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# Challenges in Implementing Physical Security Measures in K–12 Schools

**K**indergarten-through-12th grade (K–12) schools in the United States are responsible for creating safe and secure environments that support effective teaching and learning. Creating such an environment, however, can be challenging. A variety of criminal and violent incidents can occur in schools, and these incidents disrupt learning and affect not just the individuals directly involved but also bystanders and the community in and surrounding the school. According to the National Center for Education Statistics, students ages 12–18 experienced more than 800,000 nonfatal victimizations at school in 2018, and schools across the country reported a

total of 66 school shootings during the 2018–2019 school year, 29 of which included deaths (Wang et al., 2020).<sup>1</sup> Although violent events, particularly those that involve deaths, generally receive the most media attention because of their severity, they are relatively rare. Much more common are such incidents as trespassing, physical fighting, weapon carrying, bullying, and disruptive behavior, as well as the distribution, possession, and use of alcohol and drugs. These more-common incidents can also have significant and enduring impacts on children’s school and life outcomes (Schwartz et al., 2016).

## KEY FINDINGS

- **Relevant federal, state, and local policies on school safety are a set of disconnected statutes, regulations, and resources.** Information about how to implement various policies is distributed across a variety of documents hosted across many agencies, creating a challenge for local education agency (LEA) leaders who might not be experts in physical security in locating relevant policy information and understanding and implementing various policies.
- **Limited funding and LEA staff capacity and expertise are the most-common challenges in security planning.** Some state policies require, without providing adequate implementation funding, that LEAs adopt specific measures, and many LEAs lack the resources and expertise to prepare competitive applications. The lack of conclusive research evidence about the effectiveness of various security measures also inhibits LEAs’ ability to choose the most-appropriate, cost-effective measures from the myriad options available. Physical constraints, such as the built environment, physical locations for new construction, and the structure and layout of existing buildings, can also pose significant challenges in physical security planning.

## Abbreviations

ADA	Americans with Disabilities Act
APL	Johns Hopkins University Applied Physics Laboratory
CCTV	closed-circuit television
CDC	Centers for Disease Control and Prevention
CISA	Cybersecurity and Infrastructure Security Agency
CPTED	crime prevention through environmental design
DEMHS	Connecticut State Division of Emergency Management and Homeland Security
DHS	U.S. Department of Homeland Security
EOP	emergency operations plan
ESSA	Every Student Succeeds Act
FEMA	Federal Emergency Management Agency
FERPA	Family Educational Rights and Privacy Act
FFRDC	federally funded research and development center
IPC	initial planning conference
K–12	kindergarten through 12th grade
LEA	local education agency
MSD	Marjory Stoneman Douglas High School
NCS <sup>4</sup>	National Center for Spectator Sports Safety and Security
PASS	Partner Alliance for Safer Schools
PPD	presidential policy directive
SRO	school resource officer
SSIC	School Safety Infrastructure Council
TxSSC	Texas School Safety Center

In response to these and other threats, local education agencies (LEAs)<sup>2</sup> have adopted a variety of measures to control access to campuses and classrooms, improve communications, and design buildings to prevent adverse events and minimize harm if such events occur. They have also installed surveillance equipment and barriers to control entry onto campuses and hired security personnel. According to the National Center for Education Statistics, schools increased their use of security cameras by 19 percent in 2018 from levels in the 1999–2000 school year and their use of security staff has increased by 20 percent (Wang et al., 2020). To improve school climate and

attend to mental health in an effort to prevent violence, schools have also adjusted discipline practices to focus on positive behavioral interventions and restorative justice practices, which aim to address adverse behavior within the school community rather than by suspension or expulsion (Augustine et al., 2018).

LEAs face a wide diversity of safety risks, and the range of responses available to counter these risks is wide. This diversity in both risk and response underscores the complexity inherent in implementing a school safety plan that is comprehensive and appropriate to school needs and context and does not inhibit efforts to create a welcoming and inclusive environment that promotes teaching and learning. Compounding this challenge is the fact that LEA leaders are generally not experts in physical security. Still, they are regularly tasked with making difficult decisions about how best to protect students and staff.

## The Purpose of This Report

This report discusses the myriad challenges that K–12 LEAs encounter in planning and implementing physical security systems to protect schools; it seeks to address two specific questions:

- To what extent do federal, state, and local policies present themselves as challenges in implementing physical security measures in schools?
- What are additional key challenges that K–12 LEAs face as they plan for and select appropriate physical security solutions to meet their schools' needs?

The report is part of a broader effort launched by the Cybersecurity and Infrastructure Security Agency (CISA) to develop revised editions of *K–12 School Security* (U.S. Department of Homeland Security [DHS], 2018a) and associated *K–12 School Security Survey* (DHS, 2018b). In addition to informing future CISA guidance around the topic of school safety, the report should also be of value to LEA leaders who face many of the challenges discussed here and might be well placed to mitigate them. It can also help to inform the decisions of federal, state, and

local policymakers and grant-making bodies that enact laws and provide funding in support of school safety.

In support of this effort, we reviewed and synthesized the scholarly and other literature on physical security planning from a wide variety of disciplines, including the school safety sector and other sectors that we deemed comparable to the school environment (e.g., transportation). We also conducted two small-group discussions with key stakeholders in the school security space (e.g., school security experts and practitioners). These discussions were opportunistic and part of a larger initial planning conference (IPC) held in October 2020 to launch the aforementioned CISA initiative to produce a new generation of guidance on school safety and security. In our review of the literature and small-group discussions, we focused on a variety of events that threaten the safety of students, staff, and school facilities and that have consequences for more than a handful of members within a school community. Our task was to focus on the physical security element of the broader school safety system (see Moore et al., 2021), but we also recognize that protection and mitigation are only two recommended ways to address risk. We therefore also address the nonphysical aspects of school safety—such as maintaining a welcoming environment and positive school culture—to the extent that they intersect with school physical security.

Our companion report (Moore et al., 2021) describes what a systems approach to physical security in LEAs entails in detail. Most relevant here is that, in it, we conceptualize a school’s protection and mitigation system as one made up of five distinct elements:

- physical security equipment and technologies
- site and building design features
- people and personnel
- policies and procedures
- training and exercises.

Our systems approach also considers how physical security solutions affect the school’s broader educational mission, school climate, and other important factors. Ultimately, the findings that we present in both reports will contribute to a foundation for the development of a practical school safety doctrine that

will guide schools in developing tailored approaches to planning and implementing physical security across the four layers of a school campus:

- campus perimeter
- school grounds
- building perimeter
- building interior.

The remainder of this report is organized into four sections. The next section discusses the scope of physical security in the K–12 LEA context. The section after that summarizes the legal and policy landscape in which federal, state, and local policies intersect with school physical security, and the third section discusses the challenges LEAs face when planning for and selecting appropriate physical security measures. These two sections incorporate vignettes to illustrate key policy and other implementation challenges. The final section includes implications for policymakers and LEA leaders.

## Physical Security in the K–12 Context

Generally speaking, *physical security* refers to the protection of people and spaces from physical actions and events that could cause serious harm, damage, or loss; DHS’s Science and Technology Directorate defines it as “the protection of an organization’s assets from threats that could cause losses or damages [sic]” (DHS, 2016). *Physical security* usually pertains to specific measures and equipment that are designed to deny unauthorized access to facilities and protect individuals and property from damage or harm. These might range from closed-circuit television (CCTV) surveillance to protective barriers, metal detectors, locks, intrusion detection sensors and alarms, security guards, and many others in between. Physical security can have several goals and is most often assessed by the ability of specific measures—technologies, procedures, and personnel—to interact and effectively identify, slow, and stop specific threats (M. Garcia, 2008; U.S. Interagency Security Council, 2015).

In the context of this report, we focus on the physical security outcomes of *protection* and *mitigation*; the measures that schools put in place as part of

their physical security system should protect against the effects of crime, intruders, student victimization, and other safety-related incidents and attenuate the effects of incident consequences in the case that an adverse event does occur (Moore et al., 2021). In addition, we consider three intermediate physical security outcomes also widely cited in the literature on physical security: a measure’s ability to *detect* an incident, *delay* its progression, and *respond* effectively and in a timely manner to limit damage and casualties and enable first-responder access (Williams, 2019). As we discuss in more detail in our companion report, it is important for a school to pursue these outcomes while maintaining its mission of teaching and learning and establishing a pleasant and welcoming environment for students, staff, and visitors (Moore et al., 2021).

As part of the planning process, LEAs identify physical security needs by conducting three interrelated analyses:<sup>3</sup>

- A *threat analysis* determines what types of safety-related incidents are a concern to the school and how likely these are to occur.
- An ensuing *risk analysis* examines each incident type’s potential consequences for the specific school.
- A *vulnerability analysis* takes stock of the set of existing security measures at a school, how these reduce this risk, and how much residual risk remains.

These analyses inform the security planning process, during which LEAs select physical security measures to address any residual risk and contribute to the outcomes of detection, delay, and response. The figure depicts the process, which we discuss in more detail in our companion report (see Moore et al., 2021). Measures include any equipment, technology, building, or site design features; personnel; policies and procedures; and training programs in place on a school campus to reduce safety risks.

Ultimately, a school’s approach to protection and mitigation integrates into the broader school safety system, which consists of three phases: prevention, protection and mitigation, and response and recovery (see Moore et al., 2021). This report focuses on physical security, which falls under the umbrella of protection and mitigation. Other organizations, such as the National Association of School Psychologists, the Centers for Disease Control and Prevention (CDC), and the U.S. Secret Service, provide resources on prevention. Such organizations as the I Love U Guys Foundation and the U.S. Department of Education Readiness and Emergency Management for Schools Technical Assistance Center provide resources on response and recovery. For a full set of resources, see [SchoolSafety.gov](http://SchoolSafety.gov), undated.

In this report, we refer to a *systems approach to school physical security*, a concept that we develop and explain further in our companion report (Moore et al., 2021). Such an approach emphasizes that various security measures should work together to support a variety of physical security outcomes and that

### Threat–Risk–Vulnerability Analysis Process for School Security Planning



SOURCE: Moore et al., 2021.

safety planning should consider the various contingencies that must also be in place for that system to work effectively. For example, technology installed to detect a threat—such as a CCTV system—will provide safety benefits only if school staff are properly trained to operate the technology and use it as intended and if policies and procedures are in place to respond to a threat when the technology detects one. Exercises and training are also an integral part of the system insofar as they provide opportunities for the school community to learn about and understand related policies and practice various responses.

## The Policy Landscape

This section discusses the extent to which federal, state, and local policies present challenges in implementing, selecting, or adopting physical security measures in schools. We reviewed policies related to the school safety system at each level (federal, state, and local), including guidance documents, technical reports, websites, legal briefs, and a wide variety of other resources, such as topic-specific guides, online training webinars, mobile apps, and fact sheets. Our discussion emphasizes policies that pertain to physical security in the protection and mitigation phases, but we include policies related to the prevention phase and the response and recovery phase because they are integral to the broader school safety system. Additional details about the policy review, including a summary table of state-level policies pertaining to school physical security, are available in the appendix (Table A.2).

Federal, state, and local policies might not be inherently challenging but can create challenges when LEA leaders who might not be experts in physical security are charged with understanding, reconciling, and implementing such policies. LEAs are responsible for assessing their local security needs, selecting the appropriate security measures to meet those needs, designing policies for implementing those measures, implementing the measures, and monitoring the measures' effectiveness. The policies that relate to school safety and security are themselves a set of disconnected statutes, regulations, and resources at the federal, state, and local levels, and

information about how to implement them exists in a variety of documents that includes guidance, tools, and briefs hosted by many agencies. This causes confusion as LEAs attempt to navigate a wealth of unfamiliar information. These findings are consistent with those from other sources (National School Safety and Physical Assessment Virtual Roundtable, 2020).

Policies on funding for physical security can also pose challenges for LEAs. For example, although federal and state grant programs provide funding to LEAs to improve physical security, an LEA might lack staff with the expertise to prepare a competitive application and thus be unable to access the funding.

Finally, LEAs should be aware of how the physical security measures they put in place to protect their campuses might infringe civil rights and liberties safeguarded by constitutional amendments and federal policies. Carefully laid-out policies and procedures to dictate the use of security measures, as well as communication with the school community about the uses and intended purposes of such measures, can work to mitigate unintended consequences in this area.

## Federal Policy

Policies at the federal level fall into three main categories:

- guidance
- competitive funding grants
- protections of individual rights.

Although some guidance focuses on specific security measures (e.g., cameras), other policies, grants, and protections address the broader school safety system or make reference to school safety in the context of other policies (e.g., emergency planning). There are numerous federal competitive grant programs to support LEAs in selecting, adopting, and implementing physical security measures. The need to protect individuals' constitutional rights also affects the selection of security measures and the policies LEAs design to implement such measures.

