



**CCTV AND RECORDING TECHNOLOGY GRANT PROGRAM**

***TECHNOLOGY TOOLKIT***



Based on research by  
Craig Burger  
BCOM Technology  
cdburger@onebox.com

This project was supported by Grant number 2006-TT-BX-K001, awarded by the Bureau of Justice Assistance. The Bureau of Justice Assistance is a component of the Office of Justice Programs, which also includes the Bureau of Justice Statistics, the National Institute of Justice, the Office of Juvenile Justice and Delinquency Prevention, and the Office for Victims of Crime. Points of view or opinions in this document are those of the author and do not represent the official position or policies of the U.S. Department of Justice.

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*TECHNOLOGY TOOLKIT*  
*TABLE OF CONTENTS*

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*INTRODUCTION*

Recording Equipment Introduction..... 4  
CCTV Equipment Introduction ..... 6

*VENDORS*

Finding a Vendor..... 7  
Working with your Vendor ..... 9

*PLANNING YOUR SYSTEM*

Lighting & Sound ..... 11  
Cameras & Video..... 12  
Microphones..... 13  
The Interview Room ..... 15  
Connections, Power Sources, & HVAC..... 16  
Capture, Delivery, Retention, & Destruction..... 18  
Delivery & Installation ..... 20  
Support ..... 21

*CHECKLISTS*

Checklist – Recording Technology ..... 22  
Checklist – CCTV..... 23

## RECORDING EQUIPMENT INTRODUCTION

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→ **Allegations of child physical and sexual abuse are often difficult to resolve in the criminal justice system, and testifying in these cases may be traumatic for victims**

→ **The criminal justice system may cause additional trauma to children**

- Child victims must often endure multiple interviews
  - They may be interviewed by social service caseworkers, school counselors, police, medical and/or mental health care personnel, prosecutors, and defense attorneys
  - After giving an initial statement, they may testify at a preliminary hearing, before a grand jury, at deposition, and/or at trial
  - A concurrent investigation may be conducted by the child protective services system

**Factors that make child abuse cases problematic:**

- The victim's age
- The number of agencies involved
- The time needed for the investigation
- The difficulty of obtaining convictions
- The trauma resulting from the abuse

→ **Officials have introduced special techniques to elicit information from the victim while protecting them from further trauma**

- Forensic interviewers may use drawings or anatomically correct dolls
- Child victims may be interviewed in specially designated Child Advocacy Centers, where only one interviewer is in the room
  - Other professionals (district attorney, child protective services, law enforcement, GAL, etc.) are able to observe the interview over a monitor
  - Child Advocacy Centers may also have therapists on staff and/or may be able to conduct forensic medical examinations on-site
- The interviews may be recorded
  - Recordings can be used to bolster a child's trial testimony; in lieu of trial testimony in some cases; or in lieu of deposition or grand jury testimony
  - Obtaining trial testimony through closed-circuit television is another special technique, which provides a way to protect the child victim while allowing the defendant his right to face-to-face confrontation with the accuser

## RECORDING EQUIPMENT INTRODUCTION (CONTINUED)

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### →Why should I use recording equipment?

- Recording the child’s disclosure reduces the number of repeat interviews that require the child to relive the event
- Recordings of interviews are frequently shown to the defendant and defense attorney, often resulting in plea bargains
- Recordings can be used as training tools

### →What can I record?

- Recordings may be made of:
  - Forensic interviews
  - Depositions
  - Testimony for introduction at preliminary hearings or trial

### →How can I set up the equipment?

- The equipment may be hidden from the child so that he or she does not see the camera and microphone, or it may be obvious to the child
  - Some think that the child has the right to know about the recording
  - Others say that knowing about the recording may impact the child’s behavior on camera
- The equipment may be installed in:
  - A police station
  - At child protective services
  - At a Child Advocacy Center
  - At a courthouse

TECHNOLOGY TOOLKIT | INTRODUCTION

## CCTV EQUIPMENT INTRODUCTION

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### ✓Why should I use CCTV equipment?

