7 PM Tuesday, June 18, 2024
Wayne County Board of Elections
Metzler Room

Notes are included beneath each slide.

For more information, contact:
Bryon M. Bell
Deputy Director
330-287-5484
bbell@wayne.boe.ohio.gov

All information is believed to be accurate at the time of the presentation. Election laws can change over time.

Voting Equipment and Security

WAYNE COUNTY VOTER ACADEMY

Wayne County Voter Academy
- Introductions
- Restroom, Drinking Fountain
- Expectations
    - About an hour
    - Detailed Information
    - Links and resources in your handouts
    - All slides and notes will be available online
    - Video available in about a week
- 3x5 cards for questions – will email Q&As
- *Broadly:*
    - *History*
    - *Applicable Laws and Rules*
    - *Certification of Voting Equipment*
    - *Electronic Poll Books*
    - *Types of Voting Systems*
    - *Wayne County Systems*
    - *Security*
    - *Testing*
    - *Audits*

- *Backups*
- *Alternatives*
- *Pending Legislation*
- *Misconceptions*

First we should understand the history involved.

## History Lesson: Viva Voce
"by live voice"

Initially, all ballots in the United States were cast "Viva Voce"
* Latin for "by live voice"
* Voters would come to the polling place, state their name, and announce their vote aloud for all to hear
* This came with a few problems:
    * Voter intimidation
    * Voter coercion
    * Bribery

* **The County Election** by George Caleb Bingham, 1852
* "A large group of citizens gathers to place their votes in an election. Campaigning politicians anxiously press their party tickets toward individuals. One of the newest citizens, an Irish immigrant, is taking an oath that he had not voted elsewhere, just as one of the oldest, a Revolutionary War "76-er" veteran, is descending the steps. Merchants in top hats discuss the issues with laborers in shirtsleeves, an example of the rational exchange that sustains democracy. Other individuals present a less responsible and informed perspective. One drunken citizen, unable to stand, is nonetheless dragged to cast a vote. Another sits on a bench to steady his head, his clarity evidently lost in a brawl. Two boys on the ground play mumblety peg, a knife game that progressively increases in risk. George Caleb Bingham revealed what every American supportive of an

election understands: that the democratic ideal must be embraced even though uniformed votes could prevail." – The Saint Louis Art Museum

History Lesson: Party Tickets
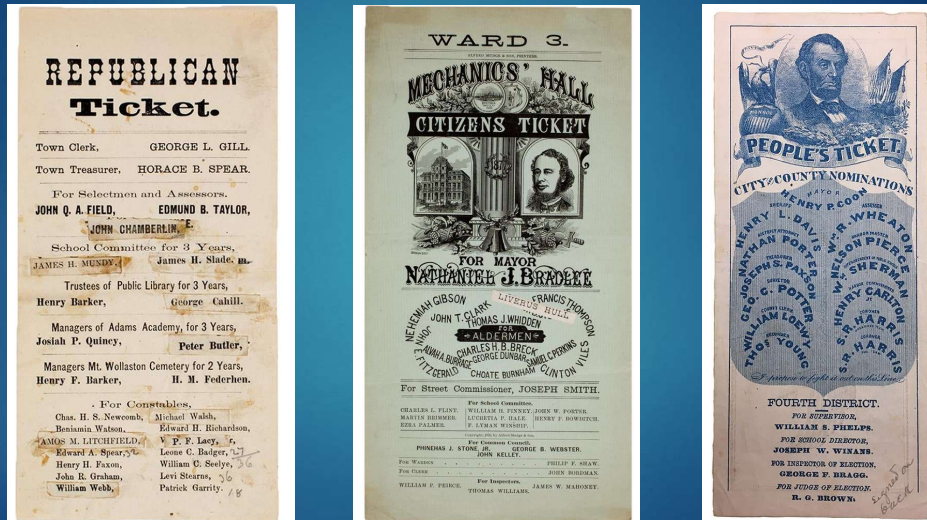
Party "Tickets" were printed in newspapers or distributed by candidates and parties.
- Voters could take them directly to the polling place and drop them in the ballot box.
- Some issues:
    - Voters would be encouraged to "vote the party line" by default
    - Design features discouraged voters from making alternate selections (called "pasting")
    - Tickets were often color coded so observers could still tell how someone was voting

Australian (or "Secret") Ballot
- A system of voting in which voters mark their choices in privacy on uniform ballots printed and distributed by the government.
- First used in Australia in 1856.
- Extensively adopted in US after the Presidential Election of 1884
- Still used today

History Lesson: Voting Machines
- "Lever" machines first introduced in the late 19th century
- Recorded the vote on mechanical counters
- Provided no means for the voter to see that their vote was recorded.
- Used in some jurisdictions up until 2010!

History Lesson: Punch Cards

The VoteMatic Punch Card Voting System

History Lesson: Punch Cards
- First used in 1965
- Widely used until the HAVA provided funding for their replacement.
- Continued up until 2014
- Candidates and choices were not on the cards themselves, but rather in a flip book attached to the voting booth.
- Voters would use a stylus to "poke" out the perforated hole next to their choice
- Allowed for fast tabulation using a machine card reader
- Votes on the cards were not easily human-readable, making audits and recounts difficult.

History Lesson: Punch Cards
- The 2000 Presidential Election revealed major issues with punch card voting, and lead to major reforms including the passing of the Help America Vote Act.

What are the rules?
Welcome to Law School
Many *Federal and State Laws*

Federal Laws

Hundreds of Federal Laws relevant to Voter Registration

Two of the major laws:

- Americans with Disabilities Act (ADA)
- Help America Vote Act (HAVA)

Americans with Disabilities Act (ADA)

▶ The ADA requires state and local governments and their election officials to ensure that people with disabilities have a full and equal opportunity to vote in all elections. This includes federal, state, and local elections. And it includes all parts of voting, like voter registration, selecting a location for polling places, and voting, whether on election day or during an early or absentee voting process.

▶ How does this apply to voting equipment? Jurisdictions must provide methods to allow a visually impaired voter to vote an audio ballot, or a quadriplegic voter to operate a machine using sip and puff controls, for example.

