



## Ballot Tabulation Center Security Upgrades

*Elections Assistance Commission Clearinghouse 2022 Awards Outstanding Use of HAVA Grants in Elections Modernization Application*

The Maricopa County Elections Department respectfully requests that the U.S. Elections Assistance Commission (EAC) consider Maricopa County's Ballot Tabulation Center (BTC) security upgrades as an example of Outstanding Use of HAVA Grants in Elections Modernization.

Federal and state laws require that the ballots be protected, and the Department of Homeland Security has designated tabulation equipment as critical infrastructure supporting our national interests. With Help America Vote Act grant funds, the Maricopa County Elections Department modernized its BTC by adding layers of security. The department built a secure ballot vault along with a dedicated server room, adding increased transparency into the elections process and providing additional security and protection of voted ballots. During an election cycle, which can last for several months from mailing ballots to canvassing the election, these enhanced security and transparency features allow the Elections Department to meet the rigorous state and federal requirements and demonstrate to the public how the County keeps this critical information and equipment secure.

### The Need

Maricopa County is the fastest growing county in the country, according to the U.S. Census Bureau, with nearly one million more voters casting a ballot in 2016 than in the decade prior. Not only were more ballots cast, but early voting participation has increased from 49% of the vote to 78% of the vote during that time. That increase was predicted to continue and put a strain on the ballot storage space and the six legacy tabulators used in Maricopa County since 1996. The need for more tabulators and ballot storage space was clear.



Ballot Tabulation Counting (BTC) Center:  
Pre-General Election 2020 Photo with ballots stored in BTC under sprinklers





## The Tabulators

Maricopa County solicited bids for new tabulation equipment from an EAC-certified vendor in 2019. An outside firm concluded that the county “conducted the solicitation and award of the Elections Tabulation System in a fair and ethical manner that was transparent and in accordance with all requirements of state statute and the Maricopa County Procurement Code.” Through the competitive bid process, Maricopa County increased its central count tabulators from six to nine and introduced electronic adjudication. With these new tabulators and elections equipment, space was even more of a concern.

## The Grant

Maricopa County was awarded the HAVA Election Security Grant from the EAC on May 1, 2020. With the grant funds, the Elections Department looked to make best-in-class upgrades to the BTC to increase security and support Maricopa County elections for years to come. These changes followed the county’s procurement practices, including competitive bidding processes to ensure the Department was a good steward of taxpayer dollars. As of February 2022, Maricopa County has used \$356,340.70 to install a (1) Dry Suppression Ballot Vault, (2) Dedicated Server Room, and (3) Racking for exposed tabulation equipment wiring.

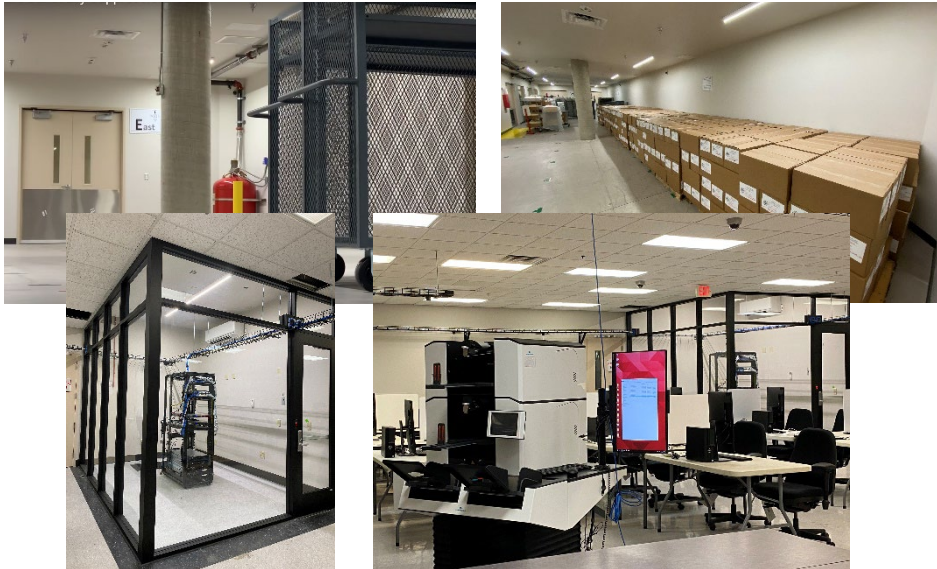
## Ballot Vault

The county redesigned the BTC and adjacent office and storage to create new ballot vault space inside of the BTC. This freed up the much-needed floor space to accommodate the new adjudication stations and additional tabulators. The vault has several innovative features that allows for increased transparency, security, and sustainability.

