

# Optimizing Surveillance Systems in Correctional Settings

A Guide for Enhancing  
Safety and Security

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# Preface

Rule violations in prison can substantially reduce safety for staff and people who are incarcerated (Bottoms 1999; Dilulio 1987; Gendreau, Goggin, and Law 1997; Toman 2019). Examination of the 2011–2012 National Inmate Survey found that 4 percent of people incarcerated in prison and more than 3 percent of those in jail will experience one or more incidents of sexual victimization during their incarceration (Beck et al. 2014), and that 14 percent of people incarcerated in prison and 26 percent of those in jail met the threshold for serious psychological distress in the past 30 days, much higher than the 5 percent found in the general population (Bronson and Berzofsky 2017). Furthermore, survey data from 2007 through 2009 found that an estimated 58 percent of people incarcerated in prison and 62 percent of those in jail met the criteria for drug dependence or abuse (Bronson et al. 2017). Given these rates, it is critical that correctional administrators efficiently monitor and manage facilities and implement strategies to promote safety and curtail misconduct. To accomplish these goals, facilities have a long history of implementing a wide range of security technologies and features. One study revealed that half of all surveyed corrections institutions were using internal surveillance tools like closed-circuit television as early as 1989 (Travis, Latessa, and Oldendick 1989), and repeated scans of practice (e.g., Allard, Wortley, and Stewart 2006) have confirmed that video surveillance is widely used in corrections settings, part of a growing movement toward the integration of more sophisticated corrections technology.<sup>1</sup>

Research on surveillance systems in other settings suggests cameras are most likely to be effective when actively monitored by trained staff, strategically located, and integrated with other technologies (La Vigne et al. 2011; Shukla et al. 2020). Despite such recommendations, there remains a lack of clear guidance about how to optimize and maximize the efficacy of surveillance systems in correctional facilities for preventing misconduct incidents or aiding their investigation. **Because there is already widespread use of video surveillance in prisons and jails, this guidebook focuses on optimizing these existing surveillance systems to improve institutional safety.**

To that end, this guidebook outlines nine steps for correctional agencies that are looking to improve or enhance their surveillance systems. It is grounded in current research and findings from a recent effort to upgrade and optimize the video and audio surveillance systems at two state correctional facilities. Led by the Urban Institute in partnership with the Minnesota Department of Corrections, that effort focused on enhancing the prisons' surveillance systems, addressing challenges and gaps, and improving facility safety for staff and people incarcerated. To better understand the prisons' needs, Urban interviewed prison leadership and staff, including wardens, correctional officers, and security leads, as well as information technology leads involved in infrastructure and camera installation, configuration, and maintenance. We outline the lessons derived from that study in the following steps, which can help other correctional agencies identify surveillance goals, consider their systems' limitations and constraints, and develop strategies for meaningful improvements.

<sup>1</sup> "Technology in Corrections," National Institute of Corrections, accessed July 14, 2020, <https://nicic.gov/technology-corrections>.

## STEP 1

# Identify a Facility and Unit for Improvement

Departments of corrections should begin updating their surveillance systems by identifying the facilities and units in which they should target improvements. It may be best to first identify a facility, then determine which specific units in that facility would most benefit from improved surveillance. This may be better than identifying problem “hotspots” throughout a facility because the necessary infrastructural changes needed for facility-wide surveillance upgrades would be much more expensive than focusing on one or more units.

Importantly, departments should identify facilities and/or units by assessing their current needs. They can do so by conducting a walkthrough of their facilities and talking to correctional staff about needs and challenges. It may be helpful to begin thinking about facilities’ architectural layout. Different correctional facilities have different types of layouts with unique surveillance needs. For instance, the number, types, and physical

placement of cameras needed for a dormitory-style housing unit would be different than for a cell-style housing unit.

In addition, surveillance needs are largely governed by institutional safety. Departments should consider the number and nature of misconducts by unit and facility before deciding about surveillance upgrades. They should begin by asking why certain units or facilities have significantly more misconducts than others and identify where in the units these misconducts occur. Facilities and units with more misconducts could benefit more from an enhanced or optimized surveillance system. Still, surveillance needs in these locations may vary based on numerous factors, like the locations and types of misconduct incidents and the strengths and weaknesses of the current surveillance system.

By considering the above factors, departments of corrections can identify the units and facilities to target for improvement.

## STEP 2

# Assess Existing Camera Placement and Field of View

After identifying target units and/or facilities, departments can start optimizing their surveillance systems by studying their existing systems (including strengths and weaknesses) more carefully. For instance, administrators should identify gaps by considering how appropriate a prison's system is for its layout and how effectively it has reduced misconducts and increased safety.

One of the first aspects to consider is the current system's camera placements and field of view. Questions to consider include the following:

- Do facilities have any areas (e.g., hallways, cells, janitorial closets) that are not sufficiently surveilled by cameras?
- In surveilled areas, are there "blind spots" lacking sufficient camera coverage? If so, where?
- Are existing cameras high-quality enough for correctional officers to spot incidents and identify the parties involved?