Americans with Disabilities Act (ADA)

- The ADA requires state and local governments and their election officials to ensure that people with disabilities have a full and equal opportunity to vote in all elections. This includes federal, state, and local elections. And it includes all parts of voting, like voter registration, selecting a location for polling places, and voting, whether on election day or during an early or absentee voting process.
- How does this apply to voting equipment? Jurisdictions must provide methods to allow a visually impaired voter to vote an audio ballot, or a quadriplegic voter to operate a machine using sip and puff controls, for example.
- *Courts have determined that "full and equal opportunity" includes the ability to cast a ballot privately without assistance. While a disabled voter may chose to have a poll worker or friend read and mark their ballot, we must provide solutions that allow all people to vote privately without assistance. Our voting machines have the ability to present an audio ballot and can allow a voter to mark their ballot using a tactile interface or sip and puff.*

Help America Vote Act

▶ Created mandatory minimum standards for states to follow in several key areas of election administration.

▶ Provided federal funding to meet these new standards, including funding for new voting equipment and other election administration improvements.

▶ Created the Election Assistance Commission (EAC), a new federal independent non-partisan agency charged with adopting new voluntary voting system guidelines, accrediting test laboratories, and serving as a clearinghouse for election administration information.

Help America Vote Act
- Created mandatory minimum standards for states to follow in several key areas of election administration.
- Provided federal funding to meet these new standards, including funding for new voting equipment and other election administration improvements.
- Created the Election Assistance Commission (EAC), a new federal independent non-partisan agency charged with adopting new voluntary voting system guidelines, accrediting test laboratories, and serving as a clearinghouse for election administration information.
- *Signed into law on October 29, 2002 as a direct response to the issues raised by the 2000 Presidential Election.*

State Laws

▶ Most Ohio laws related to Voting Equipment are found in Ohio Revised Code Chapter 3506

State Laws

- Most Ohio laws related to Voting Equipment are found in ORC Chapter 3506

The Ohio Election Official Manual
- Produced Annually by the Office of the Ohio Secretary of State.
- Publicly available online.
- Details every requirement and process of Ohio election administration.
- Most Voting Equipment Information can be found in Chapter 12 of the current EOM.

Secretary of State Directives
- Issued as-needed by the Office of the Ohio Secretary of State.
- Publicly available online.
- Provide detailed direction on specific processes and requirements.
- The most current source of detailed information on election processes at any given time.

Certification of Voting Equipment
- *In Ohio, voting equipment must be certified for use both by the US EAC and the Ohio Board of Voting Machine Examiners (ORC 3506.05)*

The US Election Assistance Commission
- Created by the Help America Vote Act
- The U.S. Election Assistance Commission (EAC) is a federal, independent, bipartisan commission whose mission is to help election officials improve the administration of elections and help Americans participate in the voting process.
- HAVA mandated that the EAC accredit voting system test laboratories and certify voting equipment.

EAC: Voluntary Voting System Guidelines (VVSG)
- Participation by states in EAC's certification program is voluntary.
- The EAC's full accreditation and certification program became effective in January 2007.
- Voting systems are tested against the voluntary voting system guidelines (VVSG), which are a set of specifications and requirements to determine if the systems provide all of the basic functionality, accessibility and security capabilities required.
- Ohio requires that voting systems be certifies by the EAC
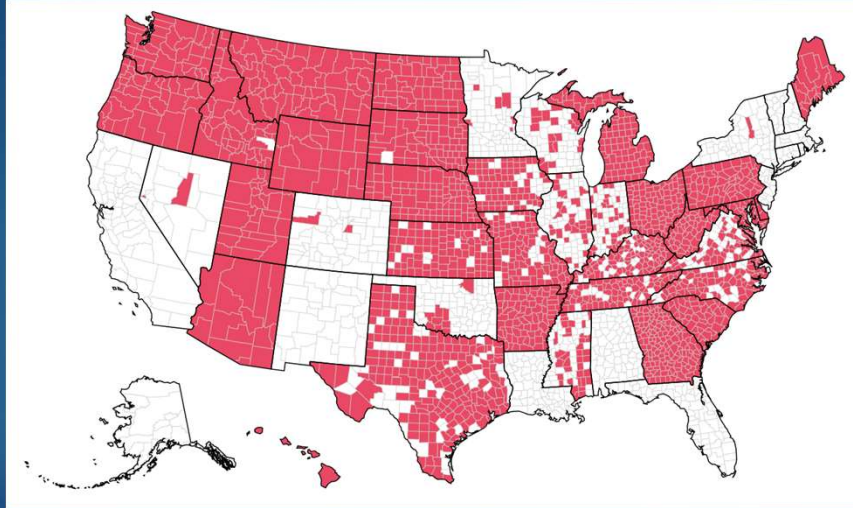
VVSG Participation
- *Counties shown in red use voting systems that have been certified by the EAC.*

The Ohio Board of Voting Machine Examiners (OBVME)
- A bipartisan, four-member board charged with examining and approving voting equipment for use in Ohio elections (ORC 3506.05).
- 2 members are appointed by Secretary of State, 1 member is appointed by the House Speaker or House Minority Leader, whichever is a member of the opposite political party from the one to which Secretary of State belongs, and 1 member is appointed by Senate President or Senate Minority Leader, whichever is member of the opposite political party to which Secretary of State belongs.
- *Two Republicans, two Democrats*
- *All members must be a competent or experienced election officer or knowledgeable about the operation of voting machines, marking devices, automatic tabulating equipment, and software for the purpose of casting or tabulating votes or for communications among systems involved in the tabulation, storage, or casting of votes.*
- *Board members cannot have any pecuniary interest in voting machines, marking devices, automatic tabulating equipment or such software, or any affiliation with the vendor of any of the same.*

Certification Requirements

▶ Specific certification requirements vary depending on the type of voting system, but generally a certified voting system…

  ▶ Must provide the voter the ability to privately cast a secret ballot
  ▶ Must not be connected to any outside network
  ▶ Must provide a human-readable paper trail
  ▶ Must meet stringent security standards
  ▶ Must meet reliability standards
  ▶ Must accurately record the voter's selections
  ▶ Must allow for accurate tabulation of votes
  ▶ Must meet ADA accessibility requirements
  ▶ Must be auditable

Certification Requirements
- Specific certification requirements vary depending on the type of voting system, but generally a certified voting system…
    - Must provide the voter the ability to privately cast a secret ballot
    - Must not be connected to any outside network
    - Must provide a human-readable paper trail
    - Must meet stringent security standards
    - Must meet reliability standards
    - Must accurately record the voter's selections
    - Must allow for accurate tabulation of votes
    - Must meet ADA accessibility requirements
    - Must be auditable

- *There are **many** very detailed requirements. Ohio requirements can be found in ORC 3605 and the EAC VVSG requirements can be found at EAC.gov*

Two Main Categories

Electronic Poll Books   Voting Systems
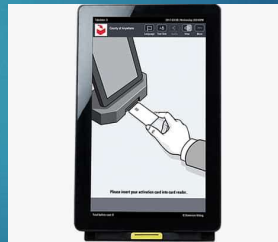
Two Main Categories
- Electronic Poll Books
- Voting Systems
- *We'll look at both in detail in the coming slides*

Electronic Poll Books: Purpose

▶ Used to check in voters in the precinct. Contains the list of eligible voters and their appropriate ballot types.

