

Judicial Council of California

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**JUDICIAL COUNCIL TECHNOLOGY COMMITTEE  
DRAFT MINUTES OF OPEN MEETING**

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March 9, 2026

12:10 p.m.

Videoconference

**Members Present:** Hon. Maria D. Hernandez, Chair; Mr. David Slayton, Vice-Chair; Hon. Carol Corrigan; Mr. Charles Johnson; Hon. Ricardo R. Ocampo; Mr. Craig Peters

**Members Absent:** Ms. Kate Bieker, Hon. Joan K. Irion, Hon. Jeffrey C. Kauffman

**Others Present:** John Yee and Judicial Council staff

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**OPEN MEETING**

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**Call to Order and Roll Call**

The chair called the meeting to order at 12:10 p.m. and took roll call.

**Approval of Minutes**

The advisory body reviewed and approved the minutes of the February 9 and February 19, 2026, Judicial Council Technology Committee meetings.

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**DISCUSSION AND ACTION ITEMS (ITEMS 1-2)**

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**Item 1**

**Chair Report (No Action – Information Only)**

The committee received an update on activities and news from the Judicial Council Technology Committee chair, Hon. Maria D. Hernandez.

**Item 2**

**Budget Change Proposal Concepts with Technology Components Submitted by Non-Judicial Council Information Technology Entities for Fiscal Year (FY) 2027-28 (Discussion)**

Ms. Leah Rose-Goodwin, Chief Data and Analytics Officer; Research, Analytics, and Data; Judicial Council, presented the Budget Change Proposal Concept for Judicial Branch Data Analytics Modernization. Ms. Amber Barnett, Director, Leadership Support Services, Judicial Council, presented the Budget Change Proposal Concept for Proposition 66 in the Courts of Appeal. Both proposals include technology components and are under consideration by the Judicial Branch Budget Committee for FY 2027-28.

The committee discussed the Budget Change Proposal Concepts, concluded they aligned with the judicial branch strategic plan for technology, and generally affirmed their support for forwarding the concepts to the Judicial Branch Budget Committee for consideration.

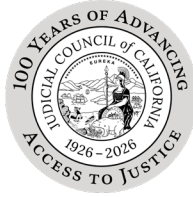
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**A D J O U R N M E N T**

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There being no further business, the meeting was adjourned.

Approved by the advisory body on [enter date].



Judicial Council of California

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**JUDICIAL COUNCIL TECHNOLOGY COMMITTEE  
DRAFT MINUTES OF OPEN MEETING**

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May 5, 2026

12:10 p.m.

Videoconference

**Members Present:** Hon. Maria D. Hernandez, Chair; Mr. David Slayton, Vice-Chair; Ms. Kate Bieker; Mr. Charles Johnson; Hon. Jeffrey C. Kauffman; Hon. Ricardo R. Ocampo; Mr. Craig Peters

**Members Absent:** Hon. Carol A. Corrigan

**Others Present:** Hon. Sheila F. Hanson, Ms. Eunice Lee, Mr. Scott Livingston, Ms. Lisa Chavez, Judicial Council staff

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**OPEN MEETING**

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**Call to Order and Roll Call**

The chair called the meeting to order at 12:10 p.m. and took roll call.

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**DISCUSSION AND ACTION ITEMS (ITEMS 1–4)**

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**Item 1**

**Language Access Signage and Technology Grant Program: Proposed Awards for Fiscal Year (FY) 2026-27 (Action Required)**

Ms. Eunice Lee, Supervising Analyst, Language Access Services Program, Judicial Council, presented the recommendations for the FY 2026–27 Language Access Signage and Technology Grant Program. The program proposed funding 24 requests, allocating \$627,415 to signage project requests and \$1.72 million to technology projects.

**Action:** *The committee voted to approve the recommendations for the FY 2026–27 Language Access Signage and Technology Grant Program to proceed to the Judicial Council for consideration.*

**Item 2**

**Jury Management System Grant Program: Project and Funding Allocations for FY 2026-27 (Action Required)**

Mr. Scott Livingston, Senior Business Systems Analyst, Judicial Council, presented the recommendations for the Jury Management System Grant Program for FY 2026–27. The program proposed funding 17 projects in 15 courts, for a total allocation of \$600,000.

***Action: The committee voted to approve the recommendations for the FY 2026–27 Jury Management System Grant Program to proceed to the Judicial Council for consideration.***

**Item 3**

**IT Modernization Program: Local Court Grants for FY 2026-27 (Action Required)**

Ms. Lisa Chavez, Information Systems Supervisor, Judicial Council, presented the recommendations for the FY 2026–27 IT Modernization Grant Program. The program proposed funding 49 projects in 32 courts, for a total allocation of \$12.5 million.

***Action: The committee voted to approve the recommended FY 2026–27 IT Modernization Grant Program allocations and project waitlist to proceed to the Judicial Council for consideration.***

**Item 4**

**Technology Governance and Funding Model (Action Required)**

Hon. Maria D. Hernandez, chair, Judicial Council Technology Committee, presented the recommendation to initiate the update to the *Technology Governance and Funding Model*, extend the existing *Strategic Plan for Technology* and *Tactical Plan for Technology* while the update is conducted, and submit an information report to the Judicial Council.

***Action: The committee voted to approve the recommendation and to submit an information report to the Judicial Council.***

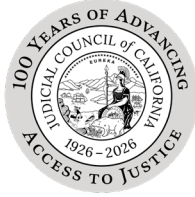
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**A D J O U R N M E N T**

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There being no further business, the meeting was adjourned.

Approved by the advisory body on [enter date].



## Judicial Council of California

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### JUDICIAL COUNCIL TECHNOLOGY COMMITTEE DRAFT MINUTES OF ACTION BY EMAIL

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June 18, 2026

**Members Present:** Hon. Maria D. Hernandez, Chair; Mr. David Slayton, Vice-Chair; Ms. Kate Bieker; Hon. Carol A. Corrigan; Mr. Charles Johnson; Hon. Jeffrey C. Kauffman; Hon. Ricardo R. Ocampo; Mr. Craig Peters

**Members Absent:** None

**Others Present:** Hon. Sheila F. Hanson

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#### ACTION BY EMAIL

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As provided in the California Rules of Court, rule 10.75 (o)(1)(B), the chair concluded that prompt action was needed. This action by email concerned matters that would otherwise be discussed in an open meeting; therefore, in accordance with rule 10.75(o)(2), public notice and the proposal were posted on June 17, 2026, at 2:00 p.m. to allow at least one complete business day for public comment before the committee took action. No public comments were received.

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#### ACTION ITEM

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##### Item 1

**2026 Information Technology Advisory Committee Annual Agenda Update (Action Required)**

Review and consider an update to the 2026 Information Technology Advisory Committee Annual Agenda that would move the Frameworks for Effective Technology Adoption Workstream from the waitlist into the current agenda so that work can commence.

**Action:** *The committee approved the update to the 2026 Information Technology Advisory Committee Annual Agenda.*

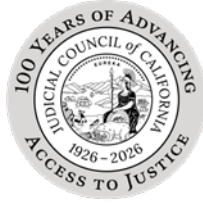
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#### CLOSURE OF ACTION

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There being no further business, the action was completed on June 23, 2026.

Approved by the advisory body on [enter date].



## Judicial Council of California

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# REPORT TO THE JUDICIAL COUNCIL

*Item No.:*

For business meeting on December 10–11, 2026

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## **Judicial Branch Technology: Hybrid Courtroom Findings and Recommendations (Draft)**

### Judicial Council Report Details

**Rules, Forms, Standards, or Statutes Affected**

None

**Effective Date**

December 11, 2026

**Recommended by**

Information Technology Advisory  
Committee

Hon. Sheila F. Hanson, Chair

**Date of Report**

July 29, 2026

**Contact**

John Yee, 415-865-4601

[john.yee@jud.ca.gov](mailto:john.yee@jud.ca.gov)

**Report Type**

Action Required

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### **Executive Summary**

The Judicial Council's *Minimum Technology Standards for Remote Proceedings* and Senate Bill 133 (Stats. 2023, ch. 34) establish statewide functional requirements for conducting remote appearances. To support implementation of these standards, the Information Technology Advisory Committee convened the Advancing the Hybrid Courtroom Phase 2 Workstream to develop recommendations that provide courts with structured, functional guidance for implementing technology solutions that support effective remote participation across various courtroom environments.

The committee recommends that the Judicial Council adopt the resulting *Remote Proceedings Technology Recommendations* to give courts clear, adaptable guidance for meeting the standards, reduce variation in courtroom capabilities, and strengthen the quality, consistency, and accessibility of remote proceedings statewide.

## Recommendation

The Information Technology Advisory Committee recommends that the Judicial Council, effective December 11, 2026:

1. Approve *Remote Proceedings Technology Recommendations* as statewide guidance supporting implementation of *Minimum Technology Standards for Remote Proceedings*;
2. Direct Judicial Council staff to publish and maintain the recommendations as an accessible statewide resource; and
3. Authorize the Information Technology Advisory Committee to review and update the recommendations annually to ensure continued alignment with technological and operational developments.

## Relevant Previous Council Action

In November 2023, the Judicial Council received *Report of the Advancing the Hybrid Courtroom Workstream: Findings and Recommendations*, which provides best practices for technology and equipment for remote proceedings.<sup>1</sup> In March 2024, the Judicial Council adopted *Minimum Technology Standards for Remote Proceedings* to satisfy the statutory requirements of Senate Bill 133.<sup>2</sup> The statute requires the Judicial Council to adopt, and the trial courts to implement, minimum standards for courtroom technology necessary to permit remote participation in court proceedings.

## Analysis/Rationale

As of 2026, California's courts conduct an average of more than 7,000 remote proceedings statewide each day,<sup>3</sup> reflecting a sustained and significant reliance on remote technology in daily court operations. To support this growing demand, Phase 2 of the Advancing the Hybrid Courtroom effort builds on earlier work that identified functional needs and foundational concepts for supporting hybrid and remote participation in California courtrooms. Following that initial phase, the Information Technology Advisory Committee expanded the effort through a statewide workstream of judicial officers, court technology leaders, and operational experts who analyzed courtroom operations, technology infrastructure, audio and video systems, display standards, and accessibility considerations. This broader evaluation underscored the need for clear, practical guidance to support consistent and effective implementation of remote proceedings technology across diverse courtroom environments. The workstream's Phase 2

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<sup>1</sup> Judicial Council of Cal., Advisory Com. Rep., [\*Judicial Branch Technology: Hybrid Courtroom Findings and Recommendations\*](#), (Oct. 20, 2023).

<sup>2</sup> Judicial Council of Cal., Advisory Com. Rep., [\*Judicial Branch Technology: Minimum Standards for Courtroom Technology to Permit Remote Participation in Court Proceedings \(Sen. Bill 133\)\*](#), (Feb. 21, 2024).

<sup>3</sup> Judicial Council of Cal., [\*Report to the Legislature, use of Remote Technology in Civil and Criminal Actions by the Trial Courts\*](#), (Feb. 19, 2026).

recommendations provide a structured framework offering flexible approaches adaptable to different court sizes, architectures, and resources.

The Phase 2 workstream recognizes that courts vary greatly in infrastructure, equipment, and staffing, sometimes leading to uneven remote experiences for litigants, judicial officers, and the public. The workstream's analysis demonstrates that without statewide guidance, these differences can affect decorum, access, and the accuracy of the record. *Remote Proceedings Technology Recommendations* translates the performance-based standards into practical, adaptable approaches courts can apply based on local needs, resources, and facilities.

By adopting this statewide guidance, the Judicial Council promotes consistency, equitable access, and operational reliability across the branch. The recommendations support courts in planning and upgrading their technology environments, align with long-term modernization efforts, and help ensure that remote and hybrid proceedings remain dependable and effective as demand continues to grow.

### **Policy implications**

Adopting these recommendations supports the Judicial Council's strategic objectives related to modernization, equitable access, and consistent statewide practice. This initiative supports the goal of the Judicial Council's technology tactical plan to develop and annually update a technology playbook that guides courtroom equipment needs and implementation for remote proceedings in alignment with the Judicial Council's *Minimum Technology Standards for Remote Proceedings* and Senate Bill 133.<sup>4</sup> The recommendations complement these performance-based standards by clarifying how courts can meet functional expectations while accounting for available local infrastructure and resources. They also promote long-term planning by helping courts align technology upgrades and facilities improvements with statewide modernization efforts.

### **Comments**

The recommendations were circulated for branchwide comment. Comments from courts emphasized the importance of practical, flexible guidance and identified concerns related to funding, infrastructure variation, and accessibility under the Americans with Disabilities Act. Several courts requested expanded clarity on procedures for digital evidence, remote participation, and courtroom operations. All comments were reviewed, and responses are included in the attached comment chart. In addition to the formal branchwide comment period, the draft recommendations were presented to the Court Facilities Advisory Committee working group on March 18, 2026.

### **Alternatives considered**

The Information Technology Advisory Committee considered but declined two alternatives: taking no action or proposing prescriptive statewide technical requirements. Courts requested guidance, making the first option insufficient. Prescriptive technical specifications were not

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<sup>4</sup> Judicial Council of Cal., [\*Tactical Plan for Technology 2025–2026\*](#) (March 2025), p. 14.



pursued due to wide variability in courtroom environments and the statutory focus on functional—not technical—requirements. The recommended descriptive, performance-based approach best balances flexibility with consistency.

### **Fiscal and Operational Impacts**

These recommendations are advisory and create no new mandates or requirements for courts. Courts maintain full discretion to adopt, adapt, or decline them based on their priorities and available resources. Courts retain flexibility to use alternative technologies that meet functional goals.

### **Attachments and Links**

1. Chart of comments, at pages 5–16
2. Attachment A: Remote Proceedings Technology Recommendations (Dec. 12, 2025)

December 12, 2025

# **Remote Proceedings Technology Recommendations (Final Draft)**

Advancing the Hybrid Courtroom  
Phase 2 Workstream



Judicial Council of California

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## Advancing the Hybrid Courtroom Phase 2 Workstream Members

| Name                       | Title                                                           | Court                                      | Role                 |
|----------------------------|-----------------------------------------------------------------|--------------------------------------------|----------------------|
| Hon. Samantha P. Jessner   | Judge                                                           | Superior Court of Los Angeles County       | Executive Sponsor    |
| Mr. AJ Guzman              | Chief Information Officer<br>Director of IT & Facilities        | Superior Court of Sutter County            | Executive Co-sponsor |
| Mr. Jordan Aiken           | Chief Information Officer                                       | Superior Court of Kern County              | Member               |
| Hon. Rebecca Connolly      | Judge                                                           | Superior Court of Santa Cruz County        | Member               |
| Mr. Tim Cool               | Chief Deputy of Information Technology                          | Superior Court of Riverside County         | Member               |
| Hon. Sean Dabel            | Judge                                                           | Superior Court of San Mateo County         | Member               |
| Mr. Dorian Deyeth          | Senior Court Systems Administrator                              | Court of Appeal, Second Appellate District | Member               |
| Hon. Charles H. Ervin      | Presiding Judge                                                 | Superior Court of Sierra County            | Member               |
| Mr. Jason B. Galkin        | Court Executive Officer                                         | Superior Court of Riverside County         | Member               |
| Ms. Anaruth Gonzalez       | Director of Courtroom Support                                   | Superior Court of Los Angeles County       | Member               |
| Hon. Michael S. Groch      | Presiding Judge                                                 | Superior Court of San Diego County         | Member               |
| Mr. Kevin Halton           | Systems Administrator                                           | Superior Court of Monterey County          | Member               |
| Ms. Michelle Jeremiah      | Director of Operations                                          | Superior Court of Sacramento County        | Member               |
| Hon. Kimberly Menninger    | Judge                                                           | Superior Court of Orange County            | Member               |
| Mr. Luis Olachea           | Deputy Chief Information Officer for Infrastructure and Support | Superior Court of Los Angeles County       | Member               |
| Ms. Shannon Pedotti        | Court Executive Officer                                         | Superior Court of Sierra County            | Member               |
| Ms. Taylor Perry           | User Support Supervisor                                         | Superior Court of Orange County            | Member               |
| Mr. Marcos Prado           | IT Infrastructure Manager                                       | Superior Court of San Mateo County         | Member               |
| Mr. Mike Sorensen          | Information Technology Project Manager                          | Superior Court of San Diego County         | Member               |
| Mr. Drew Taylor            | Information Technology Manager                                  | Superior Court of Sacramento County        | Member               |
| Mr. Osvaldo Vazquez-Torres | Information Technology Systems Engineer                         | Superior Court of San Diego County         | Member               |
| Mr. Jason Zigelhofer       | Infrastructure Administrator                                    | Superior Court of Santa Cruz County        | Member               |

## Workstream Staff

| Name                         | Title                             | Organization                            | Role                  |
|------------------------------|-----------------------------------|-----------------------------------------|-----------------------|
| Mr. John Yee                 | Chief Information Officer         | Judicial Council Information Technology | Senior Leadership     |
| Mr. Andrae Randolph          | Deputy Chief Information Officer  | Judicial Council Information Technology | Business Lead         |
| Ms. Kackie Cohen             | Information Technology Architect  | Judicial Council Information Technology | Project Manager       |
| Mr. David Scott              | Information Systems Supervisor    | Judicial Council Information Technology | Subject Matter Expert |
| Ms. Jamel Jones              | IT Manager                        | Judicial Council Information Technology | Program Management    |
| Ms. Jessica Craven Goldstein | Information Systems Supervisor II | Judicial Council Information Technology | Program Management    |
| Ms. Laura Brown              | Sr. Business Systems Analyst      | Judicial Council Information Technology | Program Management    |

## Introduction

The Information Technology Advisory Committee (ITAC) is pleased to present this guide to support California courts in selecting and implementing technology intended to effectuate and support remote courtroom proceedings. This initiative directly advances the goal outlined in the *Tactical Plan for Technology 2025–2026*, to create and annually update a technology playbook addressing equipment needs and implementation within courtrooms to enable remote proceedings in accordance with the Judicial Council Minimum Technology Standards for Remote Proceedings<sup>1</sup> and Senate Bill 133 (Stats. 2023, ch. 34). ITAC included the initiative in its 2025 Annual Agenda, with the added recommendation that the resulting standards be referenced in the *California Trial Court Facilities Standards*. This guide will be updated on an annual basis to ensure continued relevance and alignment with technological advancements and evolving judicial needs.

To carry out this directive, the Advancing the Hybrid Courtroom Phase 2 Workstream was created to conduct the necessary research and develop this guide. Building upon the foundational work of Phase 1, the workstream’s leaders and members undertook a comprehensive analysis to identify and recommend infrastructure and procedural components for consistent and meaningful participation in courtroom proceedings, regardless of whether participants appear in person or remotely.

ITAC extends its sincere appreciation to the workstream for its dedicated efforts in fulfilling this branchwide objective and contributing meaningfully to the modernization of courtroom operations across the state with the goal of advancing due process and access to justice.

## Minimum Technology Standards

The Judicial Council’s Minimum Technology Standards for Remote Proceedings establish functional requirements that describe what courtroom technology must accomplish rather than prescribe specific hardware or configurations. The standards in that document outline the essential capabilities—such as enabling participants to see and hear one another, providing reliable connectivity, and ensuring judicial control over remote participation—without dictating the exact type, quantity, or placement of devices such as cameras, microphones, or speakers. This descriptive approach focuses on outcomes, allowing courts to have flexibility in selecting solutions that meet their unique operational needs and budget realities while complying with statutory requirements.

In contrast, prescriptive requirements would mandate specific equipment quantities, installation locations, or technical specifications. By adopting a descriptive framework, the Judicial Council ensures courts can implement technology that satisfies functional goals—such as clear audio, visual identification of speakers, access to an interpreter, and secure remote access—while

<sup>1</sup> Minimum Technology Standards for Remote Proceedings (SB 133) (adopted by the Judicial Council of California, effective Apr. 1, 2024), [courts.ca.gov/system/files/file/minimum-technology-standards-20240401.pdf](https://courts.ca.gov/system/files/file/minimum-technology-standards-20240401.pdf)



accommodating variations in courtroom size, budget, and infrastructure. This flexibility supports scalability and innovation, enabling courts to meet evolving standards without being constrained by rigid technical mandates.

This document, *Remote Proceedings Technology Recommendations*, is designed to bridge the gap between descriptive and prescriptive requirements. It offers a practical architecture for hybrid courtrooms, including schematic diagrams and functional descriptions that can be adapted to meet specific court needs. The goal is to provide courts with actionable guidance on equipment selection, best practices, and implementation details necessary to meet—and potentially exceed—the minimum standards.