## Guidance

Some federal policies that focus on physical safety include nonbinding guidance and good-practice recommendations on how to interpret regulations, and some address questions about existing policies. This type of guidance can also communicate the priorities and initiatives of federal leaders and agencies to direct LEAs to implement various security measures (U.S. Government Accountability Office, 2015). Several federal agencies disseminate this type of guidance, along with resources or tools to support implementation. Examples include the second edition of *K–12 School Security* (DHS, 2018a) and accompanying survey tool (DHS, 2018b) and *Final Report of the Federal Commission on School Safety* (Federal Commission on School Safety, 2018),<sup>4</sup> which also

contains policy recommendations and best practices for physical security.

The guidance that is currently available to LEAs varies in scope. Some guidance focuses on physical security needs or measures broadly, while other guidance focuses on a particular process related to physical security, such as threat or risk analysis (National Threat Assessment Center, 2018). In addition, some federal policies—such as presidential policy directives (PPDs) and the Every Student Succeeds Act (ESSA) (Pub. L. 114-95, 2015)—do not directly address physical security but discuss it in relation to emergency planning and maintaining a positive learning environment (see Box 1). In some ways, these policies present more-stringent requirements and oversight for LEAs than guidance directly related to physical security does.

### Box 1. Presidential Policy Directives and the Every Student Succeeds Act Address School Physical Security

PPDs can change how laws are implemented and can thus influence how LEAs address physical security. The 2011 PPD *National Preparedness* (PPD-8) (Obama, 2011) requires communities to develop emergency plans for each of the three phases of school safety:

- prevention
- protection and mitigation
- response and recovery.

LEAs are required to develop emergency operations plans (EOPs) to keep students safe in the face of natural disasters; technological hazards; biological hazards; and adversarial, incidental, and human-caused threats (e.g., active shooters, bullying, kidnapping). This approach to school safety considers the physical space and situates physical security measures within the mission to develop emergency plans that address all hazards. Schools are encouraged to consider physical measures to develop a thorough and effective EOP within each of the three school safety phases (e.g., cameras for protection and mitigation; reunification systems for response and recovery). EOPs must be submitted for agency review and approval.

ESSA (Pub. L. 114-95, 2015, as amended and codified) encourages LEAs to employ certain approaches as part of the prevention phase of school safety. Specifically, Title I, Section 1008 of ESSA requires comprehensive plans to use evidence-based approaches to prevent and address student behavior and school climate. Title II stipulates professional development for techniques and supports identified in Title I, as well as when and how to refer students for support in a way that meets their behavioral and mental health needs. Title I and II funds may not be used for physical security measures (e.g., cameras, metal detectors); instead, these funds must go toward training and program implementation. Similarly, language in Title VIII, Section 8561 on gun-free schools dictates the responses that LEAs should take in the event that a student brings a gun to school and poses a threat to the school community as part of the response and recovery phase. Each state is required to submit an ESSA plan to the U.S. Department of Education and monitor the performance of schools in its jurisdiction as part of statewide accountability systems. LEAs identified as in need of improvement submit state improvement plans; school climate is a component of these plans.

## Competitive Grant Programs

The federal government also communicates school safety priorities through legislation that allocates funding for physical security. Appropriations for the adoption and implementation of physical security measures at the federal level have come largely in the form of competitive grant programs that require LEAs to apply and compete for funding. Competitive grant programs present challenges for LEAs responsible for physical security insofar as obtaining them requires grant-writing expertise; they are available for only a short period and limited in scope; and, at times, they include restrictions on how LEAs can use the funding.

Several federal grant programs provide funding for security measures that relate to protection and mitigation phases:<sup>5</sup>

- The Student, Teachers, and Officers Preventing (STOP) School Violence Act of 2018 (Pub. L. 115-141, Title V) appropriated \$50 million per year for LEAs to develop threat assessment systems consistent with guidance from the Federal Bureau of Investigation and U.S. Secret Service; put in place anonymous reporting systems; install safety technologies; and hire additional security personnel.<sup>6</sup> In fiscal year 2020, about \$71 million was available in STOP School Violence Program grants.
- The U.S. Department of Justice appropriated \$5 million to grants for research and evaluation on school safety in fiscal year 2020, which provides funding for LEAs to adopt specific safety practices as part of a research study; these practices can include physical safety measures.
- In 2020, the federal government appropriated \$50 million to the School Violence Prevention Program, which provides up to 75-percent funding for school safety measures in and around primary and secondary LEAs and grounds. Funds from the program can support the following initiatives:
  - school coordination with law enforcement

- training for local law enforcement officers to prevent student violence against others and self
- metal detectors, locks, lighting, and other deterrent measures
- technology for expedited notification of local law enforcement during an emergency
- other measures assessed as a significant improvement in security by the Office of Community Oriented Policing Services.

## Individual Rights

Several federal statutes and regulations designed to protect the rights of individuals have the potential to affect school physical security. The 14th Amendment, the Civil Rights Act (Pub. L. 88-352, 1964, as amended and codified), the Family Educational Rights and Privacy Act (FERPA) (Pub. L. 93-380, 1974, § 513), and the Americans with Disabilities Act (ADA) (Pub. L. 101-336, 1990) are all federal laws to consider when planning, selecting, and implementing physical security measures in schools. When security measures are not implemented in accordance with these policies, risk violating the individual rights of students, teachers, and other school staff, among others:

- The 14th Amendment of the U.S. Constitution, by incorporating the substantive rights of the Fourth Amendment, prohibits unreasonable search and seizure by state officials and ensures that school physical security measures and policies do not violate these rights of students or adults.<sup>7</sup> For example, an LEA might institute a policy that requires anyone entering a building to pass through a metal detector or have a bag scan. That policy might state that the LEA may search an individual or their property if the metal detector or bag scanner detects a suspicious item; detection of such an item creates reasonable cause for a search, and a search would therefore not violate a student's 14th Amendment rights (Ehlenberger, 2002; Green, 1999; Nance, 2017). However, an LEA may not select a student at random or on the basis of specific characteristics, such as race or

ethnicity, gender, or socioeconomic status, to conduct a search of their person or property (Ehlenberger, 2002; Green, 1999; Nance, 2017). Moreover, although the 14th Amendment does not generally restrict LEAs from using cameras, the body of 14th Amendment-related law that has evolved does indicate where one has a reasonable expectation of privacy (e.g., bathrooms, locker rooms) and that the use of surveillance technology would be unlawful in those locations (Ehlenberger, 2002; Green, 1999; Nance, 2017).

- The Civil Rights Act of 1964, as amended and codified, prohibits discrimination on the basis of race, color, religion, sex, or national origin and has implications for the implementation of physical security measures in schools (Ehlenberger, 2002). Numerous court cases have set precedents for nondiscriminatory implementation of security technologies and policies; security technologies and other measures most affected by the Civil Rights Act include video cameras, metal detectors, and the aforementioned property search policies (Nance, 2017). Cameras with facial recognition technology in particular have been shown to introduce bias against certain demographics (Grother, Ngan, and Hanaoka, 2019; Schwartz et al., 2016).
- FERPA, as codified at 20 U.S.C. § 1232g, protects the privacy of student information. Although the code allows an LEA to disclose information about a student in the case of a health or safety emergency (see 34 CFR § 99.31), policies associated with certain physical security measures—such as surveillance cameras—can present complexities in a school environment, such as when it comes to sharing information with law enforcement agencies in nonemergency situations. A video or photo captured by a camera installed on a school campus and used in the analysis of events involving specific students (e.g., for the purposes of discipline or during a medical emergency) is considered part of the educational record, as are videos or photos captured by a law enforcement agency provided

to an LEA for disciplinary purposes (U.S. Department of Education, 2020). Although some guidance recommends that schools share camera feeds directly with law enforcement agencies or provide school resource officers (SROs)<sup>8</sup> access to information about students, the absence of appropriate memoranda of understanding or data use agreements between the school and other agencies can violate FERPA provisions (CaseGuard, 2020; Fox, 2019; U.S. Department of Education, undated a; U.S. Department of Education, 2007; U.S. Department of Education, 2020; Weinstein, 2020).

- The 2010 standards for the ADA (U.S. Department of Justice, 2010) set minimum requirements for new construction and for renovated facilities, including schools, and require that facilities be readily accessible to and usable by people with disabilities. Physical security measures that would prohibit access for people with disabilities, such as certain types of door barriers, would therefore violate ADA requirements.

## State Policy

State-level policies for school safety and security fall into four main categories:

- statutes and regulations
- guidance
- funding
- building and other codes.

State statutes and regulations are legally binding and establish minimum standards for LEAs in that particular state. As with federal guidance, state-level guidance includes good-practice recommendations that inform LEAs on how to interpret various regulations. State funding for physical security includes standard allocations for operations, statewide appropriations for physical security need assessments and measures, and competitive grant programs. Our review shows that state-level policies vary considerably by state.

## Statutes and Regulations

Statutes and regulations that govern school physical security are enacted largely at the state level, and there is considerable variance in policy across states. The Education Commission of the States conducted a review of statutes and regulations related to school safety in all 50 states and Washington, D.C., in 2019 and found the following (Macdonald and Perez, 2019):

- Forty-three states and the District of Columbia require that each school develop a safety plan, and 30 states require law enforcement involvement in the creation of those plans.
- Fourteen states require school safety audits—physical assessments of buildings, facilities, or grounds—and five states require law enforcement involvement in these audits.
- Forty-two states require safety drills and vary in the type of drill required and frequency with which drills should occur. Language might be general or specify evacuation, lockdown, all-hazards, crisis response, bomb threats, tabletop, or human-caused-occurrence drills. Not all of these states require active-shooter or human-caused-occurrence drills.
- Thirty-one states define the SRO position, and the majority of these specify training requirements for SROs.
- Many (30) states and the District of Columbia allow SROs to carry weapons. In nine states, statute or regulation explicitly authorizes other LEA employees to possess weapons in schools. Eleven states explicitly authorize, in statute or regulation, concealed-carry permit holders to possess weapons in schools. Twenty-four states also explicitly authorize districts or school boards to permit weapons in schools.

Additional details from the Education Commission of the States analysis are available in Table A.2 in the appendix.

The state policy landscape for school security measures changes with state legislative priorities and in response to adverse events. For example, since the

shootings at Marjory Stoneman Douglas High School (MSD) in Parkland, Florida, in 2018, many states have considered or passed school threat assessment and anonymous reporting system requirements. In the 2020 legislative session, Florida passed Alyssa’s Law, which requires that schools have a mass-notification alert system. The system adopted state-wide offers wireless panic buttons or a mobile application that triggers audible and visible notification of an emergency, as well as an anonymous reporting system. Colorado approved the Safe 2 Tell anonymous reporting program prior to the 2020 legislative session and amended and clarified the law in 2020 (Colorado Office of the Attorney General, undated; Education Commission of the States, 2020). State laws and regulations related to the implementation of measures and their policies (e.g., locker searches) also continue to change (Ehlenberger, 2002).

## Guidance

State agencies commonly develop websites to disseminate information about statutes, regulations, and best practices related to physical safety. When one website serves as a centralized location for school security policies, it can be a good resource for LEAs that seek to understand the full scope of state policy. For instance, Florida Department of Education, undated, and Kentucky Department of Education, 2020, provide LEAs with guidance related to statutes and regulations. Websites by state departments of education can also be good sources of policy and other resources, such as state-developed guidance (see Goodrum and Woodward, 2019; or Texas School Safety Center [TxSSC], undated b), federal guidance, guidance and tools released by other states, and commissioned reports on specialized topics (e.g., after-action reports or reports commissioned in response to school shootings). The Colorado School Safety Resource Center website, managed by the Colorado Department of Public Safety, is a similar repository of statutory information, guidance, and tools, as well as a technical assistance center for LEAs (School Safety Resource Center, undated).

We also identified states in which agencies directed LEAs to a single website that contains the vast majority of guidance related to physical

security. For example, the Connecticut Division of Emergency Management and Homeland Security (DEMHS) maintains a school safety and security webpage that hosts resources and information at the state and federal levels for a variety of school stakeholders (DEMHS, undated). The Connecticut State Department of Education website directs LEAs to DEMHS for information related to safety and security. Additionally, the department provides direct links to commonly needed guidance and resources on the DEMHS site, such as the most recent version of the state's school security and safety plan standards. Having a direct path to frequently referenced materials means that LEAs spend less time searching the DEMHS website to find critical resources. Centralized sites and clear pointers to a single source of information eliminate the need for LEAs to know which agency is responsible for aspects of the school safety system or to search across agencies to find information and ultimately helps them address a variety of challenges related to lack of LEA expertise.

