Bliesner and Armes (2017) added that the liability on school districts is too great not to provide adequate supervision of students. Currently being undertaken by the district and as a strategic piece of the safety and security program, new camera systems are being installed at the high schools. WHS’s project is nearing completion and, once finished, EHS’s system will be upgraded. In addition to installing new cameras, there will be additional cameras installed at each campus in areas in which none previously existed. To combat the difficulty in supervising restrooms and locker rooms, a noted deficiency in the survey results, cameras will be installed outside the entryways to all restrooms and locker rooms. With the expectation that these areas are frequently checked by adults, the record provided by the new cameras

will increase each school's ability to potentially identify individuals who may engage in inappropriate activities in these locations.

The new camera systems will be cloud-based so they can be accessed from anywhere on any device with appropriate permissions. The cameras being replaced are operated by and stored on software located on physical hard drives. Their use is cumbersome, and the technology is outdated. The new systems will also send notifications to primary users if there is any activity on either campus after school hours. These notifications will provide access to view activity immediately from any location. Bliesner and Armes (2017) acknowledged that cameras are not a deterrent, per se, but only provide a record of an event that has already happened. It bears noting, however, that one of the former student respondents remarked that students "knew where the cameras were," which presumably contradicts the prior assertion.

Signage is another area that can be enhanced at both high schools and is also a fundamental aspect of CPTED principles. As part of the territorial aspect of CPTED, signage directs students, staff, and visitors to certain areas. It does this to guide individuals or groups to areas that enhance opportunities for supervision. For example, adequate directional signage for the main office will lead those individuals to the office, instead of them having to wander around campus until they locate the office. EHS has taken steps over the past 2 years to enhance signage, but it was noted by the SROs at each school that more directional and location-specific signage was needed on both campuses. An assistant principal at EHS added that it no longer is reasonable to rely on "habits" for students, staff, and visitors to know what to do or where to go, adding that "we need to identify buildings, offices, and athletics facilities for our own community and for visitors

from other schools.” Unlike additional personnel or new cameras, improving signage is a low-cost option for enhancing territoriality and is a step that could easily and promptly be undertaken by both schools.

Implications for this research are broad. Locally, the baseline data established with this study can inform the district regarding next steps for its own safety and security program. Likewise, continued assessment during implementation can provide valuable insight into the design of the program. The survey instrument is a publicly available document provided by the CDC and can be freely utilized at no cost. In its entirety, the survey addresses over 300 metrics for assessing school safety. It was modified for this research to reflect characteristics that are present on the respective campuses; sections were omitted that pertained to characteristics not existing on either campus. Designed specifically to measure the perceptions of the inhabitants—those for whom the program is designed—continued assessment of the program utilizing the CSA is recommended to ensure fidelity to the design of the program as well as to ascertain the effectiveness of implementation.

From a broader perspective, and as previously mentioned, the CSA provides a tremendous amount of information concerning a school. The CSA is not designed as a comparative tool. The data derived from the assessment tool are unique to each location and, per the CDC, are site-specific. For other schools or districts, the information gleaned from the CSA will inform the school and district of what they are doing well, what areas may need attention, and what areas need improvement. If not already done, it would be beneficial for any school or district to establish baseline data from which to assess their own safety and security programs.

Designed for the inhabitants, the CSA can be utilized by any school or district to assess student and staff perceptions of safety and security for their given location. Smith and Brooks (2013) noted that security is “expected” by the inhabitants of any location, and their perceptions of the environment are critical in determining if their expectations are being met—the CSA can provide this information. Cozens and Love (2017) also noted that when inhabitants feel safe, they have an increased sense of ownership in a given space. This increased ownership of a fundamental aspect of territoriality according to CPTED principles. As ownership increases, vigilance increases, and they become cyclical aspects of CPTED that feed off each other.

Limitations of the Study

This case study utilized a small group of survey respondents to establish a baseline set of data to analyze SCS’s safety and security program. The surveys each provided a substantial set of individual statements to measure—over 9,000 data points were provided—but the sample group of respondents itself was small.

A second limitation of the study is that the surveys were administered during the COVID-19 pandemic. This was irrelevant for the former student respondents since they were working from their recollections of their respective campuses. For the adult respondents, however, the pandemic protocols instituted at each campus affected the number of students visible during observation times (50% student capacity under the governor’s Plan B), prohibited certain visitors, and limited the ability of others to move around campus.

The case study conducted herein involved two rural high school campuses that were constructed on the open concept plan—multiple buildings surrounding a central

courtyard. The data collected through the study are not being used to compare the schools against each other and cannot be extrapolated to other schools. The data are being used only to establish separate sets of baseline data that are limited to each school to inform the district's safety and security program. Any assessment for other schools or districts must be conducted separately due to each location's unique circumstances and characteristics. Any attempts by other schools or districts to replicate these findings will not be valid.

As one of the early initiators of the safety and security program for SCS, researcher bias could exist in the reporting of the results. A review committee was utilized to analyze the CSA results as well as the former-student CPTED Audit. The results of this case study are reflective of efforts to minimize bias and are reported as such.

Recommendations for Future Research

The proliferation of violent events in recent decades requires districts to be cognizant of protecting students and staff to the best of their abilities. As technology and security evolve, districts must continue to analyze and measure their efforts to adapt to some of these changes. Districts need to utilize their resources to continually survey their safety and security programs. If a baseline set of data has not been established, the CSA provides a detailed list of CPTED features that can be adapted and adjusted to any campus in any school district. Periodic administration of the CSA can reinforce to school districts that their efforts are having the desired effect of increasing safety and security for their inhabitants.

For SCS, their current efforts need to be analyzed again in a reasonable time

frame to establish a comparable set of data that will determine if progress has been made in enhancing safety and security at the high schools. Doing so with deliberate speed would also demonstrate if there was a marked difference in scores in a “normal” year versus a pandemic-impacted year. Further, as features are added or enhanced, it would be beneficial for SCS to continue to assess the perceptions of the very people for whom the program is being implemented (Fennelly & Perry, 2014). It is recommended that this metric could be established easily by a second administration of the CSA.

Reingle Gonzalez et al. (2016) noted that two types of security exist on school campuses: actual and perceived. Actual security is what is being measured through the CSA and the CPTED Audit; however, it is being measured through the perceptions of the inhabitants. A significant recommendation is that the CPTED Audit be administered by the district to current students at each school with appropriate permissions. Likewise, expanding the study group of adult respondents—specifically to teachers—may also be beneficial in providing a diversity of perspectives regarding actual security measures being taken through the safety and security program (Fennelly & Perry, 2014). As inhabitants of school campuses, I believe it is critical that both students and staff are included in the assessment of any school’s safety and security program. Students and staff view safety differently, according to Cozens and Love (2017); but as the beneficiaries of an adequately designed safety and security program, their perceptions are critical to assessing current conditions with fidelity.

Summary

The purpose of this chapter was to provide a summarization of the findings of the CSA and CPTED Audit. The findings, as reported, indicate that SCS is safe, but

continued scrutiny is necessary to ensure efficacious implementation of the program. The implications of the study were addressed, with recommendations made for next steps that could be considered by the district to enhance the program. Limitations of the study were noted, and future recommendations were made for SCS and other districts to consider when evaluating their programs.