By presenting recommendations and design considerations, this resource helps courts translate functional requirements into effective, real-world solutions that enhance reliability, accessibility, procedural integrity, and access to justice, without mandating a specific course of action. The recommendations are intentionally descriptive and do not mandate any specific technology, vendor solution, or protocol. Courts retain flexibility to use alternative technologies that meet functional goals. Implementation of the recommendations is also dependent on local resources, and each court may determine what is feasible based on available funding. The workstream recognizes that budget limitations may affect the ability to undertake certain recommendations.

Further, these recommendations do not trigger an expectation that courts review their existing remote proceedings technology. This document is provided for use as practical reference; it is not a directive to undertake any action.

For an optimal remote experience, participants should be able to both see and hear each other and the proceedings. However, the workstream acknowledges that some remote participants may lack the bandwidth or capability for video. While the guide assumes participants can see and be seen, the inability to appear via video and participate using audio only is not considered detrimental to remote participation, unless the court orders the proceedings to be conducted using video, or as required or allowed by statute.

The workstream also recognizes that in order for courts in California to adopt and implement innovation, especially technology innovation, they must receive adequate funding to enable them to do so.

### **Guiding Principles**

The foundation of this document is a set of guiding principles focused on flexibility and scalability. These principles ensure that technology solutions not only meet current needs but also anticipate future demands, supporting equitable access, judicial integrity, operational efficiency, flexibility, and access to justice.

***Principle 1: Focus on reasonably equitable access***

Recognize that in-person and remote experiences differ and courts must strive to minimize disparities. The goal is to create a user experience that provides easy and meaningful access for all participants, whether physically present or remote, that is not prejudicial to any party.

***Principle 2: Preserve judicial decorum***

Courtroom technology should not detract from the dignity and formality of judicial proceedings. Maintaining decorum in both physical and remote environments requires thoughtful placement of equipment, unobtrusive designs, and protocols that uphold the authority of the court and protect the dignity and formality of court proceedings while enabling modern access and functionality.

***Principle 3: Future-proof infrastructure***

Courtroom systems and infrastructure should be designed with adaptability in mind. Technology evolves rapidly, and planning for future needs reduces costly retrofits and disruptions. Scalable solutions, modular components, and standards-based designs ensure that courts can integrate new capabilities without overhauling existing systems.

***Principle 4: Standards-based approach***

The recommendations in this document align with the Judicial Council's Minimum Technology Standards for Remote Proceedings. The Minimum Technology Standards define functional requirements rather than prescribe specific hardware, providing courts with flexibility while ensuring compliance with minimum technology standards. This approach promotes consistency while supporting innovation and recognizes the speed at which technology innovation changes.

***Principle 5: Accurate capture of the record***

Technology must facilitate the accurate capture of court proceedings, including both minutes and, where applicable, the creation of a verbatim record of the proceedings. Systems should be reliable, provide redundancy, and include clear protocols for monitoring and verifying the creation of a verbatim record of the proceedings.

***Areas of Focus***

The recommendations in this document are organized into key focus areas, each addressing critical components of a hybrid courtroom.

***Courtroom operations***

This section addresses the processes and technologies that tie together all components of a hybrid courtroom. It includes video conferencing platforms, capture of a verbatim record, interpreting, and evidence presentation systems, ensuring smooth integration and procedural integrity.

***Audio and video***

Guidance is provided for cameras, microphones, and speakers, including placement strategies and technical specifications. This section also covers sound and video processing equipment and streaming capabilities to ensure clarity and reliability for all participants.

***Displays***

Best practices are given for selecting and positioning monitors, projectors, and screens so that participants, both in person and remote, can view proceedings and evidence. Proper display placement supports engagement and accessibility.

***Infrastructure***

Guidance is provided for foundational elements such as network connectivity, electrical power, and physical readiness of the courtroom. This section emphasizes planning for future capacity and capabilities, ensuring that infrastructure supports evolving technology requirements and realities.

## **1. Courtroom Operations**

Thorough planning and consideration of the nature of the court proceedings that also recognizes courts' operational requirements will ensure that remote technologies support reasonably equitable and meaningful participation by all parties, uphold judicial decorum, and accurately capture the official record of the court and the verbatim record of the hearing.

This section outlines key functional and operational considerations that, while not specifically technical in nature, offer practical and actionable guidance to court staff on managing hybrid proceedings with clarity, efficiency, and equitable access for both in-person and remote participants. As previously noted, the guide assumes that all participants will not only be able to hear and be heard but will also be able to see and be seen. However, the inability of a remote participant to appear via video and appear only via audio is not detrimental to remote participation, unless the court orders the proceeding to be conducted using video or as required or allowed by statute.

Please note that throughout this document, the auxiliary word “should” indicates a recommendation, not a mandatory requirement.<sup>2</sup>

### **1.1. General Courtroom Operations Recommendations**

The following recommendations for general operations support the effective delivery of remote and hybrid proceedings.

#### **1.1.1. *Efficient workspaces***

Consider operational efficiency when determining placement of equipment and various displays managed by judicial officers and court staff.

#### **1.1.2. *Unobstructed judicial view***

Minimize any obstruction caused by courtroom equipment. Ensure that technology installations do not block the judicial officer's line of sight or interfere with courtroom visibility, decorum, or security. Recommendations include:

- Map sightlines before installing audiovisual equipment.
- Use low-profile and adjustable mounts and cable management solutions.
- Incorporate opinions and expertise of judicial security personnel.

#### **1.1.3. *Juror display visibility***

Position monitors and screens to ensure jurors have a clear, unobstructed view of all relevant materials. Confirm compliance with Americans with Disability Act (ADA) standards.

<sup>2</sup> <https://www.ietf.org/rfc/rfc2119.txt>

#### **1.1.4. Interpreter audio**

When feasible, configure the audio system so that only the interpreter's English rendition is transmitted in courtroom audio feeds. This aids in capturing a verbatim record of the proceedings. Consider the following actions:

- Test interpreter audio during pre-hearing checks.
- Train staff on managing audio feeds for interpretation.

#### **1.1.5. Electronic recording status**

Ensure that the status of electronic recording equipment (i.e., on or off) is clearly visible and easily available for operation by designated court personnel or the judicial officer.

#### **1.1.6. Remote staff connectivity**

Establish clear connection protocols for court staff who need to appear remotely. Consider the technical requirements necessary to support remote services that may need to connect a single remote station to multiple courtrooms, including:

- Remote electronic monitoring;
- Electronic recording;
- Remote court reporting;
- Remote court interpreting; and
- Livestreaming.

The following are actions to consider:

- Define bandwidth and hardware requirements for remote staff stations.
- Implement secure authentication for remote access.
- Document steps for troubleshooting common remote issues.

#### **1.1.7. Training and support**

Provide training and ongoing support—both internally for court staff and externally for stakeholders—to ensure a full understanding of the courts' modern courtroom operations and technology systems.

#### **1.1.8. Internet access**

Adopt a standard for high-speed wireless access for guests and court users.

#### **1.1.9. Shared microphones**

Develop a protocol outlining how participants should communicate when individual microphones are not available.

#### **1.1.10. Handling technical issues**

Develop a protocol to address connectivity problems that impact interpretation, verbatim record capture, or audibility. The protocol should:

- Ensure staff availability for real-time troubleshooting;
- Include clear escalation steps for unresolved issues; and
- Provide publicly accessible guidance on the courts' websites for common remote participant problems (e.g., audio/video setup, bandwidth limitations).

#### **1.1.11. Remote participants and observers**

Consider limiting active participation in remote proceedings to essential participants, such as judges, attorneys, witnesses, parties/litigants, and interpreters, to simplify conference management and maintain security. Courts may need to accommodate scenarios where non-participants, such as non-party participants, media representatives, or members of the public, require remote access as observers. When courthouses are physically closed, Assembly Bill 716 (Stats. 2021, ch. 526) requires courts to provide at least an audio stream or telephonic access to ensure public access to proceedings.<sup>3</sup> Using video streams or audio-only access will enable remote observers to see or hear the proceedings without direct interaction with essential participants.

Recommendations include:

- Define eligibility criteria for remote participation and observation.
- Update courtroom scheduling systems to reflect remote roles.
- Communicate participation limits in advance notices.
- Implement technology to permit audio/video observation-only access.
- Configure privacy and security safeguards for observer access.
- Provide information regarding public remote access on the court's website.

#### **1.1.12. Identify verification**

Consider establishing requirements for participants to identify themselves before proceedings begin, with notice that failure to do so may result in an incomplete court record and they may be barred from participation.

#### **1.1.13. Notice of electronic monitoring**

If necessary, develop a protocol for compliance with Government Code section 69957, which requires notice to litigants if electronic recording is used to monitor the performance of subordinate judicial officers.

### **1.2. Conferencing Platform Recommendations**

To ensure remote and hybrid courtroom proceedings are conducted efficiently and with procedural integrity, courts may consider implementing a range of features, protocols, and best practices to enhance the functionality of their conferencing platforms. The following

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<sup>3</sup> Assembly Bill 716, [legiscan.com/CA/text/AB716/id/2435936](https://legiscan.com/CA/text/AB716/id/2435936)

recommendations are designed to support judicial officers, courtroom staff, and participants in maintaining order, visibility, and accurate records during remote hearings.

#### **1.2.1. *Speaker prioritization***

Enable platform features that automatically prioritize or highlight the active speaker. This ensures participants can easily follow the dialogue and reduces confusion during multi-participant interactions. Consider these actions:

- Confirm that the platform supports active-speaker highlighting and enable it in settings.
- Test speaker prioritization during prehearing checks to ensure functionality.
- Ensure courtroom staff are trained on how to adjust speaker-view settings during proceedings.
- Document fallback procedures if speaker prioritization fails (e.g., manual spotlighting).

#### **1.2.2. *Camera configuration and pinning***

Configure camera views to maintain consistent visibility of key participants. Allow “pinning” of critical roles such as the judicial officer, witness, or attorneys so they remain prominently displayed throughout the hearing. Actionable recommendations include:

- Verify that pinning functionality is available and enabled on the platform.
- Create a standard list of participants to pin (e.g., judicial officers, witnesses).
- Train staff on pinning and spotlighting features for smooth transitions.
- Test camera layouts before hearings to ensure visibility for all participants.

#### **1.2.3. *Chat visibility settings***

Establish whether chat can be seen by the host or cohost, especially when the host or cohost includes the judicial officer. Consider the following actions:

- Review platform chat settings and configure visibility according to court policy.
- Train hosts and cohosts on monitoring and managing chat during hearings.
- Document protocols for disabling or archiving chat when required for recordkeeping or data retention policies.

#### **1.2.4. *Participant identification***

To ensure an accurate record of the proceedings, courts must establish clear protocols and mechanisms that verify and maintain the identity of all participants throughout the hearing. Consider the following:

- Ensure courtroom clerks can identify each participant for inclusion in the official record of the hearing.
- Develop a protocol or mechanism to identify each participant each time they address the court for inclusion in the verbatim record.
- Adopt a protocol requiring participants to display their full names upon login to facilitate proper identification and recordkeeping. Participants’ names should be displayed at all times.

- Use conferencing platform tools to label participants or update display information after they join a hearing, ensuring clarity for all attendees.
- Establish procedures for identifying late registrants and ensure they are clearly marked in appearance reports accessible to courtroom clerks.

#### **1.2.5. Judicial control over participation**

Ensure the conferencing platform provides judicial officers and designated courtroom staff with robust controls to maintain order during proceedings. These controls should include the ability to mute participants, disable video feeds, or remove individuals from the session in response to disruptive behavior, as directed by the judicial officer. Suggested actions include:

- Verify that platform settings allow hosts and cohosts to mute audio and video feeds.
- Test participant removal functionality prior to live hearings.
- Assign a trained cohost to manage disruptive behavior promptly.
- Document procedures for judicial officers to direct staff actions during disruptions.

#### **1.2.6. Entry and reentry controls**

Implement features that allow participants to be moved to and from a virtual lobby, enabling controlled reentry when appropriate to maintain courtroom flow and security. The platform should also provide the ability to block entry or reentry using tools such as a virtual lobby or gallery, managed by the host or cohost, to prevent unauthorized access. Recommendations include:

- Configure virtual lobby settings for all remote hearings.
- Establish protocols for admitting participants only after identity verification.
- Train staff on blocking unauthorized reentry using platform controls.
- Test lobby management features during prehearing checks.

#### **1.2.7. Confidential breakout sessions**

Enable secure breakout rooms for private or confidential discussions, such as sidebars, without compromising the integrity of the main hearing. These rooms should ensure confidentiality, prevent unauthorized entry, and allow seamless return to the primary session when discussions conclude. Additional actions to consider include:

- Confirm that breakout rooms are password protected or host controlled.
- Test breakout room functionality before hearings to ensure smooth transitions.
- Assign a cohost to monitor breakout sessions for security compliance.
- Document procedures to move participants back to the main session promptly.

#### **1.2.8. Remote evidence presentation**

Courts should proactively plan for the presentation and management of digital evidence, particularly in situations where remote evidentiary hearings are authorized.

- Consider requiring remote participants to have sufficient technology to view and submit evidentiary materials and exhibits, ensuring full participation in the hearing.



- Establish protocols for presenting evidence remotely, recognizing that litigants may need to share videos, photographs, diagrams, maps, or other materials. These may carry evidentiary or nonevidentiary value and could require annotation or markings by witnesses or attorneys.
- Where available in the courtroom, provide remote participants with access to real-time document annotation tools to maintain parity in evidentiary review and interaction.

#### **1.2.9. Remote Proceedings Documentation Recommendations**

Courts should adopt and publish best practices to assist the public, court staff, and judicial officers in managing and participating in remote hearings while ensuring accurate capture of the verbatim record. Published guidance should clearly outline what participants can expect when engaging in hearings that accommodate both in-person and remote appearances. The following areas and recommendations provide practical, actionable guidance.

#### **1.2.10. Technology in the physical courtroom**

Information about available courtroom technology should be published and easily accessible to enable attorneys and participants to prepare in advance. Recommendations include:

- Provide information about the availability of microphones and displays at counsel tables.
- Outline evidence presentation equipment and operational instructions.
- Indicate availability of internet or Wi-Fi in the courtroom.
- Provide court contact information for technical support.
- Include diagrams or photos showing equipment placement for clarity.
- Provide specifications for supported file formats for evidence presentation.
- Include instructions for connecting personal devices to courtroom systems.

#### **1.2.11. Remote appearance technology requirements**

Courts should clearly communicate the technology requirements for remote participation. Recommendations include:

- Identify supported conferencing platforms and download instructions.
- Explain registration procedures for remote appearances.
- Provide instructions for equipment testing prior to the hearing.
- List court contact information for technical support.
- Publish minimum bandwidth and device specifications for remote participants.
- Provide guidance on using virtual backgrounds or camera positioning to maintain decorum.
- Offer troubleshooting steps for common connectivity issues.

#### **1.2.12. Describe what participants can expect**

Published information should also include what participants can expect when joining hearings that include both in-person and remote appearances.

- Identify staff who may participate remotely (e.g., interpreters, court reporters).

- State whether proceedings are electronically recorded.
- Include notice that under California Rules of Court, rule 1.150, recording is prohibited without permission.
- Describe equipment available for digital evidence presentation and protocols for remote access to exhibits.
- Specify equipment available or needed for remote interpretation.
- Explain protocols for muting/unmuting and speaking order during remote sessions.
- Provide instructions for submitting exhibits electronically before the hearing.
- Outline contingency plans for technical failures.
- Include etiquette guidelines for remote participants (e.g., dress code, controlling background noise).

## **2. Audio and Video**

Audiovisual equipment such as cameras, speakers, and microphones are key components of a modern courtroom. These systems ensure that participants, whether attending in person or remotely, can clearly hear and see the proceedings as required or allowed by statute.

High-quality audio and video technologies also facilitate the accurate capture of the official and verbatim record, enable real-time interpretation, and support the presentation of digital evidence.

This section provides overarching guidance on best practices for courtroom audio and video technology, including recommendations for equipment types and placement strategies. Because each courthouse and courtroom has unique architectural and operational considerations, this document does not prescribe one-size-fits-all solutions. Instead, it outlines recommendations for hybrid proceedings and provides scalable options for courts seeking more advanced audiovisual technology.

As noted elsewhere in this document, an optimal remote experience requires that participants can both see and hear each other and the proceedings. Both phases of the Advancing the Hybrid Courtroom Workstream acknowledge, however, that some remote participants may lack the bandwidth or capability for video. While this guide assumes participants will generally be able to see and be seen, the inability of a remote participant to appear via video and participate using audio only is not considered detrimental to remote participation, unless the court orders the proceeding to be conducted using video, or as required or allowed by statute.

### **2.1. Core Technology Recommendations**

The backbone of a modern courtroom audiovisual system consists of a control system, an audio digital signal processor (DSP), and an amplifier. These components ensure ease of use, reliable functionality, and high-quality audio and video performance. Remote-enabled courtrooms generally rely on this core equipment.

#### **2.1.1. Audiovisual control system**

An audiovisual control system enables centralized management of multiple technologies, including microphones, speakers, video displays, recording equipment, and lighting, through an intuitive interface such as a touch panel. Consider the following actions:

- Select a control system that supports customizable presets for common courtroom scenarios (e.g., arraignment, jury trial, remote hearing).
- Ensure the interface is user-friendly for judicial officers and clerks, with clear labeling for microphone activation, video switching, and evidence display.
- Integrate security features such as role-based access to prevent unauthorized changes.
- Provide training sessions for staff on using the control panel effectively.

### **2.1.2. Audio DSP**

The DSP processes audio signals to eliminate background noise, manage microphone levels, and provide echo cancellation—critical for recordings and remote participation. Recommendations include:

- Configure DSP settings for automatic gain control to maintain consistent audio levels.
- Enable noise suppression and echo cancellation for hybrid hearings to improve clarity.
- Include remote monitoring capability so technical staff can adjust DSP settings during proceedings if needed.

### **2.1.3. Amplifier**

Amplifiers power the courtroom’s speaker system, ensuring speech from microphones is loud and clear for all areas, including the gallery jury box, and judge’s bench. They are essential for large or acoustically challenging spaces. Recommendations include:

- Choose amplifiers sized appropriately for the courtroom’s acoustics and speaker layout.
- Schedule regular maintenance and load testing to confirm consistent performance.

### **2.1.4. Audio balancing (mix-minus) recommendation**

All audio systems should support mix-minus audio balancing to manage multiple sources, prevent feedback loops, and ensure clear sound for all participants. This is particularly important in hybrid environments where remote and in-person audio streams must be synchronized and balanced. Consider these important actions:

- Implement dedicated audio routing for remote participants to avoid echo and feedback.
- Test mix-minus configurations during system setup and periodically thereafter.
- Document the audio routing plan for quick troubleshooting.

## **2.2. Protocol considerations**

The Digital Audio Network Through Ethernet (Dante) protocol is strongly recommended for courtroom microphones and speakers because of its wide industry support, robust input/output capabilities, and flexibility. Dante enables daisy chaining of audio devices, reducing the need for multiple dedicated connection lines. Daisy chaining is a method of connecting devices in sequence, where each device links directly to the next rather than individually connecting to a central hub. This approach minimizes the number of required network switch ports and physical cable runs, simplifying implementation while reducing overall installation and maintenance costs. Recommendations include:

- Specify Dante-enabled devices in procurement documents.
- Configure virtual local area networks (VLANs) for Dante traffic to ensure network stability.
- Train IT staff on Dante Controller software for device management.
- Document daisy-chain topology for troubleshooting and scalability.

Conversely, courts should avoid adopting the Audio Video Bridging (AVB) protocol in new or upgraded environments. Because it requires specialized AVB-compatible network switches, the protocol can limit scalability and flexibility. In contrast, Dante operates over standard Ethernet switches, making it easier to integrate with existing network infrastructure and future-proof the system.

### **2.3. Microphone Recommendations**

Clear and reliable audio is essential for effective courtroom proceedings, whether participants are present in person or joining remotely. Proper microphone placement and connectivity strategies ensure every voice is heard, minimize installation complexity, and maintain system performance.

#### **2.3.1. *Minimum microphone requirements***

To meet the Judicial Council's Minimum Technology Standards for Remote Proceedings and comply with SB 133, microphones must have a mute or off function, and be installed in a manner that enables the following participants to hear and be heard by each other:

- Judicial officers;
- Court staff;
- Parties;
- Attorneys;
- Witnesses;
- Jurors;
- Court reporters; and
- Court interpreters.

#### **2.3.2. *Recommended microphone locations***

Specific placement of microphones can enhance courtroom audio coverage for a more robust setup. These recommendations exceed minimum requirements and can be omitted if budget or architectural constraints exist.

