Objectives

Define RLAs and the math behind them

Brief History of RLAs in Virginia

How RLAs contribute to election security readiness

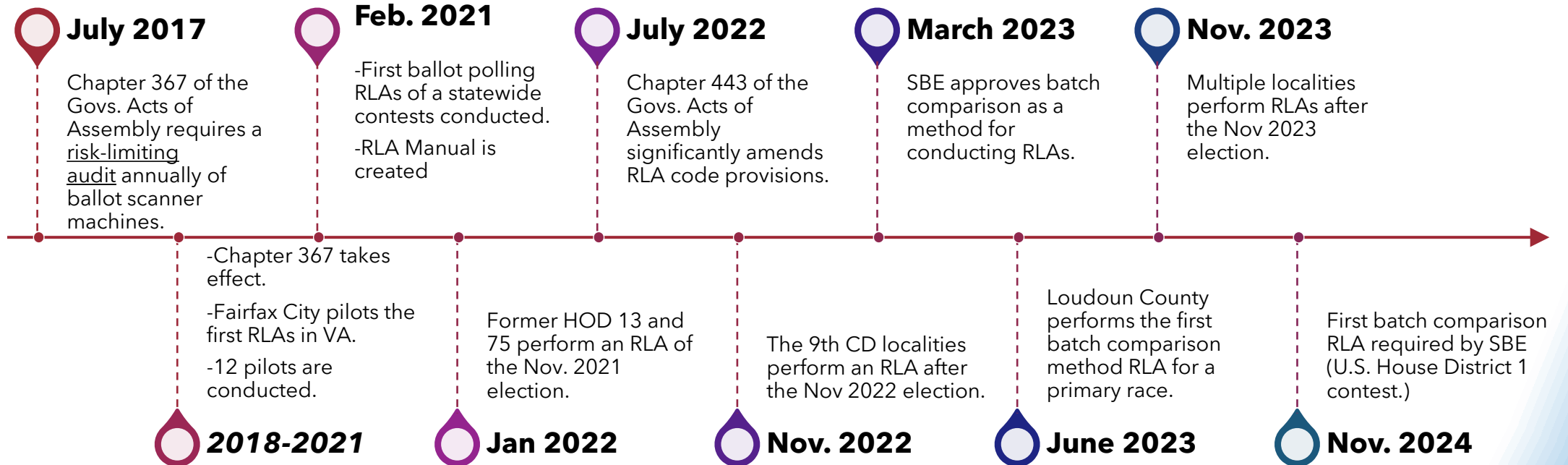Lessons Learned from previous audits

Additional Resources

RISK-LIMITING AUDITS in VA: A Brief History

July 2017

Chapter 367 of the Govs. Acts of Assembly requires a <u>risk-limiting audit</u> annually of ballot scanner machines.

Feb. 2021

-First ballot polling RLAs of a statewide contests conducted.

-RLA Manual is created

July 2022

Chapter 443 of the Govs. Acts of Assembly significantly amends RLA code provisions.

March 2023

SBE approves batch comparison as a method for conducting RLAs.

Nov. 2023

Multiple localities perform RLAs after the Nov 2023 election.

2018-2021

-Chapter 367 takes effect.

-Fairfax City pilots the first RLAs in VA.

-12 pilots are conducted.

Jan 2022

Former HOD 13 and 75 perform an RLA of the Nov. 2021 election.

Nov. 2022

The 9th CD localities perform an RLA after the Nov 2022 election.

June 2023

Loudoun County performs the first batch comparison method RLA for a primary race.

Nov. 2024

First batch comparison RLA required by SBE (U.S. House District 1 contest.)

"We do not have to hand count every ballot to check that a vote counting machine accurately reported the election results, we can use statistics!"

– Inferential Statistics
  - Central Limits Theorem (1733)
    – Allows us to make inferences about a population based on the sampling distribution
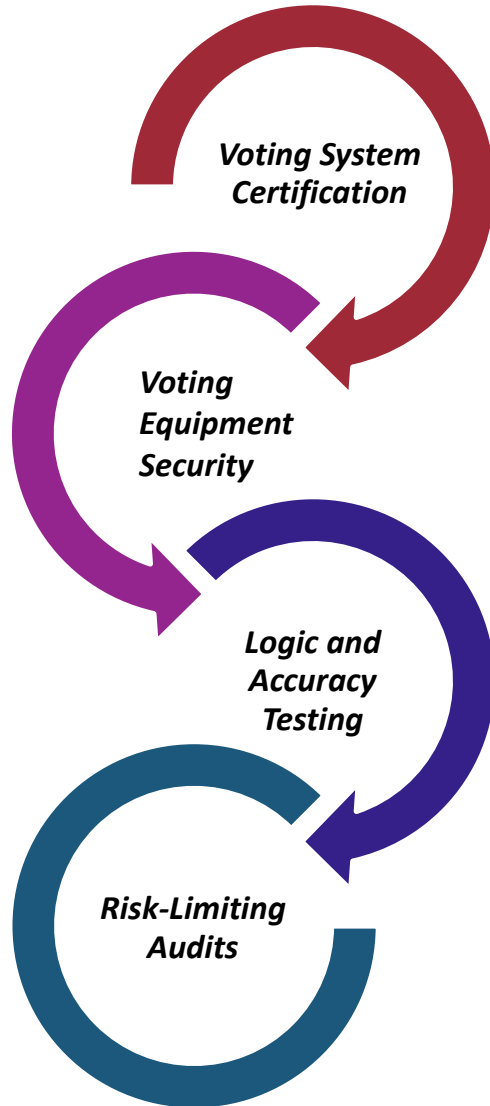
– Risk Limit → Hypothesis
  - Is the largest possible chance that the RLA will *not* identify an incorrect outcome, if one exist.