References

- Adler, F., & Laufer, W. S. (2013). *The criminology of criminal law*. Transaction.
- Alshenqeeti, H. (2014). Interviewing as a data collection method: A critical review. *English Linguistics Research*, 3(1), 39-45. <https://doi.org/10.5430/elr.v3n1p39>
- Ames, B. (2019). Making schools safe for students. <https://nij.ojp.gov/topics/articles/making-schools-safe-students>
- Armitage, R., & Monchuk, L. (2017) What is CPTED? Reconnecting theory with application in the words of users and abusers. *Policing: A Journal of Policy and Practice*, 13(3), 312-330. <https://doi.org/10.1093/police/pax004>
- Baker, L. (2012, January). *A history of school design and its indoor environmental standards, 1900 to today*. National Clearinghouse for Educational Facilities. <https://files.eric.ed.gov/fulltext/ED539480.pdf>
- Balbach, E. D. (1999). *Using case studies to do program evaluation*. California Department of Health Services. <https://www.betterevaluation.org/sites/default/files/ProgramEvaluation.pdf>
- Barrett, P., Treves, A., Shmis, T., Ambasz, D., & Ustinova, M. (2019). *The impact of school infrastructure on learning: A synthesis of the evidence*. World Bank Group.
- Bialostok, S. (2015). Risk theory and education: Policy and practice. *Policy Futures in Education*, 13(5), 561-576. <https://doi.org/10.1177/1478210315572519>
- Blad, E. (2018, December 29). *Schools are spending millions on safety. How will they know it's working?* Education Week. <https://www.edweek.org/leadership/schools-are-spending-millions-on-safety-how-will-they-know-its-working/2018/11>

- Bliesner, G., & Armes, B. (2017, October 30). *Rethinking student supervision in a changing threat environment*. Retrieved October 11, 2018, from <https://www.campussafetymagazine.com/safety/rethinking-student-supervision/>
- Bodemer, N., & Gassmaier, W. (2015). Risk perception. *Springer Reference*.
https://doi.org/10.1007/springerreference_301039
- Brown, J. (2015, October 30). *School safety: A shared responsibility*.
<http://www.govtech.com/em/safety/School-Safety-A-Shared-Responsibility.html>
- Carlton, M. P. (2017, July). *Summary of school safety statistics*. National Institute of Justice. <https://www.ojp.gov/pdffiles1/nij/250610.pdf>
- Centers for Disease Control and Prevention. (2017, May). *Crime prevention through environmental design (CPTED) school assessment (CSA)*. National Center for Injury Prevention and Control, Centers for Disease Control and Prevention, and Carter & Carter Associates.
https://rems.ed.gov/docs/CDC_CPTEDSchoolAssessment.pdf
- Centers for Disease Control and Prevention. (2018, December 12). *Framework step 2 checklist*. Author. <https://www.cdc.gov/eval/steps/step2/index.htm>
- Cozens, P., & Love, T. (2017). *The dark side of crime prevention through environmental design (CPTED)*. Oxford Research Encyclopedia of Criminology and Criminal Justice. <https://doi.org/10.1093/acrefore/9780190264079.013.2>
- Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Sage Publishing.

- Dorn, M., Atlas, R., Schneider, T., Dorn, C., Nguyen, P., Satterly, S., Bentley, R., Ellis R., Goble, C., Bellaire, U., Wilson, R., & Billinger, M. (2014). *Seven important building design features to enhance school safety and security: Building design, renovation and front entry concepts to enhance school safety, climate, culture, and emergency preparedness*. Safe Havens International for the Indiana School Safety Specialist's Academy, Indiana Department of Education.
- Douglas, M., & Wildavsky, A. (1982). *Risk and culture: An essay on the selection of technological and environmental dangers*. University of California Press.
<http://www.jstor.org/stable/10.1525/j.ctt7zw3mr>
- Edwards, R., & Holland, J. (2013). *What is qualitative interviewing?*
<https://doi.org/10.5040/9781472545244>
- Erickson, P. W. (2010, February 1). *Designing for security*.
<http://www.asumag.com/print/17369>
- Essex, N. L. (2012). *School law and the public schools: A practical guide for educational leaders* (2nd ed.). Pearson Education.
- Fennelly, L. J., & Perry, M. A. (2014). *The handbook for school safety and security: Best practices and procedures*. Butterworth-Heinemann.
- Fischhoff, B., Slovic, P., Lichtenstein, S., Read, S., & Combs, B. (2000). How safe is safe enough? A psychometric study of attitudes toward technological risks and benefits. In P. Slovic (Ed.), *The perception of risk* (pp. 80-104). Earthscan.
- Gorman, S. (2018, January 14). *How do we perceive risk? Paul Slovic's landmark analysis*. <http://www.thepumphandle.org/2013/01/16/how-do-we-perceive-risk-paul-slovics-landmark-analysis-2>

The International CPTED Association. (n.d.). Primer in CPTED - What is CPTED?

<https://cpted.net/Primer-in-CPTED>

Kennedy, M. (2003, September 1). *Staying vigilant*. <http://www.asumag.com/print/9781>

Kennedy, M. (2016, June 1). *Stepping up security: Staying vigilant about keeping schools and universities safe is a never-ending responsibility*.

<http://www.asumag.com/print/17797>

Larkin, C., & Matson, J. (2016, April 1). *Designing a safe campus*. American School & University (Online Exclusive). <http://www.asumag.com/print/17371>

Lasky, S. (2013). *Securing today's schools takes more than locks and metal detectors*. SecurityInfoWatch.Com.

<https://www.securityinfowatch.com/education/article/11123372/combining-physical-security-with-the-concept-of-cpted-create-a-safe-and-secure-school-environment>

Lukas, L. (2016). *Theoretical sources for a theory of safety and security*. Czech Republic, Ministry of Education, National Sustainability Programme.

Marques, J. F., & McCall, C. (2005). The application of interrater reliability as a solidification tool in a phenomenological study. *The Qualitative Report*, 10(3), 439-462. <https://nsuworks.nova.edu/tqr/vol10/iss3/3>

McCawley, P. F. (2001). *The logic model for program planning and evaluation*. University of Idaho Extension, Boise.

McLeod, S. (2014, January 01). *The interview method*.

<https://www.simplypsychology.org/interviews.html>

McLeod, S. (2018, May 21). *Maslow's hierarchy of needs*.

<http://www.simplypsychology.org/maslow.html>

Musu-Gillette, L., Zhang, A., Wang, K., Zhang, J., Kemp, J., Diliberti, M., & Oudekerk, B. A. (2018). *Indicators of school crime and safety: 2017* (NCES 2018-036/NCJ 251413). National Center for Education Statistics, U.S. Department of Education, and Bureau of Justice Statistics, Office of Justice Programs, U.S. Department of Justice.

National Association of School Psychologists. (2013). (rep.). *Rethinking school safety: Communities and schools working together*.

file:///C:/Users/denny.key/Downloads/Rethinking_School_Safety_Key_Message.pdf

National Institute of Justice. (2017). *Summary of school safety statistics*. Office of Justice Programs, U.S. Department of Justice.

North Carolina Department of Health and Human Services. (2020, June 30). Strong Schools NC Public Health Toolkit (K-12).

<https://covid19.ncdhhs.gov/media/164/download>

North Carolina Department of Public Safety. (n.d.). Crime prevention through environmental design. <https://www.ncdps.gov/dps-services/crime-prevention/prevention-through-environmental-design>

Ogata, A. F. (2008). Building for learning in postwar American elementary schools.

Journal of the Society of Architectural Historians, 67(4), 562–591.