- Judge: one microphone;
- Witness: one microphone;
- Lectern/podium: one microphone (wireless option may be considered based on courtroom layout);
- Counsel tables: minimum of two microphones per table;
- Court reporter: one microphone;
- Court interpreter: one microphone;
- Sidebar area: one microphone;
- Jury box: one microphone (overhead or half-wall mount, depending on layout and cable pathways);
- Clerk station: one microphone;
- Bailiff station: wireless option as needed;
- Audience area: for public remarks or overflow participation;
- Evidence presentation station: dedicated microphone for clarity during exhibit review;

- Wireless microphones: for flexibility during movement or special circumstances; and
- Lapel microphones: for judicial officers or presenters requiring mobility.

### **2.3.3. Microphone considerations**

Beyond determining the number and placement of microphones, several additional measures can help achieve the highest audio quality. Consider implementing the following:

- Use directional microphones to reduce background noise and improve clarity.
- Test placement to confirm coverage and audibility.
- Implement wired connections for critical microphones to ensure stability.
- Verify compatibility with existing DSP and audiovisual control systems before installation.
- Conduct regular audio checks.
- Maintain backup microphones and cables to ensure continuity in the event of a failure.
- Document microphone management procedures for hybrid hearings.
- Establish a quick-response protocol for addressing audio issues during proceedings.

Key areas for microphone placement include the bench, witness stand, counsel tables, jury box, gallery, and lectern. Each location should ensure clear audio capture for in-person participants and seamless integration with remote systems.

Consideration should be given to the courtroom clerk, who plays a critical role in managing proceedings and must be able to communicate effectively with participants both in the courtroom and those appearing remotely. Providing a dedicated microphone for the clerk helps maintain clarity and supports hybrid hearing environments.

### **2.3.4. Connectivity tip**

Use daisy-chaining to reduce cabling complexity. When microphones and endpoints support Dante or similar networked audio, chaining devices can simplify runs without compromising signal quality.

- Connect a single network cable to serve both the judge's and witness-stand microphones.
- Share one network connection for counsel-table and the lectern microphones.
- Daisy-chain the clerk's microphone from judge and witness-stand microphones.

Bailiff station and jury box ceiling-mounted microphones typically require dedicated lines.

## **2.4. Speaker Recommendations**

This section covers key considerations for speaker placement, room acoustics, and audio protocols to ensure optimal sound quality and system reliability.

### **2.4.1. Minimum required speakers**

To meet the Judicial Council's Minimum Technology Standards for Remote Proceedings and comply with SB 133, speakers must be installed in a manner that enables these participants to hear and be heard by each other:

- Judicial officers;
- Court staff;
- Parties;
- Attorneys;
- Witnesses;
- Jurors;
- Court reporters; and
- Court interpreters.

#### **2.4.2. Speaker recommendations**

Placement of speakers in specific locations can improve the experience of participants in the courtroom. It is recommended that in-person participants have a dedicated speaker in their area of the courtroom.

While a speaker in the audience area is not mandated by statute, it is regarded as a key component for ensuring optimal experience for individuals in the courtroom gallery.

#### **2.4.3. Speaker considerations**

Ceiling-mounted speakers are generally preferred because they deliver superior acoustic coverage while maintaining a clean, unobtrusive courtroom aesthetic. These speakers should support serial connectivity, either through traditional speaker cabling or Dante-enabled network connections for streamlined integration with modern audio systems. Recommendations include:

- Select ceiling-mounted speakers with wide dispersion for uniform coverage.
- Ensure speakers support Dante protocol or traditional cabling for flexibility.
- Verify mounting hardware compatibility with courtroom ceiling structure.
- Document speaker placement in design plans to avoid visual obstructions.

When ceiling speakers are not practical due to structural limitations or budget constraints, consider using combination speaker/microphone bases at key locations. These units provide both audio output and input functionality, ensuring clear sound distribution and effective voice capture without compromising system performance.

- Identify key locations (bench, witness stand, counsel tables) for combination units.
- Confirm microphone sensitivity and speaker wattage meet courtroom standards.
- Test integration with existing DSP systems.
- Include redundancy plans for critical audio points.

#### **2.4.4. Room acoustics**

Acoustic treatment should be an integral part of courtroom design to ensure speech clarity and minimize reverberation. Echo control must be carefully assessed, particularly in spaces with hard surfaces or high ceilings, as excessive sound reflections can degrade audio quality for both in-person and remote participants. This evaluation should include remote audio integration

strategies, latency management, and reliable audio bridging methods to maintain synchronization across all endpoints. Consider the following actions:

- Conduct an acoustic analysis before installation.
- Install absorptive panels on walls and ceilings where feasible.
- Implement DSP-based echo cancellation for remote audio feeds.
- Validate latency performance during hybrid session simulations.

Periodic sound-quality audits are strongly recommended to identify issues such as uneven coverage, feedback, or signal delays. These audits help verify that acoustic treatments remain effective over time, and that system adjustments, such as equalization or DSP tuning, are properly calibrated. Incorporating these practices ensures consistent, intelligible audio for hybrid courtroom environments. Recommended actions include:

- Schedule quarterly sound audits with certified audio technicians.
- Maintain logs of DSP settings and calibration changes.
- Use test tones and speech intelligibility metrics during audits.
- Update acoustic treatments as needed based on audit findings.

## **2.5. Video Recommendations**

Clear and reliable video is essential for enabling accurate visibility for both in-person and remote participants. This section outlines best practices for camera placement, connectivity, and infrastructure planning to ensure high-quality video capture and long-term system flexibility.

### **2.5.1. *Minimum required cameras***

Minimum Technology Standards for Remote Proceedings (SB 133) states courtroom technology must be capable of allowing the judicial officer and all other participants attending the proceeding in person to see and be seen by remote participants who are capable of using video if the court orders the proceeding to be conducted using video, or as required or allowed by statute. Specific placement and quantity of cameras is not mandated.

### **2.5.2. *Recommended cameras***

Cameras should be installed in the following locations:

- Two cameras behind the judicial officer to capture both counsel tables; and
- Two cameras behind the counsel tables to provide coverage of the judge and witness stand.

This configuration ensures comprehensive visibility of all key participants without obstructing the courtroom layout. See the [Courtroom Layouts](#) section for recommendations for typical courtroom designs. Wall-mounted cameras are recommended to preserve valuable counter and desktop space, particularly in courtrooms with limited space.



It is important to consider whether a court needs additional cameras for specific scenarios, such as positioning a camera to capture a view of the jury box or the dock.

### **2.5.3. Additional cameras**

While additional cameras beyond the minimum requirements provide broader video coverage and support a more comprehensive courtroom setup, they may be omitted when budget or architectural constraints limit what can be installed. See the [Courtroom Layouts](#) section for recommendations.

### **2.5.4. Camera and protocol considerations**

The choice of camera depends on the courtroom size and layout. Pan-tilt-zoom (PTZ) cameras are generally recommended for their flexibility and wide coverage capabilities. These types of cameras, by nature of their design, may require additional maintenance and support over their service life. Courts choosing to utilize PTZ cameras should implement a protocol for ensuring that any maintenance needs do not impact courtroom operations. Wall-mounted cameras are recommended to preserve valuable counter and desktop space. For video transport, the Network Device Interface (NDI) protocol is preferred due to its broad industry support, low-latency performance, and flexible input/output capabilities, making it ideal for hybrid proceedings and streaming environments.

## **2.6. Typical Equipment**

The table below provides examples of commonly used courtroom equipment brands. It does not prescribe specific manufacturers or brands and is not exhaustive. Rather, it serves as a starting point for courts considering upgrades or new implementations, providing a reference to support initial research.

**Table A: Commonly used equipment brands**

| <b>Component</b>               | <b>Common Brands</b>                                                     |
|--------------------------------|--------------------------------------------------------------------------|
| Audio/Video control system     | Crestron, Extron, BiAmp, Q-SYS, Wirestorm, JAVS, BeInCourt               |
| Audio DSP                      | Symetrix, BiAmp, Crestron, Extron, Q-SYS, JAVS                           |
| Amplifier                      | Powersoft, BiAmp, Extron, Crestron, QSC, JAVS                            |
| Microphones                    | Shure, Sennheiser, BeInCourt, FTR, JAVS                                  |
| Cameras                        | PTZ Optics, Q-SYS, BiAmp, Aver, Wirestorm, JAVS, Marshall, Canon, Vaddio |
| Video processor                | Extron, Crestron, BiAmp, RGB Spectrum, WolfVision, Lifesize              |
| Document presentation system   | Elmo, WolfVision                                                         |
| Audio/Video recording software | For The Record (FTR), Liberty, JAVS, TechUnicorn                         |

## **2.7. General Video Recommendations**

To simplify installation and reduce clutter, power over ethernet (PoE) encoder/decoder devices are recommended, as they eliminate the need for separate power sources and streamline connectivity. All audio and video equipment should be fully compatible with court recording systems and software platforms.

To support long-term scalability and flexibility, design courtroom audiovisual infrastructure with surplus capacity by including additional lines for monitors, microphones, and speakers beyond current needs. This proactive approach accommodates future technology upgrades while minimizing costly retrofits.

Future-proofing should also include cable pathways and power outlets. When installing new in-floor boxes, select sizes that allow for future expansion and ensure sufficient electrical capacity for both current and anticipated technologies.

Environmental considerations are also critical: equipment placement should account for acoustics, lighting, and temperature control. For example, position microphones and speakers to minimize echo and maximize clarity.

Finally, establish maintenance and support protocols for regular testing, calibration, and troubleshooting. If possible, dedicated technical support resources should be available to assist staff and participants.

### 3. Displays

This section outlines optimal display specifications to support in-person, remote, and hybrid hearings, particularly those involving electronic evidence. The primary goal is to ensure that every participant, including those with ADA accessibility needs, has a clear and unobstructed view of all relevant content.

To meet the demands of modern courtrooms, displays should facilitate:

- **Evidence viewing.** Ensure both in-person and remote participants can clearly view exhibits.
- **Electronic recording and monitoring.** Provide support for real-time rough transcript display (speech-to-text) and recording oversight.
- **ADA accessibility.** Ensure visibility and usability for participants with disabilities.

In addition to these functional requirements, placement recommendations are provided in the [Courtroom Layouts](#) section for optimal positioning and sightlines.

#### 3.1. Performance-Based Approach

Each of California's more than 2,000 courtrooms has unique characteristics, including different layouts, ceiling heights, lighting conditions, and seating arrangements. Because of this variability, a one-size-fits-all approach to display specifications is neither practical nor effective. Instead, a performance-based methodology that adapts to each courtroom's specific needs is strongly recommended. Performance-based design is:

- **Scalable.** It accommodates any courtroom layout, regardless of size or configuration.
- **Standards-driven.** It aligns with recognized industry benchmarks for image size and contrast ratios.
- **Flexible.** It supports a wide range of technologies, including flat panels, video walls, and repeater monitors.
- **Future-proof.** It adapts to evolving hardware and emerging display technologies.

Courts benefit from adopting this performance-based approach with:

- Repeatable method to calculate the right display sizes, quantities, and placements;
- Clear pass/fail criteria based on industry standards; and
- Flexibility to accommodate ADA needs and interpreter visibility.

#### 3.2. Industry Standards

Using audiovisual industry standards that scale based on the courtroom layout and viewing requirements is strongly recommended. The Audiovisual and Integrated Experience Association (AVIXA), a global audiovisual trade organization, has developed display standards based on functional needs. The following two AVIXA standards are recommended for use for courtroom monitor selection:

- **Display Image Size for 2D Content in Audiovisual Systems (DISCAS):**<sup>4</sup> Calculates image size based on viewer distance and task.
- **Image System Contrast Ratio(ISCR):**<sup>5</sup> Ensures the minimum acceptable contrast ratios for legibility.

### 3.2.1. DISCAS

The DISCAS standard provides the calculation for the appropriate image height based on the viewer's distance and the task to be performed. There are three categories of tasks.

- **Passive Viewing (PV):** For general video viewing (e.g., spectators), the farthest viewer should be no more than 8× the image height away.
- **Basic Decision Making (BDM):** For identifying speakers or viewing remote participants, the limit is 6× the image height.
- **Analytical Decision Making (ADM):** For reading detailed content (e.g., exhibits or transcripts) the viewer should be within 4× the image height.

The quick reference chart below calculates common farthest viewer distances and viewing modes using a 16:9 aspect ratio. The chart includes image height and diagonal size in inches.

**Table B. DISCAS quick reference chart**

| Farthest viewer (ft) | Viewing mode | Image height (in) | Diagonal size (in) |
|----------------------|--------------|-------------------|--------------------|
| 30                   | PV           | 45.0              | 91.8               |
| 30                   | BDM          | 60.0              | 122.4              |
| 30                   | ADM          | 90.0              | 183.6              |
| 40                   | PV           | 60.0              | 122.4              |
| 40                   | BDM          | 80.0              | 163.2              |
| 40                   | ADM          | 120.0             | 244.8              |
| 50                   | PV           | 75.0              | 153.0              |
| 50                   | BDM          | 100.0             | 204.0              |
| 50                   | ADM          | 150.0             | 306.0              |
| 60                   | PV           | 90.0              | 183.6              |
| 60                   | BDM          | 120.0             | 244.8              |
| 60                   | ADM          | 180.0             | 367.2              |

<sup>4</sup> Display Image Size for 2D Content in Audiovisual Systems, [www.avixa.org/standards/display-image-size-for-2d-content-in-audiovisual-system](http://www.avixa.org/standards/display-image-size-for-2d-content-in-audiovisual-system).

<sup>5</sup> Image System Contrast Ratio, [www.avixa.org/standards/image-system-contrast-ratio](http://www.avixa.org/standards/image-system-contrast-ratio)

### 3.2.2. AVIXA ISCR

This standard ensures displays are legible under courtroom lighting conditions and, like DISCAS, is based on the category of task to be performed.

- **PV:** minimum contrast ratio of 7:1
- **BDM:** minimum contrast ratio of 15:1
- **ADM:** minimum contrast ratio of 30:1

These thresholds ensure that displays are both large enough and readable in real-world conditions.

### 3.3. Application in a Typical Trial Courtroom

This example illustrates how AVIXA standards apply in a standard courtroom setup, assuming 16:9 aspect ratio for all displays.

#### 3.3.1. Desktop displays

- Viewing distance: 3 ft
- Task type: ADM
- Image height  $\geq 3 \div 4 = 0.75$  ft (9 in)
- Diagonal  $\approx 2.04 \times 9 = 18.4''$
- Recommendation: minimum 22–24" desktop displays

#### 3.3.2. Front display for jurors

- Farthest juror distance: 35 ft
- Task type: BDM
- Image height  $\geq 35 \div 6 = 5.83$  ft (70 in)
- Diagonal  $\approx 2.04 \times 70 = 143''$
- Recommendation: dual 98" displays or side repeaters

#### 3.3.3. Public gallery

- Farthest viewer distance: 60 ft
- Task type: PV
- Image height  $\geq 60 \div 8 = 7.5$  ft (90 in)
- Diagonal  $\approx 2.04 \times 90 = 183''$
- Practical solution: multiple large-format displays or a video wall

#### 3.3.4. ISCR verification

Example measurement:

- $L_{\text{white}} = 180 \text{ cd/m}^2$
- $L_{\text{black}} = 6 \text{ cd/m}^2$
- Contrast ratio = 30:1

Result: passes ADM threshold.

### 3.4. Minimum Required Displays

The calculations in the previous section yield the following recommendations for courtroom monitors.

**Table C. Minimum Required Displays**

| Role                  | Quantity | Display size/notes                                                 |
|-----------------------|----------|--------------------------------------------------------------------|
| Judge                 | 1        | 22–24" (if unable to see other display)                            |
| Clerk                 | 1        | 22–24" (if unable to see other display)                            |
| Court reporter        | 1        | 22–24" (if unable to see other display)                            |
| Witness               | 1        | 22–24" (if unable to see other display, touch-enabled recommended) |
| Counsel               | ≥ 2      | 22–24" (if unable to see other display)                            |
| Jurors                | 12       | ~22" (if unable to see other display)                              |
| Spectators and jurors | 2        | Large displays (BDM-sized recommended)                             |
| ADA accommodation     | 1        | 24–27" mobile monitor (recommended)                                |

Minimum Technology Standards for Remote Proceedings (SB 133) states that courtroom technology must be capable of allowing the judicial officer and all participants attending the proceeding in person to see and be seen by remote participants who are capable of using video if the court orders the proceeding to be conducted using video, or as required or allowed by statute. Specific placement and quantity of displays is not mandated.

### 3.5 General Display Recommendations

Other actions to consider for courtroom displays include:

- Support remote display integration, including screen sharing for exhibits.
- Integrate technology into courtroom furniture and architectural elements, embedding displays into judge benches, counsel tables, and witness stands, and ensuring that sightlines and decorum are preserved.
- Provide touchscreen monitors for witnesses.
- Use mobile monitors for individuals with accessibility needs to ensure full functionality and accessibility.

## 4. Infrastructure

A well-designed infrastructure is the backbone of reliable courtroom technology. It must provide robust electrical capacity, scalable network connectivity, and efficient cable management to support current systems and future upgrades. Proper planning ensures uninterrupted operation, protects sensitive equipment, and maintains courtroom aesthetics while accommodating evolving technology requirements. As courtrooms increasingly adopt hybrid proceedings and advanced audiovisual systems, infrastructure must anticipate higher power loads, greater bandwidth demands, and integration with modern protocols. Incorporating flexibility, redundancy, and future-proof design from the outset reduces downtime, minimizes disruptions during upgrades, and helps avoid costly retrofits as standards and technologies evolve.

### 4.1. Electrical Recommendations

Courtroom technology requires reliable and adaptable electrical infrastructure. The following specifications help ensure sufficient capacity for current systems while accommodating future upgrades without disruption.

#### **4.1.1. *Infrastructure capacity and scalability***

The electrical infrastructure must be robust and scalable, with capacity to support existing equipment and anticipated future technologies. Planning should account for increased power loads and incorporate flexible distribution options to meet evolving requirements.

**4.1.1.1. Power protection for audiovisual equipment.** To prevent equipment damage and ensure uninterrupted operation during unexpected power loss and electrical surges, each hardware rack should include:

- Rack-mounted uninterruptible power supply (UPS); and
- Surge protection.

**4.1.1.2. In-floor box specifications.** Appropriately sized in-floor boxes are strongly recommended. Key requirements include:

- Strategic positioning to meet current cabling needs and allow for future expansion; and
- Support for multiple connectors and power sources to enable seamless integration of new equipment as technology evolves.

**4.1.1.3. Electrical outlet placement:** Adding new audiovisual equipment may necessitate the provision of additional power. While some devices can be powered via power over ethernet switches, others will require dedicated circuits and outlets. Electrical outlets should be strategically located to support all necessary components such as:

- Outlets for equipment racks within the courtroom;
- Two outlets at each attorney table for laptops and video encoders/personal displays;

- One outlet for each wall-mounted display or projector;
- A display positioned opposite the jury box and its own electrical circuit;
- A display behind the judge for audience viewing and a dedicated circuit; and
- Individual personal displays at the judge's bench and witness stand for convenient viewing and potential annotation and dedicated circuits.

## **4.2. Network Recommendations**

Current courtroom technology designs significantly increase the number of devices requiring data connections. Although some existing unused data connections may be repurposed, it is unlikely that the available connections will be sufficient to meet the expanded needs. To accommodate this need:

- Equip each courtroom with a full 48-port network switch to support all connected devices.
- Isolate audio and video network traffic from the broader court network to prevent performance degradation.
- Install the network switch in a data closet when one is available and cable pathways exist.
- Install the switch in the courtroom when a data closet is unavailable or cable pathways are cost-prohibitive, using fan-less switches to minimize noise and creating a port-channel uplink using two connections from the nearest data closet.

### **4.2.1. Cooling requirements**

If network switches and other audio/video equipment are installed in the nearest data closet, it is essential to ensure adequate cooling within intermediate distribution frame (IDF) closets to maintain optimal equipment performance.

### **4.2.2. Cable management and routing**

Effective cable management is essential for safety, visual appeal, and long-term system performance. Installations should include organized routing paths, clearly labeled connections, and protective enclosures to prevent accidental damage and simplify maintenance. Consider adopting modular cabling systems that allow for easy upgrades and reconfiguration as technology needs evolve.

Minimize visible wires in the courtroom by strategically placing network connections and electrical outlets to eliminate the need for extension cords. Position outlets to support additional equipment for court reporters and interpreters and other devices at podiums and throughout the courtroom, ensuring flexibility for various proceedings.

When adding additional cabling in the courtroom, subfloor conduit installations are strongly preferred to maintain courtroom decorum and aesthetics. This method conceals power and data cabling, protecting them from physical damage and reducing tripping hazards.