## Funding

States also communicate the relative priority of physical security measures through funding allocations and competitive grant programs. In general, state-level funding for physical security consists of two types of programs:

- funding that all schools can receive upon meeting certain requirements, such as state approval of a proposal or plan
- competitive grant programs.

State-funded grant programs for school physical security tend to be implemented in response to adverse events (Erwin, 2019; Olneck-Brown, 2020). In some cases, these grant programs are offered only once or are reversed in subsequent legislative sessions. This uncertainty in the duration and amount of funding is a challenge for LEAs engaged in long-term security planning.

Georgia and Tennessee offer examples of statewide funding allocations (i.e., the first type of program), and Michigan offers an example of a competitive grant program:

- Georgia allocated \$30,000 to each school in the state during the 2019 legislative session. This funding could be used to hire SROs, purchase surveillance technology, and improve safety systems. Schools submitted proposals to apply funding to implement measures that met their individual needs (Cardoza, undated).
- Tennessee allocated \$30 million in grant funding through Senate Bill 803/House Bill 947 to provide SROs to schools without one in 2019 (Tennessee Senate, 2019).
- The Michigan State Police's 2019 Competitive School Safety Grant Program awarded 230 of 366 applicants funding for security enhancements (Division of Emergency Management and Homeland Security, 2019).

In addition to statewide funding allocations and competitive grants, some states employ other approaches to assist LEAs with funding for physical security improvements, such as statewide or industry taxes. Colorado, for example, funds at least \$40 million in school construction through the Building Excellent Schools Today initiative, which is a 15-percent excise tax on the retail marijuana industry (Colorado Department of Education, 2019).

The way in which some funding for school security measures is structured presents some notable challenges for LEAs. Some state requirements, for example, are unfunded or underfunded mandates; in other words, they prescribe implementation of specific measures without providing funding to implement them. In addition, although competitive state-level grant programs might represent a source of funding for required security measures, LEAs might not have the staff time or expertise to develop a competitive application to access funding. In such cases, LEAs must identify other funding sources to implement required security measures. The two most common solutions to address this challenge involve reallocating funds in the general budget or raising additional revenue; both present significant challenges for LEAs. Redistributing funds in particular requires displacing funds from other aspects of the school mission (e.g., staffing, curriculum and instruction), while generating new revenue might

require raising local taxes and gathering support from the local community.

### Building and Other Codes

Building and fire codes, zoning laws, and environmental protections also affect the adoption and implementation of specific physical security measures in schools. Although federal agencies, such as the Federal Emergency Management Agency (FEMA), typically endorse international and national codes for construction, adoption and enforcement occur at the state and local levels. LEAs are responsible for selecting and implementing security measures that comply with these codes.

### Local Policy

We use the term *local* to describe policies enacted below the state level; these typically include county and municipal policies and regulations, as well as mandates from local organizations, such as school boards. Local policies may place additional constraints on the selection and implementation of physical security measures. For instance, although a state might require that every school use a visitor management system, it is up to the LEA to select an actual system that is not only consistent with federal and state policy (e.g., funding requirements), but also compliant with local building codes and agreeable to the local community (e.g., school board, parents, students). Local-level mandates might also require that LEAs consult legal counsel and insurers before putting certain physical security measures into place and seek approval from the school board.<sup>9</sup> LEAs are responsible for working with local law enforcement to inform them about the physical security policies and procedures in place across their campuses, detailing, for example, the intricacies of their emergency plans or how to use and override installed door lock systems. They are also charged with monitoring the implementation of security measures and policies, ensuring that they comply with building and fire codes, as well as zoning requirements. These local-level requirements may place additional constraints on a variety of physical security enhancements, from

perimeter fencing to school grounds design and interior door lock systems.

### Summary

Understanding the ways in which federal, state, and local policies influence security planning can be challenging for LEAs, particularly when they are not experts in physical security. Our review of relevant policies and associated documentation showed that federal, state, and local policies related to school security can be contradictory and subject to change, even while being legally binding. To navigate these challenges, LEAs need access to up-to-date and accurate information on a consistent basis. Certain federal and state agencies disseminate guidance, tools, briefs, and other resources on how to implement various policies to address gaps in LEA knowledge. However, the volume of information and distribution of materials across numerous agencies is still often difficult for LEAs to navigate. Centralized repositories of information and technical assistance centers can address these challenges for LEAs that lack expertise.

LEAs must also ensure that the implementation of certain physical security measures does not violate the civil rights and liberties of students, school staff, and other members of the school community. Similarly, although state and local codes (e.g., building and fire code, zoning code) do not obstruct the adoption of physical security measures, they might prohibit the use of a specific measure. LEAs should have knowledge of these policies and consider consulting school attorneys or students' rights advocates when appropriate.

Finally, a significant challenge for LEAs is finding funding for physical security measures. Some state policies require the adoption and implementation of specific measures but do not provide adequate funding, leaving mandates either un- or underfunded. Although several federal and state grants are available to improve or expand school physical security, an LEA might lack the capacity and expertise to prepare a competitive application and thus not be able to access available funding. Grants also pose challenges insofar as they might not reflect the immediate needs of the LEA and might not present a sustainable source of funding. This particular

challenge can lead LEAs to cut funding from other critical aspects of the school mission (e.g., curriculum and instruction) or generate revenue by raising taxes.

## Challenges in Planning for and Selecting Physical Security Measures in K–12 Schools

In this section, we discuss non-policy-related challenges in planning for and selecting appropriate physical security measures in K–12 schools in the United States.<sup>10</sup> We grouped the challenges into two main categories: those related to planning and those related to selecting physical security measures. We drew primarily on the school-specific literature, defined to include scholarly and other sources, but also include relevant aspects from the literature that covers other sectors. This section also includes insights from the small-group discussions held during the course of the school safety IPC in October 2020. We describe the methods for the literature review and small-group discussions in more detail in the appendix.

In brief, we found that it can be challenging for LEAs to identify the most-salient threats to school safety and identify appropriate countermeasures. Lack of funding and limited LEA staff capacity and expertise were the most-common challenges revealed in our review. We also found that few resources help LEAs take a systems approach to creating a holistic security plan and to selecting appropriate measures from among the myriad options. In addition, physical constraints, such as the built environment and physical location for new construction or the structure and layout of an existing building, can pose significant challenges in physical security planning. Some of the challenges we discuss, such as the limited availability of appropriate and cost-effective tools for threat, risk, and vulnerability analyses, could be addressed in part by creating resources that point LEAs to a set of such tools and offering simple training on how to use them. Further academic research can address other challenges, such as those related to limited information about the effectiveness of many physical security measures.

## Challenges Related to Identifying Physical Security Outcomes and Needs

Identifying desired physical security outcomes (common ones include detection, delay, and response) and mapping them to security needs are key first steps to creating a school safety and security plan. The process presents itself as a high-stakes problem and thus a challenge in itself for LEAs, in large part because many do not have in-house security expertise. Indeed, participants in our stakeholder discussions concurred that a general lack of expertise hindered their ability to either identify security outcomes in the first place or vet and hire consultants to help them identify such outcomes.

LEAs might wish to include members of the broader school community in the planning process in addition to seeking expert advice from first responders (e.g., law enforcement, emergency responders), consultants, and others (Moore et al., 2021). Although it is valuable for ensuring an inclusive process, opening the planning process to a diverse set of stakeholders leaves more room for a larger set of potentially disparate opinions, such as those about the outcomes LEAs should prioritize. In such cases, it is possible that stakeholder perceptions, as opposed to data on security-related incidents or the results of comprehensive threat, risk, and vulnerability analyses, begin to drive the security planning process. LEAs might come under pressure from parents, staff, or other members of the school community to implement their desired security measures, which could drive up costs if community-desired security upgrades are expensive (Jenkins and Gersten, 2001). And if an LEA elects to engage experts or security consultants, vendors might try to pressure it to invest in their equipment (Casella, 2010) or install technologies that might compromise aesthetics and building function to the detriment of a positive school climate (McIlhatton et al., 2020).

Beyond those creating compliance with required building codes and local statutes, most LEAs have measures and policies in place to prevent common incidents, such as bullying, and are required to have EOPs to address disasters. However, preparation for other types of unlikely events, such as active-shooter

or terrorist events, is something not all LEAs prioritize (Partner Alliance for Safer Schools [PASS], 2020; Zhu et al., 2020).<sup>11</sup> Of course, the inverse can also be true: In some LEAs, planning for physical security can focus only on unlikely events, such as active-shooter or terrorist events, and, in the process, ignores more-common but less catastrophic events (Committee on Architecture for Education, undated; PASS, 2020). Guidance across sectors (e.g., schools, transit facilities) recommends that, instead of adopting physical security measures intended solely for specific events (likely or unlikely), planners work to identify those threats that are most likely to affect their particular contexts or environments. In general, planners should carefully assess how likely specific threats are to occur and subsequently analyze the level of risk that each one poses to people and facilities based on their potential consequences; only then should security planners identify appropriate countermeasures (Rabkin et al., 2004; Philpott and Kuenstle, 2007; Schneider, 2010; Zhu et al., 2020).

As the figure earlier in this report shows, this process of analyzing threats, risks, and vulnerabilities can provide essential data to inform the security planning process, particularly insofar as it allows LEAs to evaluate residual levels of risk after accounting for threats and existing physical security measures in place across their campuses. Although it is outside the scope of this report to offer guidance to LEAs around how to conduct threat, risk, or vulnerability analyses, in this section, we address common challenges that K–12 schools face during those processes.

### Selecting and Performing the Initial Analysis of Threats, Risks, and Vulnerabilities

K–12 LEAs face numerous challenges when it comes to successfully completing threat, risk, and vulnerability analyses in a way that will be useful for selecting and implementing physical security measures. Choosing the analytic tool is often the first challenge. Our review revealed that, although numerous resources recommend threat, risk, or vulnerability assessments as a best practice, little research assesses the efficacy of the many assessment tools available; this makes it difficult for schools to choose one

(Fennelly and Perry, 2014; APL, 2016). Philpott and Kuenstle, 2007, emphasizes the importance of a holistic approach to security planning, which involves knowing about what one wants to protect (e.g., people, facilities), what assets one has (e.g., location, existing security measures), and one’s specific context (e.g., neighbors, community).

LEAs can choose to engage consultants to oversee their security planning and implementation processes, but this choice can pose additional challenges. Hiring a consultant can be costly, and some LEAs might not have the expertise to adequately vet consultants or might wish to manage the process themselves. For LEAs that want to manage the work themselves, few publicly accessible tools or materials help them explicitly connect risk and threat analysis to vulnerabilities and make appropriate choices across a large and diverse set of available security measures (see, e.g., Office of Safe and Drug-Free Schools, 2008; Ortiz, 2011). Most of the publicly accessible tools included in our review were checklists (see, e.g., Arizona Department of Education, undated; Kentucky Center for School Safety, 2016; Homeland Security and Emergency Management, 2014), which, although straightforward to understand and use, do little to connect identified threats, risks, or vulnerabilities to desired physical security outcomes. In general, these checklists provide little guidance for considering how different physical security outcomes and measures overlap or interact—a process we have described in our companion report (Moore et al., 2021) as a systems approach.

We uncovered a handful of publicly available resources that guide LEAs through a data-based analysis for physical security planning. The PASS guidelines offer numerous resources for free, school-specific threat, vulnerability, and risk assessments (PASS, 2020; Risk and Vulnerability Assessment Team, undated). The National Crime Prevention Council provides clear information about school security outcomes by suggesting that LEAs review local data on common types of incidents in their specific neighborhoods (National Crime Prevention Council, 2009) and outlines clear steps for assembling a cross-disciplinary team to identify appropriate physical security measures on the basis of these data. Some resources geared toward other sectors,

such as houses of worship, offer similar guidance (DHS, 2013).

Once an LEA selects a tool to conduct its risk analysis, it faces the challenge of identifying and convening a team to perform the assessment. Numerous sources in the literature, as well as our stakeholder discussions, highlight the importance of including a variety of stakeholders—such as teachers, administrators, security staff, families, community members, and law enforcement officers—in the team conducting the analysis (Risk and Vulnerability Assessment Team, undated; Philpott and Kuenstle, 2007). As noted earlier in the context of identifying physical security outcomes and needs, including only a few stakeholders risks the result of an incomplete analysis. Having too many stakeholders, on the other hand, complicates the scheduling process and can make it difficult to reach a consensus. Nevertheless, security experts across sectors—such as education, transit, and houses of worship—agree that conducting these analyses is a best practice and that identifying security threats, risks, and vulnerabilities involves decisions that are best made locally among stakeholders who have deep contextual knowledge (DHS, 2013; FEMA, 2013; Rabkin et al., 2004; PASS, 2020). Our small-group discussions noted that scheduling the time to conduct the analysis and communicating the results to stakeholders can also be challenging, which is consistent with the literature (Jalloh and Schmalz, 2002; PASS, 2020).