<https://doi.org/10.1525/jsah.2008.67.4.562>

- Oltedal, S., Moen, B., Klempe, H., & Rundmo, T. (2004). *Explaining risk perception: an evaluation of cultural theory* (Vol. 85, pp. 1-41, Publication). Rotunde.
- Parnaby, P. F. (2006). Crime prevention through environmental design: Discourses of risk, social control, and a new-liberal context. *Canadian Journal of Criminology and Criminal Justice*, 48(1), 1-29.
- Perumean-Chaney, S., & Sutton, L. M. (2013). Students and perceived school safety: The impact of school security measures. *American Journal of Criminal Justice*, 38(4), 570-588. <https://link.springer.com/article/10.1007/s12103-012-9182-2>
- Readiness and Emergency Management for Schools Technical Assistance Center. (2018.). *Student perceptions of safety fact sheet*.
https://rem.s.ed.gov/docs/Student_Perceptions_Safety_Fact_Sheet_508C.pdf
- Reid, K. (1951). *School planning: The architectural record of a decade*. Dodge Corporation.
- Reingle Gonzalez, J. M., Jetelina, K. K., & Jennings, W. G. (2016). Structural school safety measures, SROs, and school-related delinquent behavior and perceptions of safety. *Policing*, 39(3), 438-454.
https://www.researchgate.net/publication/306920234_Structural_school_safety_measures_SROs_and_school-related_delinquent_behavior_and_perceptions_of_safety_A_state-of-the-art_review
- Reynald, D. M. (2011). Translating CPTED into crime preventive action: A critical examination of CPTED as a tool for active guardianship. *European Journal on Criminal Policy and Research*, 17(1), 69–81.

- Roeser, S. (2012). Risk communication, public engagement, and climate change: a role for emotions. *Risk Analysis*, 32(6), 1033–1040. <https://doi.org/10.1111/j.1539-6924.2012.01812.x>
- Ron, A. A., Meyer, H. A., Benbenishty, R., Marachi, R., & Rosemond, M. (2005). School safety interventions: Best practices and programs. *Children & Schools*, 27(1), 17-32.
https://www.researchgate.net/publication/235667190_School_Safety_Interventions_Best_Practices_and_Programs
- Ropeik, D. (2012, December 21). How do we perceive risk?
<http://www.pbs.org/wgbh/nova/article/risk-perception/>
- Russo, C. J. (2014, July). *Negligence, student supervision, and school business officials*.
https://ecommons.udayton.edu/cgi/viewcontent.cgi?article=1182&context=eda_fac_publications
- Schneider, T. (2010). *CPTED 101: Crime prevention through environmental design—the fundamentals for schools*. <http://www.ncef.org/content/cpted-101-crime-prevention-through-environmental-design—fundamentals-schools>
- Schwartz, H. L., Ramchand, R., Barnes-Proby, D., Grant, S., Jackson, B. A., Leuschner, K. J., Matsuda, M., & Saunders, J. (2016, August 22). *Can technology make schools safer?* RAND Corporation.
http://www.rand.org/pubs/research_briefs/RB9922.html
- Slovic, P. (1987). Ripples in a pond: Forecasting industrial crises. *Industrial Crisis Quarterly*, 1(4), 34-43. <http://www.jstor.org/stable/26162630>

- Smith, C. L., & Brooks, D. J. (2013). *Security science: The theory and practice of security*. Butterworth-Heinemann. <https://doi.org/10.1016/B978-0-12-394436-8.00001-1>
- Spicer, B. (2017, August 17). *11 Components of a secure school front entrance*. <https://www.campussafetymagazine.com/safety/11-components-of-a-secure-school-front-entrance/>
- Sullivan, G. M., & Artino Jr., A. R. (2013, Dec.). *Analyzing and interpreting data from Likert-type scales*. *Journal of Graduate Medical Education*, 5(4), 541-542. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3886444/>
- Sutton, H. (2016). Design out crime on your campus with low-cost best practices. *Campus Security Report*, 12, 1-5. <https://doi.org/10.1002/casr.30142>
- Tanner-Smith, E., Fisher, B. W., Addington, L. A., & Gardella, J. H. (2018). Adding security, but subtracting safety? Exploring schools' use of multiple visible security measures. *American Journal of Criminal Justice*, 43(1), 102-119.
- Vossekuil, B., Reddy, M., Fein, R., Borum, R., Modzeleski, W. (2000). *Safe school initiative: An interim report on the prevention of targeted violence in schools*. Department of the Treasury, United States Secret Service.
- Warnick, B., Johnson, B. A., & Rocha, S. (2018, February 14). *Why security measures won't stop school shootings*. <http://theconversation.com/why-security-measures-wont-stop-school-shootings-90738>

Appendix A

CDC Permission to Use CPTED School Assessment Survey

CDC-INFO: [CDC CPTED Assessment] [CDC-111016-V7P3W5] CRM:00340658

CDCInfo <cdcinfo@cdcinqury.onmicrosoft.com>

Wed, Nov 14, 2018 at 8:31 PM

To: [REDACTED]

Sent: 11/11/2018

From: Educator

Subject: CDC CPTED Assessment

Email Address: [REDACTED]

Question: Is the CDC CPTED assessment available for public use? Are there any permissions required? Thank you.

Optional Information

Redacted

Thank you for contacting CDC-INFO. Insert late response if appropriate, e.g., We are sorry for the delay in responding to your e-mail. A recent high volume of inquiries has delayed our response.

Here is the information you requested on accessing the CDC Crime Prevention Through Environmental Design (CPTED) School Assessment (CSA).

The publication you are seeking is available on CDC Stacks: <https://stacks.cdc.gov/view/cdc/46282>.

CDC Stacks is a free, digital collection of scientific research and literature. This online repository includes all issues of CDC's *Morbidity and Mortality Weekly Report (MMWR)* and articles from CDC journals like *Emerging Infectious Diseases (EID)* and *Preventing Chronic Disease (PCD)*. The repository also includes peer-reviewed articles written by CDC personnel or sponsored by CDC grants and contracts published in commercially published scientific journals since 2013.

CDC Stacks is tailored for public health research needs and is available for public health professionals, researchers, and the general public. It contains journal articles, journal issues, reports, pamphlets, fact sheets, posters, and maps.

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For more information, please visit the following CDC website:

Appendix B
CDC CPTED School Assessment

(Adapted from cdc.org CSA Survey)

Note: Initially designed as a Google survey, this survey was administered as a paper copy at the request of the individuals completing the surveys.

Crime Prevention Through Environmental Design (CPTED) School Assessment

School:

Name:

Title:

Rate each line item 1-5 with 1 being the lowest level of agreement and 5 being the highest. If you are not able to view/observe one of the items below, write UNO instead of marking a number. If it does not exist at your school, write DNE.

Initial Impressions

A. Initial Impressions

1. 1. Initial impressions of the school grounds are positive.

1 2 3 4 5

2. 2. Initial impressions of the school buildings are positive.

1 2 3 4 5

3. 3. Initial impressions of the school interiors are positive.

1 2 3 4 5

The Grounds

A. Grounds: Perimeter

4. 1. School property boundaries are delineated from adjacent properties.

1 2 3 4 5

5. 2. Physical or symbolic barriers along the property boundary present an attractive appearance.

1 2 3 4 5

6. 3. Perimeter fencing allows for natural surveillance of school grounds.

1 2 3 4 5

7. 4. The perimeter is secured in areas not easily monitored.

1 2 3 4 5

8. 5. Signs direct approaching vehicles and pedestrians to appropriate entries to the school property.

1 2 3 4 5

9. 6. Posted rules are located at key points around the school grounds.