If subfloor conduit installation is not feasible due to financial or structural constraints, over-the-carpet cable management trays may be used as an alternative. These trays should feature multiple



channels to physically separate electrical power cables from data cables, minimizing signal interference and improving system reliability.

### **4.3. Workstation Recommendations**

Appropriate infrastructure should be provided for both staff and non-staff participants.

- Attorney tables should be equipped with HDMI and USB-C ports to facilitate evidence presentation during proceedings.
- The court reporter station must have access to a raw audio feed; access to video feed is recommended to support remote reporting capabilities effectively.
- Office areas should be equipped with internet and electrical outlets to accommodate official court reporters, employee interpreters, or other court personnel working from court-provided office spaces outside of the courtroom.

### **4.4. Accessibility and ADA Compliance**

All equipment installations must consider accessibility requirements, including accommodations for individuals with disabilities. ADA compliance considerations include:

- Installation of amplified audio systems;
- Provision of assistive listening systems;
- Ensuring wall-mounted equipment does not protrude more than 4 inches; and
- Provision of appropriate signage.

### **4.5. Best Practices**

Ensuring reliable courtroom technology requires a structured approach focused on preventing disruptions and maintaining operational integrity. Best practices prioritize proactive strategies over reactive fixes to reduce downtime and enhance system performance.

#### **4.5.1. Routine updates.**

Implement regular software and hardware updates to minimize security vulnerabilities, maintain compatibility, and optimize functionality.

#### **4.5.2. System monitoring and diagnostics.**

Deploy continuous monitoring tools to track system health, detect anomalies, and generate alerts for potential issues before they escalate.

#### **4.5.3. Redundancy and backup systems.**

Incorporate redundant components for critical systems such as audio, video, and networking. Maintain backup configurations and spare hardware to ensure rapid recovery in case of failure.

#### **4.5.4. Power management.**

Use uninterruptible power supplies and surge protection for all audiovisual racks and essential equipment to prevent damage and maintain operation during power fluctuations.

**4.5.5. Access control and security.**

Enforce user authentication and role-based access to prevent unauthorized changes to system settings or configurations.

**4.5.6. Documentation and configuration management.**

Maintain detailed documentation of system architecture, wiring diagrams, and configuration settings. Apply version control to all updates and changes.

**4.5.7. Staff training and support.**

Provide ongoing training for courtroom personnel on equipment operation, troubleshooting, and emergency procedures. Ensure quick access to technical support during proceedings.

**4.5.8. Scheduled preventive maintenance.**

Establish a maintenance calendar for cabling inspections and **connectors** and hardware integrity. Replace aging components proactively to avoid unexpected failures.

**4.5.9. Disaster recovery planning.**

Develop and periodically test a recovery plan for major disruptions, including backup media, alternative connectivity options, and failover procedures.

## 5. Courtroom Layouts

This section presents a series of detailed drawings that illustrate typical courtroom floorplans<sup>6</sup> designed to support audiovisual planning and integration. For each floor plan, one diagram highlights the strategic placement of cameras, microphones, and speakers to ensure optimal coverage for recording, amplification, and remote participation. A second diagram focuses on display positioning, showing recommended locations for monitors, video walls, and repeater screens to provide clear sightlines for judges, jurors, counsel, witnesses, and public observers. Together, these visual guides serve as practical references for architects, audiovisual designers, and technology teams, helping them achieve balanced acoustics, unobstructed views, and seamless technology integration within the courtroom environment.

Specific requirements and recommendations can be found elsewhere in this guide, in the following sections:

- [Audio and Video](#): Guidance on cameras, microphones, and speakers, including placement strategies and technical specifications.
- [Displays](#): Recommendations for selecting and positioning monitors, projectors, and screens.
- [Infrastructure](#): Foundational elements such as network connectivity, electrical power, and physical readiness of the courtroom.

As noted elsewhere in this document, for an optimal remote experience, participants should be able to both see and hear each other and the proceedings. However, all phases of the Advancing the Hybrid Courtroom Workstream acknowledge that some remote participants may lack the bandwidth or capability for video. While this guide assumes participants can see and be seen, the inability to appear via video and participate using audio only is not considered detrimental to remote participation, unless the court orders the proceeding to be conducted using video, or as required or allowed by statute.

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<sup>6</sup> Source: *California Trial Court Facilities Standards: 2023 Edition*, [courts.ca.gov/system/files/file/2023\\_ctcfs\\_24\\_09\\_19.pdf](https://courts.ca.gov/system/files/file/2023_ctcfs_24_09_19.pdf).

## 5.1. Layout 1: Center Bench

### 5.1.1. Audio and video placement

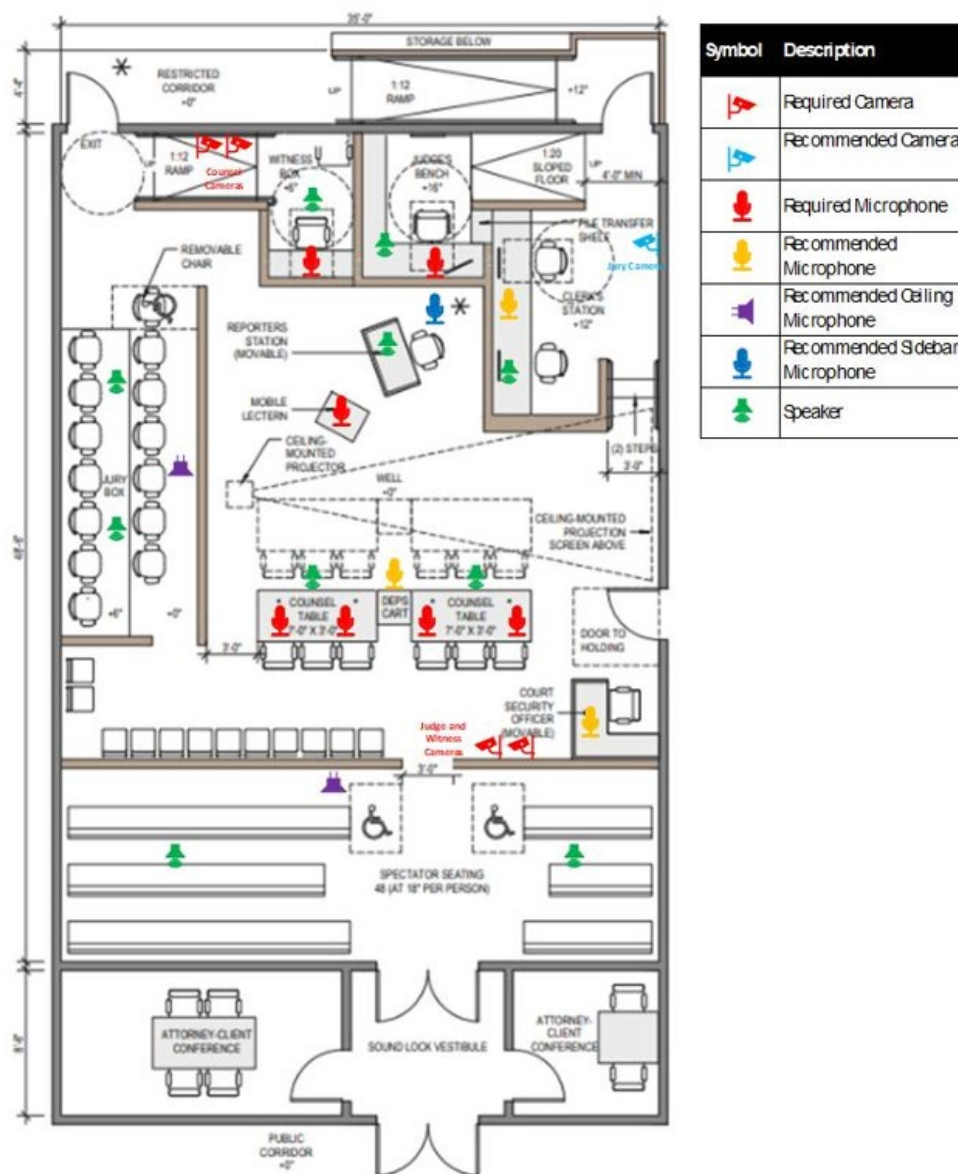


Figure T2.1 Typical Trial Courtroom—Center Bench A

### 5.1.2. Display placement

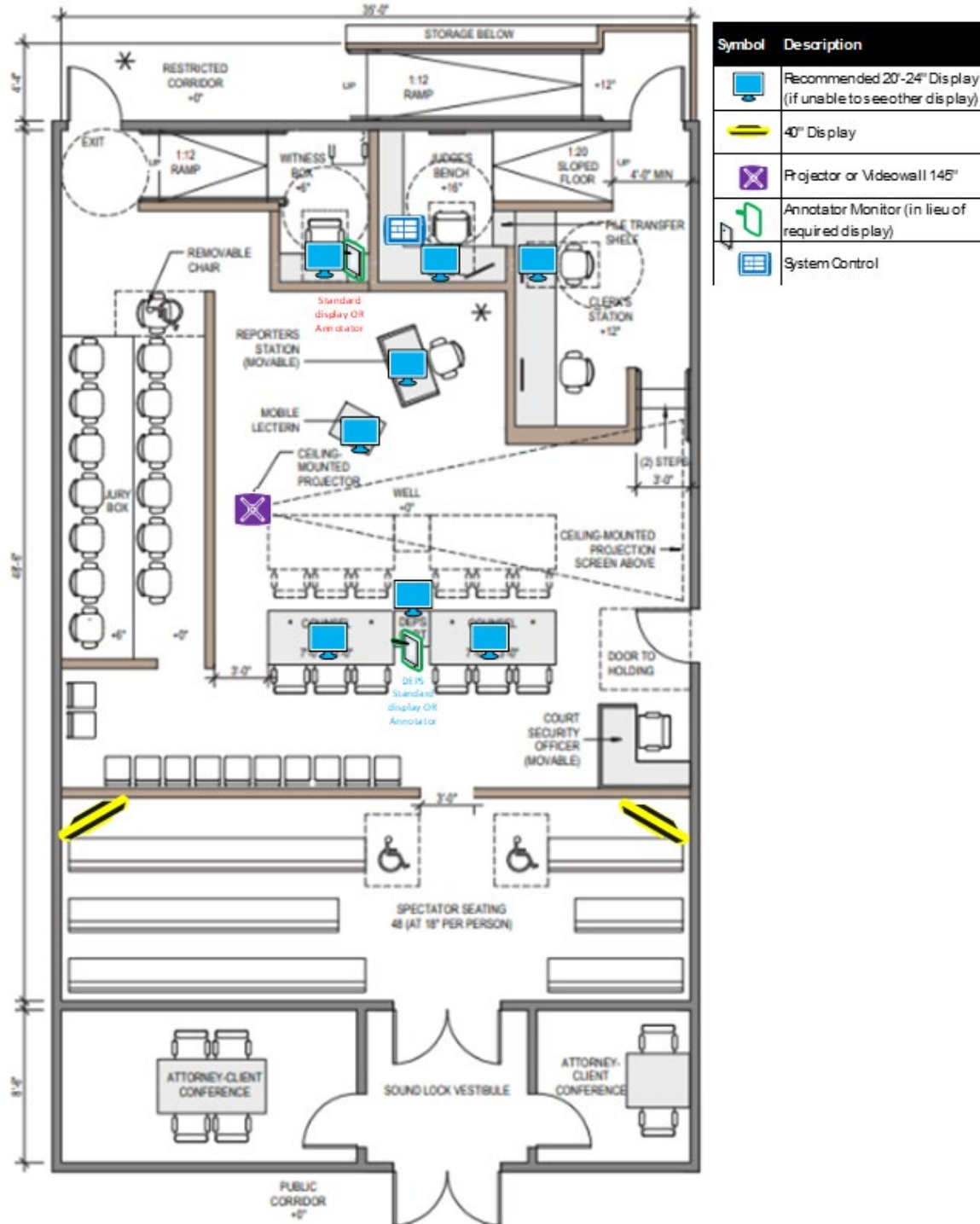
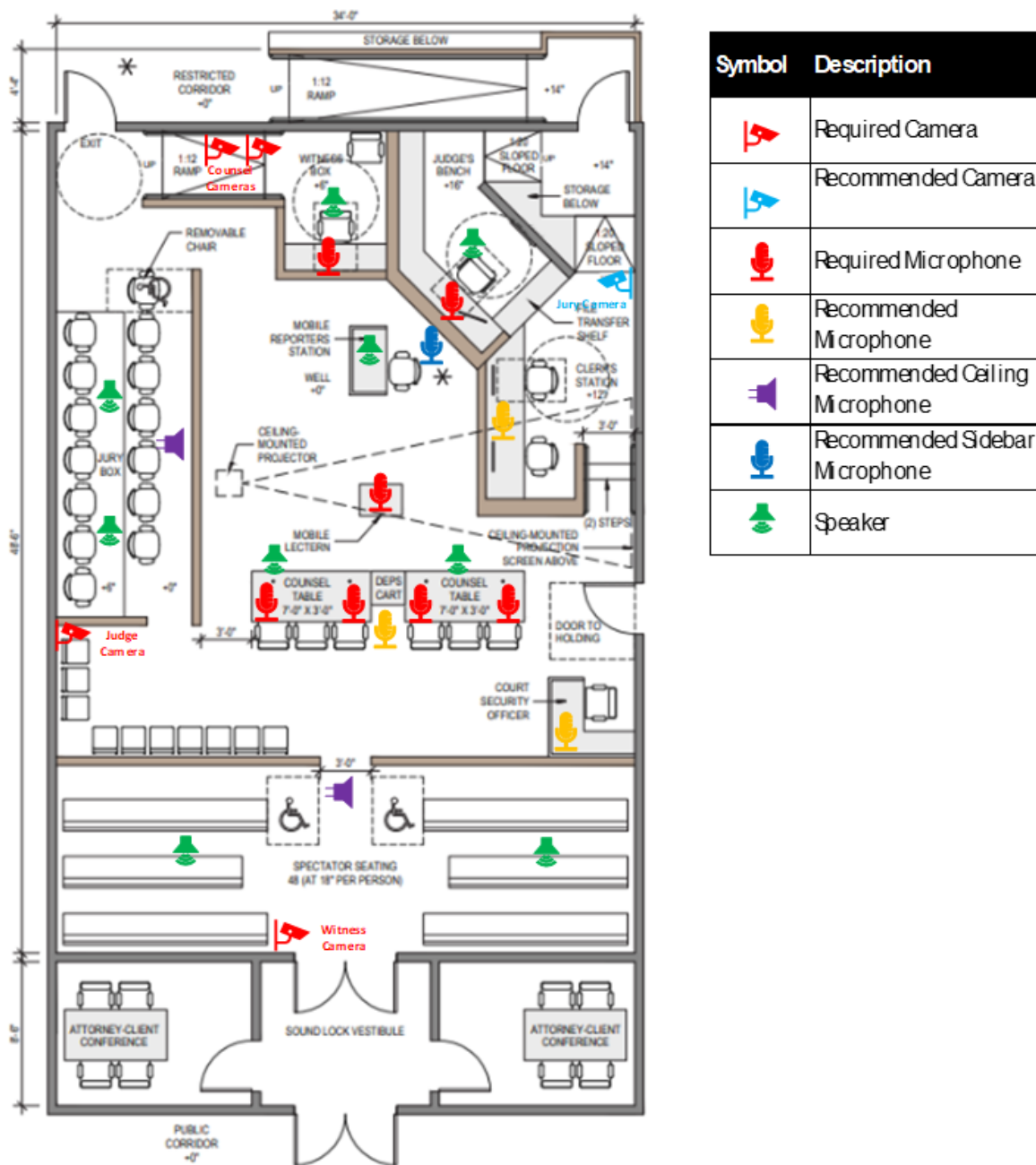