Appropriate personnel, such as specialists in the target facility's or unit's information technology system, electronic system, and physical design, should assess existing cameras. The assessment should focus on the cameras' placement and fields of view to understand camera coverage and clarity, identify blind spots, and determine whether other issues associated with the camera system exist. **Furthermore, it should include a physical inspection of each camera's placement and location, a visual inspection of each camera's field of view from the monitors, a map of the most important blinds spots and areas where camera clarity or coverage should be improved, and recommendations for repositioning cameras and placing new ones.**

Departments may find that their existing surveillance systems are addressing most of their needs in certain units, in which case a few minor adjustments and repositioning may sufficiently optimize their systems. In other cases, challenges may be more abundant, possibly requiring them to purchase new equipment and backbone upgrades in addition to repurposing existing systems. However, before making these decisions, it is important to assess existing infrastructure.

## STEP 3

# Assess Existing Infrastructure

Before determining what updates to make, it is also valuable to develop a strong understanding of the infrastructure supporting existing camera systems. This is particularly helpful if issues with camera quality are hampering staff's ability to use footage effectively, which may require departments to purchase and install new cameras.

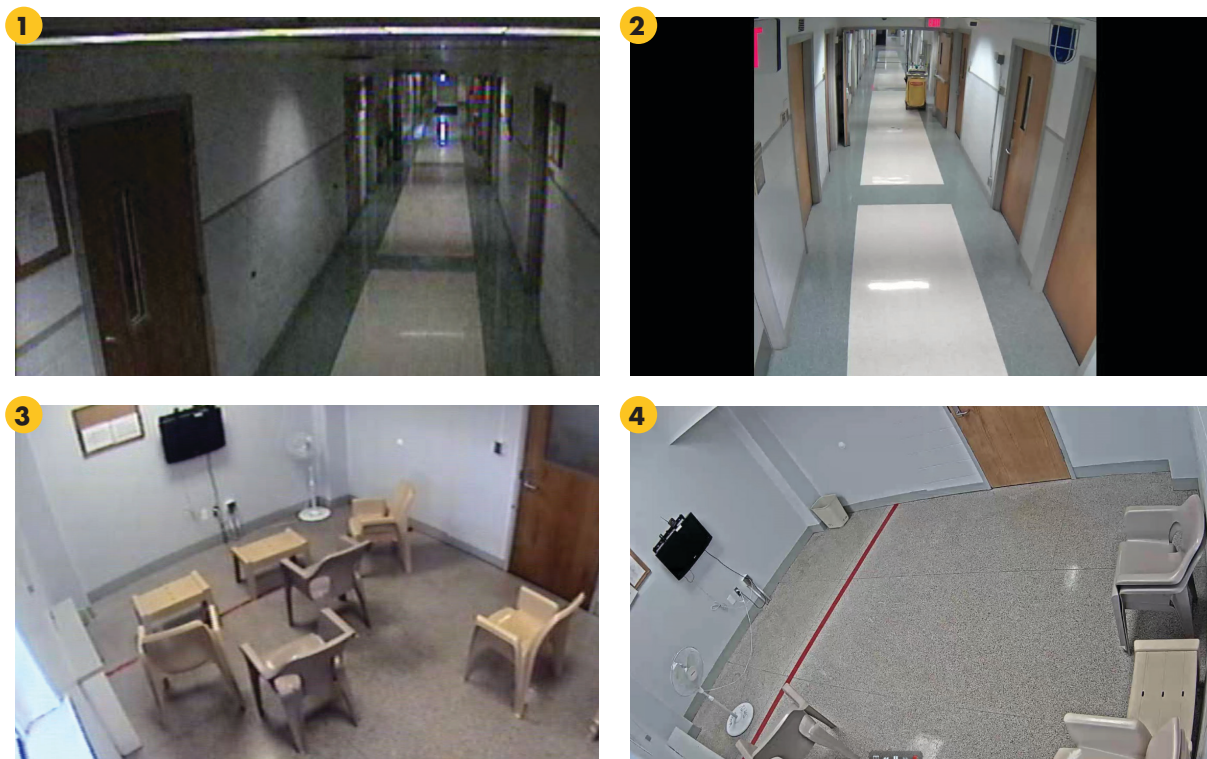
Correctional facilities commonly use analog cameras, traditional closed-circuit television cameras that use cables to transmit and store video recordings. While analog cameras can be cheaper than more sophisticated cameras, their image quality is much lower, and they

lack digital-zoom capability. They also have a much lower frame rate, meaning they are more difficult to use effectively if installed in areas with frequent motion. These issues yield low-quality videos that make identifying faces and determining specific movements or patterns difficult, limiting their effectiveness in prison misconduct investigations.