Instead of storing ballots under the traditional sprinkler system, Maricopa County used HAVA funds to build a secure ballot vault that utilized dry-suppression technology, which releases dry chemicals instead of water in case of fire keeping ballots dry and protected. Prior to the updates, ballots were stored under a sprinkler system in the BTC, which would pose a risk to the ballots if there were a fire. The County also implemented an additional layer of security over the ballot vault, requiring a higher level of badge access. As with the rest of the BTC, the vault also has cameras the public can [view 24/7](#).

Given Maricopa County is projected to see continued population growth, the new vault was designed to accommodate upwards of 60-75% growth in returned ballots. In 2020, over 91% of Maricopa County ballots (1.9 million) were counted in the upgraded Ballot Tabulation Center and stored in the new ballot vault. In 2022, over 85% of General Election ballots (1.3 million) were counted in the tabulation center.





Upgraded Ballot Tabulation Counting (BTC) Center:  
Vault (Top Right and Left), Server Room (Bottom Left) and Tabulation Center (Bottom Right)

## Server Room

Prior to this upgrade, the Election Management System (EMS) server was stored in office space that was housed inside BTC. Staff were relocated to offices outside the Ballot Tabulation Center. This reuse of current square footage was not only cost-effective, but also increased security by allowing only EMS tabulators and equipment to be connected inside the BTC.

The new server room was also built with transparency and security in mind. The server is encased with glass walls so it can be viewed from the Elections Department's public lobby. The Department further restricts badge access to this space, only allowing four elections officials access, none of whom are IT personnel. The restricted access ensures all activities around the server are approved and overseen by elections leadership. The new server room allows the public, media and political party observers to clearly see the connected wires are within the air-gapped system through the glass windows in the lobby and online through cameras available for [view 24/7](#).

The County also installed the same dry-suppression technology in the server room and added an HVAC system within the server room to keep the space temperature controlled, which prolongs the life of this critical infrastructure. These upgrades ensure the physical ballots and tabulated results are protected in the event of a fire.



## Exposed Wiring

Maricopa County's air gapped network prevents the tabulation system from connecting to the internet. To increase transparency, the County used HAVA grant funds to redesign the EMS wiring to by adding racking that is clearly visible and allows the public to trace the wires from each machine back to the server. The County also employed visual management, color coding the wires:

- White – adjudication stations
- Blue – tabulators
- Yellow – printers
- Red – server to server

The racking for exposed tabulation equipment wiring (see images on the next page) allows the public to see that the tabulation equipment is wired directly to the server. Previously, these wires were not exposed. They were covered by ceiling tiles, which did not allow the community to see where the wires were leading. The exposed equipment wiring allows for the public to have confidence that the Maricopa County Elections Department keeps results secure. The sustainable racking for exposed tabulation equipment wiring was designed to be expanded and adjusted if there is a need to add more workstations or tabulators.



Tabulation Room – Secure Racking with Exposed Wiring

## Additional Security Features

Maricopa County also applied for and was awarded grant funds from the Department of Homeland Security to provide for additional security enhancements prior to the 2022 Election Cycle. The County used these funds to purchase port blockers (Image below – Left) with serial numbers and a unique key that was customized for Maricopa County. In addition to port blockers the County purchases security canisters to store tabulation equipment (Image below – Right). These enhancements restrict access to the tabulation computer equipment





and will prevent an outside device from being introduced to the closed network. With the County hiring over 100 temporary workers to assist with tabulation activities and partnering with the political parties to appoint observers that work within the tabulation center, these security measures protect against both insider and outside threats.



Tabulation Room: Customized Serialized Port Blockers (Left) and Security Canisters (Right)

## The Outcome

With more than 2.5 million registered voters in Maricopa County, the Elections Department anticipated a historic turnout for the 2020 and 2022 election cycles. The Elections Department proactively shared information about the new equipment, BTC upgrades and ballot vault through tours, media interviews and hosted political party observers, candidates, and the Secretary of State’s Office. The Elections Department conducted bilingual outreach in English and Spanish to showcase the Ballot Tabulation Center upgrades. Some of the items created and shared included:

- Tabulation Security Video ([English](#)) ([Spanish](#))
- [Tabulation Security Infographic \(English\) \(Spanish\)](#)
- [Dry-Suppression Vault Video](#)
- [AZFamily Interview](#)



Election officials across Arizona and the country have toured the Elections Department’s best-in-class upgrades. We have floor plans and designs that could be used by other elections departments to implement similar upgrades to their tabulation areas.