- It may be used to protect the child from seeing the defendant at trial
- It is intended for the extremely rare case in which a child is too traumatized to testify live in front of a grand jury or at trial

### ✓How is the child's trauma reduced?

- The child's trauma can be reduced even if the equipment is not used or the case ends in acquittal:
  - If the defendant realizes that the child will ultimately be able to tell his story, he may enter a guilty plea and eliminate the need for the child to testify
  - It may help the child tell the story, regardless of conviction
  - It may save a child from the trauma of testifying in person

### ✓How can I set up the equipment?

- The size and number of screens located in the courtroom may vary as does the quality of the sound and picture
- The child may be located in a specially designed room, or in a hallway outside the courtroom
- The communication between the defendant and his lawyer may be controlled by an earpiece or a phone with protected lines
- The judge may have a switch to cut off the picture as needed
- Many of the particulars of the technology will be driven by state law, budget, and architecture

## TECHNOLOGY TOOLKIT | VENDORS

# FINDING A VENDOR

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### ✓Research your vendor

- Look for a vendor who:
  - Has completed similar jobs
  - Demonstrates a good history of successful installations, in any field, and specifically in the judicial arena
- Review the vendors' list of credentials
- Call the previous customers for insight into the company and products provided

### ✓Use an RFP, RLI, or detailed Bid specification for your project

- RFP (Request for Proposals)
  - You provide the perspective vendors with a guideline of what you wish to accomplish
  - Interested vendors respond with what will meet your needs
  - Pro: Can compare how individual vendors will approach your project
  - Con: Need to be familiar with the equipment to evaluate each vendor
- RLI (Request for Letters of Interest)
  - Give general information on what you require and let any vendor respond
  - The vendors' responses will be an outline of how they believe they can meet your requirements
  - Pro: Can see which vendors can meet your guidelines
  - Pro: Can narrow the field of vendors before you award a contract
  - Con: Must have the expertise to know what the vendors are providing and to create the guidelines
- Bid
  - Pro: Can evaluate costs from each vendor and the equipment they are going to provide
  - Con: Must have a detailed equipment list and installation plan to provide the vendors

#### **Remember:**

- Vendors may not know what legal requirements the technology is supposed to meet
- Vendors may not have experience with a system meant to deal with children or with the intent to present evidence in a trial environment
- Vendors may not have created systems for the preservation and presentation of child testimony

## TECHNOLOGY TOOLKIT | VENDORS

### FINDING A VENDOR (CONTINUED)

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#### ✓ Check the responses from vendors carefully

- Some vendors may not provide all of the items listed in a bid, but still send in a response
- Make sure that all required interconnection cables and adapters are included
- Vendors may substitute products or manufacturers
  - These substitutions might not be comparable as stated in the bid, but the vendor gets a better price margin on them or has them in inventory
- Not all vendors will be distributors of all of the products you require for your system
  - This may affect the warranties on the equipment and/or installation

#### ✓ Research state, county, school board, and GSA contracts for vendors

- Contracts provide detailed warranties and delivery specifications
- Vendors are familiar with dealing with government agencies
- Can make the purchasing process easier
  - Vendors are on the purchasing system
  - Products and costs are fixed by contract
- May need expertise to specify the equipment for the project yourself
- Some contracts do provide for consulting services
- Most vendors on contract will work with you to get equipment that will work for your project

#### Questions to ask your vendor:

- *What other similar jobs have they done?*
- *Did they provide the system under a contract or won bid?*
- *How long did the job take from award to completion?*
- *Did they deliver the system on time?*
- *Did they include training and/or training materials (manuals and guides)?*
- *How long have they been in business?*
- *Do they have on-site service?*
- *Are they authorized to service the products they sell?*
- *Do they provide loaner equipment for equipment failure during the warranty period?*
- *Were there any unexpected costs with previous system installations?*
- *What is their response time to a problem?*

## WORKING WITH YOUR VENDOR

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### ✓ Use your vendor's expertise

- Let your vendor provide you with several systems at various price points
- Ask them to provide detailed specification and reasoning for each recommendation

**Do not be embarrassed to ask technical questions concerning the products or services that your vendor is offering.**

### ✓ Use one contact person

- Identifying a contact person can eliminate duplication or system incompatibility
- Some of your systems may require multiple vendors for equipment and communications
- This will help to guarantee inter-operability of the system

**Review all aspects of your project with prospective users and your vendor.**

### ✓ Be clear about what you want with your vendor

- Tell your vendor about the purpose(s), location(s), users, and function of the project
- Be specific when possible

### ✓ Do not purchase a product or service if you do not understand why you need it

- Compare each vendors' proposals to see if certain items are extraneous to the system

### ✓ Keep your system simple

- Users of the technology may not be recording or closed-circuit equipment technicians or engineers
- When specifying your system, keep in mind who will be operating it and the time required for set-up
- This will result in fewer points of failure