Figure T2.1 Typical Trial Courtroom—Center Bench A

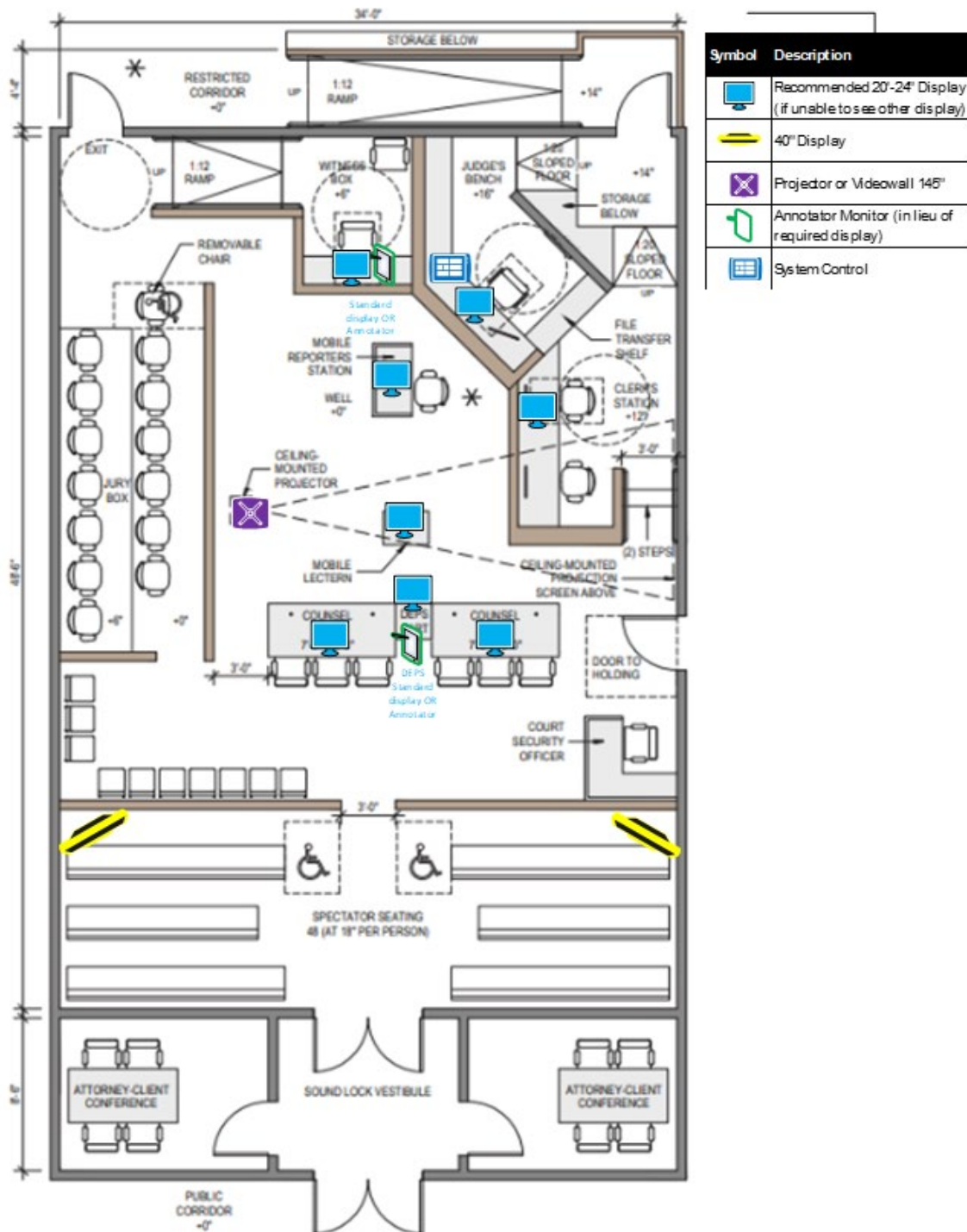
## 5.2. Layout 2: Corner Bench

### 5.2.1. Audio and video placement



**Figure T2.6** Typical Trial Courtroom—Corner Bench A

## 5.2.2. Display placement



**Figure T2.6** Typical Trial Courtroom—Corner Bench A

### 5.3. Layout 3: Large Trial—Center Bench

#### 5.3.1. Audio and video placement

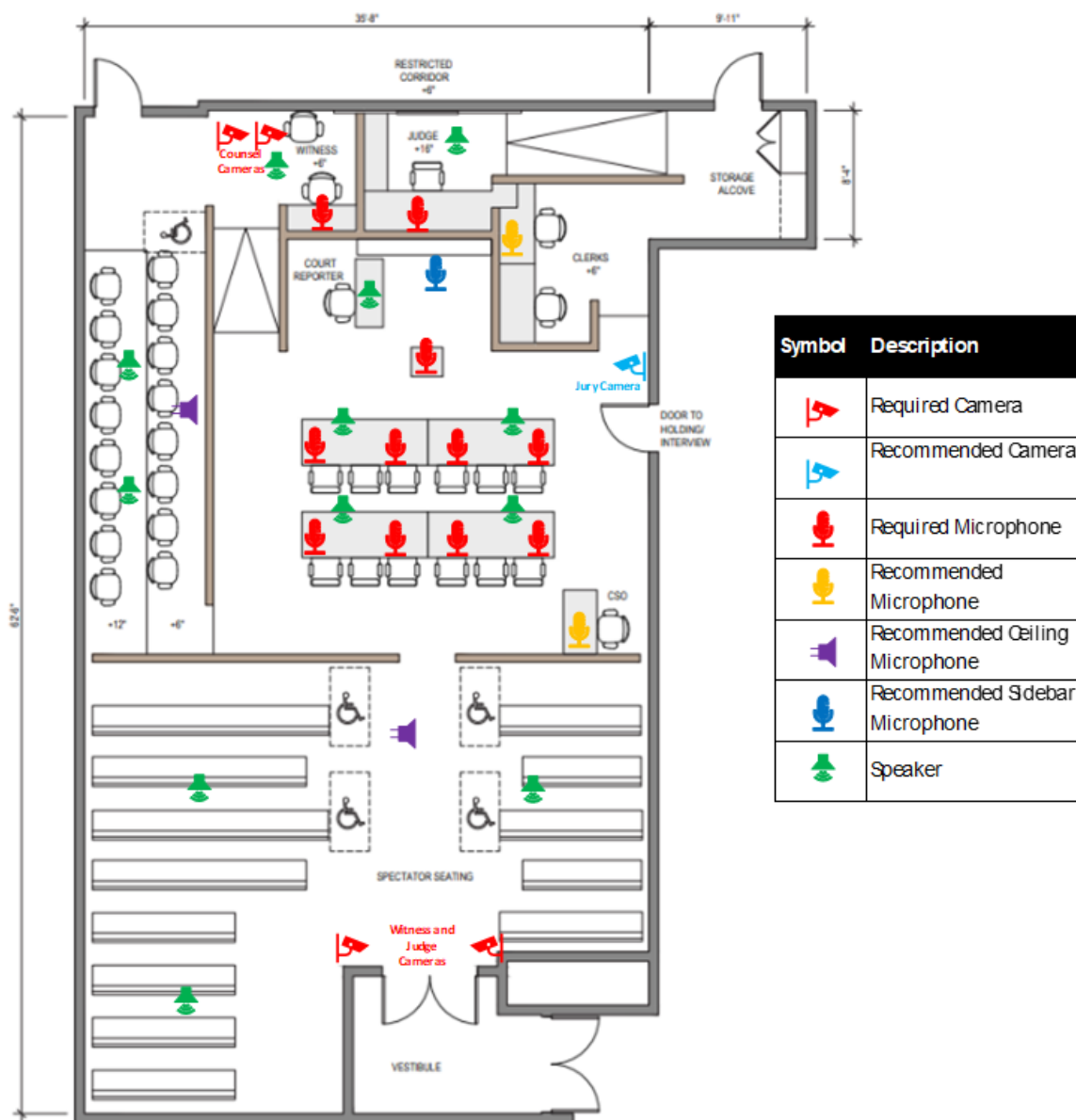


Figure T2.15 San Diego Central Courthouse, Large Trial Courtroom—Center Bench



### 5.3.2. Display placement

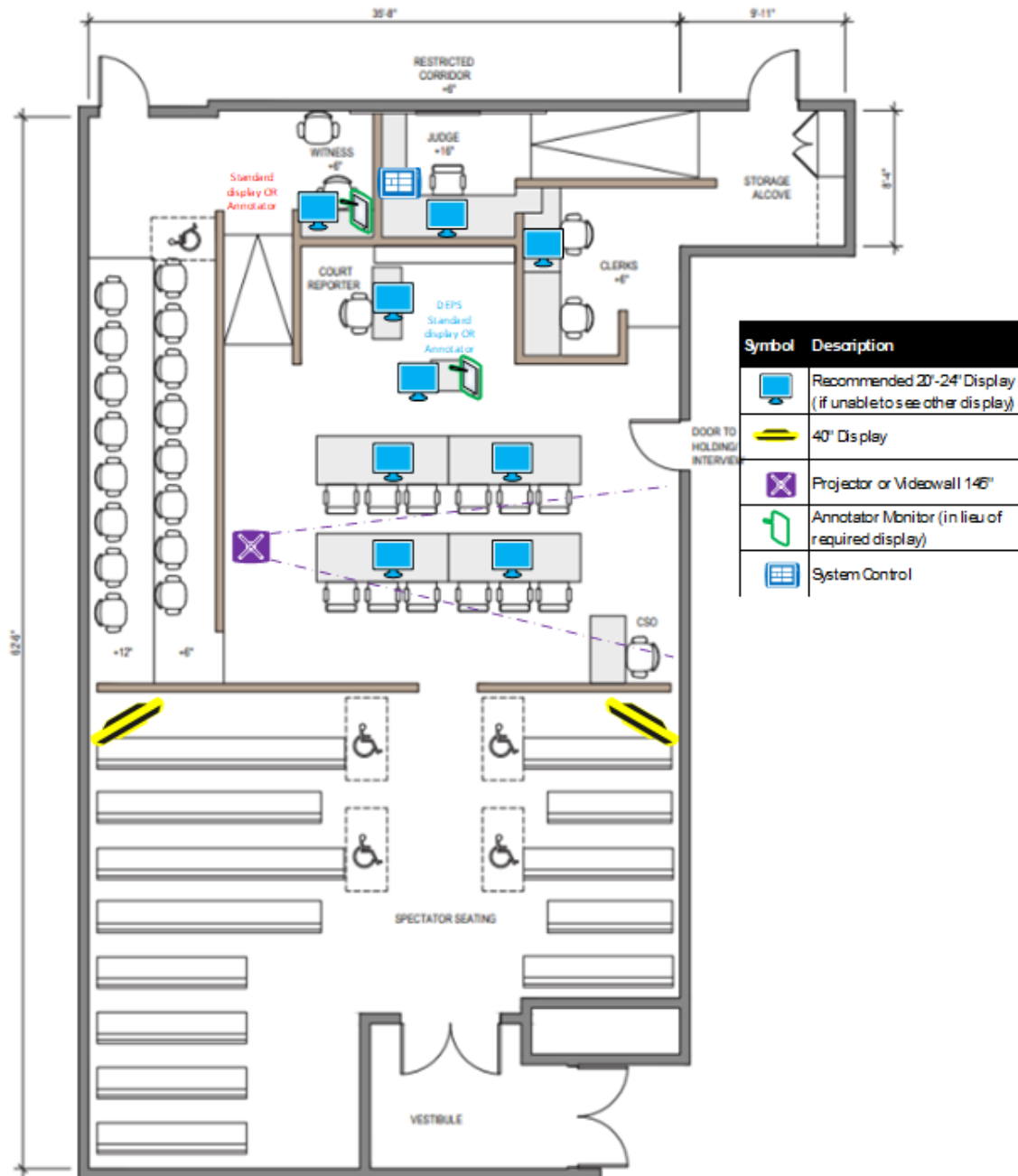


Figure T2.15 San Diego Central Courthouse, Large Trial Courtroom—Center Bench

## 5.4. Layout 4: Double Jury—Center Bench

### 5.4.1. Audio and video placement

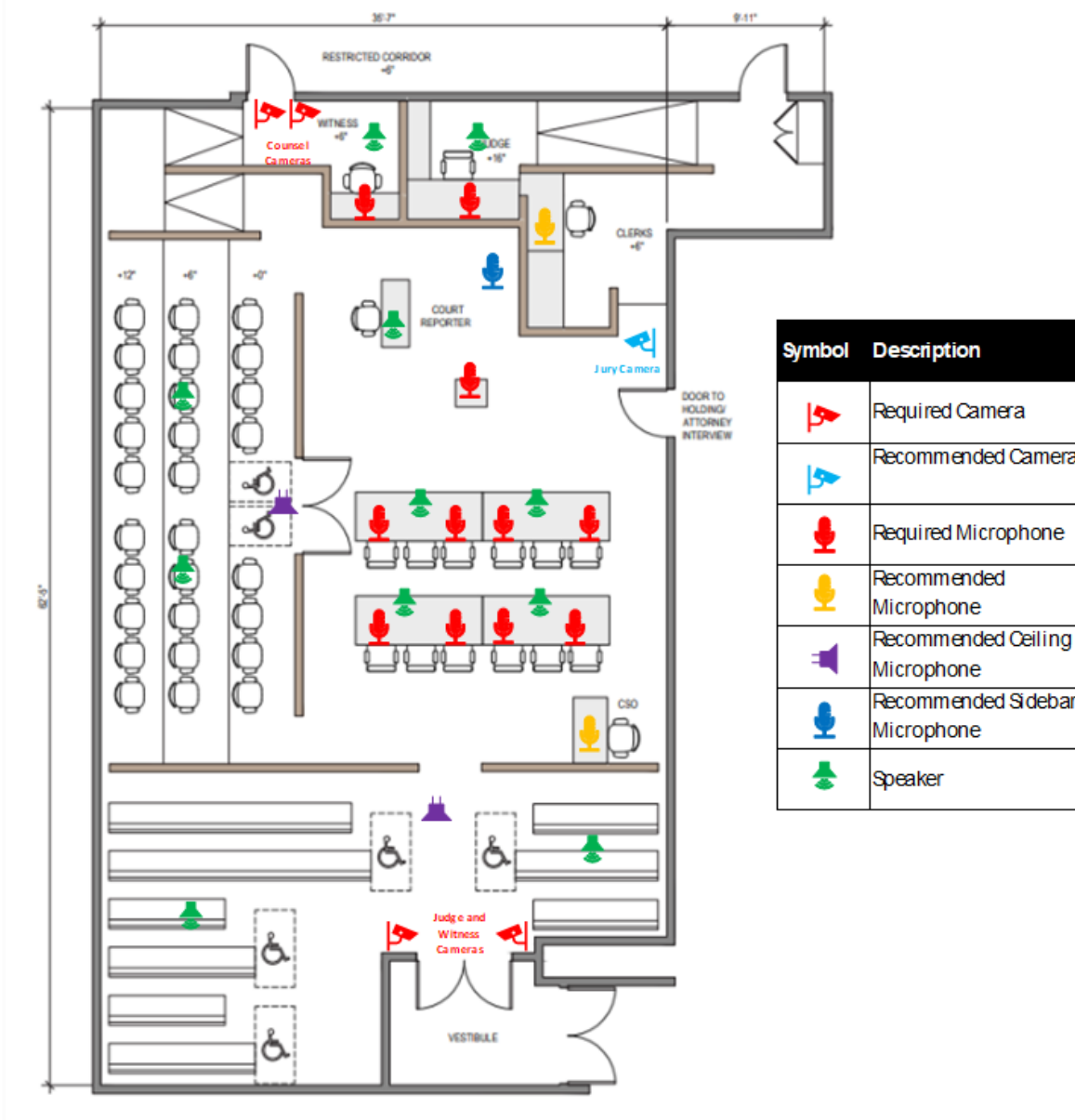
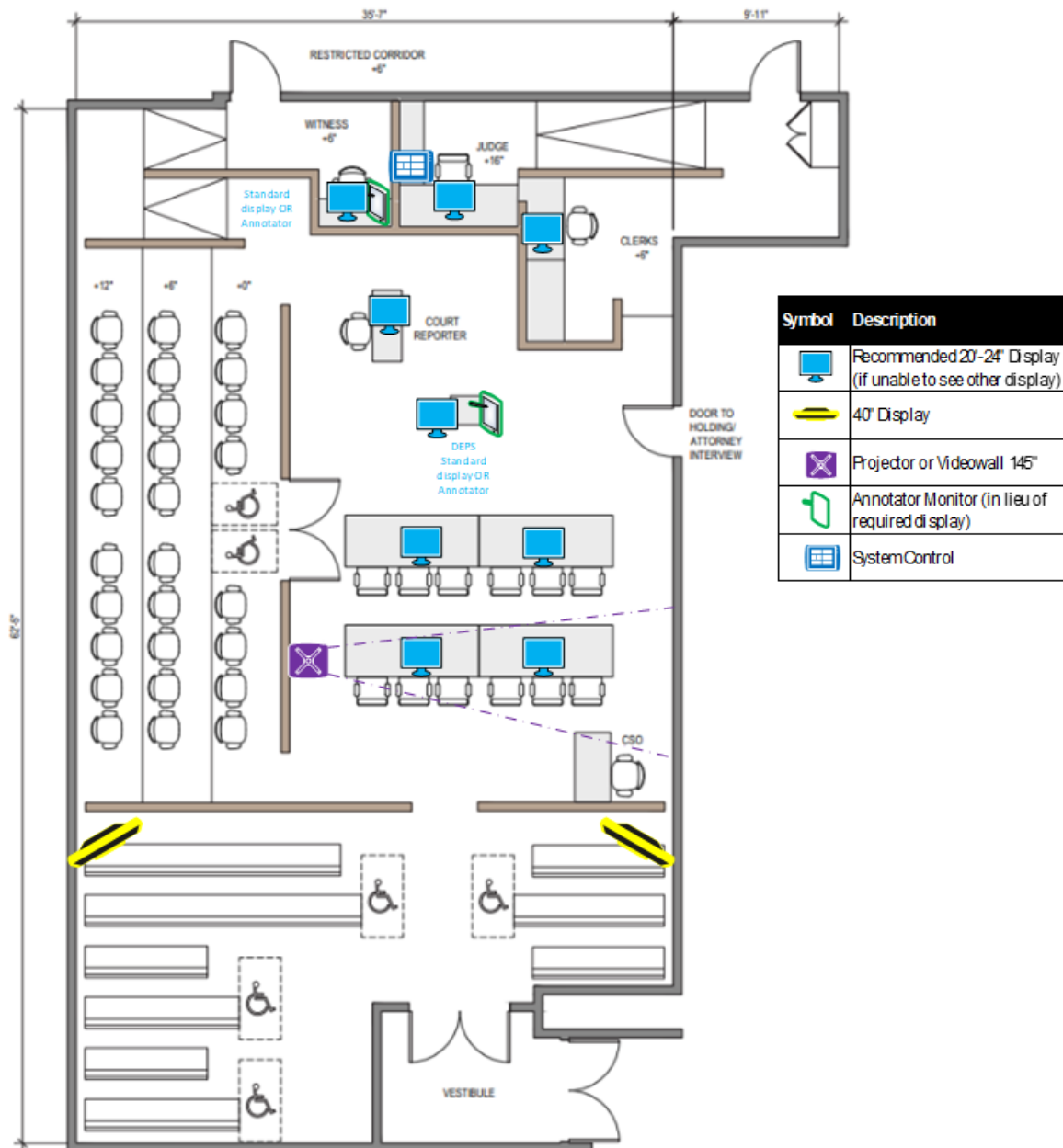


Figure T2.16 San Diego Central Courthouse, Double Jury Courtroom—Center Bench

## 5.4.2. Display placement



**Figure T2.16** San Diego Central Courthouse, Double Jury Courtroom—Center Bench

## 5.5. Layout 5: Double Jury—Corner Bench

### 5.5.1. Audio and video placement

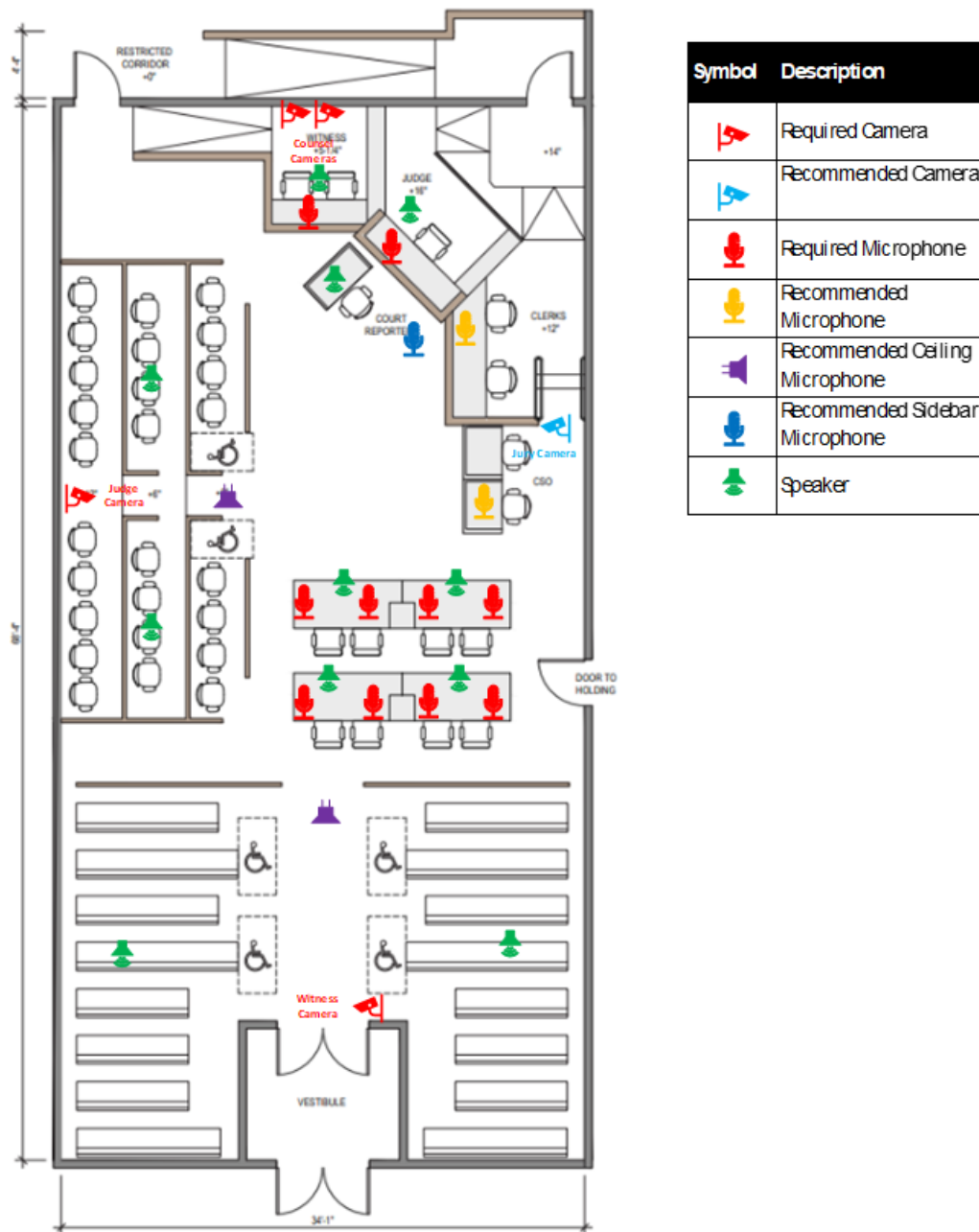
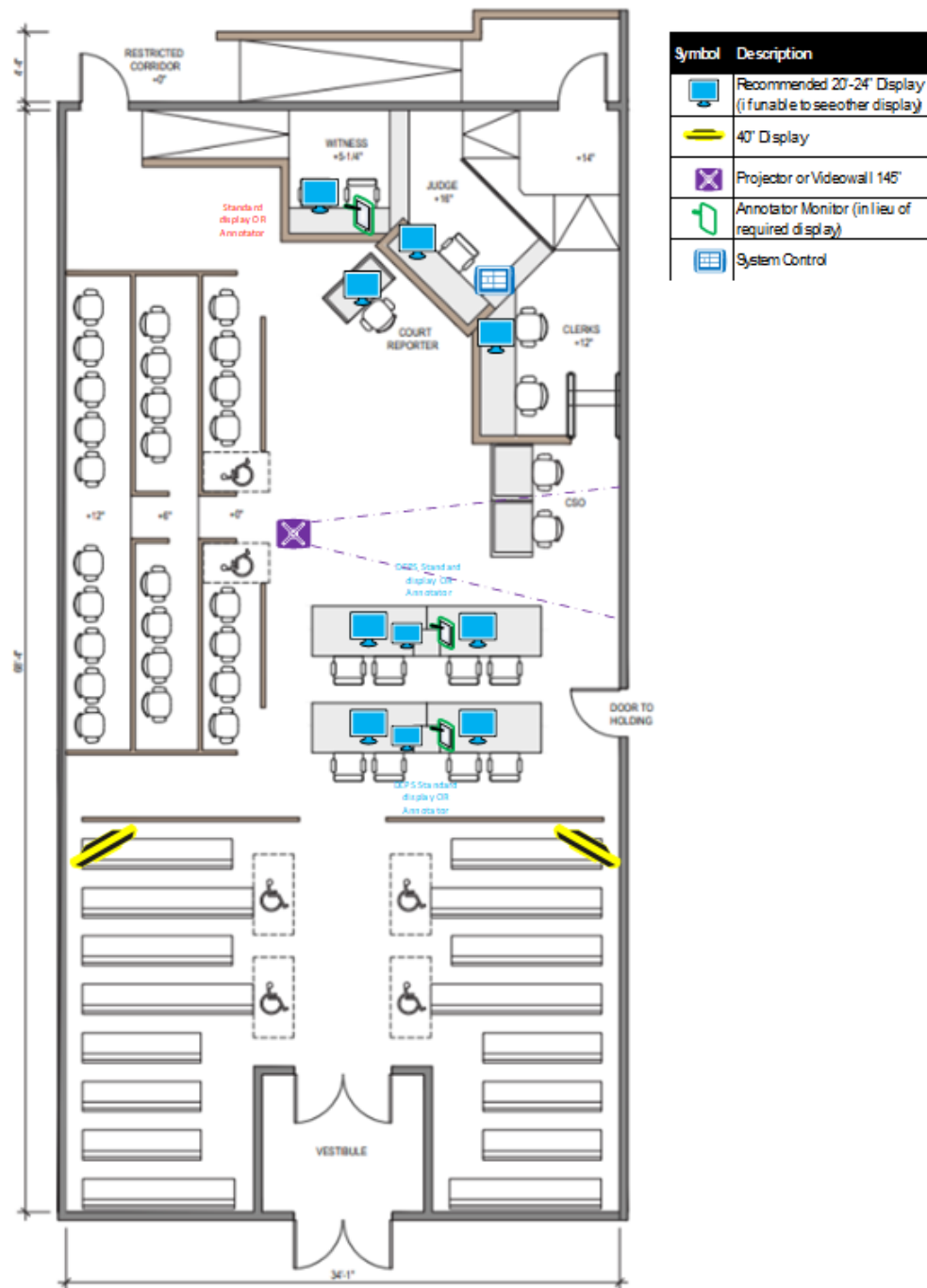