Internet Protocol (IP) cameras, on the other hand, offer better resolution, remote-zoom capability, and overall clearer pictures. They are also relatively easier to install than analog cameras. For example, they require only one wire for both data and power at the camera site.

Figure 1

**Differing Image Quality Produced by Analog and Internet Protocol Cameras**



Note: First and third images taken with analog cameras; second and fourth cameras taken with Internet Protocol cameras.

Furthermore, they can be programmed to be tied up with video and audio analytic technology (e.g., motion sensors or aggression detection technologies) that can be particularly useful in correctional settings. However, IP cameras cost more to install than analog cameras and typically require more storage given their higher-resolution footage. Still, their superior image quality makes them much more effective for preventing or investigating misconduct incidents. This contrast is highlighted in the before and after pictures below.

Depending on their needs, corrections departments may decide to purchase new cameras. Departments should choose the camera technology that best suits their needs by considering factors including **field of view**, **focal length**, **resolution**, **frame rate** and **bandwidth**. However, before procuring new cameras, they should first determine—and then find the right balance between—their budgets and requirements. Depending on their features and capabilities, IP cameras can cost anywhere from a few hundred dollars to over a thousand dollars each and require significant investment for infrastructural upgrades and installation. Thus, while replacing all analog cameras with IP cameras may be desirable, it may not be fiscally possible. Instead, departments could focus on upgrading a select number of cameras in specific locations (e.g., areas in units with the highest misconduct rates) and repositioning existing cameras to enlarge the field of view.

Additionally, before upgrading or adding cameras, departments should identify any needs for other infrastructural upgrades to reap all the benefits of their camera systems. They may need to increase bandwidth, upgrade hardware (e.g., cabling and monitors), increase storage, or add or upgrade viewing stations. This is critical so that the facility's network infrastructure has the capacity to support the existing system, as well as any future upgrades or expansions.

### Common Surveillance Cameras

Below are some of the camera types that can be used in correctional settings. Departments deciding between these types ought to recognize that each has unique benefits and drawbacks and should be deployed to meet surveillance goals.

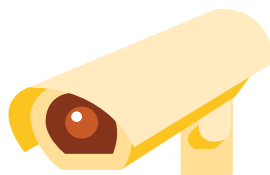
It is worth noting that the same camera can be purchased for indoor or outdoor use; however, outdoor cameras will require additional hardware to contain the camera and protect it from weather and sunlight, raising each unit's overall cost.



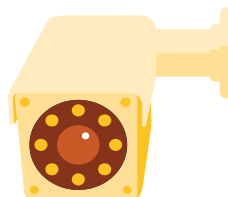
**Pan-tilt-zoom (PTZ) cameras** can be controlled by remote operators or programmed to scan an area with preset movements. They typically have viewsheds of 35 degrees and use optical zooming, though they can also include digital zooming at their maximum optical zoom settings. Because of their versatility, they are often deployed in outdoor areas (such as recreation yards) or opposite tiered cellblocks, where camera operators can pan widely and zoom in to specific areas or incidents. One challenge associated with pan-tilt-zoom cameras is that areas become unobserved when the camera pans to view an event elsewhere, creating a temporary blind spot unless another nearby camera captures the gap in coverage.



**Panoramic cameras** have a wider viewshed (180 degrees or more) than bullet cameras, allowing them to observe large areas consistently. They typically have higher resolutions with a single lens, which only allows for digital zooming (as opposed to higher-definition optical zoom). Because footage from these cameras is substantially more expensive to store, they are best suited for large, open areas (such as dining rooms and common areas) where they can replace multiple bullet cameras.



**Bullet cameras** are fixed high-definition cameras commonly installed to observe known problem areas in great detail. They observe specific locations constantly and allow for high-definition zoom, but may lack a wide enough field to eliminate blind spots. Many correctional agencies use bullet cameras to monitor critical areas in a facility, such as hallways, cells, and common areas.



**Low-light cameras** have infrared LED lights around the lens to shine invisible infrared light on the scene in front of the camera. The camera sensors use the infrared light to construct a visible image for operators to easily observe the viewshed in very low to no light. This technology can be combined with the above cameras so that a single camera can be used during the day night without adversely impacting viewing quality.



## STEP 4

# Understand and Update Departmental Policies and Procedures

As corrections staff work toward upgrading surveillance systems, they should consider how existing policies will work with proposed upgrades; they should make revisions to maximize the improved system's effectiveness and ensure new technologies are implemented smoothly. In some cases, simply revising policies and procedures may be enough. For example, a department may already have high-resolution cameras but not allow line staff to access archived footage. This can inhibit investigations into critical incidents as staff would have to wait for a supervisor to review footage before confirming behavior related to misconduct and taking action. In this case, simply updating the policy to grant staff access (or limited access, such as five-minute reviews) to archived footage may make it easier for staff to effectively use the existing system and improve safety.