### ✓ Do not tell a vendor that you have no idea how to proceed with the project

- Always provide some basis for the vendor to create a system
- Some vendors may take advantage of a jurisdiction with no technical expertise, and the resulting system may not be workable
- You can always ask someone (i.e., from another jurisdiction, etc.) for assistance with the equipment purchase decisions or review of system specifications

## WORKING WITH YOUR VENDOR (CONTINUED)

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### ✓Technology is constantly changing

- Equipment that you specify may be obsolete by the time the purchasing process is through
- Plan for upgrades

### ✓Try to use name-brands and avoid proprietary equipment

- If your equipment fails, you want to be able to get it serviced or replaced
- Proprietary parts lock you into a vendor or manufacturer

### ✓Be open to counter-offers by the vendor

- When you contact your vendors, give them examples of the equipment's make and model you wish to use in the project
- They may suggest alternatives to your equipment due to cost, availability, or features. Ask your vendor to explain why they seek the substitution

### ✓Do not let vendors put off responses to your questions

- If they do not respond to your requests for information promptly before the sale, what will they be like when you require service?

### ✓Take advantage of available warranties and support

- Always get warranties in writing
- Most manufacturers only warranty equipment for 30 - 90 days
- Some manufacturers carry warranties for 1-3 years or more
- Some vendors may offer extended warranties or annual service contracts
- Does the warranty cover: parts, labor, and shipping?
- What is the turnaround time for repairs?

#### Questions to ask your vendor about warranties:

- Does the vendor or the manufacturer warranty the equipment?
- If a problem arises, who do you contact and what type of response time is specified?
- Will the vendor provide local repair to equipment or will everything have to be sent out for service?
- Is the vendor an authorized service center for all of the products they are providing?
- Who will have to remove the part for repair: the vendor or you?

## TECHNOLOGY TOOLKIT | PLANNING YOUR SYSTEM

# LIGHTING & SOUND

### ✓ Placement of your light is critical

- Poor lighting can cause a subconscious predisposition to the person being interviewed
- Lighting directly over the child can create harsh shadows around the eyes and give them an ominous appearance
- Lighting the child from behind can darken the overall picture, making it difficult to see facial features
- Windows let in different types of light that could affect the picture (daylight, streetlights)

### ✓ Each type of light provides a different color of illumination

- Warmer light: softer, more reds and oranges
- Colder light: crisp, more blues
- Adjust the lighting color using your camera's white balance control

### ✓ The direction of your light is important

- Spots and high hats produce directional light
- Fluorescents flood the room with light

### ✓ Be conscious of the location of the room

- Decisions may affect noise bleeding through
- Stay away from high-traffic areas, electrical equipment, HVAC or air conditioning units

### ✓ Be aware of the microphone placement and selection

- Choice may depend on the surrounding noises
- Lighting and placement of cables can also cause additional noise

**Light should be bounced around all walls and objects to light the face of the interview participants' naturally.**

#### **Common types of light:**

- Incandescent: yellow/blue light
- Fluorescent: yellow/green light
- Halogen
- LED

#### **White balance**

- Adjust the color correctness of a camera based on a white object in the area that is viewed by the camera
- Once the camera knows what is white it can adjust the other colors using that point of reference
- Needs to be reset every time the camera is turned on – some do this automatically

#### **Questions to consider for sound:**

- Where will the participants be in the room?
- What is the age range of the interviewees?
- Is there a public address system? If so, is it loud? How loud is the disruption?
- What is the street and hall traffic outside of the room?

## TECHNOLOGY TOOLKIT | PLANNING YOUR SYSTEM

# CAMERAS & VIDEO

### ✓ Consider the number of cameras you will need

- Statutes and room design may dictate how many cameras you require
- Decide whether the camera(s) should be fixed (non-moving) or movable (pan/tilt/zoom)
- Do not try to get too much in one camera view
- Consider who really needs to be seen and what the focus of the scene should be
- For forensic interviews, 1 to 2 cameras per room is sufficient
  - 1 camera used for establishing who is in the room
  - 1 – 2 for closer coverage of participants
- In live testimony, 1 camera may be sufficient
- Keep in mind: will someone be operating the cameras or will the recording be a split screen or quad view?