Figure T2.17 San Bernardino Justice Center, Double Jury Courtroom—Corner Bench

### 5.5.2. Display placement



**Figure T2.17** San Bernardino Justice Center, Double Jury Courtroom—Corner Bench

## 5.6. Layout 6: Arraignment

### 5.6.1. Audio and video placement

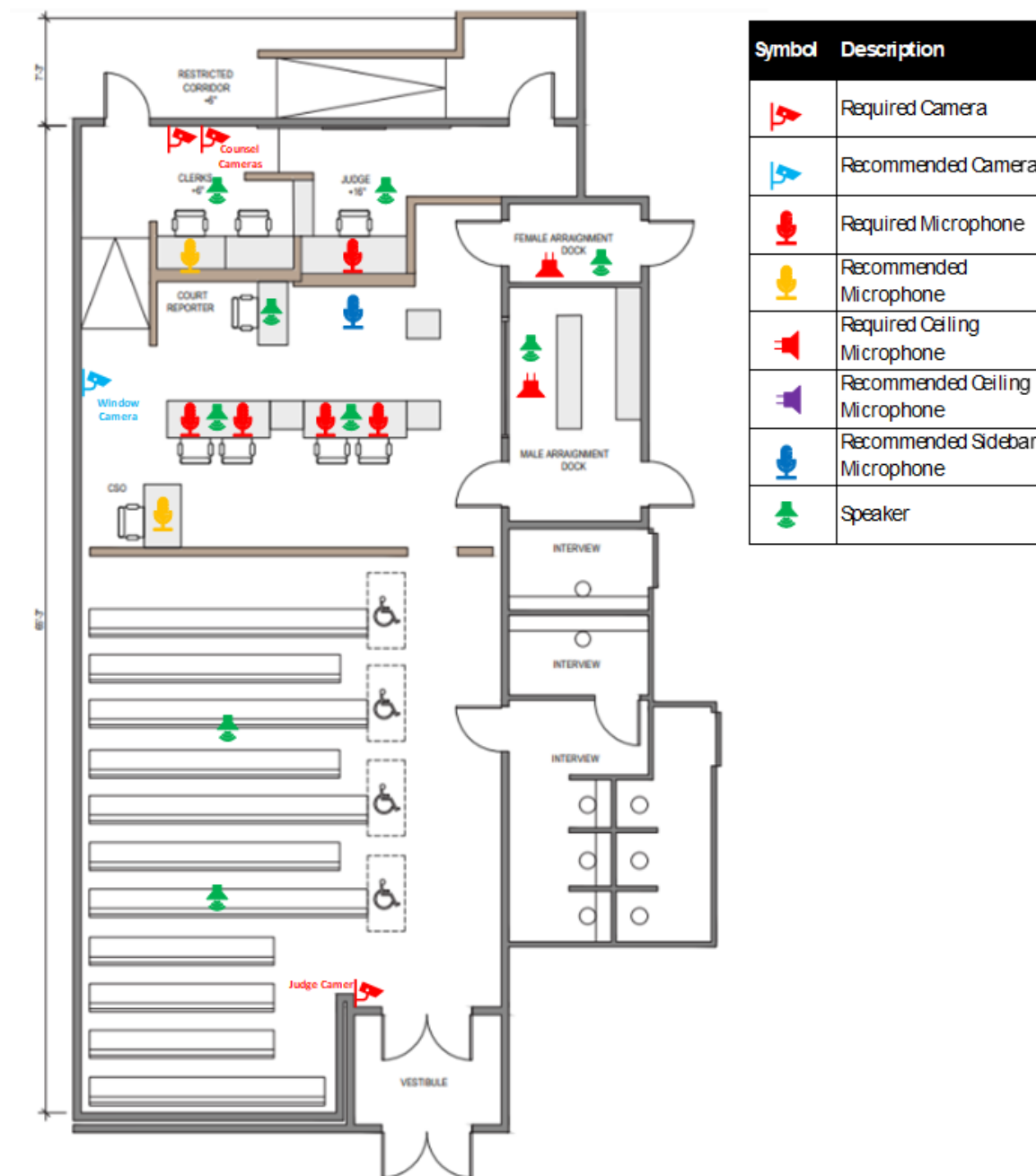
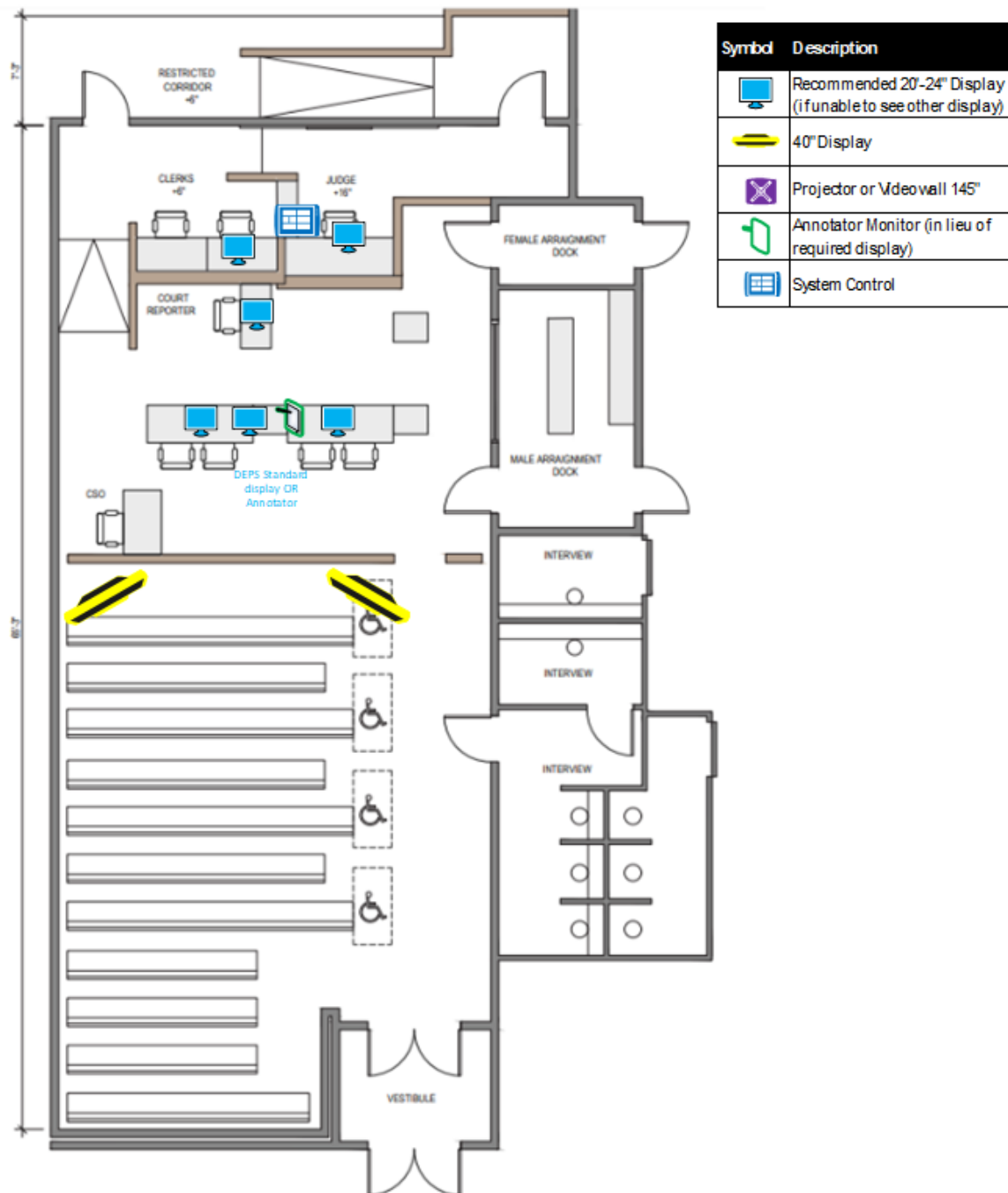


Figure T2.18 San Diego Central Courthouse, Arraignment Courtroom—Center Bench

## 5.6.2. Display placement



**Figure T2.18** San Diego Central Courthouse, Arraignment Courtroom—Center Bench

## 5.7. Layout 7: Family Courtroom

### 5.7.1. Audio and video placement

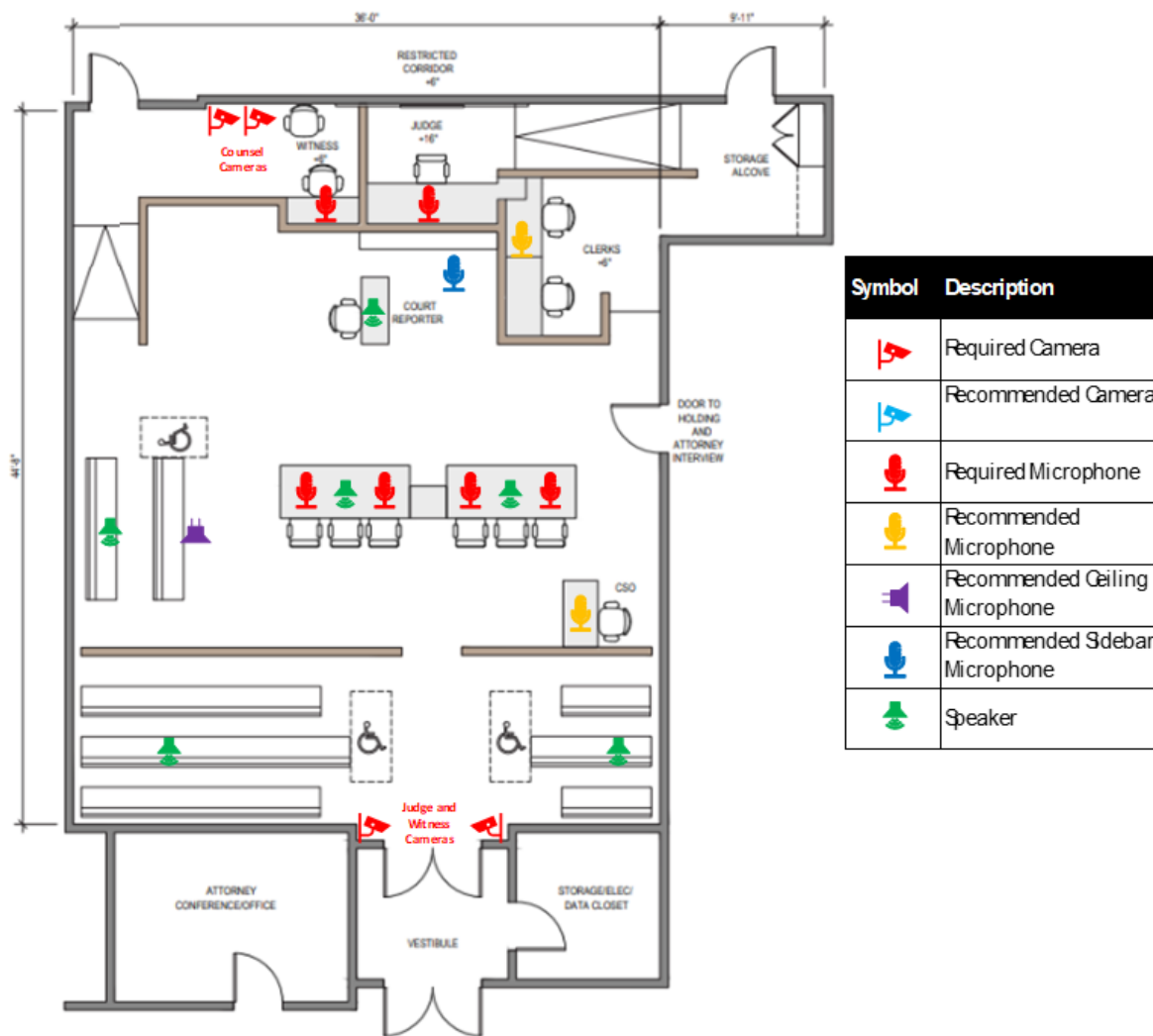
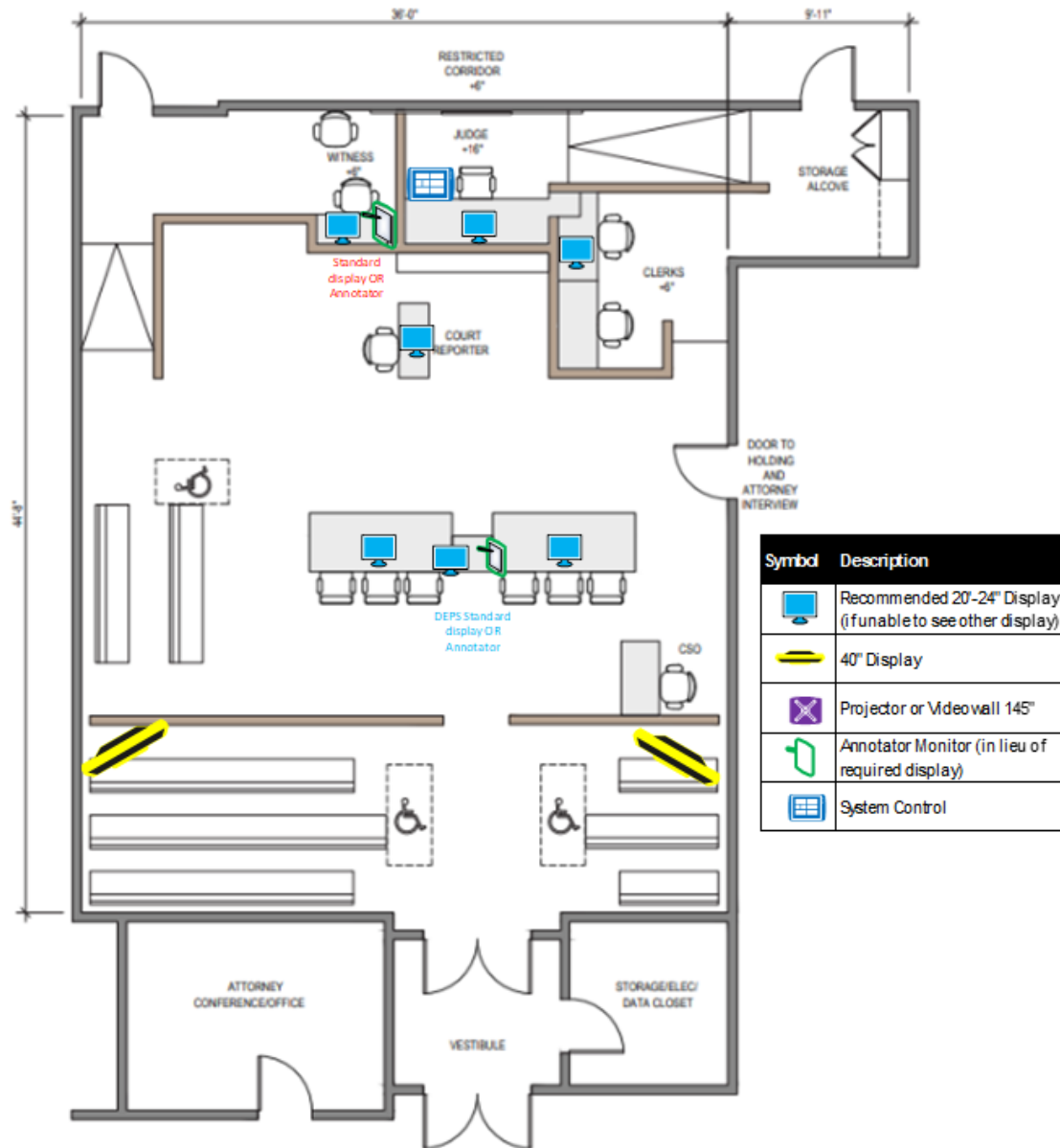


Figure T2.19 San Diego Central Courthouse, Family Courtroom—Center Bench



### 5.7.2. Display placement



**Figure T2.19** San Diego Central Courthouse, Family Courtroom—Center Bench

## Appendix A: Recommendation Summary Tables

**Table 1. Summary of general courtroom operations recommendations**

| Category                          | Recommendation                                                                                                                        |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Ergonomic workspaces              | Provide ergonomic setups for staff and judicial officers                                                                              |
| Unobstructed judicial view        | Avoid equipment placement that blocks line of sight                                                                                   |
| Juror display visibility          | Position monitors for clear juror view                                                                                                |
| Interpreter audio                 | Configure audio for English rendition only in courtroom audio feeds.                                                                  |
| Electronic recording status       | Display clear recording status indicators                                                                                             |
| Remote staff connectivity         | Establish clear protocols for remote staff services                                                                                   |
| Training and support              | Provide comprehensive training for staff and stakeholders                                                                             |
| Internet access                   | Adopt high speed wireless standards                                                                                                   |
| Shared microphones                | Develop a procedure to follow when dedicated microphones are unavailable                                                              |
| Handling technical issues         | Develop protocol for addressing connectivity failures                                                                                 |
| Remote participants and observers | To streamline conference management, limit remote proceedings to essential participants; allow observers when needed and appropriate. |
| Identity verification             | Require participant identification before proceedings begin                                                                           |
| Notice of electronic monitoring   | Comply with Government Code section 69957 for electronic monitoring                                                                   |

**Table 2. Summary of conferencing platform recommendations**

| Feature/Protocol                    | Recommendation                                                                                                                |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Speaker prioritization              | Enable platform features that highlight the active speaker for clarity.                                                       |
| Camera configuration and pinning    | Configure views or allow pinning of key participants (judges, witnesses, attorneys).                                          |
| Chat visibility settings            | Define whether chat is visible to host/co-host and judicial officers.                                                         |
| Participant identification          | Implement protocols to verify identity, require display of full names, update participant labels, and track late registrants. |
| Judicial control over participation | Provide tools for muting, removing participants, and disabling video feeds.                                                   |
| Entry and reentry controls          | Use virtual lobbies for controlled entry and reentry and allow blocking when needed.                                          |
| Confidential breakout sessions      | Enable private breakout rooms for sidebars or sensitive discussions.                                                          |
| Remote evidence presentation        | Establish protocols for sharing and annotating digital evidence during hearings.                                              |