▶ Facilitates the capture and verification of a voter's signature.

▶ Records voter check ins so that voter history can be recorded and precinct ballot counts can be reconciled.

▶ The electronic poll book creates the voter access card that will open a ballot on a voting machine, but is not connected to the voting machines in any way.

Electronic Poll Books: Purpose
- Used to check in voters in the precinct. Contains the list of eligible voters and their appropriate ballot types.
- Facilitates the capture and verification of a voter's signature.
- Records voter check ins so that voter history can be recorded and precinct ballot counts can be reconciled.
- The electronic poll book creates the voter access card that will open a ballot on a voting machine, but is not connected to the voting machines in any way.
- *While to EPB is used to verify the voter's identity, the Voter Access Card is anonymous. The voter machine does not know or track who a ballot belongs to. There is no way to connect a cast ballot to a particular voter once to vote is cast.*

Electronic Poll Books: Certification

▶ EAC Certification is not required – however they began offering a voluntary certification program last month

▶ Our EPB vendor, KnowInk, is the first EPB vendor to submit a system for this voluntary certification

▶ Any electronic pollbook used in an Ohio election must be approved by the BVME and certified by the Ohio Secretary of State (ORC 3506.05).

Electronic Poll Books: Certification
- EAC Certification is not required – however they began offering a voluntary certification program last month
- Our EPB vendor, KnowInk, is the first EPB vendor to submit a system for this voluntary certification
- Any electronic pollbook used in an Ohio election must be approved by the BVME and certified by the Ohio Secretary of State (ORC 3506.05).

Electronic Poll Books: Ohio Use
- There are currently 4 EPB systems certified for use in Ohio. All systems are very similar in their design and use.
- Wayne County uses the KnowInk Poll Pad in all 67 precincts.
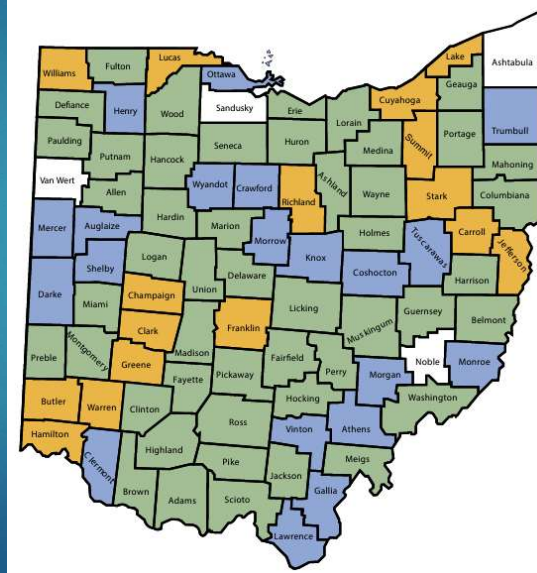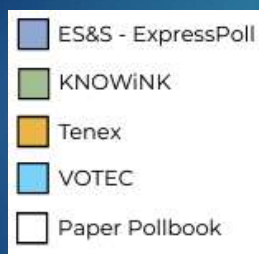
Electronic Poll Books: Ohio Use
- *As you can see we're not alone in choosing KnowInk to provide our Electronic Poll Books – Most Ohio counties do.*
- *Four Ohio counties are still relying on paper poll books*

Electronic Poll Books: Alternatives/Backups

▶ Technicians can deploy replacement equipment quickly in case of equipment failure

▶ A paper poll book is produced for every precinct for every election. In case of an equipment failure, this allows poll workers to determine eligibility and ballot type, capture and verify signatures, and record voter history.

▶ Poll Workers have the ability to manually open a ballot for a voter if they are unable to encode a voter access card.

Electronic Poll Books: Alternatives/Backups
- Technicians can deploy replacement equipment quickly in case of equipment failure
- A paper poll book is produced for every precinct for every election. In case of an equipment failure, this allows poll workers to determine eligibility and ballot type, capture and verify signatures, and record voter history.
- Poll Workers have the ability to manually open a ballot for a voter if they are unable to encode a voter access card.

Electronic Poll Books: Security

▶ EPBs in Wayne County are not connected to any network in the polling place. The pollbooks within each location communicate only with each other – this allows them to share check-in information and prevents a voter from being checked in twice.

▶ They are briefly connected to our secure internal network during programming before each election to download the voter rolls and mark the voters who have voted an absentee ballot.

▶ Each EPB is sealed in a secure case prior to deployment, and locked with a numbered lock. The poll workers verify this lock is intact and untampered-with before the polls open on election day. The unit is then sealed back into this case with a new numbered lock before it leaves the polling location.

▶ When returned to the BOE, the lock is again verified before the unit is connected to our secure network to download the list of voters who voted in the election.

Electronic Poll Books: Security
- EPBs in Wayne County are not connected to any network in the polling place. The pollbooks within each location communicate only with each other – this allows them to share check-in information and prevents a voter from being checked in twice.
- They are briefly connected to our secure internal network during programming before each election to download the voter rolls and mark the voters who have voted an absentee ballot.
- Each EPB is sealed in a secure case prior to deployment, and locked with a numbered lock. The poll workers verify this lock is intact and untampered-with before the polls open on election day. The unit is then sealed back into this case with a new numbered lock before it leaves the polling location.
- When returned to the BOE, the lock is again verified before the unit is connected to our secure network to download the list of voters who voted in the election.