### ✓ Placement of your camera(s) is critical

- Camera placement can not only impact what is viewed, but how it is viewed
- Be aware of how the angles of the camera impact how the participants are seen
- With an installed room you should consider placement of 1 camera as close to the eye-level of the participants as possible
  - Remember: the child is the main participant
- Avoid angling the camera so that the interviewer is towering over the top while the child is disappearing off the bottom of the screen
- The furniture and camera should be placed so the interviewer and child have similar eye-levels
  - This will make the interview more comfortable for the viewer and possibly the child
  - This can be challenging, due to room configurations. If it is not possible, opt for the child's eye-level

**Cameras should be unobtrusive and as high a quality as your budget will allow.**

### **Effects of camera angles:**

- *Low angle: the camera is located below eye level*
  - People look domineering, important, bold, aggressive, strong, or authoritative
- *Eye-level angle: the camera is at the participant's eye-level*
  - This angle should cause the least discomfort
- *High angle: the camera is placed above the participants*
  - People look less imposing, insignificant, and subordinate
- *Bird's-eye view: the camera is located overhead*
  - People look insignificant and lighting might distort the picture making it unrecognizable
- *Oblique/canted view: the camera is not level with floor*
  - Participants look unbalanced, unstable, or unrecognizable

**Picture-in-picture may be used in forensic interviews to establish who is present in the interview as well as presenting the interview in progress.**

## MICROPHONES

### ✓ Microphones control the quality of the audio being presented or captured

- A condenser microphone should be used when capturing the audio from the interview

### ✓ Consider the following factors in microphone selection:

- Number of participants
- Room layout
- Microphone pickup pattern
- Cabling
  - Can be an obstacle to placement
  - Can be a tripping hazard, distraction, or even a toy

### ✓ Understand how microphone pickup patterns impact selection and sound quality

### ✓ Microphone placement is critical

- Furniture and camera placement should be considered
  - Microphones should not interfere with the camera's view of participants
  - You should use at least two microphones in any interview situation
    - Each microphone should be recorded on a separate channel
  - Plan for redundancy in case your equipment fails
- Place microphones as close to participants as possible without intimidating them
  - Do not place a large microphone in the face of a small child
  - Select a microphone that can pick up a child's whisper without being intimidating

**Microphone selection and placement can make or break the success of any system design.**

#### **Dynamic microphones**

- Does not require power
- Durable
- Dependable
- Audio level is based on sound source level
  - The louder the source the better the pickup

#### **Condenser microphones**

- Uniform frequency response
- Responds quickly to changing sounds
- Produces natural clear audio
- Requires power

**Remember you have at least two channels of recorded audio. Place interviewer's microphone on one channel and child's microphone on the other. This will provide for better sound isolation for playback.**

## MICROPHONES (CONTINUED)

### ✓ Understand microphone pickup patterns before selecting a microphone

- Microphones are designed to pick up sound from a variety of source locations and levels
- Microphones come in a variety of shapes and sizes:
  - Button
  - Lavalier
  - Handheld
  - Plate
  - Shotgun
  - Choir
  - PZM

### ✓ Remember that young children tend to speak more softly than adults and often not directly to the interviewer

#### Microphone pickup patterns:

- *Omni (directional): picks up sound all around, 360 degrees*
- *Half-omni (directional): picks up sound over 180 degrees*
- *Cardioid (heart-shape): picks up from front, but rejects from back*
- *Supercardioid (more directional): front picks up, but picks up a little from rear*
- *Half-unidirectional: directional table top*
- *Bi-directional: picks up in two directions*

## TECHNOLOGY TOOLKIT | PLANNING YOUR SYSTEM

# THE INTERVIEW ROOM

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### ✓ Room size

- May limit the installation location: new construction vs. existing space
- Do not try to make an unusable space usable
- Consider the number of people that need to be present during each interview
- Keep away from odd-shaped rooms, such as “L” or “T” shapes, that may have alcoves or blind corners. This could make control of the child difficult as well as impact visual and audio coverage
- A rectangular room of at least 8’x10’ works well

#### **Remember:**

- *In a large room a child may look lost or insignificant*
- *In a small room the camera and interviewer may crowd the child and make him/her feel uncomfortable*

### ✓ Room configuration

- Do not:
  - Put any furnishings or coverings over the microphones or cameras
  - Place anything noisy near the microphone
- Keep in mind:
  - The size, color, and texture of the furniture
  - A dark fabric may drown out a child’s facial features/expressions
  - A bold pattern or texture may distract on screen
- Consider whether you want the room to have child-friendly or adult-friendly décor

#### **Keep in mind:**

- *Hard surfaces reflect the sound*
- *Soft surfaces absorb sound*

### ✓ Room color

- Colors that are too dark or too light may drown out the subjects, or make a spotlight necessary
- Too many wall decorations may distract the child and/or the viewer