1 2 3 4 5

B. Ground: Points of entry

10. 1. Entries to the school grounds are attractive and welcoming.

1 2 3 4 5

11. 2. There is an attractive and visible sign indicating the school's name near the primary entry.

1 2 3 4 5

12. 3. Signs at each primary entrance to the school property direct students, staff, visitors, and delivery traffic to appropriate locations.

1 2 3 4 5

13. 4. Entries to the school property can be easily monitored.

1 2 3 4 5

14. 5. Secondary pedestrian entries are secured during school hours.

1 2 3 4 5

15. 6. Secondary vehicular entries are secured during school hours.

1 2 3 4 5

C. Grounds: Parent Drop-off/Pickups

16. 1. Parent drop-off/pickup locations are clearly marked by signage, pavement, and curb treatments.

1 2 3 4 5

17. 2. Students are dropped-off and picked up at authorized locations.

1 2 3 4 5

18. 3. Parent drop-off/pickup areas are well lit.

1 2 3 4 5

19. 4. Parent drop-off/pickup areas easily monitored.

1 2 3 4 5

20. 5. There are authorized adults visible and available for assistance in proximity of parent drop-off areas during arrivals.

1 2 3 4 5

21. 6. There are authorized adults visible and available for assistance in proximity of parent pickup areas during departures.

1 2 3 4 5

22. 7. There is sufficient capacity in parent drop-off/pickup areas for the orderly movement of vehicles.

1 2 3 4 5

23. 8. Parent drop-offs proceed in an orderly manner.

1 2 3 4 5

24. 9. Parent pickups proceed in an orderly manner.

1 2 3 4 5

D. Grounds: Bus Unloading and Loading

25. 1. Bus unloading and loading areas are clearly marked by signage, pavement, and/or curb treatments.

1 2 3 4 5

26. 2. Bus unloading and loading areas are well lit.

1 2 3 4 5

27. 3. Bus unloading and loading areas are easily monitored.

1 2 3 4 5

28. 4. There are authorized adults visible and available for assistance in proximity to the bus unloading area during arrivals.

1 2 3 4 5

29. 5. There are authorized adults visible and available for assistance in proximity of bus loading area during departures.

1 2 3 4 5

30. 6. There is sufficient capacity in the bus unloading/loading area for the orderly movement of vehicles.

1 2 3 4 5

31. 7. Bus unloading proceeds in an orderly manner.

1 2 3 4 5

32. 8. Bus loading proceeds in an orderly manner.

1 2 3 4 5

E. Grounds: Vehicular Routes

33. 1. Vehicular travel routes are clearly marked.

1 2 3 4 5

34. 2. Vehicular travel routes are in good condition.

1 2 3 4 5

35. 3. There are traffic-calming measures on adjacent public streets that limit vehicular speeds where students cross.

1 2 3 4 5

36. 4. Delivery activities are orderly and do not interfere with normal school functions.

1 2 3 4 5

F. Grounds: Parking Areas

37. 1. Parking lot entrances and exits are clearly marked.

1 2 3 4 5

38. 2. Parking areas are delineated for staff and visitors.

1 2 3 4 5

39. 3. All parking spaces are clearly marked.

1 2 3 4 5

40. 4. Parking lots are easily monitored.

1 2 3 4 5

41. 5. Parking lots are in good condition.

1 2 3 4 5

42. 6. Parking lots are well lit.

1 2 3 4 5

43. 7. There are no signs of vandalism in parking lots.

1 2 3 4 5

44. 8. Vehicular traffic flows in an orderly manner in and out of parking lots.

1 2 3 4 5

45. 9. Visitor parking is located directly adjacent to the main entry of the administrative offices.

1 2 3 4 5

46. 10. Visitor parking areas are visible from adjacent buildings.

1 2 3 4 5

G. Grounds: Exterior Pedestrian Pathways and Gathering Areas

47. 1. There are signs directing visitors to the office.

1 2 3 4 5

48. 2. There is a wayfinding system, which includes signs; plant materials; and art work, monuments or other landmarks.

1 2 3 4 5

49. 3. Pedestrian crossings of adjacent public streets are clearly marked by signage, pavement treatment and/or curb treatment.

1 2 3 4 5

50. 4. Pedestrian pathways on school property are separated from vehicular routes by curbing, color markings, landscaping and/or other real symbolic barriers.

1 2 3 4 5

51. 5. Pedestrian pathways on school property are easily monitored.

1 2 3 4 5

52. 6. Pedestrian pathways on school property are in good condition.

1 2 3 4 5

53. 7. Pedestrian pathways on school property are well lit.

1 2 3 4 5

54. 8. Pedestrian flows on school property are orderly.

1 2 3 4 5

55. 9. There are pedestrian amenities such as seating and trash receptacles located along the key pedestrian pathways.

1 2 3 4 5

56. 10. Pedestrian amenities are in good condition.

1 2 3 4 5

57. 11. Pedestrian pathways and gathering places are easily monitored.

1 2 3 4 5

58. 12. Public telephones are located in areas that are easily monitored.

1 2 3 4 5

59. 13. Landscaping elements do not allow easy access to roofs, windows, or other upper level areas.

1 2 3 4 5

H. Grounds: Exterior Athletic Areas

60. 1. Exterior athletic areas are easily monitored.

1 2 3 4 5

61. 2. Exterior athletic areas are in good condition.

1 2 3 4 5

62. 3. Posted rules are located near exterior athletic area entries and exits.

1 2 3 4 5

63. 4. There are well-defined and easily monitored areas for storing backpacks, jackets, and other personal items.

1 2 3 4 5

I. Grounds: Other

64. 1. Access to dumpsters is controlled.

1 2 3 4 5

65. 2. There are no hiding places in or around dumpster areas.

1 2 3 4 5

66. 3. Dumpsters are in good condition.

1 2 3 4 5

67. 4. There are usually no foul odors in or around dumpster areas.

1 2 3 4 5

68. 5. Site utilities are secured.

1 2 3 4 5

J. Grounds: General

69. 1. The organization of the school campus is easily comprehended.

1 2 3 4 5

70. 2. The school grounds are attractive.

1 2 3 4 5

71. 3. The school grounds are enhanced with landscaping, student artwork, monuments and/or other physical means.

1 2 3 4 5

72. 4. There are outdoor learning areas that provide out-of-doors opportunities for students.

1 2 3 4 5

73. 5. The school grounds are in good condition.

1 2 3 4 5

74. 6. Remote areas are visible from occupied buildings, pedestrian pathways, or vehicular travel routes.

1 2 3 4 5

75. 7. Seldom-used areas or buildings are secured to prevent access.

1 2 3 4 5

76. 8. There are no hiding places created by landscaping or fencing.

1 2 3 4 5

77. 9. The grounds are easily viewed from school buildings.

1 2 3 4 5

78. 10. There are no unattractive barriers such as barbed or razor wire on the school grounds.

1 2 3 4 5

79. 11. Security devices are unimposing.

1 2 3 4 5

80. 12. There are examples of student involvement with campus beautification such as landscaping maintenance, gardens, memorials, art projects and/or other

physical enhancements.

1 2 3 4 5

81. 13. Examples of student involvement in campus beautification are in good condition.

1 2 3 4 5

82. 14. There are no signs of vandalism.

1 2 3 4 5

83. 15. There are no foul odors.

1 2 3 4 5

84. 16. There are no continuously occurring loud noises on school grounds.