Electronic Poll Books: Logic and Accuracy Testing

- Prior to each election, each EPB is programmed with the list of eligible voters and the ballot styles available in that polling location for that election.
- Every unit is tested by checking in a voter for each available ballot style and completing the process of encoding a voter access card. The voter access card is then tested on a voting machine to ensure it opens the correct ballot.
- The voter history is then verified – did the EPB record the record of voter activity correctly?
- Test check-ins are then cleared from the unit.
- Just prior to deployment (Sunday night), each EPB is updated to reflect every voter who requested an absentee ballot. The unit is once again double-checked to make sure it contains all eligible voters and the proper configuration. Then the unit is sealed with a numbered lock and will not be opened until it is in the polling location the morning of the election.

Electronic Poll Books: Logic and Accuracy Testing
- Prior to each election, each EPB is programmed with the list of eligible voters and the ballot styles available in that polling location for that election.
- Every unit is tested by checking in a voter for each available ballot style and completing the process of encoding a voter access card. The voter access card is then tested on a voting machine to ensure it opens the correct ballot.
- The voter history is then verified – did the EPB record the record of voter activity correctly?
- Test check-ins are then cleared from the unit.
- Just prior to deployment (Sunday night), each EPB is updated to reflect every voter who requested an absentee ballot. The unit is once again double-checked to make sure it contains all eligible voters and the proper configuration. Then the unit is sealed with a numbered lock and will not be opened until it is in the polling location the morning of the election.

Voting Systems

▶ These are what are commonly called "voting machines" – defined in Ohio law as "mechanical or electronic equipment for the direct recording and tabulating of votes." Their purpose is to allow voters to complete and cast their ballot in a secure manner.

▶ Most voting systems also facilitate accommodations for voters with various disabilities under the ADA.

▶ Voting systems tabulate votes to facilitate accurate vote counting.

▶ Voting systems in Ohio must also allow the voter to see a paper record of their cast vote. These systems must provide a secure audit trail – this means a paper ballot of some form.

Voting Systems
- These are what are commonly called "voting machines" – defined in Ohio law as "mechanical or electronic equipment for the direct recording and tabulating of votes." Their purpose is to allow voters to complete and cast their ballot in a secure manner.
- Most voting systems also facilitate accommodations for voters with various disabilities under the ADA.
- Voting systems tabulate votes to facilitate accurate vote counting.
- Voting systems in Ohio must also allow the voter to see a paper record of their cast vote. These systems must provide a secure audit trail – this means a paper ballot of some form.

Types of Voting Systems
- PCOS – Precinct Count Optical Scan
- BMD – Ballot Marking Device
- DRE – Direct Recording Electronic
- *There are also hybrid systems that combine features of two or more of the above systems*

Optical Scanners

- Optical scan ballot tabulators, or optical scanners, include hand-fed and batch-fed scanners. In jurisdictions that use optical scanners voters indicate their selections by filling in an oval, completing an arrow or filling in a box for each selection on their ballot. Other voters may use a Ballot Marking Device (BMD) to complete the ballot prior to scanning. Ballots are then scanned on hand-fed optical scanners in the polling place or are collected in a ballot box to be scanned at a central location on hand-fed or high-speed batch-fed optical scanners. Many jurisdictions (including Wayne County) have one or more batch-fed optical scanners, which they house in a central location to scan and tabulate mail or absentee ballots.

Ballot Marking Device
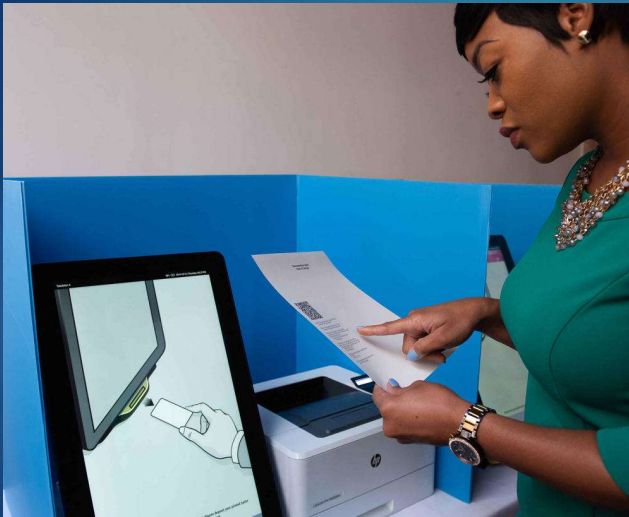
Ballot Marking Device (BMD)
- A Ballot Marking Device presents the ballot electronically and allows the voter to make their selections using a touchscreen, dial, or buttons. The BMD then prints a ballot that the voter must then feed into a precinct-level optical scanner or deposit into a ballot box for later scanning.

Direct-Recording Electronic (DRE)
- Direct Recording Electronic (DRE) voting systems presents the ballot electronically and allow the voter to make their selections using a touchscreen, dial, or buttons. The voter's choices are recorded directly into computer memory. DREs can support private, independent voting for individuals with disabilities by being configured with Audio-Tactile Interfaces (ATI), headphones so the voter can have the ballot read to them, or paddles or sip-and-puff devices for voters with dexterity impairments. The voter's choices are stored in DREs via a memory cartridge, diskette, or smart card and added to the choices of all other voters. Most DREs can be equipped with Voter Verified Paper Audit Trail (VVPAT) printers that allow sighted voters to confirm their selections on an independent paper record before recording their votes into computer memory. This paper ballot is preserved and used for audits and recounts.