### ✓ Windows

- Windows can be a distraction and distort both the sound and image in an interview room
- Most windows are not sound-proof
- Windows let in different types of light that could affect the picture (daylight, streetlights)

## CONNECTIONS, POWER SOURCES, & HVAC

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### ✓ For CCTV: connecting the child's location to the courtroom

- The decision is affected by:
  - Distance
  - Location
  - Operating hours
  - Number of video and audio channels (one-way or two way video and audio)
  - Size of access ways
  - Ease of set-up
  - Portable or fixed systems
  - Number of locations to connect
  - Cost

#### ***Be careful of ground loops***

- *Caused by a variation in the electrical circuits between the originating equipment (in the interview room) and the monitoring equipment (in the recording room)*
- *Can manifest itself as a hum in the audio or a traveling bar up the screen on your video*
- *Even equipment plugged into different outlets in the same room may experience this*

### ✓ For interviews: connecting the child's location to the recording and monitoring room

- The decision is affected by:
  - Distance
  - Location
  - Number of video and audio channels; cameras and microphones; rooms and recorders
  - Size of access ways
  - Number of locations to connect
  - Cost
  - Type of recording device that is being used

### ✓ Location of power sources

- Consider how much power the equipment is going to draw and where the power is coming from
- When looking at equipment, examine whether you will need extension cords
- Make sure there are enough wall outlets for the equipment
- Make sure there is enough available power, so that you do not overload the circuit
- Tape down cords to avoid people tripping
- Observe whether the equipment creates noise that may be caught on the recording

## CONNECTIONS, POWER SOURCES, & HVAC (CONTINUED)

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### ✓ Heating, ventilating, & air conditioning (HVAC)

- Consider the volume and sound of your system
- Avoid extreme temperatures; it can make it more difficult for people to concentrate and can damage the equipment
- Make sure there is proper ventilation in the room
- Too much moisture in the air can affect your equipment

## CAPTURE, DELIVERY, RETENTION, & DESTRUCTION

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✓ **Identify the type of media you will use to capture interviews or live testimony**

- Videotape
- Optical Disk – DVD, Blue Ray, DVD-RAM
- Hard Drive – Magnetic or Solid State
  - Compact or Flash Storage – CF, SD

✓ **Capture medium will impact delivery, retention, and destruction issues**

✓ **For the delivery of live or recorded testimony/interview consider:**

- Who wants to view the testimony/interview
  - Judge, State Attorney, Evaluator, Jury, etc.
- Where will the recording/live testimony be viewed?
  - In the next room
  - In the same building
  - In another building
  - In another city
- Do you just need to view the testimony or do you need to have a physical copy?
- When will it need to be viewed?
  - As it is happening
  - After it has happened
- Why does it need to be viewed?
  - Statute, procedure, or request

**These areas are affected by:**

- Statutory requirements
- Who needs access
- Where do we put them when we have them
- How long do we have to keep them
- How do we secure them
- Budget
- Long- term plan for systems – migration path

✓ **Do not overlook the retention issues of the proceedings**

- Consider how and where the records will be stored
  - Will they require security?
  - Will they require special conditions?
- Consider whether they will need to be duplicated
  - What mechanism will you use?
  - How many simultaneous copies will you need to make?
- Be sure to plan for the cost and facilities to meet your needs

✓ **Know how long your selected retention media will be viable**

✓ **Plan for equipment and media obsolescence**

- Create an upgrade plan for your equipment and recorded media
- Establish a procedure for checking on old recordings
  - Be aware of chain-of-custody issues
  - Be aware of original requirements of your jurisdiction

✓ **Prepare procedures for disposing of old proceedings**

- Consider who will be responsible
- Create procedures and sign off's
  - Are there exiting retention time-limit requirements?
- Consider what equipment will be needed to meet destruction requirements
  - Do statutes specify?
  - Can your selected recording media provide support for these requirements?