1 2 3 4 5

The Building s

A. Building(S): Entries and Exits

85. 1. The public entry is located adjacent to the administration area and visitor parking.

1 2 3 4 5

86. 2. The public entry is well defined with architectural features, signs, lighting, artwork, landscaping and/or landmarks such as flags.

1 2 3 4 5

87. 3. Extensive windows and glazed doors enhance natural surveillance of the public entry.

1 2 3 4 5

88. 4. Entrances and exits are easily monitored.

1 2 3 4 5

89. 5. Secondary entrance and exit doors are secured in the closed position.

1 2 3 4 5

90. 6. The design of emergency exits, such as the use of alarms, deters access from the outside.

1 2 3 4 5

91. 7. Exterior waiting areas are well lit.

1 2 3 4 5

92. 8. Exterior waiting area amenities provide shelter from foul weather.

1 2 3 4 5

93. 9. Exterior waiting areas are visible from adjacent buildings.

1 2 3 4 5

B. Building(s): Exterior Walls

94. 1. The design of the exterior walls does not create hard-to-see locations or hiding places/

1 2 3 4 5

95. 2. Exterior walls are in good condition.

1 2 3 4 5

96. 3. Murals, artwork, landscaping and/or architectural treatments have been used to enhance blank or barren exterior walls.

1 2 3 4 5

97. 4. There are no signs of graffiti on exterior walls.

1 2 3 4 5

98. 5. Doors and windows are in good condition.

1 2 3 4 5

99. 6. Screening walls and/or other architectural features do not allow for easy access to the roof or upper level areas.

1 2 3 4 5

C. Building(s): Courtyards

100. 1. Entries to courtyards are easily monitored.

1 2 3 4 5

101. 2. Courtyards are visible from windows and doors of the school buildings.

1 2 3 4 5

102. 3. Courtyard landscaping elements, including walls, planters and seating, do not allow easy

access to roofs, windows, or other upper level areas.

1 2 3 4 5

103. 4. Courtyards are enhanced with landscaping, student artwork, and/or other physical means.

1 2 3 4 5

104. **5. Courtyards are easily monitored.**

1 2 3 4 5

105. **6. Courtyards are in good condition.**

1 2 3 4 5

106. **7. There are no signs of graffiti.**

1 2 3 4 5

D. Building(s): General

107. **1. Buildings are organized to promote natural surveillance of the school campus.**

1 2 3 4 5

108. **2. All buildings have highly visible identification names and/or numbers.**

1 2 3 4 5

109. **3. Building design and architectural attributes present an attractive appearance.**

1 2 3 4 5

110. **4. Building Materials and colors are attractive.**

1 2 3 4 5

111. **5. All buildings are in good condition.**

1 2 3 4 5

112. **6. Building mounted security devices, such as cameras and window grates, are unimposing.**

1 2 3 4 5

113. **7. Window and door security devices are attractive.**

1 2 3 4 5

114. **8. Covers for exterior walkways and stairs are designed to limit easy access to roofs, windows, or other upper level areas.**

1 2 3 4 5

The Interiors

A. Interior: Main/Visitor Lobby

115. **1. The lobby is attractive, cheerful, and inviting.**

1 2 3 4 5

116. 2. Entry security devices are unimposing.

1 2 3 4 5

117. 3. Pedestrian flows through entry security devices are orderly.

1 2 3 4 5

118. 4. The lobby is well lit.

1 2 3 4 5

119. 5. The lobby is easily monitored.

1 2 3 4 5

120. 6. Signs direct visitors to the office.

1 2 3 4 5

121. 7. Signs provide directions to major school areas, i.e. administrative offices, cafeteria, media room, auditorium, gymnasium, etc.

1 2 3 4 5

122. 8. The lobby is visible from adjacent administrative offices.

1 2 3 4 5

123. 9. The lobby is enhanced with plants, artwork, posters and/or other physical means.

1 2 3 4 5

124. 10. Extensive use of windows in the lobby area provides natural surveillance opportunities.

1 2 3 4 5

125. 11. Motivational signs, temporary or permanent, herald accomplishments, reflect student

pride, give positive messages, and otherwise encourage student excellence.

1 2 3 4 5

126. 12. Student displays include a wide range of student interests and cultural backgrounds.

1 2 3 4 5

127. 13. The lobby is in good condition.

1 2 3 4 5

B. Interior: Student Entry Areas - Other Than Main Lobby

128. 1. The entry areas are attractive, cheerful, and

inviting.

1 2 3 4 5

129. 2. Entry security devices are unimposing.

1 2 3 4 5

130. 3. Pedestrian flows through entry security devices are orderly.

1 2 3 4 5

131. 4. The entry areas are well lit.

1 2 3 4 5

132. 5. The entry areas are easily monitored.

1 2 3 4 5

133. 6. Signs direct visitors to the office.

1 2 3 4 5

134. 7. Signs provide directions to major school areas, i.e. administrative offices, cafeteria, media room, auditorium, gymnasium, etc.

1 2 3 4 5

135. 8. The entry areas are enhanced with plants, artwork, posters and/or other physical means.

1 2 3 4 5

136. 9. Extensive use of windows in the entry areas provides natural surveillance opportunities.

1 2 3 4 5

137. 10. Motivational signs, temporary or permanent, herald accomplishments, reflect student pride, give positive messages and otherwise encourage student excellence.

1 2 3 4 5

138. 11. Student displays include a wide range of student interests and cultural backgrounds.

1 2 3 4 5

139. 12. The entry areas are in good condition.

1 2 3 4 5

C. Interior: Administrative Offices

140. 1. Access to the school staff area(s) is controlled.

1 2 3 4 5

141. 2. Extensive use of windows in the administrative areas provides natural surveillance of and for adjoining interior spaces.

1 2 3 4 5

142. 3. Extensive use of windows in the administrative areas provides natural surveillance of and for exterior spaces.

1 2 3 4 5

143. 4. Counseling areas are in good condition.

1 2 3 4 5

144. 5. Counseling areas are enhanced with plants, artwork and other physical means.

1 2 3 4 5

145. 6. Motivational signs, temporary or permanent, herald accomplishments, reflect student pride, give positive messages and otherwise encourage student excellence.

1 2 3 4 5

146. 7. Student displays include a wide range of student interests and cultural backgrounds.

1 2 3 4 5

147. 8. The administrative areas are in good condition.

1 2 3 4 5

D. Interior: Corridors

148. 1. Interior corridors are well lit.

1 2 3 4 5

149. 2. Interior corridors are easily monitored.

1 2 3 4 5

150. 3. There are no hiding places.

1 2 3 4 5

151. 4. Pedestrian flows are orderly.

1 2 3 4 5

152. 5. Interior corridors are of sufficient capacity to allow orderly movement between classes.

1 2 3 4 5

153. 6. Interior corridors are free of obstacles that impede orderly pedestrian flow.

1 2 3 4 5

154. 7. Interior corridor light controls are secured to prevent unauthorized access.

1 2 3 4 5

155. 8. There are authorized adults visible in the interior corridors during arrivals.

1 2 3 4 5

156. 9. There are authorized adults visible in the interior corridors during class changes.

1 2 3 4 5

157. 10. There are authorized adults visible in the interior corridors during departures.

1 2 3 4 5

158. 11. Motivational signs, temporary or permanent, herald accomplishments, reflect student pride, give positive messages and otherwise encourage student excellence.

1 2 3 4 5

159. 12. Student displays include a wide range of student interests and cultural backgrounds.

1 2 3 4 5

160. 13. Interior corridors are attractive and cheerful.