Creating or updating policies for how correctional supervisors are expected to use the surveillance system to hold officers accountable for their work and behavior may also be beneficial. For example, supervisors may use footage to corroborate written records of when officers conduct walk-throughs of their units. They can also review footage of officer-involved incidents to determine whether the officers were violating policy or behaving disrespectfully or in a dehumanizing way. Supervisors can further use footage of officer-involved incidents to inform de-escalation trainings or to provide feedback on how to interact with the incarcerated population. Policies should explicitly outline when such behaviors will be formally recorded in an officer's employment file, as opposed to a deidentified record being collected for operations management.

Departments that make substantial upgrades to their surveillance systems likewise need to review and revise their procedures and

policies to make them compatible with the improvements. Furthermore, departments should consider whether existing policies address new system components. For example, a department implementing new pan-tilt-zoom cameras may need to address who is responsible for moving and controlling them. Similarly, a department integrating alerts into its surveillance system that did not exist before may need to add to its policies directions on responding to and recording alerts. Moreover, a department adding cameras to its system may need to address how to decide what feeds to display on monitors during each shift.

Interviewing or surveying stakeholders about their questions and concerns regarding prison surveillance needs is an effective strategy for reviewing and informing policy changes. Such stakeholders include

- prison administrators and leadership,
- line staff and camera operators (i.e., the people who monitor cameras), and
- people who are incarcerated.

These stakeholders all have unique contributions to make in thinking through prison policies and procedures. Given they implement policies, prison administration and leadership may be helpful in rethinking large-scale changes. Furthermore, line staff who actually use surveillance systems daily may provide unique perspectives on procedures for operating them. Lastly, the incarcerated population in the facility may have input about which areas in their facility are most unsafe and thus best suited for surveillance upgrades. Leadership should also consider incarcerated people's privacy concerns when creating policies, such as those around monitoring cameras placed in dorm rooms, showers, or bathrooms, or allowing incarcerated people to review footage of incidents in which they were involved.

## STEP 5

# Expand Camera Coverage and Minimize Blind Spots

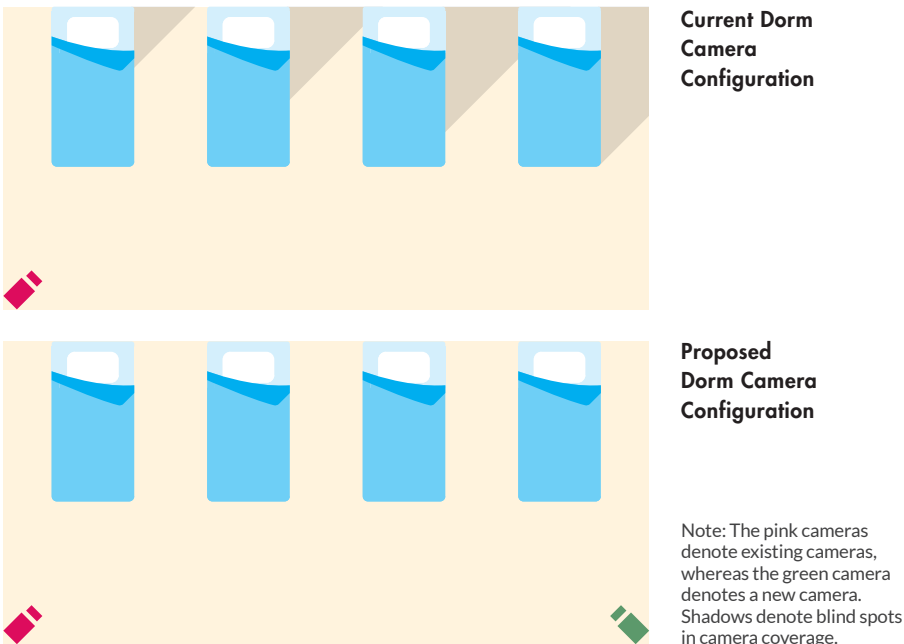
Whereas the previous steps focus on assessing existing infrastructure and policies, this step elaborates on how to improve fields of view and image clarity. Departments can make four types of changes to address these concerns: (1) adding new cameras, (2) repositioning existing cameras, (3) upgrading cameras, and (4) making infrastructural changes.

### Adding New Cameras

While assessing facility surveillance systems, departments may discover that some locations lack cameras entirely. If their budgets allow them to purchase and install new cameras, departments may choose to do so to have a system for monitoring areas that were previously not electronically surveilled. For example, restrooms and showers often lack surveillance because of privacy concerns and Prison Rape Elimination Act regulations, but they can also be hotspots for misconduct incidents, including serious and sexual assaults. Departments can creatively address these problems by installing cameras with a “blackout” function that blocks sensitive content and supplementing this with audio analytics that identify aggression (we describe the latter in more detail in step 7). Similarly, in-prison storage areas and offices also often lack surveillance. Adding cameras to these areas, especially if people who are incarcerated can access them, can help improve overall camera coverage and institutional safety.