Hybrid Voting Systems

- A combination of some or all of the previous. For example, a paper-ballot county may have a hybrid system that allows voters with disabilities to vote on equipment integrated directly into the precinct-level scanner.
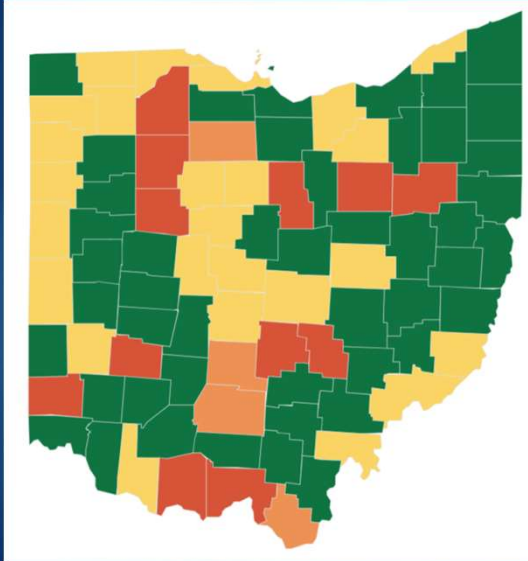
Voting Systems Used in Ohio
- Hand marked paper ballots and BMDs – 49.2%
- Ballot Marking Device for all Voters – 34.7%
- Hybrid BMB/Tabulator for all voters – 2%
- DREs with VVPAT for all voters – 14.2%
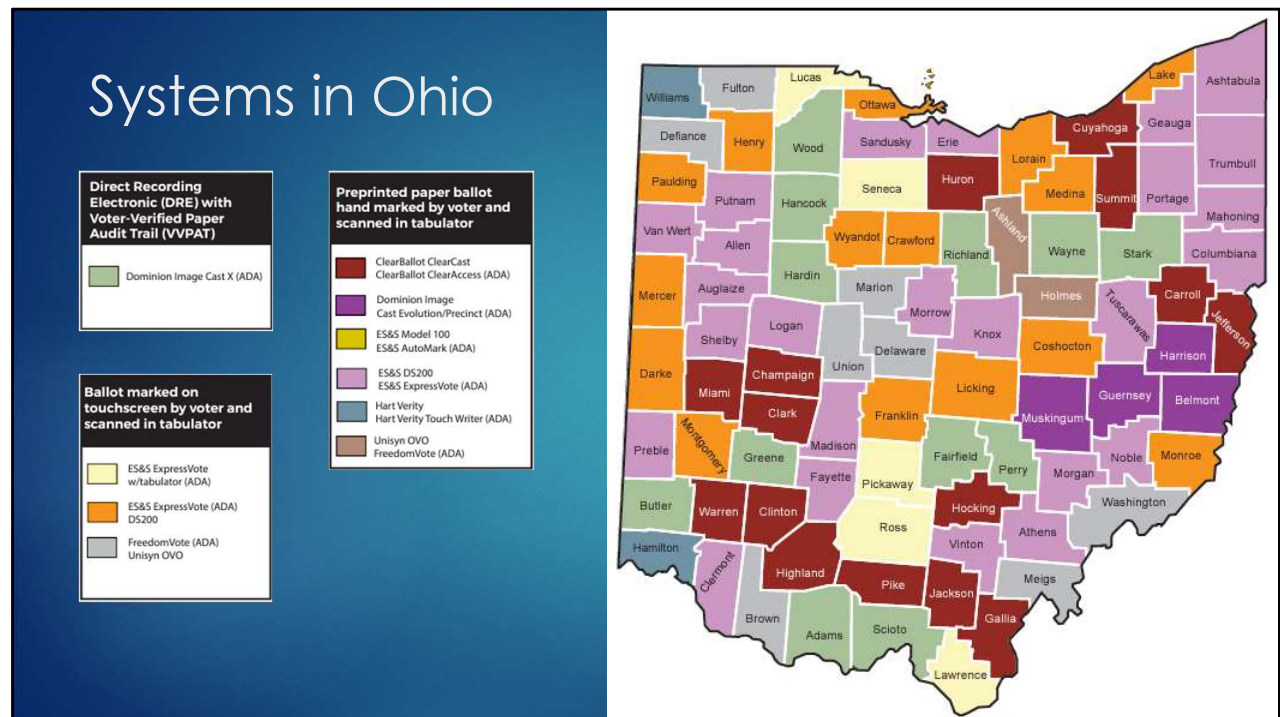
Voting Systems Used in Ohio
- *Here you can see a more detailed breakdown of voting system types and manufacturers used in Ohio. This diversity is by design as each county is able to choose the best solution for their population and budget.*

In Wayne County
- Wayne County uses the Image Cast Express (ICX) made by Dominion Voting Systems
    - *This system has been used in Wayne County since the 2019 General Election.*
- Why?
    - History
        - *This system is very similar to the previous TSX system used in Wayne County. We felt that staying with a similar DRE system would be an easy change for our voters.*
    - Cost
        - *The per-election cost of a DRE system like the ICX is much lower than a paper-based system. Paper ballot systems require pre-printing ballots for 101% or registered voters in every precinct, at a cost of around 30¢ per ballot (over $22,000 for the last election) (ORC 3505.11).*
    - Reliability
        - *This system has demonstrated incredible reliability. Precinct level optical scanners would add an additional level of complexity and opportunity for equipment malfunction. DRE systems avoid this complication.*
    - Trust
        - *Wayne County has an established relationship with Dominion, as they serviced our previous TSX system for many years.*

- Storage
  - *A paper-based system would require significant extra secure storage for ballots, which must be retained for 22 months after each federal election (ORC 3535.31).*
- Security
  - *The ICX system demonstrates robust security and allows for extensive use of tamper-evident locks and seals to prevent unauthorized access.*

How Does it Work?

▶ The voter is checked in on the Electronic Poll Book (Poll Pad).
▶ The Poll Pad encodes a Voter Access Card.
▶ The voter inserts the card into a machine to open a ballot.
▶ The voter makes their selections.
▶ The voter reviews their choices on screen.
▶ The voter prints their ballot.
▶ The machines scans the paper ballot to confirm it printed correctly.
▶ The voter confirms the printed ballot is accurate and casts their vote.
▶ The machine invalidates the access card which is then reused for another voter.