1 2 3 4 5

161. 14. Interior corridors are in good condition.

1 2 3 4 5

E. Interior:

Restrooms

162. 1. Multiple stall restrooms have open zigzag entries, rather than door systems.

1 2 3 4 5

163. 2. Restrooms with solid doors have vents to increase the opportunity for auditory

surveillance.

1 2 3 4 5

164. 3. Restroom entries are easily viewed from other active areas.

1 2 3 4 5

165. 4. Restrooms are well lit.

1 2 3 4 5

166. 5. Restroom light controls are secured to prevent unauthorized access.

1 2 3 4 5

167. 6. There are no unusually foul odors in the restrooms.

1 2 3 4 5

168. 7. There are no signs of graffiti.

1 2 3 4 5

169. 8. There are no other signs of vandalism.

1 2 3 4 5

170. 9. Stall doors and locks are in good condition.

1 2 3 4 5

171. 10. Toilets, urinals and lavatories are in good condition.

1 2 3 4 5

172. 11. The restroom ceiling treatment does not provide access to a hiding place.

1 2 3 4 5

173. 12. Restrooms are in good condition.

1 2 3 4 5

F. Interior: Classrooms

174. 1. Classrooms have windows that allow for natural surveillance of exterior spaces.

1 2 3 4 5

175. 2. Classroom door windows allow for natural surveillance into the classrooms.

1 2 3 4 5

176. 3. Furniture, lockers, or other objects do not compromise natural surveillance within the classroom.

1 2 3 4 5

177. 4. Classrooms can be secured and locked down from the inside.

1 2 3 4 5

178. 5. Secured classroom doors can be exited in an emergency.

1 2 3 4 5

179. 6. Classroom door(s) are secured when the classroom is not in use.

1 2 3 4 5

180. 7. Classrooms are well lit.

1 2 3 4 5

181. 8. Motivational signs, temporary or permanent, herald accomplishments, reflect student pride, give positive messages and otherwise encourage student excellence.

1 2 3 4 5

182. 9. Classrooms are

cheerful.

1 2 3 4 5

183. 10. Classrooms are in good condition.

1 2 3 4 5

G. Interior: In-school Suspension Areas

184. 1. In-school suspension areas are easily monitored.

1 2 3 4 5

185. 2. In-school suspension areas are enhanced with plants, artwork or other physical means.

1 2 3 4 5

186. 3. In-school suspension areas are in good condition.

1 2 3 4 5

H. Interior: Cafeteria(s) and Food Courts

187. 1. Cafeteria(s) and food courts have well-defined entry(s).

1 2 3 4 5

188. 2. The cafeteria entry(s) is easily monitored.

1 2 3 4 5

189. 3. There are authorized adults visible and available for assistance.

1 2 3 4 5

190. 4. Kitchen and serving areas have limited access.

1 2 3 4 5

191. 5. The student serving line is orderly.

1 2 3 4 5

192. 6. The pedestrian flow within the cafeteria(s) is orderly.

1 2 3 4 5

193. 7. The pedestrian flow around the outside of the cafeteria(s) is orderly.

1 2 3 4 5

194. 8. There is sufficient capacity for all students to sit within authorized

locations.

1 2 3 4 5

195. 9. There is sufficient space between tables to allow orderly circulation.

1 2 3 4 5

196. 10. The behavior in the cafeteria(s) is orderly.

1 2 3 4 5

197. 11. The cafeteria(s) is enhanced with plants, artwork, posters and/or other physical means.

1 2 3 4 5

198. 12. Student displays and other artwork include a wide range of student interest and cultural backgrounds.

1 2 3 4 5

199. 13. There are no foul odors.

1 2 3 4 5

200. 14. Entrance is secured when the room is not in use.

1 2 3 4 5

201. 15. The cafeteria(s) is in good condition.

1 2 3 4 5

I. Interior: Auditorium(s)

202. 1. The auditorium(s) has well defined entry(s).

1 2 3 4 5

203. 2. The auditorium(s) is easily monitored.

1 2 3 4 5

204. 3. All entrances are secured when the room is not in use.

1 2 3 4 5

205. 4. The auditorium(s) is in good condition.

1 2 3 4 5

J. Interior: Gymnasium

206. 1. The gymnasium(s) is easily monitored.

1 2 3 4 5

207. 2. Access to the underside of bleachers, whether open or closed, is limited.

1 2 3 4 5

208. **3. The gymnasium(s) is well lit.**

1 2 3 4 5

209. **4. Light controls are secured to prevent unauthorized access.**

1 2 3 4 5

210. **5. Entrance is secured when the room is not in use.**

1 2 3 4 5

211. **6. The gymnasium(s) is in good condition.**

1 2 3 4 5

K. Interior: Locker Rooms (Men/Boys)

212. **1. Locker areas are easily monitored.**

1 2 3 4 5

213. **2. Lockers in the center do not obstruct visibility.**

1 2 3 4 5

214. **3. Lockers are adequately spaced to avoid crowding.**

1 2 3 4 5

215. **4. Lockers and/or locker doors are see-through.**

1 2 3 4 5

216. **5. Shower areas are easily monitored.**

1 2 3 4 5

217. **6. All areas of the locker room are well lit.**

1 2 3 4 5

218. **7. Light controls are secured to prevent unauthorized access.**

1 2 3 4 5

219. **8. There are no unusually foul odors.**

1 2 3 4 5

220. **9. The ceiling treatment does not provide a hiding place.**

1 2 3 4 5

221. **10. Entrance is secured when a room is not in use.**

1 2 3 4 5

222. 11. All areas of the locker room are in good condition.

1 2 3 4 5

L. Interior: Locker Rooms (Women/Girls)

223. 1. Locker areas are easily monitored.

1 2 3 4 5

224. 2. Lockers in the center do not obstruct visibility.

1 2 3 4 5

225. 3. Lockers are adequately spaced to avoid crowding.

1 2 3 4 5

226. 4. Lockers and/or locker doors are see-through.

1 2 3 4 5

227. 5. Shower areas are easily monitored.

1 2 3 4 5

228. 6. All areas of the locker room are well lit.

1 2 3 4 5

229. 7. Light controls are secured to prevent unauthorized access.

1 2 3 4 5

230. 8. There are no unusually foul odors.

1 2 3 4 5

231. 9. The ceiling treatment does not provide a hiding place.

1 2 3 4 5

232. 10. Entrance is secured when the room is not in use.

1 2 3 4 5

233. 11. All areas of the locker room are in good condition.

1 2 3 4 5

M. Interior: Libraries and Media Centers

234. 1. The library or media center has a well-defined entry.

1 2 3 4 5

235. 2. The entrance is easily monitored by staff and volunteers.