Participants in our small-group discussions pointed out that support from leadership can facilitate conducting a successful analysis in schools. Our review of the literature supported this view, emphasizing that leadership support is important across nonschool sectors as well (DHS, 2013; FEMA, 2013; National Center for Spectator Sports Safety and Security [NCS<sup>4</sup>], 2020). Such support can facilitate scheduling time to conduct the analysis, discussion among stakeholders, and communication of the results. Integrating the risk, threat, and vulnerability analyses with other planning processes (e.g., emergency planning) to avoid duplicating efforts can also facilitate the process (DHS, 2013; FEMA, 2013; Rabkin et al., 2004).

## Ensuring That the Assessment Process Is Comprehensive and Contextualized

Physical security needs can vary greatly by school context, and LEAs should consider contextual conditions iteratively throughout the security planning process. Not only is identifying all of the important contextual factors a challenge for LEAs, but crafting a single plan that appropriately addresses or accounts for each of these factors can also be challenging. Moreover, careful and adequate consideration of the many contextual factors that should inform these analyses can be challenging for LEAs that include diverse schools and that face time and staffing constraints.

Ideally, threat, risk, and vulnerability analyses will consider geographic location, building location, time of day, the people using the building, size of the facility, and space within the facility (e.g., classroom, cafeteria) (FEMA, 2013). An LEA must also ensure that any guidance or recommendations it issues apply to all schools that fall under its purview (FEMA, 2013). Thus, the analysis and subsequent planning process should be holistic and consider all possible physical spaces and uses of space within a particular facility (FEMA, 2013). For example, the analysis should consider all the “layers” of physical space, beginning with the campus perimeter, school grounds, building perimeter, and building interior, including classrooms, administrative offices, and common areas (Rabkin et al., 2004; NCS<sup>4</sup>, 2020; PASS, 2020).<sup>12</sup> However, the absence of publicly available resources to help LEAs analyze, consider, and integrate the results of these analyses into a comprehensive security plan renders this aspect of the planning process a challenge.

Participants in our stakeholder discussions noted that school buildings and campuses come in all sizes and layouts, and the needs of an urban school, which might share a building with another school or organization, could differ from those of a rural or suburban school. Furthermore, discussion-group respondents noted that law enforcement response times might be longer in rural locales than in urban or suburban settings. The literature also notes the need to consider the varying physical security needs that arise at different times of the school day, such as

passing time between classes, lunch, and instruction (Federal Commission on School Safety, 2018). Few of the publicly available tools and resources we reviewed were designed to help LEAs consider these different aspects of their school contexts.

Security planning ideally also considers the many likely uses of school space, in addition to regular instruction. For example, use of school facilities by nonschool groups or during nonschool hours might require that a staff person be on-site and that communication equipment be accessible outside regular school hours; these events might also require special training for security staff (NCS<sup>4</sup>, 2020). The process of identifying physical security needs should also account for all users of the building, including guests and those with special needs or accessibility requirements, people with limited English proficiency, and racially and ethnically diverse individuals (FEMA, 2013).

The age of the students also matters: Stakeholder discussion participants noted that elementary school students need more direction than middle or high school students and, in contrast to older students, cannot necessarily be relied on to make decisions to protect their safety or the safety of others. Despite this reality, participants noted that most guidance is not age appropriate; it is usually “one size fits all” or intended for high school students. The literature reflects this viewpoint as well: According to Zhu and colleagues, training and guidance for students should be tailored for age appropriateness (Zhu et al., 2020). Similarly, most of the publicly available tools and resources we reviewed were not designed to help LEAs consider the age of the students or multiple uses or users of school facilities in security planning.

The analysis and planning team convened by a LEA might also wish to consider physical security needs for school events held outside school, such as large special events (e.g., sporting events or guest speakers). These types of gatherings might require more planning time or a larger planning team or present special security needs, such as additional security personnel staffing, more communication equipment, on-site law enforcement or emergency personnel, additional access control measures, staff training, or extra coordination with law enforcement

prior to and during the event (Connors, 2007; NCS<sup>4</sup>, 2020).

Crafting a security plan that considers these factors can be challenging for LEAs. An LEA that chooses to manage the process itself might struggle to find staff with the appropriate expertise; collect the necessary information; and conduct the threat, risk, and vulnerability analyses. And even an LEA that outsources the work of security planning to a contractor can face important challenges, as we have just described.

## Challenges Related to Selecting Physical Security Measures

Our analysis of the literature revealed three main challenges in selecting physical security measures:

- resources
- information
- external constraints.

We discuss each of these in turn in this section. These challenges emerged from the school-specific literature and guidance, as well as from literature and guidance pertaining to soft targets in other sectors, such as houses of worship and transit agencies.<sup>13</sup> In this section, we also touch briefly on challenges related to implementing physical security measures; a more complete discussion of this topic is included in our companion report (Moore et al., 2021).

Resource constraints related to purchasing desired materials, equipment, and technology and to hiring security personnel constitute one of the most-frequently cited challenges in selecting physical security measures, in both the literature and our stakeholder discussions. School district budgets are limited, and funds are often allocated for required expenditures. Budgets also require school board approval. Moreover, principals have varying levels of control over the school budget and little room for discretionary spending, which can make it difficult to allocate additional funds to meet physical security needs beyond those that are mandated by federal, state, or local policies. As we noted in “The Policy Landscape” section, the federal government and many U.S. states offer targeted grant funding to address local resource constraints. However, many

LEAs lack the expertise and staff time to develop competitive applications.

The second key challenge that emerged from our literature review pertained to information constraints. We found limited research evaluating the effectiveness of physical security measures (Hanover Research, 2013a), a gap that can inhibit LEAs' ability to select measures based on evidence of effectiveness. We also found that there was limited guidance for LEAs on adopting measures that meet statutory and building code requirements and promote desired physical security outcomes. The lack of concrete empirical evidence is a challenge that the research community, in partnership with government agencies and LEAs, must work to address. And as we note earlier in this report and in the following subsections, federal, state, and local policies on their own do not necessarily constitute challenges in implementing physical security solutions. However, an LEA might perceive a specific policy as a challenge if it reduces the set of allowable security measures or if the way in which it has implemented a security measure conflicts with the policy. Clear, easily accessible information about how to implement security measures consistently with relevant policies could help to address this challenge.

The third key challenge is external constraints—those imposed by the built environment itself—when upgrading security measures in an existing facility (i.e., retrofitting) or constructing a new facility. These challenges must be considered in the context of the resource and information constraints in each LEA.

We also briefly discuss implementation constraints related to the people and personnel, policies and procedures, and training that are necessary for school safety.

## Resource Constraints

### General Budget Constraints

Selecting physical security measures that are compliant with code requirements can be a costly process in both LEA and in nonschool settings, as can addressing the conflicting requirements of multiple policies, such as the ADA and local fire and building code requirements cited above (McIlhatton et al., 2020). Identifying and allocating funding for such measures

are, generally speaking, significant challenges that LEAs face. LEA budgets consist of funding from local taxes, federal and state budget allocations, and grant programs (Leachman and Figueroa, 2019), and the number of students enrolled also plays a role in determining the size of these budgets.

As a result, less populated, generally rural areas typically have less money to allocate than more-populated districts have. When funds are limited, an LEA might prioritize expenses related to teaching and learning (e.g., curricula, professional development for teachers) instead of spending on physical security. According to the participants in our small-group discussions, the challenge of how to prioritize funding for physical security measures—especially ones with high fixed costs—might be somewhat more difficult in less populated regions.

Most of the practitioners in our small-group discussions noted that another key challenge in adopting more-extensive physical security measures was a reluctance to take on additional financial burdens, impose new fiscal measures on the local community (e.g., through a bond issue or tax increase), or reallocate existing funds to pay for security upgrades. Although federal and state grant programs exist for physical security upgrades, as we describe in our discussion of the policy landscape, some LEA leaders who participated in our stakeholder discussions noted that they lacked knowledge of grant programs, as well as the time and expertise to apply for these programs. In fact, several participants noted directly that they lacked funding and expertise to hire consultants to assist with writing grant proposals or to recommend security measures. Local law enforcement officials and other first responders could provide a low-cost source of external expertise in school security planning. We discuss the challenges posed by limited LEA staff expertise in more detail in the section about information constraints.

### The Cost of Equipment and Materials

The cost associated with purchasing physical security equipment and materials was the most commonly cited challenge in the literature on physical security. In particular, challenges as they relate to the costs of purchasing and installing security technologies, such as cameras or other surveillance or detection equip-

ment, as well as related software applications, were especially common (ASIS International, undated; Baker and Benny, 2013; Brown, 2006; Fennelly and Perry, 2014; Hanover Research, 2013a; APL, 2016; Schneider, 2010). In addition, equipment maintenance, replacement and technology upgrades, and migrations to new systems are aspects of implementation and can be costly. LEAs should therefore consider these expenses as well when selecting security measures (Baker and Benny, 2013; Schneider, 2010). Funding for maintenance, as noted by superintendents of rural districts, can be unreliable across years (Prine and Ballard, 2019) and is thus another challenge.

Budget constraints can be so pressing that numerous guidelines caution against selecting security measures based solely on initial cost. For example, the PASS guidelines note that LEAs should try to avoid choosing measures based solely on lowest up-front cost without considering maintenance or replacement and upgrades (PASS, 2020). Guidance offered by the National Institute of Justice also points out that LEAs should consider the effectiveness of a security measure alongside its cost (Green, 1999) and that they should account for whether the cost of the equipment outweighs the risk it is intended to mitigate (Zhu et al., 2020). Publications on physical security for transit agencies make similar recommendations: Multiple sources encourage transit agencies to consider the full life cycle of the equipment (e.g., installation, maintenance, replacement, future needs) when evaluating costs (Rabkin et al., 2004; Bahr et al., 2007). Similarly, building materials that enhance physical security, such as those that are blast resistant or bulletproof, have different initial and maintenance costs and call for cost/benefit analyses similar to those applicable to technologies (Federal Commission on School Safety, 2018; FEMA, 2003; Foley, undated). Notably, going for low-cost technologies to address some cost barriers can pose additional challenges down the road: Inexpensive door lock solutions, for instance, run the risk of violating building codes or statutes or might be difficult for small children to operate (Northeast Security Solutions, undated).

Other equipment—namely, surveillance technology, such as cameras—can be prohibitively expensive

(Drako, undated; Schwartz et al., 2016; C. Garcia, 2003; Heinen et al., 2007). Despite its high cost, such technology remains common in K–12 schools in the United States and is appealing insofar as it can reduce an LEA’s reliance on staff for surveillance (School Security Task Force, 2014). Still, camera systems can be so expensive that LEAs sometimes install inoperable cameras in a manner that makes them visible to the public (Schneider, 2010). Experts caution against such approaches because they open the school to liability and warn that nonfunctioning cameras can create a false sense of security rather than having a deterrent effect (Foley, undated; Schneider, 2010). In the transit sector, many security lawsuits and claims of negligence for transit agencies are due to inoperable equipment (Rabkin et al., 2004, p. 9). Finally, perimeter barriers (e.g., fencing) might be important if the school grounds are large—but these can also be costly to install and maintain (Hanover Research, 2013b) and might not contribute to fostering a welcoming atmosphere. Some experts thus recommend that LEAs consider natural barriers, such as trees or hedges, that also increase the visibility of people and vehicles entering school property without degrading campus aesthetics (Atlas, 2013).

### The Cost of Personnel

Many LEAs hire security personnel, who can include SROs, school safety officers, private security guards, or other contract personnel. According to the 2017–2018 school survey on crime and safety (Diliberti et al., 2019), 61 percent of LEAs nationwide reported security personnel present at least one day per week during (Wang et al., 2020). Several sources noted that, although the presence of SROs is a desirable measure for many LEAs, funding to hire them generally comes from school district and law enforcement agency budgets, which tend to be limited. Even though some LEAs and law enforcement agencies share the costs of SROs, small budgets on both sides can be a challenge in hiring a sufficient number of SROs with the necessary qualifications; however, federal and state grant programs can cover some of the staffing costs (Chrusciel et al., 2015; Kennedy, 2018; School Security Task Force, 2014).

Cost can be a particular challenge in hiring SROs because they can be more expensive than other

types of security personnel because of the qualifications, training, and expertise necessary for the role (Lapointe, 2016). To decrease costs, some schools share SROs (Finn et al., 2005). As we describe in “The Policy Landscape,” funding provided at various levels of government allows some schools to hire security personnel or adopt measures outside of their typical budgets (see also Heinen et al., 2007). The PASS guidelines (PASS, 2020), which include suggestions for crafting applications for grant funding, might be a useful tool for LEAs seeking external funding to hire security personnel. Box 2 describes in more

detail the challenges related to staffing security personnel.