How Does it Work?
- The voter is checked in on the Electronic Poll Book (Poll Pad).
- The Poll Pad encodes a Voter Access Card.
- The voter inserts the card into a machine to open a ballot.
- The voter makes their selections.
- The voter reviews their choices on screen.
- The voter prints their ballot.
- The machines scans the paper ballot to confirm it printed correctly.
- The voter confirms the printed ballot is accurate and casts their vote.
  - *At any point until the vote is cast, the voter can go back and change their selections.*
- The machine invalidates the access card which is then reused for another voter.
  - *If there is any machine error (like running out of paper) before the vote is cast, the voter can take their access card to another machine to cast their ballot. Once the ballot is cast and the vote is recorded, the access card is deactivated.*
  - *The voter's identity, ballot, or vote is not stored on the access card. It is merely the "key" to open the correct ballot.*

Keeping it Secure

▶ Video Surveillance in our office

▶ No Connectivity Whatsoever

▶ Programming in-house

▶ Logic & Accuracy Testing

▶ Multiple Locks and Seals

▶ Chain of Custody

▶ Zero Reports

Keeping it Secure
- Video Surveillance in our office
  - *The voting machines are under 24/7 video surveillance in our secure storage area, year-round.*
- No Connectivity Whatsoever
  - *These units do not have the components necessary to allow a connection to the internet. There are no modems or Wi-Fi chips in them.*
- Programming in-house
  - *Beginning with the primary earlier this year, we do all our programming in-house, using only Wayne County employees.*
- Logic & Accuracy Testing
  - *Every unit is extensively tested prior to each deployment. (more on this in a coming slide)*
- Multiple Locks and Seals
  - *Each unit is deployed with 12 unique single-use tamper-evident locks and seals, each with a unique serial number, securing every case, access door, port, and connection on the machine. Poll Workers check these numbers and insure they match prior to use and throughout the day, and replace the seals and locks, recording the new seal number, every time a machine needs to be accessed (to change paper, for example). New locks and seals are applied at the end of the*

day before the equipment is transported back to the Board of Elections. We use over 5000 uniquely-numbered locks and seals in every county-wide election.

- Chain of Custody
    - *Throughout every part of the election, there is a documented chain of custody for every piece of equipment.*
- Zero Reports
    - *The first thing poll workers do once a machine is set up in the precinct is run a zero report.   The poll workers use this report to confirm that the machine contains no votes when the day begins, and they sign this report for each machine.*

Keeping it Secure
- Bipartisan Oversight
  - *Each precinct has a bipartisan team of poll workers – no more than half of the workers can belong to the same party. These poll workers cooperate to observe and maintain the voting machines, and ensure that no locks or seals are broken throughout the day. This bipartisan oversight ensures that no one can tamper with a voting machine.*
- Closing Reports
  - *Once the polls close, poll workers print a closing report for every machine. This report lists the votes cast for each candidate and issue, and the total votes cast on each machine. This number of votes is then recorded along with the total number of voters checked in on the electronic poll book. Poll workers must document any discrepancy. This ensures that there aren't any "extra" votes. The closing reports are then posted at each polling location where they may be viewed by the public that night. These report totals can then be compared to the unofficial election night results.*
- Unofficial Results/Balancing/Official Results
  - *Unofficial results are released election night. Over the following days, each precinct's vote totals are balanced to ensure that the number of votes counted matches the number of voters processed in that precinct. There are always*

"abandoned ballots" (when a voter checks in but leaves without casting their ballot), but this balancing process ensures that no "extra" votes were cast, and that no proper votes were missed. This balancing is completed before the official results are released.

- Audits
  - *After every election, an audit is conducted to ensure accuracy. This is a hand-count of a representative random sample of votes and must confirm the results. (More on this soon)*
- Recounts
  - *Whenever a race is within 0.5% an automatic recount is conducted. This is a hand count of whole precincts involved, selected at random. Enough precincts shall be selected for the recount whose total votes cast, when taken together, equal at least five percent of the total votes cast in the election at issue.*
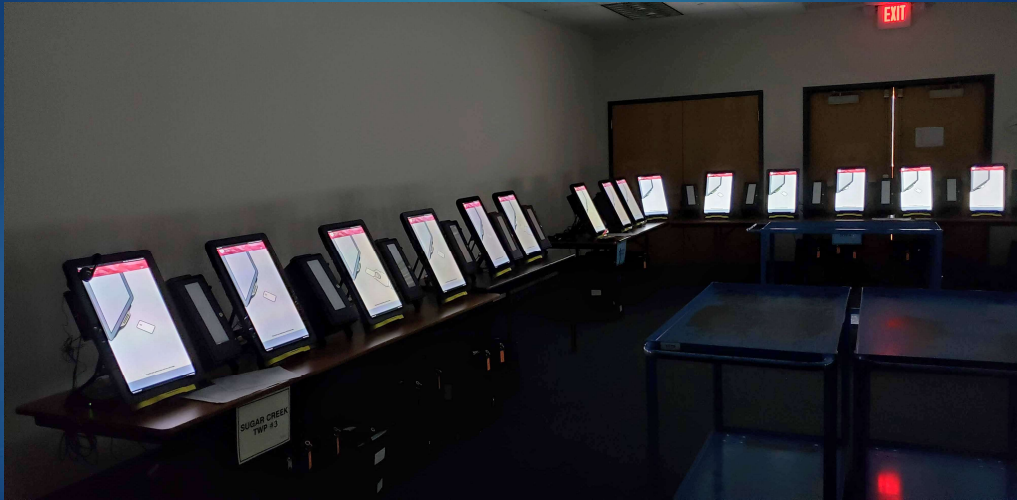
Logic and Accuracy Testing

Logic and Accuracy Testing

▶ Conducted before every election.

▶ Every machine is set up as it is on election day.

▶ All features and functions are tested.

▶ Every possible ballot style is voted on each machine, using a pre-determined pattern.

▶ These test results are tabulated and must match exactly.

▶ The test results are cleared from the machines.

▶ Freshly charged backup batteries are installed.

▶ The tested machines are sealed (12 unique locks and seals per unit) and seal numbers are recorded.

▶ The machines remain sealed until the poll workers open them in the polling location election morning.

Logic and Accuracy Testing
- Conducted before every election.
  - *The process usually takes a week or longer, depending on the type of election and complexity of the ballot. We bring in a team of trusted seasonal workers – most of them are poll workers or election day "Rover" technicians who have been working for us for many years.*
- Every machine is set up as it is on election day.
  - *Including the VVPAT Printer and ATI device for ADA voters. Even the memory sticks are tested.*
- All features and functions are tested.
  - *Regular voting, Audio ballots, the printer and scanner – everything.*
- Every possible ballot style is voted on each machine, using a pre-determined pattern.
  - *Each combination of precinct, ward, school district, township, fire district, etc. has it's own ballot. We vote them all in L&A – thousands of test votes are cast.*
- These test results are tabulated and must match exactly.
  - *This test the tabulation equipment as well. If something doesn't match exactly, the issue is corrected and the test begins anew. These situations are always human error.*
- The test results are cleared from the machines.
  - *Poll Workers verify this using the Zero Report on election morning.*