## TECHNOLOGY TOOLKIT | PLANNING YOUR SYSTEM

# DELIVERY & INSTALLATION

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### ✓ Delivery

- Most purchasing departments will specify a delivery time-frame on a purchase order
- Installation may have to be done during off-hours or weekends to allow access to the areas needed for the project
- Test the equipment before you sign off on the payment
- Examine all packing slips and invoices against the order
- Compare any delivery with the order:
  - Confirm that you have received all of the equipment you ordered
  - You may find that what you received is not always what you ordered
- Have all of the equipment delivered to one location and put one person in charge of receiving it
- Register your equipment and log all of the serial numbers
- Keep the dates of delivery for each piece of equipment, for warranty purposes

**Remember:  
Details can make or break  
your installation!**

**If your system involves  
two-way communications  
and/or installations, your  
order should include  
testing, training, and  
acceptance language.**

### ✓ Installation

- Make sure that everything works
  - Set up a mock situation and do a dry-run of the system with and without the vendor present
  - Any problems should be addressed with the vendor as soon as possible; preferably before you sign off on the purchase order
- Supervise the installation
  - Do not leave your vendor unattended during installation
  - You should know where every cable and connector of the system is located and how it is run from point to point
  - This will assist you in troubleshooting, repairing, setting up, and operating the system

✓ **Make sure your vendor can provide adequate technical and operational support**

✓ **Training Support**

- In your contract, make sure that training on operation and maintenance of the equipment is included
- Ask your vendor to provide training on the operation and maintenance of equipment they have provided, if it is outlined in the award
- No vendor is required to provide anything that is not agreed to or dictated in the award
- If you do not request training, most vendors will not volunteer it; they will assume that you know what you are getting and how to use it

✓ **Repair Support**

- How quickly your vendor responds and fixes a problem should be specified in the bid or award
- Find out where your equipment will be serviced, if there is a problem. Most warranties call for the product to be brought to the vendor or service center
- Find out if it is your responsibility to get the product out of the system and to the servicing location
- Include in your contract a certain amount of on-site service, at least for the first 6 months to a year
- Look for loaner equipment to be provided while the equipment is being serviced
- Consider signing up for telephone support. This provides for a technician to walk you through repair or service of a product

**Take advantage of warranties**

- They can be great money savers if a system has a large amount of capital invested in it
- Some equipment may be more expensive to fix than replacing the warrantied part should it fail

## CHECKLIST - RECORDING TECHNOLOGY

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### →The interview room

- What locations are involved?
- What rooms will you be using the equipment in?
- What type and color of furniture is in the room?
- How is the **lighting**?
- What kinds of noises (inside and outside the room) are evident?
- What type of furniture is in the room?
- Where will your interviewer and child be in the room?

### →Equipment

- What type of **camera** fits your needs?
- How many cameras will you need and in what locations?
- Will you use picture-in-picture? zoom lens?
- Will the cameras and **microphones** be in plain view or hidden?
- What type of recording will you be producing?
- Who will be operating the equipment?

### →Recordings

- What type of storage device fits your needs?
- Will you be required to provide copies?
- If you are required to provide copies, what are the guidelines?
- How many original copies of the recording should be made at once?
- How will the copies be protected?
- Who will maintain custody of the recording?
- How will copies be marked and secured?

## TECHNOLOGY TOOLKIT | PLANNING YOUR SYSTEM

# CHECKLIST - CCTV

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### →Equipment

- How will you hear the **audio**?
- Will the equipment be remote-controllable?
- Will the judge have a cut-off switch?
- Who else, if anyone, will have access to a cut-off switch?
- Where will the recording equipment be located?
- Should the system be fixed or portable?
- What is your storage capacity for the equipment?
- What mode of transmission/communication medium will you use?
- What type of **camera(s)**?
- How many cameras, monitors, and microphones will the system require?

Remember to ask your vendor if you are unsure of something.

### →Operation and set-up of equipment

- Who will control the equipment?
- Who will operate the system?
- Where will the operator be located?
- How will the system be deployed and set up?
- How long a lead-time will you have to set up the system if needed?
- Who will be responsible for maintaining the system?
- Who will pay for upkeep?
- Will there be back-up equipment in the event of a malfunction?

### →The location(s)

- Is the building or room pre-wired?
- How will you wire the room(s)?
- What type of **lighting** exists?
- What type of noises are in- and outside the courtroom and the room the child testifies in?
- What type of **furniture** is in the room?
- Where will your interviewer and child be in the room?

## CHECKLIST - CCTV (CONTINUED)

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- Where is the room for the interview?
- Where will the child testify from and to what location(s)?
- How far away are the locations from each other?
- What are the sizes of the **rooms**?
- To whom is the testimony going to be presented?
- Where are participants located?

### → Legal considerations

- Who needs to be seen and heard, and by whom?
- What are the legal requirements for one- or two-way viewing?
- Does the system require a secure communications line from attorney to client?
- How many monitors do you need (judge, jury, defense, prosecutor, victim) and what sizes should they be?
- Do you have to record the testimony? If so, what part of the proceedings?