Beyond considering the costs associated with hiring security personnel, LEAs must consider the staff time required to select appropriate security measures and, once implemented, train staff on related policies and procedures. Jalloh and Schmalz, among others, noted that the time required to research and select appropriate measures and train staff in their use can detract from other important activities (Jalloh and Schmalz, 2002; Foley, undated) and can thus be a challenge for an LEA when developing a security plan. For example, training teachers on

### **Box 2. Costs Related to Staffing School Security Personnel**

The 2014 New Jersey School Boards Association School Security Task Force reviewed the types of security personnel in New Jersey schools and the purview of each (School Security Task Force, 2014). Security personnel included SROs (full-time law enforcement officers on community-oriented policing assignments at schools through agreements between local jurisdictions and schools), special law enforcement officers (part-time officers for local law enforcement jurisdictions), retired police officers, nonpolice security guards, and private security guards.

In New Jersey, each LEA is responsible for funding security personnel unless a cost-sharing agreement is in place between local law enforcement and the LEA or if the LEA receives external funding from a federal or state grant. The task force found that New Jersey schools often struggle to staff school security positions because of the associated cost. Although SROs were the costliest form of security personnel to schools in terms of salary, hiring other types of personnel could increase costs in other ways. For example, if an LEA were to hire a retired police officer, that person might not be covered by the existing LEA insurance policy and thus require a change in that policy and possibly increase costs. Costs for SROs can be prohibitive, particularly with expected declines in or termination of federal grants used to fund SROs throughout the state. However, the training and expertise of each of these types of staff also varies, and the task force cautioned schools against trying to save costs by employing staff who were not trained to work in schools. The task force recommended that schools use SROs because their supervision; professional experience; training; enforcement options; and role as educators, counselors, and law enforcement officers were a better fit for the needs of schools.

Some schools have opted to employ a combination of types of security personnel as a cost-saving measure (Finn et al., 2005; Marjory Stoneman Douglas Public Safety Commission, 2019). Before 2018, each school in Broward County, Florida, the location of MSD, was staffed with one SRO, regardless of school population size, in an effort to contain costs. In addition to the SRO, MSD employed a security specialist and seven campus monitors—this last set of personnel did not include law enforcement staff. In its after-action report, the Marjory Stoneman Douglas Public Safety Commission stated its finding that the staffing of one SRO at a school with more than 3,000 students and a large campus was “inadequate to ensure a timely and effective response” (Marjory Stoneman Douglas Public Safety Commission, 2019, p. 99) and offered guidance on a staffing ratio for security personnel. In response to this finding, the Florida legislature passed the Marjory Stoneman Douglas High School Public Safety Act (Florida Senate, 2018), which requires at least one safe-school officer at each school,<sup>15</sup> provides grant funding for security personnel (a required safe-school officer or hiring additional personnel), and authorizes districts to increase local property taxes to cover school security-related expenses (Marjory Stoneman Douglas Public Safety Commission, 2019, p. 105).

the use of a new access control system might mean that there is less time for professional development related to curriculum and instruction. Guidance for transit agencies raised a similar concern and urged security staff to consider trade-offs in cost between highly labor-intensive measures, equipment-intensive measures, and other measures (Rabkin et al., 2004), as well as plan for ongoing training for continuing employees in addition to the training necessary for new employees (Bahr et al., 2007).

In addition, specific measures, such as cameras and other surveillance equipment, can be labor intensive to operate effectively. If the technology is installed to detect adverse events, it will require constant monitoring by trained personnel. Staffing the personnel and paying for their time can be a challenge for LEAs, as we just described, or can detract from the aforementioned professional development activities if existing school staff are responsible for monitoring camera feeds. LEAs must consider these associated personnel costs in their decisionmaking processes (Baker and Benny, 2013; C. Garcia, 2003; NCS<sup>4</sup>, 2020). Box 3 describes the cost challenges that led to limited security personnel staffing and other vulnerabilities at MSD.

Of course, not all security measures come at a high cost. In its after-action report, like other state-level guidance, the Marjory Stoneman Douglas Public Safety Commission recommended that LEAs take a “tiered approach” to physical security and begin by adopting low- or no-cost measures before considering higher-cost measures, such as technology or additional staff (Marjory Stoneman Douglas Public Safety Commission, 2019; Division of Homeland Security and Emergency Management, 2014; New Jersey School Security Task Force, 2015; Virginia Departments of Criminal Justice Services and Education, 2019). Crime prevention through environmental design (CPTED), for instance, can be a cost-friendly approach that yields important security benefits while creating a welcoming environment and aesthetics that support the school mission of teaching and learning (Atlas, 2013; CDC, 2017; Cozens and Love, 2015; Federal Commission on School Safety, 2018; Fennelly and Perry, 2014; Division of Homeland Security and Emergency Management, 2014, PASS, 2020; Sandy Hook

### **Box 3. Cost Challenges for Physical Security at Marjory Stoneman Douglas High School**

The MSD after-action report identified numerous physical security vulnerabilities across the school campus and buildings, including closed but unlocked and unstaffed fence gates along the campus perimeter, unlocked and unstaffed doors to buildings within the campus perimeter, classroom doors that locked only from the outside, locked doors to student bathrooms, and inadequate surveillance and communication systems (Marjory Stoneman Douglas Public Safety Commission, 2019, pp. 84–85). Interview participants reported that cost was the reason unlocked doors were not staffed with personnel in the early morning or during school hours. The school also did not have funding necessary to install cameras to surveil these key access points when they remained unlocked. As a result, these areas presented opportunities for entry without the knowledge of security personnel or school staff. Recognizing that cost presented a significant challenge in improving physical security across the campus, the Marjory Stoneman Douglas High School Public Safety Act (Florida Senate, 2018) created grants to allow schools statewide to address the gaps in physical security identified through school safety assessments (Marjory Stoneman Douglas Public Safety Commission, 2019, p. 316).

Advisory Commission, 2015; School Safety Working Group, 2020). CPTED principles recommend such measures as “natural surveillance,” established via clear sightlines rather than surveillance technology or security personnel; perimeter barriers constructed from landscaping instead of fencing; and clear signage to aid building evacuation and first-responder access instead of equipment- and personnel-reliant communication or surveillance systems (Cozens and Love, 2015).

The numerous challenges related to cost—expense of equipment and personnel, limited budgets, and uncertain external funding—suggest that policymakers should give priority to funding mechanisms when developing legislation, policy, or

other security requirements directed at LEAs. LEAs should also first consider implementing low- or no-cost security measures—such as those recommended in CPTED principles—before moving forward with more-expensive technology solutions.

### Information Constraints

As we noted above, security experts recommend that LEAs and decisionmakers for other soft targets consider the effectiveness of physical security measures, singly and holistically, in their decisionmaking. Ideally, LEAs and other organizations should assess the effectiveness of the measures they plan to adopt as a part of their entire physical security system (Moore et al., 2021), then select those that are most appropriate to their local contexts and desired security outcomes (Zhu et al., 2020). Measures should work in concert to prevent and mitigate adverse events. However, there is little research on the effectiveness of many physical security measures, and what evidence that does exist is mixed. Thus, LEAs lack reliable information about the effectiveness of various physical security solutions, a constraint amplified by the fact that most LEAs lack expertise in security or security policy. We discuss these constraints in this section.

### Limited or Inconclusive Research

There is little specific guidance for LEAs on how to determine which security measures best fit with their contexts and desired security outcomes (APL, 2016). LEAs are not alone in facing this challenge; guidance on soft targets in other sectors is similarly limited (DHS, 2013; Rabkin et al., 2004). Ideally, LEAs would consult research evidence about the effectiveness of security measures prior to adopting them. The school safety field, however, lacks this kind of information and says little about a measure's ability to meet the variety of security outcomes, either independently or as part of an integrated system of measures (Astor, Guerra, and Van Acker, 2010; APL, 2016). Whatever evidence does exist on this front is mixed, at best (Jalloh and Schmalz, 2002). Although a detailed summary of the literature that examines the effectiveness of physical security measures is outside the scope of this report, we discuss the broad findings from our

review and summarize key findings from the best-developed bodies of literature pertaining to specific security measures.

The literature we reviewed was largely exploratory and relied on correlational or descriptive analyses; we did not find any studies with experimental designs and few studies with quasi-experimental designs. In general, the literature focused on the associations between physical security measures and safety and security outcomes, and, as other recent meta-analyses of this same literature conclude, few studies enable causal inference (APL, 2016; Schwartz et al., 2016). Again, most of the literature pertained to high school environments because this is where most adverse incidents occur (Crawford and Burns, 2015), a finding that is consistent with those in other analyses; we found limited research exploring how physical security measures were implemented and associated with security outcomes in middle and elementary schools.

Larger bodies of research focused on the effects that higher-profile measures—specifically, surveillance systems and security personnel—have on a variety of outcomes, including school climate and preventing student victimization and crime. Other measures, such as access control systems, door locks, CPTED approaches, and communication systems, are not commonly the topic of research; when they do feature in studies of school physical security, it is to understand their relation to a smaller set of security outcomes.

The literature focuses primarily on three popular examples of physical security measures: security cameras, CCTV, and metal detectors, all of which schools across the United States adopted widely in the wake of the 1999 Columbine High School shooting (Addington, 2009). Several authors noted that LEAs and other entities that lack security experts often assume that surveillance and detection measures will be effective to detect, deter, and prevent a variety of threats, including active shooters (Foley, undated; Jonson, 2017; Zhu et al., 2020), and that these measures are relatively straightforward to implement (Jonson, 2017). However, these technologies' actual effects on detection and deterrence are unclear or mixed (Gastic, 2011; Hankin, Hertz, and Simon, 2011; Hanover Research, 2013a; Matthew, 2010; Nance,

2017). And many suffer from inefficiencies or ineffectiveness, either because they are out of date or because the implementing school does not also have appropriate policies and procedures governing their use—a concern that also arose in relation to transit agencies (Bahr et al., 2007).

Detection might also not be the most appropriate, or only, use of surveillance technology. Heinen and colleagues, for instance, noted that footage from security cameras is valuable for reconstructing incidents in their aftermath (Heinen et al., 2007). In their 2016 review of the literature, Schwartz and colleagues also reported that cameras in schools are generally more effective for preventing property crimes, such as vandalism, than they are for addressing violent crime (Schwartz et al., 2016). In addition, it is important to note that surveillance technology can pose additional challenges for LEAs, insofar as school leaders also need to be mindful of protecting student privacy (ASIS International, undated; Heinen et al., 2007; Schneider, 2010).

The research on SROs is similarly mixed: Although some studies suggest that having an SRO present can be an effective approach to reducing school violence (Anklam et al., 2015; Chrusciel et al., 2015), others show that an SRO's presence can degrade students' perceptions of safety. In one survey, teachers reported that they felt safer with an SRO in the school (Maley, 2020), and other studies suggest that the presence of an SRO can help prevent school shootings (Kennedy, 2018). Many of the state guidance documents we reviewed (e.g., Risk and Vulnerability Assessment Team, undated) also described having an SRO present as an effective measure to prevent crime and ensure positive student–adult relationships. But we found conflicting evidence on the effectiveness of SROs broadly speaking: Other studies note that students sometimes perceive SROs negatively and that their effectiveness when it comes to reducing school violence is unclear (Hanover Research, 2013a; Lapointe, 2016).

### The Limited Expertise of School Staff

Another challenge that arose in the literature, as well as in our small-group discussions, pertains to many LEAs' limited expertise in physical security. This is not the fault of LEAs—their primary job is educating

students—but it can play a role in how LEAs evaluate and select security measures. For example, LEAs with limited security expertise might be more susceptible to external pressures or to selecting measures based on their perceptions of effectiveness rather than on empirical evidence. LEAs can also face pressure from the media, families, and community members to “do something,” particularly in the wake of an adverse event, and be subjected to pressure from security equipment vendors or consultants who market their services to schools (CDC, 2017; APL, 2016; Kennedy, 2018; Northeast Security Solutions, undated; PASS, 2020).

Inexpert LEAs might also face the challenge of navigating through too much information, including vendor and consultant opinions and guidance from numerous federal and state agencies. This information overload can make it difficult to evaluate and choose the most-appropriate security measures (Jalloh and Schmalz, 2002). The Federal Transit Administration has also noted that transit agency leaders are inundated with a tremendous amount of guidance and information that do not address current threats (e.g., terrorism) and are not directly applicable to public transit. This makes for confusing situations for leaders seeking appropriate security solutions (Bahr et al., 2007).