1 2 3 4 5

236. **3. Activity within the library area is easily monitored.**

1 2 3 4 5

237. **4. Motivational signs, temporary or permanent, herald accomplishments, reflect student pride, give positive messages and otherwise encourage student excellence.**

1 2 3 4 5

238. **5. Student displays include a wide range of student interest and cultural backgrounds.**

1 2 3 4 5

239. **6. The library is secured when not in use.**

1 2 3 4 5

240. **7. Rooms within the library are secured when not in use.**

1 2 3 4 5

241. **8. All areas of the library are in good condition.**

1 2 3 4 5

N. Interior: General

242. **1. There is an abundance of natural light within interior spaces.**

1 2 3 4 5

243. **2. Interior spaces are well lit.**

1 2 3 4 5

244. **3. Interior spaces are attractive and cheerful.**

1 2 3 4 5

245. **4. The organization of interior spaces is easily comprehended.**

1 2 3 4 5

246. **5. Visitors have distinctive and highly visible name tags.**

1 2 3 4 5

247. **6. Staff and teachers have highly visible name tags.**

1 2 3 4 5

248. **7. Security personnel wear distinctive clothing and have distinct, visible identification badges.**

1 2 3 4 5

249. **8. Interior security equipment is unimposing.**

1 2 3 4 5

250. **9. Interior walls are in good condition.**

1 2 3 4 5

251. **10. Electrical panels are secured.**

1 2 3 4 5

252. **11. Interior doors and windows are in good condition.**

1 2 3 4 5

253. **12. Interior ceilings are in good condition.**

1 2 3 4 5

254. **13. Interior light fixtures are in good condition.**

1 2 3 4 5

255. **14. Interior features such as clocks, displays, signs and furnishings are in good condition.**

1 2 3 4 5

256. **15. There is sufficient capacity for the orderly storing of backpacks and jackets throughout the school.**

1 2 3 4 5

257. **16. There are no visible signs of vandalism in interior spaces.**

1 2 3 4 5

258. **17. Interior spaces are enhanced with plants, artwork, and/or other physical means.**

1 2 3 4 5

259. **18. The temperature in interior spaces is neither too hot nor too cold.**

1 2 3 4 5

260. **19. The interior air quality is fresh.**

1 2 3 4 5

261. **20. Obsolete or underutilized spaces are secured to prevent access by unauthorized persons.**

1 2 3 4 5

262. **21. There are no continuously occurring loud noises in the interior spaces.**

1 2 3 4 5

Global Impressions

A. Global Impressions

263. 1. The school is inviting.

1 2 3 4 5

264. 2. The school is attractive.

1 2 3 4 5

265. 3. The school is cheerful.

1 2 3 4 5

266. 4. The atmosphere is uplifting.

1 2 3 4 5

Additional Observations

267. Any additional observations regarding the school environment. *

Assessment Day Information

268.

Assessment

Date:

269. **Assessment**

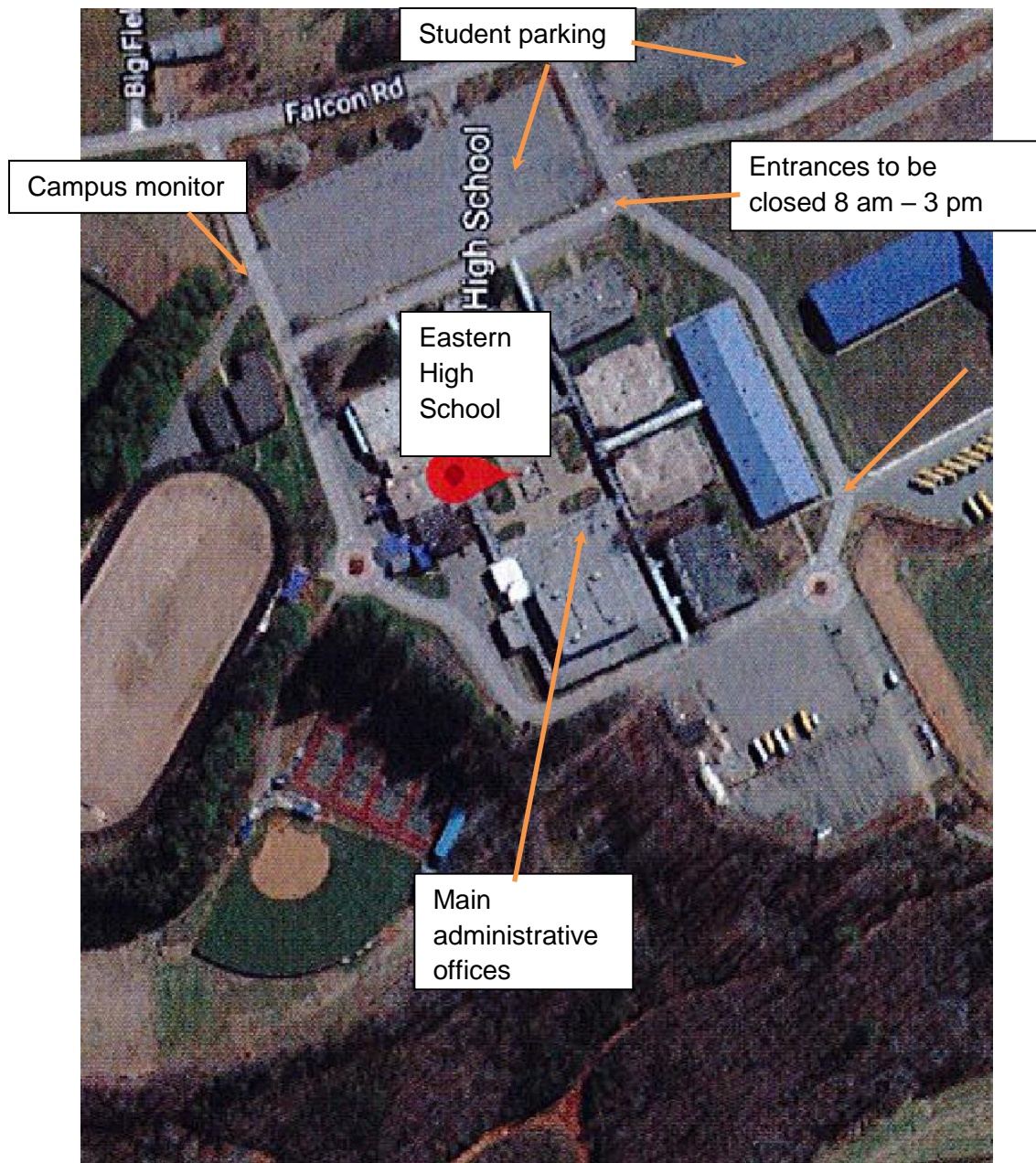
Time:

270. **Assessment day weather:**

271. **Unique factors regarding the day(s) of the
assessment**

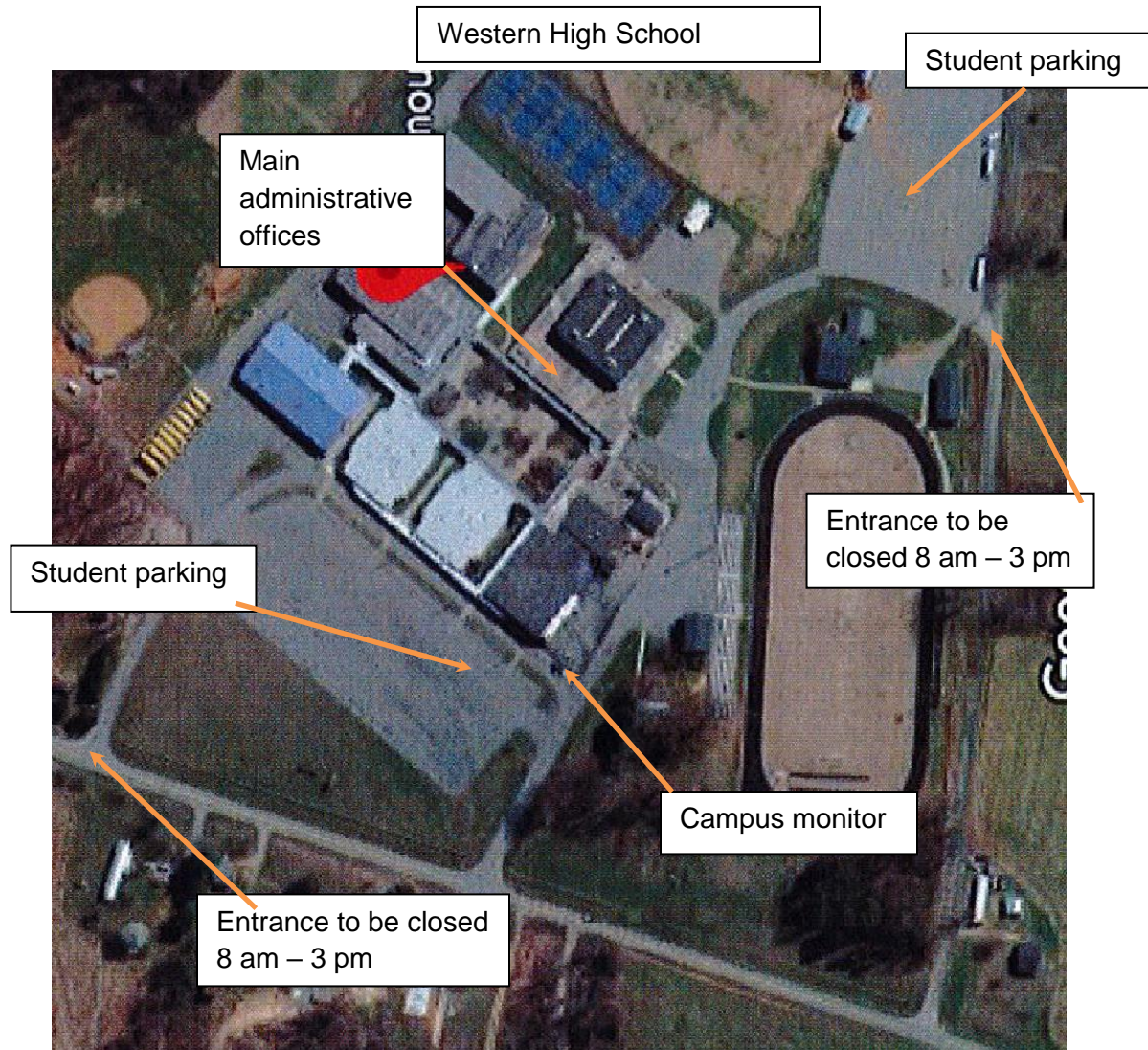
272. **Any additional observations regarding the school
environment**

Appendix C
Eastern High School



*Map copied from Google Maps

Appendix D
Western High School



*Map copied from Google Maps

Appendix E

School Safety and Guard Buildings

Taken from Campus Monitor Training; August 16, 2018

School Safety and Guard Buildings

The Role and Responsibilities for
Campus Security Station Personnel

Security Monitoring Stations

- Located on the campuses of Starm High Schools
- Manned by bus drivers every day students are on campus
- Manned from approximately 8:00 AM until 3:15 PM
- Manned in two shifts - 8:00-11:30 and 11:30-3:15

Names Redacted

Station Monitor Responsibilities

- Ask the person what brings him/her to campus
- Radio the main office to inform personnel that the visitor is on campus and is proceeding to the office
- Direct the visitor to designated parking area
- If for some reason you have a concern about the person you may ask that person to remain while you radio school administration and/or SRO
- If you see a suspicious person or vehicle in the parking lot notify school administration immediately
- Act in a non-discriminatory manner at all times

Station Monitor Responsibilities

- Act professionally at all times
- Keep your cool - you will encounter someone who is running late for their child's doctor's appointment - be professional, helpful, and understanding
- If you encounter someone who is belligerent, keep your cool - be professional - do not engage in an argument with this person - inform the person that you are there to ensure the safety of the students of the school and apologize for any inconvenience but let the person know that you are simply taking steps to ensure student safety

Daily Procedures

1. All students arrive on campus via bus or car
2. At the designated time, custodians close all gates other than the gate at the school's main entrance - by doing this, all traffic coming onto campus will be routed to the main entrance by the monitoring station
3. Each vehicle should stop at the monitoring station to identify the reason for being on campus

Station Monitor Responsibilities

- Keep an eye on the student parking lot(s) at all times - if a student is in the parking lot unauthorized notify school administration
- If students are in the parking lot the reason should be verified
- When a visitor comes on campus the station monitor will be the first to greet this person
- Greet the visitor and welcome him/her to campus

Appendix F
CPTED School Conditions Audit

Note: This survey was delivered to former-student respondents as a Google survey.

CPTED School Conditions Audit (SCA)-

Circle One-

Eastern HS

Western HS

Please answer the following questions with as much detail as possible-

1. How safe was your high school? This is asking for your gut reaction to your school and campus.
2. Regarding campus safety and security, what are some things that you think your school did well?
3. Regarding campus safety and security, what are some areas that you think your school could have done better?
4. Are there any items relating to campus safety and security that you felt were lacking or missing altogether?
5. Were there any areas on campus that you believe are good “hiding” places?
6. Was there adequate exterior lighting during the normal hours of operation?
7. Did the adults on campus provide adequate supervision during the school day?

8. Did the adults on campus adequately supervise common areas in which students gather during breaks or between classes?
9. Were pedestrian routes through campus easy to identify?
10. Did having a School Resource Officer on campus make you feel safer?
11. Did the guard hut make you feel safer?
12. Did the individual working in the guard hut make you feel safer?
13. Did trees or bushes interfere with being able to see certain areas of campus?
14. Did trees or bushes provide places where individuals could hide or not be easily detected?
15. While at school, did you know who to notify if you needed assistance?
16. Were buildings, offices, or classrooms easily identified with appropriate signage?

For the following items- As they relate to safety/security and your perception of your high school campus, please note whether each statement, characteristic, location or trait was (S) satisfactory or (U) unsatisfactory.

CPTED Audit Checklist

	Satisfactory (S)	Unsatisfactory (U)
Image of school from main road		
Lighting of walkways/pedestrian areas		
Sightlines (easy to see other areas)		
Hiding spots		
Land surrounding campus		
Courtyard		
Media Center		
Cafeteria		
Student restrooms		
Locker rooms		
Auditorium		
A building lobby		
Adult supervision of student common areas (ex: courtyard)		
Adult supervision of buildings/hallways		
Student parking areas		
Fences on/around campus		
Evidence of graffiti on campus		
Evidence of vandalism on campus		
Painted areas are in good repair		
Number of trees		
Number of shrubs/bushes		
Lawn/grass maintenance		
Trees/shrub maintenance		
Handicap accessibility		
Evacuation routes are clear (fire drills/lockdowns)		
Main entrance welcoming		
Main entrance easy to identify		
Sign in front of school		
Main office easy to identify for visitors		
Welcoming reception area		
Lockdown procedures		

Fire drill procedures		
Emergency communication devices/hardware		
Security cameras		
Door knobs		
Door locks		
Number of windows		
Maintenance of windows		
Bus loading area		
Buildings are easy to identify (A, B, C, Media Center, etc.)		
Classroom signs		
Athletics facilities are easy to identify		
Main office is easy to identify		
Visitor parking		
Access to campus for parents/families		

Please note any additional observations here:

Thank you for your participation in this study.

Adapted from State of Western Australia Graffiti Taskforce
<https://www.goodbye graffiti.wa.gov.au/~ /media/Files/Goodbye-Graffiti/CPTEDAuditChecklist.pdf?la=en>