Assessments may also reveal that electronically monitored areas may still suffer from blind spots that make the surveillance system less effective. Adding cameras to such areas can minimize these blind spots. Dorm rooms with bunk beds are a common example. In figure 2, for example, camera placement leaves blind spots between many of the beds that increase when beds are farther from the camera. Adding a camera (shown in green) on the other side of the room would be one solution to this. This can also be accomplished through infrastructural changes (in figure 5).

Figure 2  
Blind Spots in Dorms and New Cameras



## Repositioning Existing Cameras

Repositioning cameras is another way to address blind spots or areas with limited camera coverage. For example, a department may have cameras facing back to back to capture both sides of a hallway, a configuration that can create a blind spot between the cameras (represented by the gray box in figure 2). Such blind spots can be especially problematic if they encompass doorways to areas where incidents may occur (e.g., bathrooms showers, common areas). Placing the existing cameras apart and facing them toward each other is one solution to this problem (figure 3). Similarly, blind spots are sometimes created when cameras are placed at angles, like in stairwells (figure 4). Departments could rectify this issue by repositioning the camera in the location with the best field of view.

## Upgrading Cameras

In addition to blind spots, assessments might reveal issues with camera coverage and resolution. Figure 5 shows an example of camera configuration in a cell block where the cameras are mounted on a wall facing the cell block. As the figure depicts, the cameras cover most of the space, but the coverage at the edges of each camera viewshed is poor. This problem can be addressed in several ways, including by replacing existing cameras with ones with a wider field of view (configuration A), adding cameras and placing cameras closer together (configuration B), or adding cameras to the corners of the room that intersect the view of the other cameras (configuration C).

Similarly, departments may have concerns that the quality of recorded footage is poor, such as in areas with substantial movement or poor lighting. Upgrading to IP cameras, cameras with higher frames per second, or cameras equipped with infrared technology may help departments address these issues.