**Table 3. Summary of remote proceedings documentation recommendations**

| <b>Category</b>                           | <b>Recommendation</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Technology in the physical courtroom      | <ul style="list-style-type: none"> <li>• Specify availability of microphones and displays at counsel tables.</li> <li>• Outline evidence presentation equipment and instructions for use.</li> <li>• Indicate availability of internet or Wi-Fi in the courtroom.</li> <li>• Provide court contact information for technical support.</li> <li>• Publish diagrams or photos showing equipment placement.</li> <li>• Provide specifications for supported file formats for evidence presentation.</li> <li>• Include instructions for connecting personal devices to courtroom systems.</li> <li>• Indicate availability assistive listening equipment and signage.</li> </ul>                                                                                                                                                                                                                   |
| Remote appearance technology requirements | <ul style="list-style-type: none"> <li>• Identify supported conferencing platform(s) and download instructions.</li> <li>• Explain registration procedures for remote appearances.</li> <li>• Provide instructions for equipment testing prior to the hearing.</li> <li>• List court contact information for technical support.</li> <li>• Publish minimum bandwidth and device specifications for remote participants.</li> <li>• Provide guidance on using virtual backgrounds or camera positioning to maintain decorum.</li> <li>• Offer troubleshooting steps for common connectivity issues.</li> </ul>                                                                                                                                                                                                                                                                                   |
| Describe what participants can expect     | <ul style="list-style-type: none"> <li>• Identify staff who may participate remotely (e.g., interpreters, court reporters).</li> <li>• State whether proceedings are electronically recorded.</li> <li>• Include notice that under California Rules of Court, rule 1.150, unauthorized recording is prohibited.</li> <li>• Describe equipment available for digital evidence presentation and protocols for remote access to exhibits.</li> <li>• Specify equipment available or needed for remote interpretation.</li> <li>• Explain protocols for muting/unmuting and speaking order during remote sessions.</li> <li>• Provide instructions for submitting exhibits electronically before the hearing.</li> <li>• Outline contingency plans for technical failures.</li> <li>• Include etiquette guidelines for remote participants (e.g., dress code, background noise control).</li> </ul> |

**Table 4. Summary of core technology recommendations**

| <b>Component</b>            | <b>Recommendation</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Audiovisual control system  | <ul style="list-style-type: none"><li>• Select a control system that supports customizable presets for common courtroom scenarios (e.g., arraignment, jury trial, remote hearing).</li><li>• Ensure the interface is user-friendly for judicial officers and clerks, with clear labeling for microphone activation, video switching, and evidence display.</li><li>• Integrate security features such as role-based access to prevent unauthorized changes.</li><li>• Provide training sessions for staff on using the control panel effectively.</li></ul> |
| Audio DSP                   | <ul style="list-style-type: none"><li>• Configure DSP settings for automatic gain control to maintain consistent audio levels.</li><li>• Enable noise suppression and echo cancellation for hybrid hearings to improve clarity.</li><li>• Include remote monitoring capability so technical staff can adjust DSP settings during proceedings if needed.</li></ul>                                                                                                                                                                                           |
| Amplifier                   | <ul style="list-style-type: none"><li>• Choose amplifiers sized appropriately for the courtroom's acoustics and speaker layout.</li><li>• Schedule regular maintenance and load testing to confirm consistent performance.</li></ul>                                                                                                                                                                                                                                                                                                                        |
| Audio balancing (mix-minus) | <ul style="list-style-type: none"><li>• Implement dedicated audio routing for remote participants to avoid echo and feedback.</li><li>• Test mix-minus configurations during system setup and periodically thereafter.</li><li>• Document the audio routing plan for quick troubleshooting.</li></ul>                                                                                                                                                                                                                                                       |

**Table 5. Summary of microphone location recommendations**

| <b>Location/Type</b>   | <b>Recommendation</b>                 |
|------------------------|---------------------------------------|
| Judge's bench          | 1 microphone                          |
| Witness stand          | 1 microphone                          |
| Lectern/podium         | 1 microphone (wireless optional)      |
| Counsel tables         | Minimum 2 microphones per table       |
| Court reporter station | 1 microphone                          |
| Court interpreter area | 1 microphone                          |
| Sidebar area           | 1 microphone                          |
| Jury box               | 1 microphone (overhead or wall mount) |
| Clerk station          | 1 microphone                          |
| Bailiff station        | Wireless option                       |
| Audience area          | Optional microphone                   |
| Evidence presentation  | Optional microphone                   |
| Wireless microphones   | For flexibility                       |
| Lapel microphones      | For mobility                          |

**Table 6: Summary of speaker location recommendations**

| <b>Location</b>        |
|------------------------|
| Jury box               |
| Counsel tables         |
| Court reporter station |
| Clerk station          |
| Judge's bench          |
| Witness stand          |
| Audience area          |

**Table 7: Summary of speaker recommendations**

| Category                        | Recommendation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Protocol considerations         | <ul style="list-style-type: none"><li>• Specify Dante-enabled devices in procurement documents.</li><li>• Configure VLANs for Dante and video traffic to ensure network stability.</li><li>• Train IT staff on Dante Controller software for device management.</li><li>• Document daisy-chain topology for troubleshooting and scalability.</li><li>• Avoid purchasing AVB-specific hardware for new installations.</li><li>• Include Dante compliance in request for proposals for audio system vendors.</li><li>• Plan for future expansion using standard Ethernet-based solutions.</li></ul>                                                                                                       |
| Speaker hardware considerations | <ul style="list-style-type: none"><li>• Select ceiling-mounted speakers with wide dispersion for uniform coverage.</li><li>• Ensure speakers support Dante protocol or traditional cabling for flexibility.</li><li>• Verify mounting hardware compatibility with courtroom ceiling structure.</li><li>• Document speaker placement in design plans to avoid visual obstructions.</li><li>• Identify key locations (judge's bench, witness stand, counsel tables) for combo units.</li><li>• Confirm microphone sensitivity and speaker wattage meet courtroom standards.</li><li>• Test integration with existing DSP systems.</li><li>• Include redundancy plans for critical audio points.</li></ul> |
| Room acoustics                  | <ul style="list-style-type: none"><li>• Conduct an acoustic analysis before installation.</li><li>• Install absorptive panels on walls and ceilings where feasible.</li><li>• Implement DSP-based echo cancellation for remote audio feeds.</li><li>• Validate latency performance during hybrid session simulations.</li><li>• Schedule quarterly sound audits with certified audio technicians.</li><li>• Maintain logs of DSP settings and calibration changes.</li><li>• Use test tones and speech intelligibility metrics during audits.</li><li>• Update acoustic treatments as needed based on audit findings.</li></ul>                                                                         |

**Table 8. Summary of display recommendations**

| <b>Role</b>           | <b>Quantity</b> | <b>Display size/notes</b>                                          |
|-----------------------|-----------------|--------------------------------------------------------------------|
| Judge                 | 1               | 22–24"(if unable to see other display)                             |
| Clerk                 | 1               | 22–24" (if unable to see other display)                            |
| Court reporter        | 1               | 22–24" (if unable to see other display)                            |
| Witness               | 1               | 22–24" (if unable to see other display, touch-enabled recommended) |
| Counsel               | ≥ 2             | 22–24" (if unable to see other display)                            |
| Jurors                | 12              | ~22" (if unable to see other display)                              |
| Spectators and jurors | 2               | Large displays (BDM-sized recommended)                             |
| ADA accommodation     | 1               | 24–27" mobile monitor (recommended)                                |

**Table 9. Summary of electrical recommendations**

| <b>Location</b>                  | <b>Recommendation</b>                 | <b>Notes</b>                                                                           |
|----------------------------------|---------------------------------------|----------------------------------------------------------------------------------------|
| Equipment racks                  | Rack-mounted UPS and surge protection | Recommended for all audiovisual racks to prevent outages                               |
| Wall-mounted displays/projectors | 1 outlet per display/projector        | Positioned per courtroom layout                                                        |
| Opposite jury box display        | Dedicated electrical circuit          | Jury-facing display                                                                    |
| Behind judge display             | Dedicated electrical circuit          | Audience-facing display                                                                |
| Judge's bench                    | Dedicated electrical circuit          | For personal display and annotation                                                    |
| Witness stand                    | Dedicated electrical circuit          | For personal display and annotation                                                    |
| Counsel tables                   | 2 electrical outlets per table        | Supports laptops and video encoders/displays                                           |
| In-floor boxes                   | Multiple connectors and power sources | Sized for current and future cabling needs                                             |
| Court-provided office areas      | Dedicated electrical outlets          | For court reporters, interpreters, and other court staff working outside the courtroom |

**Table 10. Summary of network recommendations**

| <b>Category</b>      | <b>Recommendations</b>                                                                                                                                                                                                     |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Network switch       | Equip each courtroom with a 48-port switch. Install in data closet if available; if not, install in courtroom using fan-less switch. Use port-channel uplink when possible.                                                |
| Network traffic      | Isolate audio/video traffic from court's broader network to prevent performance degradation.                                                                                                                               |
| Cooling requirements | Ensure adequate cooling in IDF closets for optimal equipment performance.                                                                                                                                                  |
| Cable management     | Minimize visible wires. Place outlets strategically. Subfloor conduits are recommended; if not feasible, use multi-channel cable trays. Label connections and use protective enclosures. Consider modular cabling systems. |

**Table 11. Summary of courtroom technology management best practices and recommendations**

| <b>Best practice</b>                        | <b>Objective</b>                                           | <b>Recommended frequency</b>                 |
|---------------------------------------------|------------------------------------------------------------|----------------------------------------------|
| Routine updates                             | Minimize vulnerabilities and optimize system performance   | Monthly for software; annually for hardware  |
| System monitoring and diagnostics           | Detect anomalies early and prevent system failures         | Continuous (24/7 monitoring)                 |
| Redundancy and backup systems               | Ensure rapid recovery and uninterrupted operation          | Quarterly review; after major updates        |
| Power management (UPS and surge protection) | Protect equipment from power loss and surges               | Continuous; UPS battery check every 6 months |
| Access control and security                 | Prevent unauthorized changes and maintain system integrity | Ongoing; audit quarterly                     |
| Documentation and configuration management  | Maintain accurate records for troubleshooting and upgrades | Update after every change or upgrade         |
| Staff training and support                  | Equip personnel to operate and troubleshoot systems        | Initial training and semi-annual refresh     |
| Scheduled preventive maintenance            | Identify and replace aging components before failure       | Semi-annual inspections                      |
| Disaster recovery planning                  | Enable quick restoration after major disruptions           | Annual review and testing                    |



## **Appendix B: Participant Checklist for Judicial Council Minimum Technology Requirements for Remote Proceedings**

The Judicial Council's remote technology requirements can be found here:

[courts.ca.gov/system/files/file/minimum-technology-standards-20240401.pdf](https://courts.ca.gov/system/files/file/minimum-technology-standards-20240401.pdf)

For convenience, this document has been reorganized to present functional requirements by participant role. This structure may be useful when auditing existing systems and to specify new systems that comply with these standards.

### **Judicial Officers**

- A courtroom must have access to a hard-wired or other reliable high-speed internet connections.
- A courtroom must have monitors, dedicated cameras, speakers, and microphones so the judicial officer, court reporter, and court interpreter can hear and see remote participant (if remote participant has video capability).
- Court-provided microphones must have a mute or off function.
- Microphones must allow a participant to hear, and be heard by, all other participants when necessary.
- Court-provided monitors must allow participants to see (if remote participant has video capability) and identify the participant who is speaking.
- Court technology must provide participants with the capability to alert the court to behavior that is disruptive and may not be visible to all.
- Court technology must provide the ability for the judicial officer or designated courtroom staff to mute or remove from the remote proceeding any remote participant or any unauthorized person who joins the remote proceeding.
- Court-provided speaker equipment must be of sufficient clarity so that the judicial officer and all other participants may hear one another when necessary.
- Court technology must be capable of allowing the judicial officer and all other participants attending the proceeding in person to hear and be heard by remote participants, as well as to see and be seen by remote participants who are capable of using video if the court orders the proceeding to be conducted using video, or as required or allowed by statute.

### **Court Staff**

- Court-provided microphones must have a mute or off function.
- Microphones must allow a participant to hear, and be heard by, all other participants when necessary.
- Court-provided monitors must allow participants to see and identify the participant who is speaking (if remote participant has video capability).
- Court technology must provide participants with the capability to alert the court to behavior that is disruptive and may not be visible to all.

- Court technology must provide the ability for the judicial officer or designated courtroom staff to mute or remove from the remote proceeding any remote participant or any unauthorized person who joins the remote proceeding.
- Court-provided speaker equipment must be of sufficient clarity so that the judicial officer and all other participants may hear one another when necessary.
- Court technology must be capable of allowing the judicial officer and all other participants attending the proceeding in person to hear and be heard by remote participants, as well as to see and be seen by remote participants who are capable of using video if the court orders the proceeding to be conducted using video, or as required or allowed by statute.

### **Court Reporters**

- A courtroom must have access to a hard-wired or other reliable high-speed internet connection.
- A courtroom must have monitors, dedicated cameras, speakers, and microphones so the judicial officer, court reporter, and court interpreter can hear and see remote participant (if remote participant has video capability).
- Court-provided microphones must have a mute or off function.
- Court-provided monitors must allow participants to see and identify the participant who is speaking (if remote participant has video capability).
- Court technology must provide participants with the capability to alert the court to behavior that is disruptive and may not be visible to all.
- Court-provided speaker equipment must be of sufficient clarity so that the judicial officer and all other participants may hear one another when necessary.
- Court technology must be capable of allowing the judicial officer and all other participants attending the proceeding in person to hear and be heard by remote participants, as well as to see and be seen by remote participants who are capable of using video if the court orders the proceeding to be conducted using video, or as required or allowed by statute.

### **Court Interpreters**

- A courtroom must have monitors, dedicated cameras, speakers, and microphones so the judicial officer, court reporter, and court interpreter can hear and see remote participant (if remote participant has video capability).
- Court-provided microphones must have a mute or off function.
- Court-provided monitors must allow participants to see and identify the participant who is speaking.
- Court technology must provide participants with the capability to alert the court to behavior that is disruptive and may not be visible to all.
- Court-provided speaker equipment must be of sufficient clarity so that the judicial officer and all other participants may hear one another when necessary.

- Court technology must be capable of allowing the judicial officer and all other participants attending the proceeding in person to hear and be heard by remote participants, as well as to see and be seen by remote participants who are capable of using video if the court orders the proceeding to be conducted using video, or as required or allowed by statute.

### **Remote Participants**

- Court technology must provide participants with the capability to alert the court to behavior that is disruptive and may not be visible to all.
- Court technology must allow remote participants to be identified during the proceeding to ensure an accurate record.
- Court-provided speaker equipment must be of sufficient clarity so that the judicial officer and all other participants may hear one another when necessary.
- Court technology must be capable of allowing the judicial officer and all other participants attending the proceeding in person to hear and be heard by remote participants, as well as to see and be seen by remote participants who are capable of using video if the court orders the proceeding to be conducted using video, or as required or allowed by statute.

### **Parties, Attorneys, Witnesses, and Jurors**

- Court-provided microphones must have a mute or off function.
- Microphones must allow a participant to hear, and be heard by, all other participants when necessary.
- Court technology must provide participants with the capability to alert the court to behavior that is disruptive and may not be visible to all.
- Court-provided speaker equipment must be of sufficient clarity so that the judicial officer and all other participants may hear one another when necessary.
- Court technology must be capable of allowing the judicial officer and all other participants attending the proceeding in person to hear and be heard by remote participants, as well as to see and be seen by remote participants who are capable of using video if the court orders the proceeding to be conducted using video, or as required or allowed by statute.

## **Appendix C: References**

The following references were consulted during the development of this standard.

**Assembly Bill 3013 (Remote court reporting)**, [legiscan.com/CA/text/AB3013/id/2962716](https://legiscan.com/CA/text/AB3013/id/2962716)

**Assembly Bill 716 (Open access)**, [legiscan.com/CA/text/AB716/id/2348795](https://legiscan.com/CA/text/AB716/id/2348795)

**California Rules of Court, rule 3.672 (Remote proceedings)**,  
[courts.ca.gov/cms/rules/index/three/rule3\\_672](https://courts.ca.gov/cms/rules/index/three/rule3_672)

**California Trial Court Facilities Standards: 2023 Edition**,  
[courts.ca.gov/system/files/file/2023\\_ctcfs\\_24\\_09\\_19.pdf](https://courts.ca.gov/system/files/file/2023_ctcfs_24_09_19.pdf)

**Minimum Technology Standards for Remote Proceedings (SB 133)**,  
[courts.ca.gov/system/files/file/minimum-technology-standards-20240401.pdf](https://courts.ca.gov/system/files/file/minimum-technology-standards-20240401.pdf)

**Report of the Advancing the Hybrid Courtroom Workstream: Findings and Recommendation**, [courts.ca.gov/sites/default/files/courts/default/2024-12/advancing-the-hybrid-courtroom-workstream.pdf](https://courts.ca.gov/sites/default/files/courts/default/2024-12/advancing-the-hybrid-courtroom-workstream.pdf)

**Tactical Plan for Technology 2025–2026**, [courts.ca.gov/system/files/file/jctc-court-technology-tactical-plan\\_0.pdf](https://courts.ca.gov/system/files/file/jctc-court-technology-tactical-plan_0.pdf)

**Strategic Plan for Technology 2023–2026**, [courts.ca.gov/system/files/file/jctc-court-technology-strategic-plan.pdf](https://courts.ca.gov/system/files/file/jctc-court-technology-strategic-plan.pdf)

**The Strategic Plan for California’s Judicial Branch**, [courts.ca.gov/policy-administration/judicial-council/judicial-branch-strategic-plan](https://courts.ca.gov/policy-administration/judicial-council/judicial-branch-strategic-plan)

## **Appendix D: Courtroom Technology Compliance and Facilities Guidance**

### **Department of Industrial Relations**

Any project with a total cost exceeding the specified thresholds must be registered with the Department of Industrial Relations (DIR), and registration must be completed before any construction activities begin. The cost thresholds are:

- \$25,000 for new projects; and
- \$15,000 for maintenance projects.

These requirements apply only to labor subject to prevailing wage regulations. Transactions involving equipment-only sales are exempt from DIR registration. Compliance with these requirements ensures adherence to state labor laws and avoids potential delays or penalties.

For assistance with DIR registration, courts may:

- Contact the Judicial Council of California Facilities Risk Management Unit via [facilities@jud.ca.gov](mailto:facilities@jud.ca.gov); or
- Visit the DIR website directly at [services.dir.ca.gov/gsp](https://services.dir.ca.gov/gsp)

### **Hazardous Materials Considerations**

Both older and newer buildings may contain asbestos or other hazardous materials. Testing is required for any area that will be disturbed by construction activities, including drilling, mounting, or tile removal. If previous testing reports are available, they may be reused.

The site's facilities management administrator can assist with accessing prior reports, coordinating remediation work, and addressing other hazardous materials such as lead-based paint. For additional support related to hazardous materials, contact the Risk Management Unit at [JCC-EHS@jud.ca.gov](mailto:JCC-EHS@jud.ca.gov)

### **Building Permit and Inspection Requirements**

Certain scopes of work require permits and inspections to ensure compliance with safety and building standards. These include:

- Rated wall penetrations involving the Office of the State Fire Marshal (OSFM);
- Cable runs through fire-stopped conduit;
- Installation of overweight ceiling or wall-mounted equipment;
- Creation of new conduit or cable pathways; and
- Any modifications to the facility.

The Facilities Quality Compliance Unit can provide guidance and support for permit and inspection requirements. For assistance, contact the unit via [facilities@jud.ca.gov](mailto:facilities@jud.ca.gov) or reach out to Michael Iarossi at [michael.iarossi@jud.ca.gov](mailto:michael.iarossi@jud.ca.gov)

Additional scopes requiring permits and inspections include:

- Raised flooring systems, which may involve OSFM, the Department of the State Architect, and Judicial Council Facilities permit requirements, as well as compliance with California Building Code section 11B-303.4 regarding level changes; and
- Conduit and cable pathways through stairwells, which are prohibited under California Building Code section 1023.5.

Scopes that typically do not require permits or inspections include:

- Rack-mounted equipment;
- Desktop-mounted or seated equipment;
- Cable patching using existing data ports; and
- Non-invasive work.

### **Court-Funded Facilities Request**

If the scope of work requires it, the Court-Funded Facilities Request process must be followed. As part of this process, a service work order will need to be generated for the vendor. For detailed instructions and requirements, refer to the Court-Funded Facilities Request Policy available at [courts.ca.gov/system/files/file/court-funded-facilities-request-policy.pdf](https://courts.ca.gov/system/files/file/court-funded-facilities-request-policy.pdf)

### **Ongoing Maintenance**

The court is responsible for the maintenance, repair, and replacement of all audio-visual equipment. The Judicial Council does not have recurring funding allocated for audiovisual equipment maintenance or refresh, so courts must plan and budget accordingly.

For detailed guidance, refer to the official *Guidelines for the Responsibility of Facilities Costs between the Judicial Council and Trial Courts* available at [courts.ca.gov/system/files/facilities-funding-responsibility-guidelines.pdf](https://courts.ca.gov/system/files/facilities-funding-responsibility-guidelines.pdf).