Navigating federal and state guidance and the abundance of vendor resources to identify code-compliant measures requires expertise. LEAs are usually not experts in combining the variety of available security measures to address the security risk while meeting resource and code constraints. Complicating matters further is that not all security measures are consistent with building codes (PASS, 2020). Although a change in code to allow a security measure might solve one security problem, it could also introduce a separate security risk (School Security Task Force, 2014). For example, changing building and fire codes to allow door barricades might prevent an active shooter from entering the classroom, but it would also delay law enforcement and first responders from entering the classroom during an emergency.

Some LEAs might be under the impression that adopting a single measure will simultaneously satisfy family and community stakeholders and improve

the school safety and security (Dorn, 2016; Nance, 2017), even though this is rarely, if ever, the case. For example, active-shooter drills or door locks by themselves are not failproof ways of stopping an active shooter (Maley, 2020; Northeast Security Solutions, undated), and installing access control systems and other target-hardening approaches will not eliminate crime by themselves (Federal Commission on School Safety, 2018; Schneider, 2010). Even relying solely on a law enforcement response in the case of an emergency situation is insufficient, given that the incident will likely be over before help arrives (Indiana Department of Homeland Security, 2017).

Instead, experts advise that LEAs incorporate physical security equipment and technology, as well as design solutions, into a broader safety system in which security measures match carefully identified needs and desired outcomes and receive support from clear policies, ongoing training, and commitment from staff (Dorn, 2016; Heinen et al., 2007; Nance, 2017; NCS<sup>4</sup>, 2020; PASS, 2020; Schneider, 2010, Moore et al., 2021). Although this is good advice, most of the guidance we reviewed stopped short of offering recommendations for how school staff should design such a system, particularly given the constraints associated with information and expertise. An LEA can hire expert consultants or specialists, such as law enforcement officials or other emergency responders, to help it understand and assess the constraints, available options, and trade-offs in its context. LEAs that do not have the resources or inclination to engage external experts can take advantage of online clearinghouses of guidance, tools, training materials, and other resources.

These repositories aim to lower burdens associated with finding the information and increasing that knowledge that LEAs need to design such a safety system. Box 4 describes one example of such a repository, the TxSSC’s “Tools” webpage (TxSSC, undated c).

Government agencies might be able to play a role in filling some of these challenging information gaps. For example, they could lead the way in developing resources to help LEAs implement security measures consistently with federal, state, and local policies or point LEAs to appropriate and cost-effective tools for threat, risk, and vulnerability analyses and school security planning more broadly. Policymakers should also keep in mind that LEAs might not have in-house expertise for physical security planning and that guidance clarifying who should be part of the security planning team could be particularly valuable. Further academic research can address other challenges, such as those related to limited information about the effectiveness of many physical security measures.

### Physical Constraints

Physical constraints pose yet another challenge for LEAs when it comes to selecting physical security measures. Physical constraints arise in the course of designing building retrofits (i.e., upgrading security measures in an existing facility) or constructing a new facility. This type of challenge cuts across the resource and information constraints discussed earlier in this section.

#### Box 4. State Resources That Support School Physical Security

The TxSSC is charged with disseminating guidance, research, training, and technical assistance for K–12 schools and junior colleges throughout the state of Texas. It is intended to provide information for students, educators, administrators, campus-based law enforcement, community organizations, state agencies, and colleges and universities. Its website organizes resources on a variety of school safety topics in addition to physical security, including bullying, school violence, mental health, drugs, digital safety, emergency law enforcement, and youth leadership. Resources for these topics include briefs, informational and training videos, and tools. Website content includes tool kits designed for school staff that map to state laws, regulations, and policies when applicable. The center offers technical assistance in the form of school safety audits and review of emergency preparedness plans and distributes quarterly newsletters focused on school, security, and violence prevention.

When retrofitting an existing building, the built environment and physical location can pose significant challenges in physical security planning. For example, ideal positioning of security cameras might not be possible, the number of existing access points might dictate the choice of access control measures, and the physical location could influence the selection of perimeter barriers (Committee on Architecture for Education, undated; Schneider, 2010). Integration with existing security infrastructure, if any, is another important consideration for LEAs. Older buildings, for instance, might not have security measures integrated into the building structure (Zhu et al., 2020) and might limit the set of materials from which LEAs can choose when renovating or retrofitting (FEMA, 2003). In cases in which existing buildings already have security technology or hardware installed, these features might limit or constrain what LEAs can add (Baker and Benny, 2013; Fennelly, 2017; Schneider, 2010).

Retrofitting a building also requires compliance with current federal guidance on such issues as disaster preparedness and should take into account building codes and statutes. These considerations can add significant cost to a retrofit (Northeast Security Solutions, undated) but are important to avoid code violations and other requirements. For example, the New Jersey School Boards Association notes that *Education Facilities Sector-Specific Plan* (DHS and U.S. Department of Education, 2010) includes remodeling old buildings to meet modern standards for a secure layout. This includes locating administrative offices out of public view, installing physical barriers to prevent close vehicle access to the building, and planning for two emergency control centers; all of these requirements could be very expensive to implement in an old building (School Security Task Force, 2014).

In addition, school building design and construction differ by geographic region and locale. For example, an urban school might be in a multistory building, and newer buildings might rely on construction materials different from those in older buildings (Philpott and Kuenstle, 2007). Thus, the Committee on Architecture in Education noted that thinking about the holistic security of the building along with the setting and materials is espe-

cially important when retrofitting (Committee on Architecture for Education, undated).

Certain experts argue that it is easier and more cost-effective to implement and integrate physical security measures into new construction (Green, 1999; NCS<sup>4</sup>, 2020), particularly if plans for physical security are developed early in the building and site design and budgeting processes (Bahr et al., 2007). In addition, the simultaneous construction of multiple buildings offers the opportunity to implement security solutions at scale and thus reduce cost (Rabkin et al., 2004). In Box 5, we highlight an example of

### **Box 5. Sandy Hook Elementary School**

The Sandy Hook Advisory Commission examined the relationship between the physical design and structure of the building; school climate; and detection, delay, and response capabilities after the active-shooter event that took place at the school in December 2012 (Sandy Hook Advisory Commission, 2015). The commission found that the design of the original building limited situational awareness for security personnel and first responders during the active-shooter event. In its report, the commission made a series of recommendations specific to the design of buildings, procedures to secure the physical school, processes to review the design of the building and related procedures, statewide building design standards for construction of new schools, and a statewide School Safety Infrastructure Council (SSIC) tasked with improving school security design (Sandy Hook Advisory Commission, 2015; SSIC, 2018). Connecticut Public Act 13-3, 2013, authorized the SSIC and tasked it with developing school safety infrastructure criteria for school buildings (e.g., industry standards for entryways, reinforcements of entryways, use of cameras throughout the building). It also created the School Building Projects Advisory Council and tasked it with developing blueprints for new school building projects and making recommendations for ongoing improvements to school building projects. At the same time, the state of Connecticut created grants for schools to address physical security needs; these required adherence to the new statewide building design standards.

how state policies inform increased security in existing buildings and new school construction.

Additional attention to resources that schools have available for physical security, as well as the expertise that they have on hand to address their security needs, could help to alleviate some of the physical constraints related to the construction or retrofitting of school buildings. For instance, policymakers and government agencies at the federal and state levels might offer more-robust planning guidance and accessible tools to help LEAs understand which security measures would be best suited to meet their unique needs. A clearinghouse hosted and regularly maintained by a federal government agency, such as the National Institute of Justice or CISA, could also display relevant federal and state-level regulations that might affect school building construction and retrofits; this could be a valuable resource for LEAs tasked with making important decisions about school physical security.

### Implementation Constraints

Once a school has selected its physical security measures, it must address how to integrate them into a holistic system and implement them in a way that will promote school safety and support the educational mission of the school. Here, we briefly highlight a few of these considerations. Our companion report, *A Systems Approach to Physical Security in K-12 Schools* (Moore et al., 2021), discusses the full implications of implementing physical security measures, including how they might affect other aspects of the school environment.

Selecting physical security measures is not the final step in creating a physical security system. LEAs must consider how each measure will function in relation to others and address such questions as these:

- Are measures implemented across a campus redundant?
- Are there security needs that these measures do not address?
- To what extent do these measures mitigate emergencies other than school violence (e.g., natural disasters)?

LEAs must work within their unique set of cost, information, and physical constraints to select a suite of security solutions that will include technology, site and building design, and staffing needs, as well as related policies and training. Simultaneous consideration of the five elements that constitute the physical security system—policies and procedures, training, personnel, equipment and technology, and building design—is a complex but critically important process that LEAs should be prepared to undertake. Moreover, these five elements should work in sync with the broader school context and not undermine important facets of a school’s ability to achieve its educational mission, such as school climate.

Certain physical security measures, if not implemented well, can be detrimental to a positive school climate. Ideally, to promote learning, schools are open and welcoming settings in which students feel safe. However, extensive surveillance and detection systems (e.g., metal detectors) can detract from student feelings of safety (e.g., Philpott and Kuenstle, 2007), and research indicates that students perceive surveillance systems as invasive of their privacy (Casella, 2010; Committee on Architecture for Education, undated; Heinen et al., 2007; Schwartz et al., 2016; Taylor, 2013). In other words, without appropriate policies, training, and oversight, many physical security measures can introduce bias into schools and be used to target specific students (Nance, 2017; Schwartz et al., 2016; Taylor, 2013), whether intentionally or not.

Indeed, developing policies to guide the use of security equipment and technology and training and supervising staff in a way that cultivates buy-in and appropriate use are challenges themselves (Baker and Benny, 2013; APL, 2016; Timm, 2015). Numerous experts have noted that security equipment alone will not reduce the risk of adverse events if students and staff do not follow the policies for implementing those solutions (Fennelly, 2017; Foley, undated; APL, 2016; Timm, 2015). For example, door locks and identification badges will not detract or stop intruders if students or staff leave doors propped open and wear their badges incorrectly or do not wear them at all (Fennelly, 2017; Timm, 2015). As we discuss in our companion report (Moore et al., 2021), attention to the effects—positive and negative—that certain

physical security measures have on other physical security measures, as well as on the broader school environment, is an important aspect of effective school security.

## Summary of Findings and Implications

This report addresses the challenges related to planning and selecting physical security measures in LEAs that stem from federal, state, and local policies and that emerged as most salient based on an extensive literature review and a few small-group discussions with stakeholders in the school security space.

Federal, state, and local policies do not alone necessarily present challenges in selecting or adopting physical security measures. Rather, these policies are difficult for nonexpert LEAs to understand and are also often subject to change; finding current, accessible information can be challenging. In addition, LEAs must ensure that implementation of security measures and policies does not violate individuals' constitutional rights and that physical security measures do not violate state or local building, fire, or zoning codes. Certain state policies also require the adoption of specific security measures but do not always provide funding, and LEAs might not have the expertise or resources to pursue or generate funding. Centralized repositories of information and technical assistance centers can help address these challenges.

Our review of the literature and stakeholder discussion groups point to two main categories of challenges: those relating to planning for physical security outcomes and those related to selecting physical security measures. Lack of funding, limited LEA staff expertise, and little conclusive research evidence to guide the selection of appropriate physical security measures emerged as the most-salient challenges. Our review also revealed few publicly accessible, K–12–specific tools that took a systems approach to security planning or provided guidance to help LEAs consider how different physical security outcomes and measures overlap or interact. Taken together, these challenges make taking a systems approach to physical security difficult. We conclude with several

implications from our research for federal, state, and local policymakers and LEAs.

- For policymakers
  - **Be mindful of unfunded mandates.** LEAs pay for physical security measures, which are expensive. Resource constraints were the most salient challenge in the literature and came up in the stakeholder discussions. School budgets are limited, and funding for security measures often competes with operating or other expenses that are essential to the school mission. Grant programs tend to be limited to the periods during which federal or state mandates remain in force; schools might not have the resources to invest in sustainable physical security solutions.
  - **Develop and maintain comprehensive school security resources for LEAs.** LEAs are responsible for understanding and complying with federal, state, and local policy and legislation. The myriad policies at all of these levels can be difficult for LEAs to digest and reconcile, and relevant information is not always well organized or easy to access. Comprehensive, well-organized websites, such as those of the TxSSC (TxSSC, undated a), the Florida Department of Education (Florida Department of Education, undated), and the Colorado School Safety Resource Center (School Safety Resource Center, undated), which are largely state funded, compile a variety of resources for LEAs and could serve as valuable models. However, although such comprehensive websites can reduce the burden of finding information, the volume of resources for LEAs to review is still considerable. The fact that different federal and state agencies often provide resources, tool kits, and trainings on the same topics complicates matters. Partnerships between state and federal agencies that are focused on compiling relevant resources for comprehensive websites and eliminating redundant information

could benefit LEAs. State-funded centers are vulnerable to fluctuations in funding due to changing legislative priorities or demands on the state budget. As a result, state and federal governments should therefore also consider consistent funding sources (e.g., through appropriations) to maintain such repositories and offer technical assistance.