- Freshly charged backup batteries are installed.
    - *These units can function around 2 hours without power in case of an outage.*
- The tested machines are sealed (12 unique locks and seals per unit) and seal numbers are recorded.
    - *There are multiple layers of locks and seals. Any one port is protected by a minimum of three separate locks and seals. The recorded lock and seal numbers are entered into a database so that they can appear on the poll worker's paperwork for verification on Election Day.*
- The machines remain sealed until the poll workers open them in the polling location election morning.
    - *Poll Workers must verify all locks and seals are in place and tamper-free before the equipment can be used on Election Day.*

Public Certification

- Conducted before every election, shortly after the completion of Logic and Accuracy Testing.
- Testing is conducted in a public session.
- Machines are chosen at random by drawing slips of paper.
- The machines are set up, and s series of test votes is cast.
- The results are tabulated and must match the test votes 100%.
- The results are then cleared, and the units are sealed.
- The units will remain sealed until election day.

Public Certification
- Conducted before every election, shortly after the completion of Logic and Accuracy Testing.
- Testing is conducted in a public session.
- Machines are chosen at random by drawing slips of paper.
- The machines are set up, and s series of test votes is cast.
- The results are tabulated and must match the test votes 100%.
- The results are then cleared, and the units are sealed.
- The units will remain sealed until election day.

Audits

- ▶ A hand-count audit is conducted after the election.
- ▶ Each audit tests at least three contests – normally two statewide contests and a county-wide contest.
- ▶ The machines selected for the audit are drawn at random in a public meeting, and must equal 5% or more of votes cast.
- ▶ Bipartisan teams of 4 count ballots by hand.
  - ▶ 2 people (a D and an R) read the ballot.
  - ▶ 2 people (a D and an R) record the votes by tally marks.
- ▶ The hand-count results are then compared to the official count
- ▶ The audit must be 99.5% accurate. If not, the audit expands until it is, up to a 100% hand count of all votes cast.
- ▶ **Wayne County's audits are historically 100% accurate.**
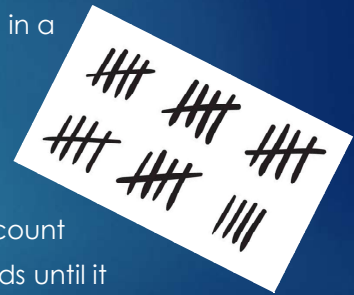
Audits
- A hand-count audit is conducted after the election (3505.331).
- Each audit tests at least three contests – normally two statewide contests and a county-wide contest.
  - *The races to be audited are chosen based upon direction from the Ohio Secretary of State, and vary depending on the type of election.*
- The machines selected for the audit are drawn at random in a public meeting, and must equal 5% or more of votes cast.
  - *Folded slips of paper are drawn out of a bag. There is a slip for every machine used on election day, in early voting, and the scanners used for absentee, provisional, and paper ballots.*
- Bipartisan teams of 4 count the ballots by hand.
  - 2 people (a D and an R) read the ballot.
    - *For votes cast on a voting machine, the auditors read the votes from the paper rolls printed in the VVPAT printer. These are the paper ballots that the voter is instructed to read and verify before casting their vote.*
  - 2 people (a D and an R) record the votes by tally marks.
- The hand-count results are then compared to the official count.
  - *If the counts don't match, they count it again. Discrepancies are always due to human error in hand counting.*

- The audit must be 99.5% accurate. If not, the audit expands until it is, up to a 100% hand count of all votes cast.
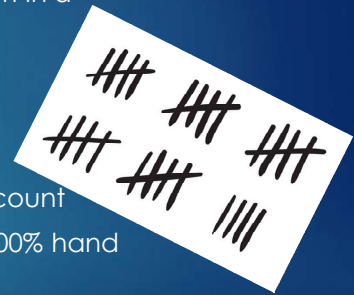- Wayne County's audits are historically 100% accurate.
    - *We've had one audit in that past 5 years that was 99.8% - Still well above the 99.5% threshold, but we are proud to always strive for and achieve 100%.*

Recounts

- A hand-count recount is automatic any time a contest is within 0.5%
- Recounts are conducted by whole precincts
- The machines precincts for a recount are drawn at random in a public meeting, and must equal 5% or more of votes cast.
- Bipartisan teams of 4 count ballots by hand.
  - 2 people (a D and an R) read the ballot.
  - 2 people (a D and an R) record the votes by tally marks.
- The hand-count results are then compared to the official count
- The results must match. If not, the recount expands to a 100% hand count of all votes cast.
- Any losing candidate (or group of 5 people in case of an issue) can request a recount, but must bear the cost (up to $70 per precinct).

Recounts
- A hand-count recount is automatic any time a contest is within 0.5%
- Recounts are conducted by whole precincts
- The machines precincts for a recount are drawn at random in a public meeting, and must equal 5% or more of votes cast.
- Bipartisan teams of 4 count ballots by hand.
  - 2 people (a D and an R) read the ballot.
  - 2 people (a D and an R) record the votes by tally marks.
- The hand-count results are then compared to the official count
- The results must match. If not, the recount expands to a 100% hand count of all votes cast.
- Any losing candidate (or group of 5 people in case of an issue) can request a recount, but must bear the cost (up to $70 per precinct).

Backup Plans

- ▶ Our Rovers (field technicians) visit precincts throughout the day to help with any equipment issues.
- ▶ Rovers can deploy replacement equipment quickly in case of equipment failure.
- ▶ Each precinct is issued a supply of paper ballots to be used in case of emergency.
- ▶ We can print additional ballot stock here in our office should the need arise.
- ▶ Any voter has the right to request a paper ballot if they do not want to vote on the machines.

Backup Plans
- Our Rovers (field technicians) visit precincts throughout the day to help with any equipment issues.
- Rovers can deploy replacement equipment quickly in case of equipment failure.
- Each precinct is issued a supply of paper ballots to be used in case of emergency.
- We can print additional ballot stock here in our office should the need arise.
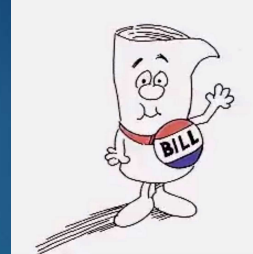- Any voter has the right to request a paper ballot if they do not want to vote on the machines.
  - *Please tell the Poll Worker during the check in process*

Pending Legislation
- *There are many election bills currently pending in the Ohio legislature. Some of them may not go anywhere, and there are guaranteed to be changes along the way. There are countless election-related bills proposed every year, and not all of them become law. Here are a few that relate to our discussion tonight.*
  - HB 472 / SB 274
    - Sweeping changes to Ohio election law that impact almost every aspect of the voter registration and voting process in Ohio
    - 256-page bill – The summary alone is 56 pages!