Figure 3  
Blind Spots in Hallways

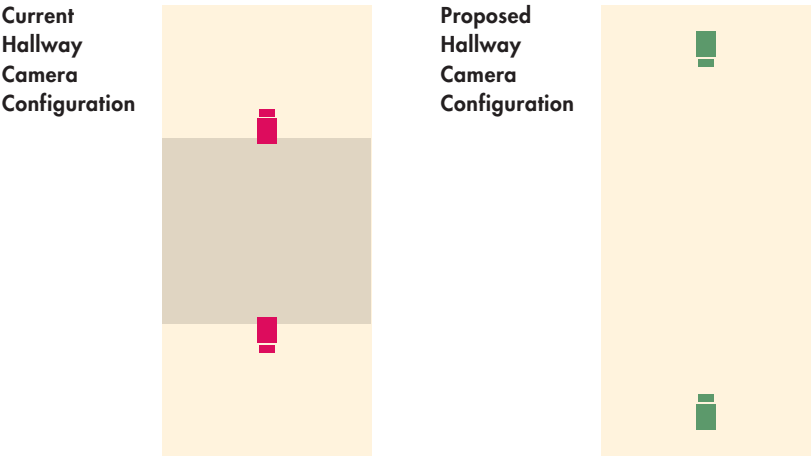
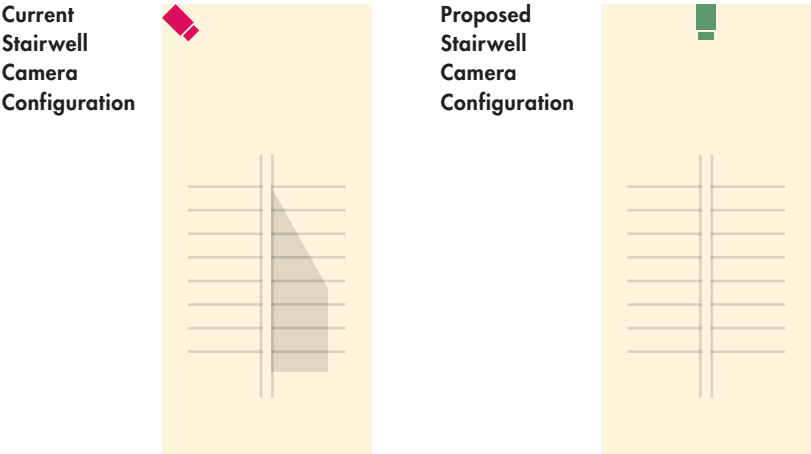
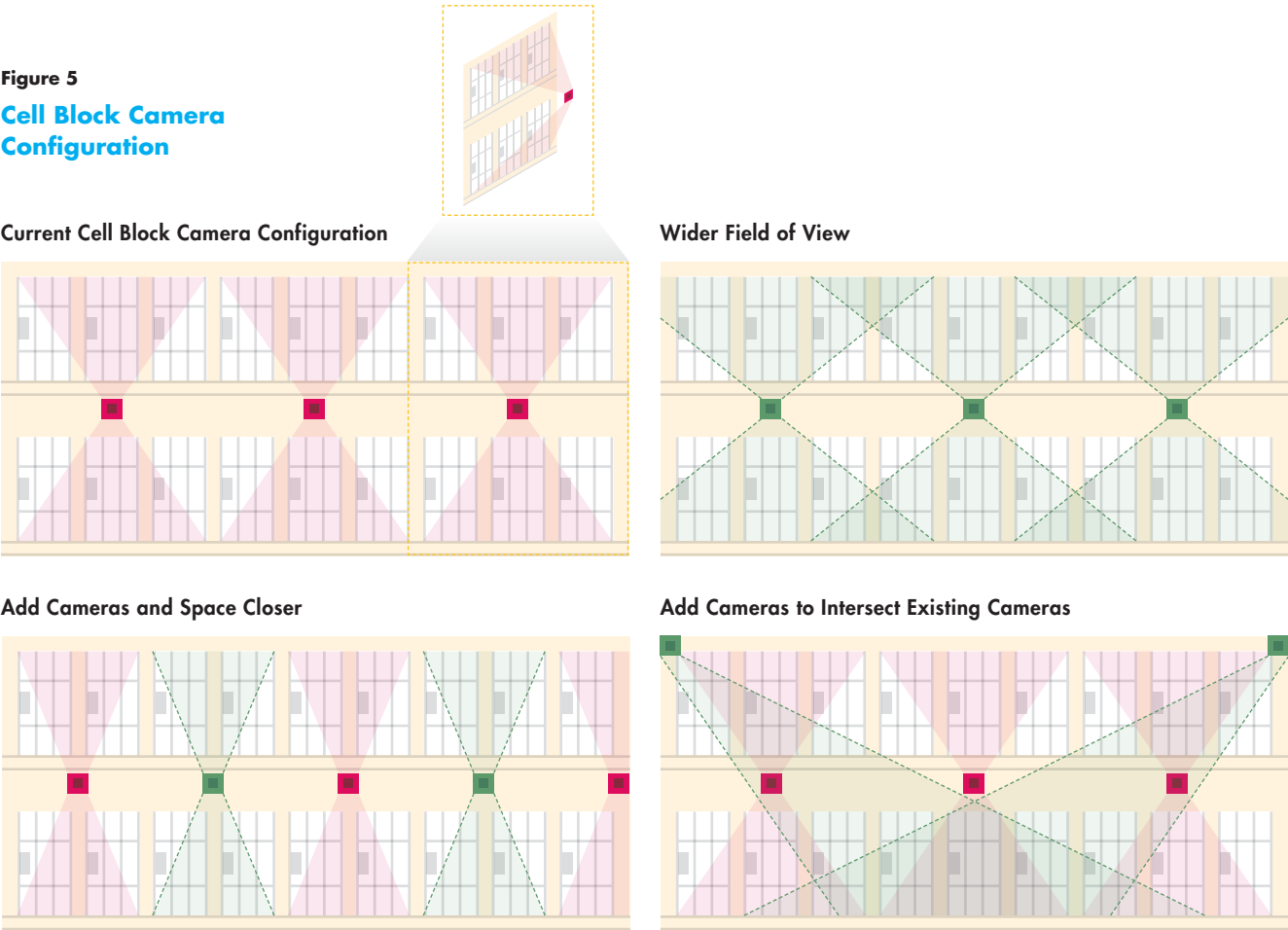


Figure 4  
Blind Spots in Stairwells



Note: The pink cameras denote existing cameras in existing locations, whereas the green cameras denote existing cameras moved to new locations. Shadows denote blind spots in camera coverage.