- **Provide publicly available guidance, tools, and resources to help LEAs use local data to identify the security measures best suited to their desired security outcomes, needs, and context.** We found little concrete publicly available guidance to help LEAs use local data to plan for school security needs; select specific measures; understand how various security measures can interact and overlap; and make decisions appropriate to their geographic region, locale, student and community populations, and the many uses of school facilities at different times of day. For example, there was little guidance specific to elementary or middle schools and before- and after-school or weekend activities. Guidance was also lacking for rural LEAs, which might have long wait times for emergency response. Similarly, although some tools encouraged LEAs to incorporate local data on school violence or security incidents into their analytic and planning process, LEAs might be under pressure from community members, families, and the media to adopt specific security measures regardless of local context or needs. Policymakers should consider providing explicit direction about how local school safety data should inform LEA decisionmaking and offer a road map to help LEAs consider their local contexts as they decide which security measures to adopt.
- **Align guidance, tools, and resources for school physical security planning with other required emergency plans.** LEAs are required to create emergency plans; however, the ways in which physical secu-

rity planning might overlap with or support other emergency plans is not always clear. Policymakers should consider how to clarify these areas of intersection and overlap and provide guidance detailing how physical security planning can and should be incorporated into broader emergency planning. As other experts have noted (see e.g., Schwartz et al., 2016), such guidance could help LEAs create and update emergency plans more efficiently and reduce the opportunity cost of extensive time spent on emergency planning—the more time school staff spend on security planning, the less time they can spend on teaching and other vital aspects of the school mission.

- **Consider what expertise LEAs require for physical security planning.** Security planning is critically important, but many LEAs have no security experts. Moreover, an LEA's primary function is supporting the broader school mission of teaching and learning. This raises the question of whether LEAs should always be primarily responsible for leading physical security planning efforts. For example, perhaps external experts, such as law enforcement agencies or school security personnel, could take the lead during certain aspects of the planning process. Consultation with school attorneys or students' rights advocates, such as the American Civil Liberties Union, might be another important part of the planning process, especially when considering the implementation of certain measures that risk impinging on the privacy or other rights of students and others on campus. Thus, policymakers should consider offering guidance that clarifies who should be part of the security planning team.
- For LEAs
  - **Implement no- or low-cost measures first.** Cost was the most salient challenge in selecting security measures; LEA budgets are constrained and might have

limited flexibility when it comes to covering unplanned costs related to physical security. In response, the CPTED literature suggests that LEAs might consider no- or low-cost security measures first before adopting higher-cost measures. These measures, which can include revising security policies and procedures, training staff in policies and procedures, creating strong buy-in across the school community, and considering low-cost landscaping and open sightlines, can all contribute to improved security outcomes at relatively low cost.

- **Incorporate local data in analysis and planning.** According to the literature, LEAs might not always use local data on school violence or other adverse events when conducting physical security analyses or when selecting physical security measures. Instead, LEAs might plan only for unlikely but catastrophic events (e.g., active shooters) at the expense of more-common but less catastrophic events (e.g., bullying, vandalism). We found that few existing analytic tools offer concrete guidance for how LEAs can use local data to inform their selection of physical security measures. Therefore, policymakers should consider offering such practical guidance to LEAs to facilitate simultaneous planning for both frequent events and also less likely but more-consequential ones.
- **Include relevant stakeholders and experts in the physical security planning process.** LEAs should consider forming multidisciplinary teams to help them address the myriad issues that could arise during the physical security planning process. In addition to school and district leaders, a planning team could include representation from local law enforcement and first-responder communities and consult with other stakeholders, such as school boards, parent/teacher associations, and even student groups. LEAs might also contemplate reaching out to school attorneys or students' rights advocates if they are consider-

ing certain technologies or other measures that risk infringing on students' and others' civil rights and civil liberties on campus.

- **Ease the burden on school leaders of identifying physical security outcomes and needs and selecting security measures.** States could ease this burden by offering guidance to LEA leaders about how to effectively and efficiently comply with federal, state, and local guidelines. Such guidance could include a list of approved vendors, lists of approved security measures (e.g., brands of door locks or access systems that are code compliant), example security policies, districtwide standards for school security personnel job descriptions, or decision tools to help school leaders prioritize among many competing safety and security priorities (e.g., physical security, disease outbreaks). LEAs could also pursue partnerships with community-based organizations or vendors in the school security space to provide training for new and experienced staff.
- **Provide or identify resources to reduce or offset cost.** There are often competitive grant opportunities for physical security funding from federal and state governments, but such opportunities can be time-consuming to identify, and LEAs often lack the staff capacity and expertise to submit competitive applications. States and regional education agencies could assist with identifying relevant grant opportunities and by providing funding or staff time to help districts write competitive grant proposals. LEAs could also develop relationships with experts in the local school safety community and adjacent agencies (e.g., law enforcement, building code enforcement) who could help with leading analysis or planning activities or advise on the selection of security measures at low to no cost. Similarly, LEAs could work to develop relationships with school security experts and periodically engage them to offer training, provide updates from the

field, or even review planned security measures with an eye to how they might interact and support multiple security outcomes.

## Appendix. Data and Analytic Approach

This appendix provides additional detail on the literature review methods used to complete both reports—this one and *A Systems Approach to Physical Security in K–12 Schools* (Moore et al., 2021).<sup>14</sup> We also highlight research limitations, and Table A.2 summarizes the state-level policies related to school physical security that inform sections of this report.

### Our Literature Review

In the summer of 2020, we completed a comprehensive review of scholarly and other literature in the physical security space. To identify sources, we conducted internet searches to capture current federal, state, local, and nongovernmental guidance for school security measures and assessment resources as they pertain to school safety. We also conducted searches of the research literature focused on the use of technology and physical security measures to keep schools safe. We performed searches using Google Scholar and reviewed references from highly relevant papers. Our search terms included the following:

- school building safety
- school building security
- school safety
- school security
- school facility safety
- school facility security
- school building design security
- school building design safety.

We restricted results to K–12 school settings and excluded documents from prior to 2000.

Our literature review also targeted literature from other, nonschool sectors. We identified relevant and comparable nonschool sectors based on their similarity to certain features of the school setting, such as the need to maintain a welcoming and open environment; the need to accommodate large

numbers of people of diverse ages and physical abilities; and the individual uniqueness of facilities as a result of size, location, and other factors. Our review considered literature pertaining to physical security and safety in houses of worship; health care facilities; nonmilitary federal facilities; military facilities; critical infrastructure; correctional facilities; and crowded places, including shopping centers, event spaces, and public transportation facilities.

The documents we reviewed came from disparate sources, including peer-reviewed research, policy and issue-specific briefs, white papers and position papers, opinions from key stakeholders in the research and practitioner communities, commission reports, and course modules and instruction manuals. Topically, our review focused on physical security measures related to controlling access, surveillance equipment, barriers to entry (e.g., fences, door locks), communications, building design, and security personnel. We included documents that addressed adjacent topics, such as school climate, when they intersected with physical security measures. Our review focused on literature addressing the effectiveness of various physical security measures, as well as literature speaking to the impact of security and resilience measures on the broader educational mission and school climate.

Our searches netted 308 documents, 235 of which were school-specific and 73 of which focused on other sectors. We reviewed each document for relevance and coded each one as highly relevant (1), moderately relevant (2), or not relevant (3). Two hundred and nineteen documents were highly or moderately relevant, and we thus included these in our analysis. The analysis of challenges in implementing school physical security draws primarily on school-specific literature but also includes relevant examples from non-school-specific literature. Table A.1 summarizes the characteristics of the documents collected.

### A Review of the Policy Landscape

For the companion report discussing challenges in implementing physical security measures in K–12 schools, we used the following terms in Google searches for relevant policies: *policy, directive, guid-*

TABLE A.1

## Summary of Documents Collected in the Literature Review

Characteristic	School Specific	Non-School Specific	Row Total	Category Total
Relevance				
1 (highly relevant)	66	25	91	
2 (moderately relevant)	113	15	128	219
3 (not relevant)	56	33	89	308
Counts below this line exclude relevance = 3 (not relevant)	235	73		
Instrument				
Yes	27	11	38	
Non-school-specific sector				
Houses of worship		3		
Transportation		23		
Health care		7		
Nonmilitary federal facilities		6		
U.S. Department of Defense facilities		2		
Other		32		
Geographic area				
National	84	34	118	
State	30	0	30	
Regional	3	0	3	
District	5	0	5	156
Document type				
Federal or national guidance	51	23	74	
State guidance	26	0	26	
District guidance	0	0	0	
Peer-reviewed study or report	57	6	63	
Report (no peer review)	25	7	32	
Case study	16	0	16	
Commission report	5	0	5	
Issue or policy brief	5	0	5	
Guidance from school safety association	10	0	10	
Webpage	14	0	14	
Legislation	3	0	3	
Doctrine	0	1	1	
Opinion	7	3	10	

Table A.1—Continued

Characteristic	School Specific	Non-School Specific	Row Total	Category Total
Course module or instruction manual	4	0	4	263
Document approach				
Vulnerability assessment	41	17	58	
Risk management	70	29	99	
Training	39	17	56	
Systems approach to physical security	67	21	88	
Other	53	4	57	
Guidance specific to school or community characteristics				
Grade level	19			
Student or visitor population	11			
Locale	5			
Other (specify)	0			35
Guidance specific to school spaces				
Inside the school building	62			
Classrooms	34			
Common spaces (e.g., cafeterias, auditoriums, hallways)	34			
Private spaces (e.g., offices, lounge, restrooms)	26			
Outside the school building	50			
Athletic facilities	14			
Modular units	8			228
Guidance specific to school activities				
Instructional time	4			
Transition time (school arrival or dismissal; between classes)	7			
Before- or after-school or weekend activities	5			16
System-level approach: considers implications of				
Cost	53	18	71	
Staff time	16	3	19	
School climate	68	1	69	
Incidents other than shootings	69	12	81	
Student or staff mental health	32	1	33	
Criminal justice system	17	0	17	
Integration of old and new	20	5	25	
Process for training	32	10	42	
Continuous improvement	20	4	24	

Table A.1—Continued

Characteristic	School Specific	Non-School Specific	Row Total	Category Total
Course module or instruction manual	4	0	4	263
Document approach				
Vulnerability assessment	41	17	58	
Risk management	70	29	99	
Training	39	17	56	
Systems approach to physical security	67	21	88	
Other	53	4	57	
Guidance specific to school or community characteristics				
Grade level	19			
Student or visitor population	11			
Locale	5			
Other (specify)	0			35
Guidance specific to school spaces				
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Guidance specific to school activities				
Instructional time	4			
Transition time (school arrival or dismissal; between classes)	7			
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System-level approach: considers implications of				
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Staff time	16	3	19	
School climate	68	1	69	
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Student or staff mental health	32	1	33	
Criminal justice system	17	0	17	
Integration of old and new	20	5	25	
Process for training	32	10	42	
Continuous improvement	20	4	24	

Table A.1—Continued

Characteristic	School Specific	Non-School Specific	Row Total	Category Total
Recommendations	40	4	44	
Planning				
Includes planning guidance	45	23		
Planning with school officials	31			
Planning with law enforcement	32	4		
Planning with other stakeholders	31	3		

NOTE: Researchers coded each document according to its relevance to the topic of school physical security. A code of 1 indicates the most-relevant documents, and a code of 3 indicates irrelevant documents. We excluded from our analysis any document coded as 3.

*ance, statute, regulation, recommendation, ordinance, and code.* We conducted this search for each of the three policy levels—federal, state, and local. Searches at the local level also included the terms *county, city, and municipalities.* Each search also included the term *school safety.* For example, one combination of search terms was *state policies for school safety* and another was *federal directives on school safety.* The search used broad terms for school safety to yield a wide variety of statutes, regulations, guidance, and ordinances that could relate to or affect the adoption and implementation of physical school safety measures. Our search was not time bound because policies pertaining to school safety can be either long-standing or amended over time.

During the review process, we analyzed the federal, state, and local policies themselves, as well as policy and issue briefs; law and case law reviews; white or position papers; and opinion pieces from lawyers, researchers, practitioners, and national organizations. Our review also included commission reports and tools (training modules and tool kits) related to school safety. When a document referenced policies related to school safety, we added that document to the review.