Misconception:
Are Voting Machines Hackable?

- ▶ Voting machines are NEVER connected to the internet
- ▶ Voting machines do not have the hardware necessary for a connection – no modem or Wi-Fi cards or chips are present.
- ▶ Tabulation equipment is NEVER connected to an outside network.
- ▶ All updates are done manually without using a network connection.

Misconception: Are Voting Machines Hackable?
- Voting machines are NEVER connected to the internet
- Voting machines do not have the hardware necessary for a connection – no modem or Wi-Fi cards or chips are present.
- Tabulation equipment is NEVER connected to an outside network.
- All updates are done manually without using a network connection.

Misconception:
Are Voting Machines Trustworthy?

▶ Post-election audits and hand recounts confirm the results time after time with 100% accuracy.

▶ These audits and recounts are open to the public.

Misconception: Are Voting Machines Trustworthy?
- Post-election audits and hand recounts confirm the results time after time with 100% accuracy.

Misconception:
Hand Counting Paper Ballots

▶ Additional Cost

- ▶ Recently estimated by the Ohio Legislative Budget Office to be an additional $2.20-$4.50 per cast ballot.

- ▶ For Wayne County, in 2023 that would have been $107,630.60-$220,153.50 for the Primary and General combined (not counting the August Special Election - including the Special Election, the bill for Wayne County would have been $174.457-80 to $356,845.50).

Misconception: Hand Counting Paper Ballots
- Additional Cost
    - Recently estimated by the Ohio Legislative Budget Office to be an additional $2.20-$4.50 per cast ballot.
    - For Wayne County, in 2023 that would have been $107,630.60-$220,153.50 for the Primary and General combined (not counting the August Special Election - including the Special Election, the bill for Wayne County would have been $174.457-80 to $356,845.50).

Misconception:
Hand Counting Paper Ballots

▶ Additional Time

▶ Butler County recently ran some simulations and determined that hand counting would require an additional 50 hours PER PRECINCT. Wayne County has 67 precincts.

▶ In November 2023, the race for Mayor of Dalton was an absolute tie. This triggered an automatic recount of the entire precinct. Using three teams of four people each, this recount took 7.5 hours to complete – for ONE RACE. A ballot in any given election can have many races.

Misconception: Hand Counting Paper Ballots
- Additional Time
  - Butler County recently ran some simulations and determined that hand counting would require an additional 50 hours PER PRECINCT. Wayne County has 67 precincts.
  - In November 2023, the race for Mayor of Dalton was an absolute tie. This triggered an automatic recount of the entire precinct. Using three teams of four people each, this recount took 7.5 hours to complete – for ONE RACE. A ballot in any given election can have many races.

**Misconception:
Hand Counting Paper Ballots**

▶ Loss of Accuracy

   ▶ Hand counts are never as accurate as machine counts. Humans miss votes, make mathematical errors, and become fatigued and distracted.

   ▶ Maintaining accuracy in hand counting is a challenge for experienced election officials. A complete hand count would require dozens (if not hundreds) of additional personnel.

Misconception: Hand Counting Paper Ballots
- Loss of Accuracy
  - Hand counts are never as accurate as machine counts. Humans miss votes, make mathematical errors, and become fatigued and distracted.
  - Maintaining accuracy in hand counting is a challenge for experienced election officials. A complete hand count would require dozens (if not hundreds) of additional personnel.

Misconception:
Hand Counting Paper Ballots

▶ Increased Risk

  ▶ Increased handling of ballots can lead to less control of the ballots. Imagine what a spilled cup of coffee can do…

  ▶ The intense amount of labor required would mean bringing in many additional workers that would need to be trained and vetted. This increased labor would require a large venue for many days – like a gymnasium or the Event Center.

Misconception: Hand Counting Paper Ballots
- Increased Risk
    - Increased handling of ballots can lead to less control of the ballots. Imagine what a spilled cup of coffee can do…
    - The intense amount of labor required would mean bringing in many additional workers that would need to be trained and vetted. This increased labor would require a large venue for many days – like a gymnasium or the Event Center.

In Conclusion…

In Conclusion…

- Tonight's presentation is an effort to relay a ton of information in a short time. A one-hour class couldn't possibly cover it all, but I hope if give you an idea of just how much goes in to keeping accurate voter rolls.
- The security of our elections is vital to our democracy, and I'm glad people are curious and paying attention.
- I firmly believe that our elections are secure, and I stake my personal and professional reputation on the security and trustworthiness of our processes and equipment every day.
- Ohio's bipartisan election officials are the first line of defense in holding secure elections. We make this our lives' work, and will continue to work tirelessly to ensure it's done right.
- As local election officials, our role is to facilitate free, fair, safe, and accurate elections in Wayne County in accordance with state and federal law.
- While some have expressed concerns and ideas for changes to law on all sides of election issues, our role is to administer elections within the context of current law.
- This is a task we take very seriously in Wayne County, and our dedicated board

and staff will continue to protect the democratic process in Wayne County by following the standards set in state and federal law.

- The best way to learn about the election process is to serve as a poll worker.
    - We're always looking for new poll workers.
    - Must be 17 years or older.
    - Paid position starting at $132 per election.
    - Meredith and Kim have Poll Worker interest cards if you'd like more information.
- Please remember to write down any questions you may have on the provided 3x5 cards and leave them at the table as you leave. We'll email you a link to the questions and answers in the next week or so, along with this presentation and the video.
- I look forward to seeing many of you at the next session, "Candidates and Issues" on July 23rd.

Upcoming Voter Academy Classes:
- Candidates and Issues - Tuesday, July 23rd
- Absentee and Provisional Voting - Tuesday, August 20th
- Election Logistics - Tuesday, September 24th

All classes begin at 7 PM and will last one hour.

Register online at www.WayneCountyOH.gov/academy or call 330-287-5480.