Figure 5  
Cell Block Camera Configuration

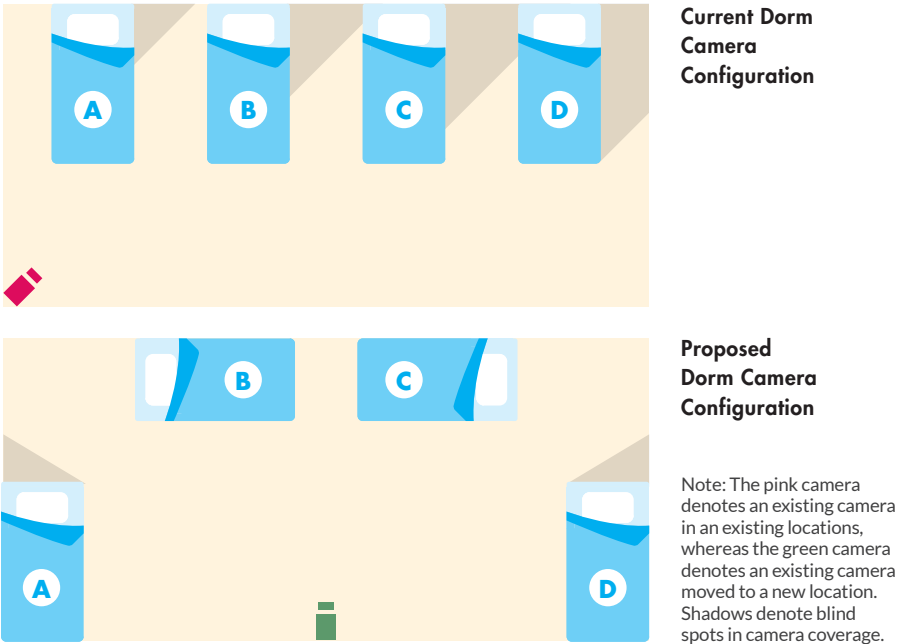


Note: The pink cameras denote existing cameras, whereas the green cameras denote new cameras. The pink areas denote existing fields of view, and the green areas denote new fields of view.

Making Infrastructural Changes

Lastly, surveillance systems may be improved through infrastructural changes that increase visibility. For example, rather than adding a camera to reduce the blind spots in the dorm room depicted in figure 6, the blind spots could be reduced by moving the beds parallel to and against the walls and repositioning the camera across from beds B and C. This produces a clear view of all the beds and the space between them. However, infrastructural changes may also require moving electrical outlets or other facility features and can therefore be more costly than purchasing new cameras. Thus, before repositioning cameras and furniture, departments should ensure they have a plan to continue using the power and data outlets they were previously using or identify and install new ones.

Figure 6  
Blind Spots in Dorms and Infrastructural Changes



## STEP 6

# Make Other Hardware Upgrades

In addition to updating and repositioning cameras, optimizing a surveillance system should involve making additional changes to other surveillance hardware and infrastructure. **This is critical for maximizing camera resolution and the overall functionality of the surveillance system. Thus, Departments must ensure that the infrastructure has the capacity to support the installation of any new or upgraded surveillance technologies, including planned or future upgrades.** For instance, if departments decide to add cameras and improve the quality of their video footage, they may need to install better servers or networks to increase available bandwidth and storage capabilities.

Similarly, it might also be necessary to upgrade viewing stations so staff can use improved systems more efficiently. For example, increasing the number of cameras might require adding computer monitors so staff can view camera feeds simultaneously. However, before upgrading viewing stations, departments should determine the ideal size and positioning of monitors and identify efficient monitor layouts and view patterns to preload into the unit's system. Moreover, departments might have to upgrade additional hardware (such as cabling and mounting systems) for the cameras, servers, or viewing stations.

## STEP 7

# Integrate Audio/Video Analytics

It is also important for staff to actively and continuously monitor camera feeds (La Vigne et al. 2011). However, this can be difficult because correctional officers have many responsibilities in their units other than just watching camera footage. As such, after departments make necessary upgrades to cameras and other infrastructure, they may want to consider acquiring camera-integrated software that automatically identifies persons, patterns, objects, and sounds and alerts staff when specific misconduct occurs. If a department is considering audio/video analytics, it should assess its needs and its existing system to determine what to add, and then install the system, calibrate and integrate it with existing software, and amend policies as necessary. Audio/video analytics include many things and are constantly advancing, creating new applications for correctional facilities. Common uses of such analytics include the following:

**Audio analytics.** This allows systems to alert the camera operator when aggressive noises are detected. These could include shouting or noises that occur during fights, such as grunting or shoes squeaking on the floor. This software is particularly useful in sensitive areas (such as restrooms) that are difficult to surveil with cameras.

**Bandwidth management.** Software can be used to automatically optimize frame rate, bandwidth, and server capacity settings by making cameras record with higher resolution when people are present and lower resolution when no movement is detected.

**Crowd detection.** If a department knows that misconduct occurs in a certain area of a unit or facility, it could equip cameras with crowd detection, which alerts the operator when a group of people gathers in a particular location.

**Object detection.** Operators are alerted when an object (such as a knife) is detected in an area where it would not typically be.

**Perimeter detection.** Camera operators are alerted when a person or object crosses a predetermined border. For example, this technology can detect a person crossing a wall or fence, as well as a drone dropping a package within the facility's enclosure.

**Person tracking.** Certain video analytics can track a person's movement, allowing an operator to identify and seamlessly follow them from camera feed to camera feed. This spares operators from having to manually change cameras to observe someone's behaviors.

## STEP 8

# Integrating Training Measures

Departments upgrading their surveillance systems will have to train staff to use the new systems. Training should be provided to any staff who will use the system in their day-to-day operations, such as officers and their direct supervisors, as well as to IT personnel. Departments should also ensure that contracts to purchase and install equipment include trainings from the vendors, who are often the best equipped to conduct trainings as experts of their systems. Departments can consider sending all their staff members to the training or sending a select group that can help develop an in-house training. Furthermore, departments

should tailor any training they select or develop to the end user and consider covering several topics, including the history of their surveillance program and why updates were made, the benefits of the upgrades, policy updates, and how to effectively and efficiently use software and hardware involved in the system. A refresher training may also help support staff after they have spent some time using the new system. Supervisory staff should record questions as they arise during the system's early use so training can be better tailored to the specific needs and perceived knowledge gaps of staff.