We organized the policies identified through this search strategy by level and read each one to identify its relationship to physical security measures. After assessing whether the policy was related to the adoption and implementation of physical security measures for schools, we determined whether it was current at the time of the review (summer 2020). We included only active policies in the analysis because

they were relevant to the adoption and implementation of security measures. Table A.2 summarizes the policies throughout the United States for school physical security.

### Small-Group Stakeholder Discussions

We conducted two small-group discussions with school security experts and practitioners in fall 2020. These discussions were part of a larger IPC hosted by CISA in October 2020. The purpose of the IPC was to introduce CISA's initiative to produce a new generation of guidance on school safety and security, and the small-group discussions were organized to take advantage of the collection of experts gathered for this conference, in the hopes that they would provide the study team with a small amount of additional, qualitative information to ensure that our literature review covered key challenges as perceived by school security experts.

These discussions included a total of 11 school safety experts from the two discussion groups. Participants included LEA emergency managers, former principals, state leaders of safe-school initiatives, and national school safety and security organization leaders. Each discussion was one hour in length and moderated by a RAND researcher. The protocol was semistructured to allow for consistency in questions asked and to allow participants to elabo-

TABLE A.2

## Summary of State Policies Related to Physical Security

State	School Safety Plan		School Safety Audit			Explicit Authorization in State Statute or Regulation for Weapons in Schools				
	Required	Law Enforcement Agency Required to Be Involved	Required	Law Enforcement Agency Required to Be Involved	School Safety Drill Required	SRO Defined	School Security Personnel May Possess	Other School Employees May Possess	Concealed-Carry Permit Holders May Possess	Districts or School Boards May Permit
Alabama	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No
Alaska	Yes	Yes	Yes	No	Yes	No	No	No	No	Yes
Arizona	Yes	Yes	No	N/A	No	Yes	Yes	No	No	Yes
Arkansas	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No
California	Yes	Yes	No	N/A	Yes	Yes	Yes	No	No	No
Colorado	Yes	No	No	N/A	Yes	Yes	Yes	No	No	No
Connecticut	Yes	Yes	No	N/A	Yes	Yes	No	No	No	Yes
Delaware	Yes	Yes	No	N/A	Yes	Yes	Yes	No	No	No
District of Columbia	Yes	Yes	Yes	No	No	Yes	Yes	No	No	No
Florida	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
Georgia	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	Yes
Hawaii	No	N/A	No	N/A	No	Yes	No	No	No	No
Idaho	No	N/A	Yes	No	Yes	No	Yes	Yes	Yes	Yes
Illinois	Yes	No	No	N/A	Yes	Yes	Yes	No	Yes	No
Indiana	Yes	Yes	No	N/A	Yes	Yes	Yes	No	No	Yes
Iowa	Yes	Yes	No	N/A	Yes	No	Yes	No	No	Yes
Kansas	No	N/A	No	N/A	Yes	Yes	No	Yes	No	Yes
Kentucky	Yes	Yes	No	N/A	Yes	Yes	No	No	No	No
Louisiana	Yes	Yes	No	N/A	Yes	Yes	No	Yes	No	Yes
Maine	Yes	Yes	No	N/A	Yes	No	No	No	No	No

Table A.2—Continued

State	School Safety Plan		School Safety Audit		School Safety Drill Required	SRO Defined	Explicit Authorization in State Statute or Regulation for Weapons in Schools			
	Required	Law Enforcement Agency Required to Be Involved	Required	Law Enforcement Agency Required to Be Involved			School Security Personnel May Possess	Other School Employees May Possess	Concealed-Carry Permit Holders May Possess	Districts or School Boards May Permit
Maryland	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	No
Massachusetts	Yes	Yes	No	N/A	No	Yes	No	No	No	Yes
Michigan	No	N/A	No	N/A	Yes	No	Yes	No	Yes	Yes
Minnesota	Yes	Yes	No	N/A	Yes	No	No	No	No	No
Mississippi	Yes	No	No	N/A	Yes	Yes	No	No	Yes	No
Missouri	No	N/A	No	N/A	Yes	Yes	No	Yes	Yes	No
Montana	Yes	Yes	No	N/A	Yes	No	No	No	No	Yes
Nebraska	Yes	No	Yes	No	No	No	Yes	No	No	No
Nevada	Yes	Yes	No	N/A	Yes	Yes	Yes	No	No	Yes
New Hampshire	Yes	Yes	No	N/A	Yes	Yes	No	No	No	No
New Jersey	Yes	Yes	No	N/A	Yes	Yes	No	No	No	Yes
New Mexico	Yes	No	No	N/A	Yes	No	Yes	No	No	No
New York	Yes	Yes	No	N/A	Yes	Yes	No	No	No	Yes
North Carolina	Yes	Yes	No	N/A	Yes	Yes	Yes	No	No	No
North Dakota	No	N/A	No	N/A	Yes	Yes	Yes	No	No	No
Ohio	Yes	Yes	No	N/A	Yes	Yes	Yes	No	No	Yes
Oklahoma	Yes	No	No	N/A	Yes	Yes	Yes	No	No	Yes
Oregon	Yes	Yes	No	N/A	Yes	No	Yes	No	Yes	No
Pennsylvania	No	N/A	Yes	Yes	Yes	Yes	No	No	No	No
Rhode Island	Yes	Yes	Yes	No	Yes	Yes	No	No	Yes	No
South Carolina	Yes	No	No	N/A	Yes	Yes	Yes	No	No	Yes
South Dakota	Yes	No	No	N/A	No	Yes	Yes	Yes	Yes	Yes

Table A.2—Continued

State	School Safety Plan		School Safety Audit				Explicit Authorization in State Statute or Regulation for Weapons in Schools			
	Required	Law Enforcement Agency Required to Be Involved	Required	Law Enforcement Agency Required to Be Involved	School Safety Drill Required	SRO Defined	School Security Personnel May Possess	Other School Employees May Possess	Concealed-Carry Permit Holders May Possess	Districts or School Boards May Permit
Tennessee	Yes	No	No	N/A	Yes	Yes	Yes	Yes	No	No
Texas	Yes	No	Yes	No	No	Yes	Yes	Yes	No	Yes
Utah	Yes	Yes	No	N/A	Yes	Yes	Yes	No	Yes	Yes
Vermont	Yes	N/A	No	N/A	Yes	Yes	No	No	No	Yes
Virginia	Yes	No	Yes	Yes	Yes	Yes	Yes	No	No	No
Washington	Yes	Yes	No	N/A	Yes	Yes	Yes	No	No	No
West Virginia	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Yes
Wisconsin	Yes	Yes	No	N/A	Yes	No	No	No	No	No
Wyoming	Yes	No	No	N/A	No	No	Unknown	Yes	Yes	Yes

SOURCE: Macdonald and Perez, 2019.

NOTE: N/A = not applicable.

rate on their responses and offer unsolicited input. The following questions guided the discussions:

1. What does taking a systems approach to school safety mean to you? What guidance would you give school or district staff about how to take a systems approach in their contexts?
2. What school or student characteristics, or aspects of the school schedule, should inform national guidance for improving physical school security?
3. In your specific context, what are the key facilitators and barriers to implementing physical security measures to improve school safety?

Members of the study team took notes during the stakeholder discussion groups, conducted a thematic analysis of the notes, and discussed findings.

## Research Limitations

Although the literature review and policy analysis were comprehensive, they might not have been exhaustive. In addition to compiling sources based on our Google Scholar and other internet searches, we scanned the reference lists of the most-relevant papers and reviewed relevant resources that had not already been captured in our literature review. Nevertheless, it remains possible that we did not reach saturation. Although our review process included consulting sources from outside the school sector, we consulted only a limited number of these, and so it is possible that our review did not capture all relevant discussions. Moreover, the small-group stakeholder discussions were opportunistic, and the data are limited by their self-reported nature, convenience sampling approach, and small samples. They might therefore represent only a limited set of experiences and opinions among the broader practitioner community.

Despite these limitations, we believe that this report and its companion demonstrate best practices in implementing systems approaches to physical security and increase awareness of the constraints under which LEAs operate when planning for their physical security needs and selecting appropriate measures.

## Notes

- <sup>1</sup> This statistic includes thefts and violent victimizations, such as rape, sexual assault, robbery, and aggravated and simple assault.
- <sup>2</sup> The U.S. Department of Education defines *LEA* as a public board of education or other public authority that administers a public school. An LEA can serve a single school, a single district or school system, or multiple school districts or school systems (U.S. Department of Education, undated b).
- <sup>3</sup> Other resources that we reviewed for this report provide similar frameworks and approaches to physical security planning in schools. See, for example, Johns Hopkins University Applied Physics Laboratory (APL), 2016.
- <sup>4</sup> Members of the commission included representatives from the U.S. Department of Education, U.S. Department of Justice, U.S. Department of Health and Human Services, and DHS.
- <sup>5</sup> Additional federal funding is available for activities related to the prevention phase (e.g., ESSA Project School Emergency Response to Violence [SERV], in Title IV, Subpart 3) of the school security system, as well as emergency grant aid to improve physical school buildings (ESSA impact aid and modernization grants in Title VII).
- <sup>6</sup> Under this legislation, *school security personnel* does not include armed teachers.
- <sup>7</sup> The Fourth Amendment would provide similar protections against federal officials and officials in LEAs in the District of Columbia.
- <sup>8</sup> An SRO is a career law enforcement officer employed by a local or LEA police department. Active-duty officers from local police departments are assigned to LEAs on community-oriented policing assignments. Some LEAs operate their own police departments and maintain labor forces of SROs independent of local law enforcement. In many states, the position, duties, and training requirements are specified in statute. SROs are one of several types of school security personnel. Examples of other personnel include retired police officers, nonpolice security or private security guards, and volunteers.
- <sup>9</sup> Insurance companies may refuse coverage to schools that arm teachers, or insurance costs might be prohibitive to implementing this measure in states where policy allows armed teachers (Frankel, 2018).
- <sup>10</sup> We touch briefly on implementing physical security measures in this report and refer the reader to our companion report, *A Systems Approach to Physical Security in K-12 Schools* (Moore et al., 2021), for a more complete discussion of implementation and monitoring challenges.
- <sup>11</sup> A tendency to avoid planning for such unlikely but potentially catastrophic events is not unique to LEAs. For example, some experts have pointed out that developers of commercial buildings are more concerned about general crime and do not often incorporate planning for terrorist events into their design or development plans (McIlhatton et al., 2020).
- <sup>12</sup> We provide a more complete discussion of school physical security layers in our companion report, *A Systems Approach to Physical Security in K-12 Schools* (see Moore et al., 2021).

<sup>13</sup> A soft target is considered vulnerable to attack because it is not able to implement extensive physical security measures because of its mission to maintain a safe and welcoming environment or pleasing aesthetic. Examples of soft targets include schools, hospitals, and houses of worship (Amman et al., 2017).

<sup>14</sup> The material in this appendix that appears under the headings “Our Literature Review,” “Small-Group Stakeholder Discussions,” and “Research Limitations” reproduces material in Moore et al., 2021.

<sup>15</sup> Schools may implement a combination of the following safe-school officers: SROs, school safety officers, school guardians, and school security guards.

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## About This Report

The Cybersecurity and Infrastructure Security Agency asked the Homeland Security Operational Analysis Center (HSOAC) to provide enhanced tools for kindergarten-through-12th grade (K-12) schools and school systems to improve school safety. As part of this task, HSOAC researchers drafted two reports on the basis of a comprehensive literature review on school safety and security.

This report, the second of the pair, provides an overview of federal, state, and local policy landscapes as they relate to school physical security and discusses the extent to which existing guidance and regulation, as well as other factors, constitute challenges in school physical security planning and implementation. The companion report, *A Systems Approach to Physical Security in K-12 Schools* (Moore et al., 2021), leverages the knowledge and approaches to physical security planning from a wide variety of disciplines to build a systems approach to school physical security that also accounts for the effects that security measures can have on school climate and other important elements that affect a school's ability to achieve its broader educational mission. In addition to the Cybersecurity and Infrastructure Security Agency and DHS more broadly, the primary audiences for this research are school- and district-level administrators and policymakers. State, local, tribal, and territorial government and law enforcement personnel; design professionals working on school buildings and other facilities; and school-related associations and stakeholder groups might also be interested in this research.

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The HSOAC FFRDC provides the government with independent and objective analyses and advice in core areas important to the Department in support of policy development, decisionmaking, alternative approaches, and new ideas on issues of significance. The HSOAC FFRDC also works with and supports other federal, state, local, tribal, and public- and private-sector organizations that make up the homeland security enterprise. The HSOAC FFRDC's research is undertaken by mutual consent with DHS and is organized as a set of discrete tasks.

The information presented in this report does not necessarily reflect official DHS opinion or policy.

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