## **Appendix E: Project Planning and Budgeting**

Project costs vary considerably depending on the specific requirements of each court, the scope of construction involved, and the components selected. For assistance with planning and budgeting, please contact Judicial Council Remote Proceedings at [remoteproceedings@jud.ca.gov](mailto:remoteproceedings@jud.ca.gov) to review project specifications and discuss available options.

## Chart of Comments

### Remote Proceedings Technology Recommendations – Advancing the Hybrid Courtroom Phase 2 Workstream

All comments are verbatim unless indicated.

| Commenter                                                                      | Comment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Committee Response                                                                                                                                                                                                             |
|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Chris Berendsen, Superior Court of Kern County, Information Technology Manager | Position: Not indicated.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                |
| Chris Berendsen                                                                | <p>Kern County Superior Court has embraced the hybrid courtroom project since its inception. Creating better access and an improved experience for all parties involved has been the priority. JCC funding has played a significant role in getting us to our current level of connectivity. The work of this committee in forming the Advancing the Hybrid Courtroom Workstream, Phase 2 document reflects the diversity of its members. Presenting the Phase 2 document as a guideline, with “functional requirements” as the goal, allows room for interpretation and innovation.</p> <p>Having worked in the AV field for over 25 years, I appreciate the references to industry standards and protocols. The guideline strikes a good balance when discussing platforms and protocols. I do, however, have a couple of comments from a professional experience perspective:</p> | Thank you for your comments. The workstream is appreciative of your input and the perspective you have shared.                                                                                                                 |
| Chris Berendsen                                                                | 2.5.4 Camera and Protocol Considerations – The network protocol NDI is nearly plug-and-play and is a strong option. However, this is a licensed protocol for manufacturers of these products. While there are many camera options that support NDI, there is a limited number of processors that can receive this format natively. NDI-to-HDMI or SDI converters are available and can expand compatibility with a wider selection of video processors. Another option to consider is SDI video output directly from the camera to a video processor. The transmission media is affordable and widely used in the industry. While it is not a one-cable solution, it can streamline connectivity and eliminate the need for converters or adapters. It may also simplify troubleshooting for court staff who are not AV specialists.                                                 | The workstream’s recommendations are intentionally descriptive and do not mandate any specific technology, vendor solution, or protocol. Courts retain flexibility to use alternative technologies that meet functional goals. |



| Commenter                                                               | Comment                                                                                                                                                                                                                                                                                                                        | Committee Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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| Chris Berendsen                                                         | 4.2.2 Cable Management and Routing – This section references “over-the-carpet cable management.” There are limited options on the market for over-floor raceways; however, ADA-compliant solutions are available and may be worth mentioning.                                                                                  | The workstream’s recommendations are not intended to mandate any specific technology, vendor solution, or protocol, nor to serve as an exhaustive list of all possible approaches. Courts retain full flexibility to select alternative technologies or configurations.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Chris Berendsen                                                         | Ongoing Maintenance – With budget volatility seeming to be a daily topic of discussion, legislated funding support would be greatly appreciated for modernization of these systems.                                                                                                                                            | <p>The workstream’s recommendations are advisory and do not create new mandates or requirements for courts. Implementation of the recommendations is dependent on local resources, and each court may determine what is feasible based on available funding. The workstream recognizes that budget limitations may affect the ability to undertake certain recommendations.</p> <p>In addition, the workstream acknowledges the concerns raised by several courts that many of these recommendations cannot realistically be implemented without additional funding support from the Legislature. Including these perspectives is important to ensure that statewide guidance accurately reflects the operational and fiscal realities courts face, and to give voice to the need for sustained investment in courtroom modernization.</p> |
| Jake Chatters, Superior Court of Placer County, Court Executive Officer | Position: Not indicated.                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Jake Chatters                                                           | Terms clarification – The introduction seeks to define the difference between the instant document, the Remote Proceedings Technology Recommendations (Recommendations) and the Judicial Council’s Minimum Technology Standards for Remote Proceedings (Standards). This is generally well done. There are instances, however, | The workstream is appreciative of your comments and have incorporated them into the <i>Remote Proceedings Technology Recommendations</i> , pages 6–8.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

| Commenter     | Comment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Committee Response                                                                                                                                                                                                                                                                                                |
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|               | <p>where the text uses the terms “these standards.” It is not immediately clear whether this is intended to refer to the Standards or the Recommendations. For example:</p> <p>Page 6 – In this instance, it seems clear that “these standards” refers the Standards as they are mentioned in the prior sentence.</p> <p>Page 8, Principle 4 – In this instance, it is less clear. Is the use of “these standards” referring to the Standards mentioned in the prior paragraph or are they referring to the instant Recommendations document.</p>                                  |                                                                                                                                                                                                                                                                                                                   |
| Jake Chatters | <p>There is also a mixture in the use of the terms recommendations and guidelines. Here again on page 8, Principle 4 – “The guidelines...” seems to refer to the Recommendations. Use of the term guideline, however, conveys a higher level of responsibility for court compliance than the term recommendation. Modifying instances of the term “guideline” to “recommendation” would be helpful to avoid confusion about a mandate versus an encouraged practice.</p>                                                                                                           | <p>Your comments have been incorporated into the <i>Remote Proceedings Technology Recommendations</i>, pages 6–8.</p>                                                                                                                                                                                             |
| Jake Chatters | <p>Taking of the record – The Recommendations include Principle 5 regarding the accurate capture of the record. The narrative specifically indicates support for stenographic reporting. While it is important that our systems allow court reporters to effectively capture the record, the current wording might suggest this is not a need for voice-writer reporters. Suggest that the paragraph be modified to remove “and stenographic recording” as stenograph and voice-writing are already captured in the broader statement of “verbatim record of the proceedings.”</p> | <p>Your comments have been incorporated into the <i>Remote Proceedings Technology Recommendations</i>, page 8.</p>                                                                                                                                                                                                |
| Jake Chatters | <p>Handling Technical Issues – Section 1.1.10 discusses the best practice of having a protocol for some or all technical issues. The section goes on to state what “should” be in any such protocol. The use of “should” appears more prescriptive than other sections of the Recommendations. In addition, “ensur[ing] staff availability for real-time troubleshooting” is depending on funding and available resources. Implementation of this item may be difficult for some or all courts, depending</p>                                                                      | <p>Your comments have been incorporated into the <i>Remote Proceedings Technology Recommendations</i>, page 10.</p> <p>Implementation of the recommendations is dependent on local resources, and each court may determine what is feasible based on available funding. The workstream recognizes that budget</p> |

| Commenter                                                             | Comment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Committee Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
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|                                                                       | on scale of their simultaneous remote proceedings, without additional on-going funding to support expanded information technology functions.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | limitations may affect the ability to undertake certain recommendations. To be clear, in order for courts in California to adopt and implement innovation, especially technology innovation, they must receive adequate funding to enable them to do so.                                                                                                                                                                                                                                              |
| Jake Chatters                                                         | Expectations for review of existing installations – Consider adding language in the cover letter and introduction that clarifies that the adoption of these Recommendations does not trigger an expectation that courts review all existing installations. The current language, see page 3, establishes the purpose is to support courts when in their “planning, upgrading, or refining” of technology. It may be helpful, however, to be abundantly clear that the Recommendations do not create an expectation that such tasks occur. This clarification would be helpful to avoid concerns from courts about their financial ability to implement these changes.                                              | Your comments have been incorporated into the <i>Remote Proceedings Technology Recommendations</i> , page 7.                                                                                                                                                                                                                                                                                                                                                                                          |
| Jake Chatters                                                         | Thank you again for the opportunity to review the Recommendations, which are overall comprehensive, flexible, and will be a useful tool to complement the Standards.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Chad Finke, Superior Court of Alameda County, Court Executive Officer | Position: Not indicated.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Chad Finke                                                            | <p><b>Global comment relevant to Introduction and Minimum Technology Standards (Recommendations, pp. 6 and 7)</b></p> <p>We appreciate that the Recommendations differentiate between descriptive and prescriptive requirements. However, and as further detailed below in our comments on recommendations 1.1.5, 1.2.2, 2.1.1, 2.3.1, 2.5.1, and 2.5.2, many of the recommendations would require us to procure technology that we (a) do not currently have, and (b) do not have sufficient funding to purchase and deploy. We believe that it is important for the either the Introduction or Minimum Technology Standards section to acknowledge that some courts may simply be unable to meet the minimum</p> | <p>Thank you for this feedback. The workstream’s recommendations are advisory and do not create new mandates or requirements for courts. Implementation of the recommendations is dependent on local resources, and each court may determine what is feasible based on available funding.</p> <p>The workstream recognizes that budget limitations may affect the ability to undertake certain recommendations. To be clear, in order for courts in California to adopt and implement innovation,</p> |

| Commenter  | Comment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Committee Response                                                                                                                                                                                                      |
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|            | <p>recommended type and level of technology, unless and until additional funding is available. Without such an acknowledgement, courts could be subjected to criticism and potentially legal action based on a failure to meet the recommended service/technology levels in the Recommendations.</p> <p>We note that cautionary language along the lines of what we are recommending be stated globally already exists in, e.g., recommendations 2.3.2 [“These recommendations exceed minimum requirements and can be omitted if budget or architectural constraints exist”] and 2.5.3 [“While additional cameras beyond the minimum requirements provide broader video coverage and support a more comprehensive courtroom setup, they may be omitted when budget or architectural constraints limit what can be installed”] We are suggesting similar language noting that budget constraints may limit or delay a court’s ability to comply fully even with the recommended minimum requirements set forth in the Recommendations.</p> | <p>especially technology innovation, they must receive adequate funding to enable them to do so.</p> <p>Your comments have been incorporated into the <i>Remote Proceedings Technology Recommendations</i>, page 7.</p> |
| Chad Finke | <p><b>Comment on 1.1.1 (Recommendations, p. 9)</b></p> <p>We believe that this recommendation exceeds the scope of the Workstream’s charge, as we understand it. Specifically, the first sentence of the recommendation is overbroad in that it makes ergonomic recommendations that go far beyond remote or even general courtroom technology. For example, this recommendation is broad enough to cover, e.g., chairs, desks, footrests, and other furniture. Ergonomics is a complex area of court operations that has a significant overlap with Human Resources, Risk Management, Workers Compensation, and Compliance. We do not believe that a broad, general statement about courts’ ergonomic obligations belongs in a document the scope of which is limited to “remote proceedings technology recommendations.”</p>                                                                                                                                                                                                            | <p>In response to your comment, the first sentence has been removed.</p>                                                                                                                                                |
| Chad Finke | <p><b>Comment on 1.1.5 (Recommendations, p. 10)</b></p> <p>The Court does not currently have technology that would allow court personnel and judicial officers in each courtroom to visually determine whether electronic recording equipment</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>The workstream’s recommendations are intentionally descriptive and do not mandate any specific technology, vendor solution, or protocol.</p>                                                                         |

| Commenter  | Comment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Committee Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|            | is on or off. We would need to procure such technology and would need the funding to do so.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Courts retain flexibility to use alternative technologies that meet functional goals.                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Chad Finke | <b>Comment on 1.1.7 (Recommendations, p. 10)</b><br>We are concerned about the recommendation that we provide “comprehensive training” to “stakeholders,” especially as the latter term is undefined. If “stakeholders” means the public generally, then our Court—and, we suspect, most courts—are not funded in a way that would allow us to provide “comprehensive training” as recommended here. We could, however, provide best practices, general user guides, and standard instructions. We would suggest perhaps removing the term “comprehensive” or otherwise clarifying the intended scope of the rule. | Your comments have been incorporated into the <i>Remote Proceedings Technology Recommendations</i> , page 11.                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Chad Finke | <b>Comment on 1.2.2 (Recommendations, p. 12)</b><br>The Court does not currently have a sufficient number of cameras to comply with the recommendation. We would need to procure such technology and would need the funding to do so.                                                                                                                                                                                                                                                                                                                                                                              | <p>The workstream’s recommendations are advisory and are not intended to mandate purchase of specific technologies or recommendations. Courts may implement recommendations based on local priorities, existing systems, and available funding.</p> <p>The workstream recognizes that both technical capability and budget considerations vary across courts. To be clear, in order for courts in California to adopt and implement innovation, especially technology innovation, they must receive adequate funding to enable them to do so.</p> |
| Chad Finke | <b>Comment on 2.1.1 (Recommendations, p. 16)</b><br>The Court does not currently have a sufficient number of AV control systems to comply with the recommendation. We would need to procure such technology and would need the funding to do so.                                                                                                                                                                                                                                                                                                                                                                   | Same as above                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Chad Finke | <b>Comment on 2.3.1 (Recommendations, p. 18)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Same as above                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

| Commenter                                                                  | Comment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Committee Response                                                                                                               |
|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
|                                                                            | The Court does not currently have a sufficient number of microphones to comply with the recommendation. We would need to procure such technology and would need the funding to do so.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                  |
| Chad Finke                                                                 | <b>Comment on 2.4.4 (Recommendations, pp. 20-21)</b><br>At least one of our historical courtrooms does not have acoustics that comply with the recommendation, and our understanding is that additional construction to make the courtroom acoustically acceptable would be either cost prohibitive or outright impossible from a construction/engineering perspective. While the recommendation notes that “acoustic treatment should be an integral part of courtroom design,” implying that this recommendation only applies prospectively to courthouses constructed after the effective date of the Recommendations, we suggest making that point explicitly in the recommendation itself to clarify that extensive acoustical retrofitting is not contemplated. | Same as above.                                                                                                                   |
| Chad Finke                                                                 | <b>Comment on 2.5.1 (Recommendations, p. 21)</b><br>The Court does not currently have a sufficient number of cameras to comply with the recommendation. We would need to procure such technology and would need the funding to do so.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Same as above                                                                                                                    |
| Chad Finke                                                                 | <b>Comment on 2.5.2 (Recommendations, pp. 21-22)</b><br>The Court does not currently have a sufficient number of cameras to comply with the recommendation. We would need to procure such technology and would need the funding to do so.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Same as above                                                                                                                    |
| Chad Finke                                                                 | Again, thank you for the opportunity to comment on these Recommendations, and for the obvious amount of thought and work that went into preparing them. We would be happy to provide any further clarification that may be needed or to answer any questions you may have about our comments.                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                  |
| Sarah Lind, Superior Court of Contra Costa County, Court Executive Officer | Position: Agree if modified                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | The comment below is in response to all comments from Sarah Lind, Superior Court of Contra Costa County, Court Executive Officer |

| Commenter  | Comment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Committee Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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| Sarah Lind | <p><b>1. Technical Training Needs for IT</b><br/> The recommendations rely on A/V and networking capabilities that small and medium-sized IT teams may not be staffed or trained to support. Examples include:</p> <ul style="list-style-type: none"> <li>• DSP tuning, noise suppression, echo cancellation, and remote monitoring (2.1.2)</li> <li>• Mix-minus audio routing (2.1.4)</li> <li>• Dante protocol networking and VLAN configuration (2.2)</li> <li>• PTZ camera setup, NDI video transport, and maintenance (2.5.4)</li> </ul> <p>Given this level of complexity, implementation and long-term maintenance may be challenging without additional support.</p> <p>Suggested JCC support:</p> <ul style="list-style-type: none"> <li>• Centralized or regional technical training for IT staff</li> <li>• Standard configuration templates (DSP, Dante, and NDI)</li> </ul> <p>Troubleshooting guides and support resources.</p> | <p>The workstream’s recommendations are advisory and are not intended to mandate purchase of specific technologies or recommendations. Courts may implement recommendations based on local priorities, existing systems, and available funding.</p> <p>To be clear, in order for courts in California to adopt and implement innovation, especially technology innovation, they must receive adequate funding to enable them to do so.</p> <p>The workstream recognizes that responsibilities of courtroom staff and judicial officers, as well as operational processes vary across courts and will take this into account while refining the recommendations.</p> <p>The workstream sincerely appreciates your thoughtful consideration of the broader role the Judicial Council might play. While the suggestions you raise extend beyond the scope of this workstream, the Judicial Council will give careful consideration to these ideas as it evaluates future opportunities to support the courts. In doing so, we remain mindful of the significant diversity among California’s courts and the communities they serve.</p> |
| Sarah Lind | <p><b>2. Operational Training Needs for Judges and Court Staff</b><br/> The recommendations place additional responsibilities on judicial officers, courtroom clerks, and other courtroom staff, including:</p> <ul style="list-style-type: none"> <li>• Potential management of active speaker mode and camera controls (1.2.1, 1.2.2)</li> <li>• Handling participant identification, chart controls, and display settings (1.2.3)</li> <li>• Managing virtual lobbies, admissions, and reentry control (1.2.6)</li> <li>• Configuring secure breakout rooms (1.2.7)</li> </ul>                                                                                                                                                                                                                                                                                                                                                             | Same as above                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

| Commenter  | Comment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Committee Response |
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|            | <ul style="list-style-type: none"> <li>• Conducting interpreter audio checks (1.1.4)</li> <li>• Responding in real time to technical issues (1.1.10)</li> </ul> <p>These responsibilities represent a meaningful shift in courtroom workflows and will require structured training and clear operational guidance to ensure efficiency and consistent use.</p> <p>Suggested JCC support:</p> <ul style="list-style-type: none"> <li>• Role-specific training modules (judges, clerks, reporters, and interpreters)</li> <li>• Quick-reference guides for common courtroom scenarios (pre-hearing steps, identity protocols, evidence sharing, etc.)</li> </ul> <p>Short instructional video/materials for external users, including self-represented litigants.</p>                                                                                                                              |                    |
| Sarah Lind | <p><b>3. Hardware Review, Model Courts, and Site Visits</b></p> <p>The recommendations provide detailed guidance on courtroom technology and infrastructure (2.3–2.6, 4.2–5.5.2). Courts may benefit from additional support in evaluating whether existing or planned systems align with these standards, and in identifying which upgrades provide the most value when funding is limited.</p> <p>Suggested JCC support:</p> <ul style="list-style-type: none"> <li>• Optional hardware/infrastructure assessments for courts planning upgrades</li> <li>• Identification of model courts that have successful implementations</li> <li>• Facilitated site visits or virtual tours so courts can see functioning hybrid setups and learn from real world deployments <ul style="list-style-type: none"> <li>○ Including both the technical and operations perspectives.</li> </ul> </li> </ul> | Same as above      |
| Sarah Lind | <p><b>4. ADA Web Accessibility Considerations</b></p> <p>Because remote and hybrid proceedings rely heavily on online tools (appearance platforms, livestreams, instructional</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Same as above      |



| Commenter | Comment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Committee Response |
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|           | <p>materials, and electronic forms), it is important that accessibility requirements are explicitly incorporated into the recommendations. Additionally, hardware and infrastructure decisions made at the courtroom level may directly influence or constrain the software platforms and accessibility features that can be supported, making it important to consider accessibility holistically across both hardware and software environments.</p> <p>Inaccessible web content can limit participation in the same way as physical barriers in a courthouse. Ensuring accessibility is essential to maintaining equitable access to court services.</p> <p>Key considerations include:</p> <ul style="list-style-type: none"> <li>• Readable text contrast</li> <li>• Captioning for streamed proceedings</li> <li>• Use of alternative text for images</li> <li>• Full keyboard navigation</li> <li>• Accessible and clearly labeled online forms</li> </ul> <p>Incorporating these elements into the framework will help ensure that remote proceedings are accessible to all participants, including those using assistive technologies, while also promoting alignment between technology infrastructure decisions and long-term accessibility requirements.</p> |                    |

| Commenter                                                                             | Comment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Committee Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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| <p>Superior Court of Los Angeles County<br/>by Stephanie Kuo, Legislative Analyst</p> | <p>Position: Agree if modified</p> <p>The following comments are representative of the Superior Court of California, County of Los Angeles (Court), and do not represent or promote the viewpoint of any particular officer or employee.</p> <p>In response to the Judicial Council of California’s “ITC Remote Proceedings Technology Recommendations,” the Court agrees with the proposal and believes it is a comprehensive set of recommendations to cover all use cases. However, the Court suggests that the document make clear that the recommendations are not required as part of the Minimum Technology Standards for Remote Proceedings and that courts may have difficulty implementing the recommendations without adequate funding.</p> | <p>Thank you for this feedback. The workstream’s recommendations are advisory and do not create new mandates or requirements for courts. Implementation of the recommendations is dependent on local resources, and each court may determine what is feasible based on available funding. The workstream recognizes that budget limitations may affect the ability to undertake certain recommendations.</p> <p>In addition, the workstream acknowledges the concerns raised by several courts that many of these recommendations cannot realistically be implemented without additional funding support from the Legislature. Including these perspectives is important to ensure that statewide guidance accurately reflects the operational and fiscal realities courts face, and to give voice to the need for sustained investment in courtroom modernization.</p> |