## STEP 9

# Continue Monitoring the System and Departmental Needs

Departmental needs are ever-evolving, as is surveillance technology. It is crucial for departments to continue monitoring their needs and requirements and to continue reviewing, calibrating, and updating their surveillance systems accordingly. Departments must also monitor the performance of each system component, ensuring the technology is running smoothly and being proactive about identifying performance issues.

It can be helpful for departments to partner with third-party organizations to routinely evaluate their systems, especially if they lack the technical capacity to do so themselves. Early on, departments should identify realistic expectations about when to replace specific system components, such as hardware that has

sustained damage because of age, software that has become obsolete, and other naturally occurring events can damage and prematurely destroy equipment. In an effort to be proactive about determining surveillance needs, departments may also want to put together a regular planning document, updated annually, to map out future goals and plans. Furthermore, departments should include their expectations for ongoing maintenance and warranties in contracts with vendors and third parties because technological solutions must continue operating after installation. Moreover, contracts should include language stipulating that the vendor will respond to questions after installation is complete and make requested changes to improve operations in a timely manner.



## Conclusion

A primary task for correctional agencies involves using technology to increase institutional safety as much as possible for officers and people under supervision. Although many departments use surveillance systems to promote this goal, little is known about how to optimize these technologies in correctional settings. This guidebook is meant to fill that knowledge gap by helping corrections policymakers and stakeholders consider the many factors necessary for improving and optimizing surveillance systems. Departments optimizing their systems will first need to identify appropriate locations for surveillance improvements and set program goals by listening to departmental staff and people under supervision to determine what is feasible given existing policies, practices, and infrastructures. After setting goals, departments will have to assess their existing infrastructure and policies to determine where improvements are

necessary to achieve these goals. This process will likely surface problems and constraints that will be the focal points of subsequent improvements. Departments will then identify solutions, which might include changing existing systems, installing new cameras, or implementing software enhancements (such as audio/video analytics). Staff will then need to be trained to ensure new systems are used to their full potential. Lastly, it is crucial that staff monitor their systems for performance issues.

A successful correctional surveillance system requires detailed planning, collaborative decision making, strategic investments, and extensive training. Carefully following each of this guidebook's steps can help correctional agencies upgrade and optimize their surveillance systems to meet safety goals for their officers and the people under their supervision.

## References

- Allard, Troy, Richard Wortley, and Anna Stewart. 2006. "The Purposes of CCTV in Prison." *Security Journal* 19 (1): 58–70.
- Beck, Allen J., Marcus Berzofsky, Rachel Caspar, and Christopher Krebs. 2014. *Sexual Victimization in Prisons and Jails Reported by Inmates, 2011-12-Update*. Washington, DC: US Department of Justice, Office of Justice Programs, Bureau of Justice Statistics.
- Bottoms, Anthony E. 1999. "Interpersonal Violence and Social Order in Prisons." *Crime and Justice* 26: 205–81.
- Bronson, Jennifer, and Marcus Berzofsky. 2017. *Indicators of Mental Health Problems Reported by Prisoners and Jail Inmates, 2011–2012*. Washington, DC: US Department of Justice, Office of Justice Programs, Bureau of Justice Statistics.
- Bronson, Jennifer, Jessica Stroop, Stephanie Zimmer, and Marcus Berzofsky. 2017. *Drug Use, Dependence, and Abuse among State Prisoners and Jail Inmates, 2007–2009*. Washington, DC: US Department of Justice, Office of Justice Programs, Bureau of Justice Statistics.
- Dilulio, John J. 1987. *Governing Prisons: A Comparative Study of Correctional Management*. New York: Free Press.
- Gendreau, Paul, Claire E. Goggin, and Moira A. Law. 1997. "Predicting Prison Misconducts." *Criminal Justice and Behavior* 24 (4): 414–31.
- La Vigne, Nancy G., Samantha S. Lowry, Joshua A. Markman, and Allison M. Dwyer. 2011. *Evaluating the Use of Public Surveillance Cameras for Crime Control and Prevention*. Washington, DC: Urban Institute.
- Shukla, Rochisha, Daniel Lawrence, Bryce Peterson, and Dave McClure. 2020. *Optimizing Public Surveillance Systems for Crime Control and Prevention*. Washington, DC: Urban Institute.
- Toman, Elisa L. 2019. "The Victim–Offender Overlap Behind Bars: Linking Prison Misconduct and Victimization." *Justice Quarterly* 36 (2): 350–82.
- Travis, Lawrence F., Edward J. Latessa, and Robert W. Oldendick. 1989. "The Utilization of Technology in Correctional Institutions." *Federal Probation* 53 (35): 35–40.

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