– Simple Random Sampling vs. Cluster Random Sampling
  - Ex: Ballot Polling RLA, Exit Polls (Simple Random Sampling)
  - Ex: Batch Comparison RLA, Educational Assessments (Cluster Random Sampling)
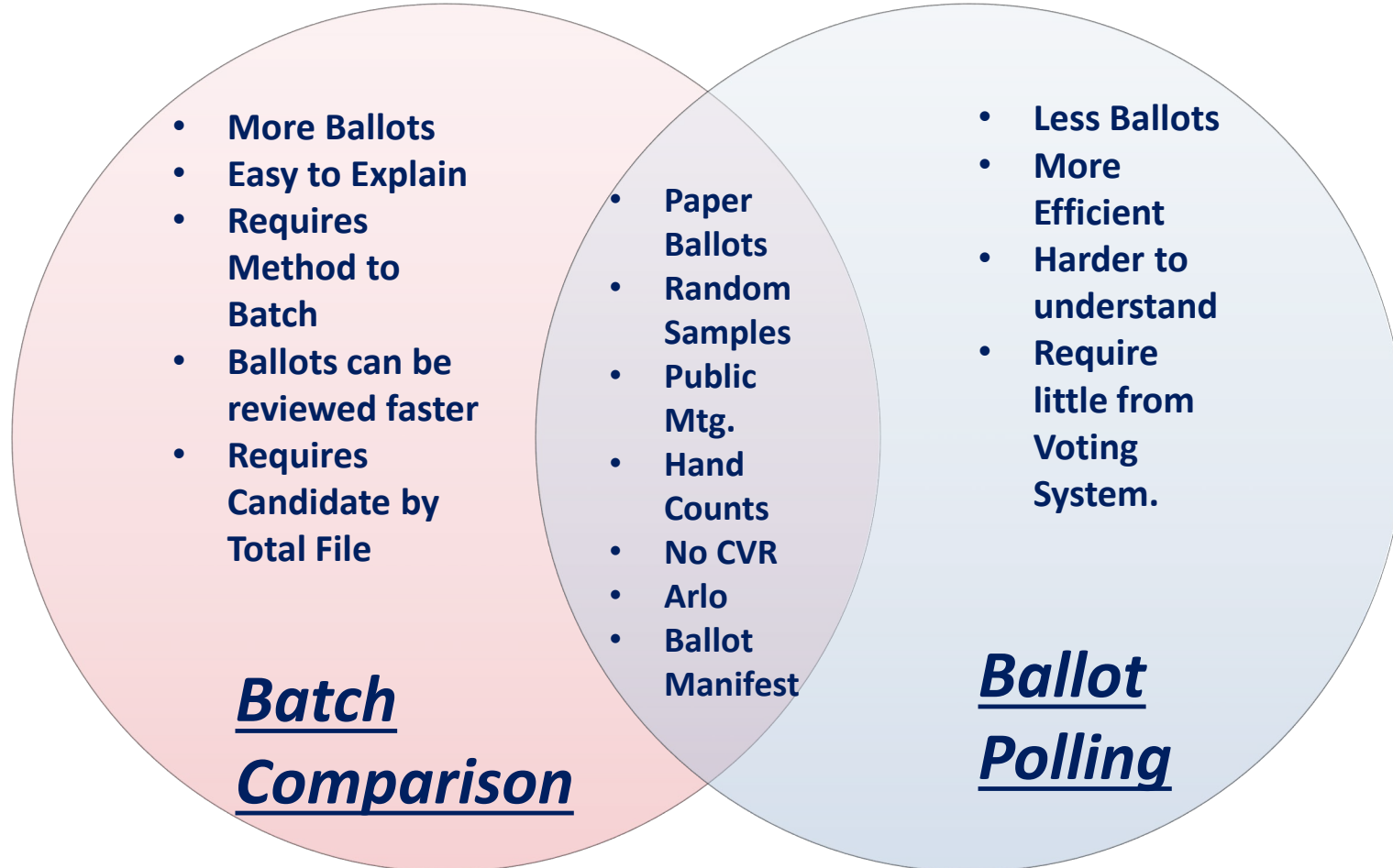
★ VIRGINIA ★

DEPARTMENT *of* ELECTIONS

Ensuring Voting System Accuracy

Voting System Certification

Voting Equipment Security

Logic and Accuracy Testing

Risk-Limiting Audits

- The Code of Virginia mandates the use of several checks on voting systems conducted at both the state and local level.

  - **§24.2-629** *State Board Approval of Electronic Voting Systems*
  - **§24.2-625.1** *Voting Equipment Security*
  - **§24.2-633** *Notice of final testing of voting system; sealing of equipment*
  - **§24.2-671.2** *Risk-Limiting Audits*

- RLAs are part of larger effort to ensure that machines are accurately reporting election night results.

- Every risk-limiting audit conducted in VA has proven that the machines are accurately reporting election results.

- 24 RLAs (including pilots)
  - 1 Ballot Comparison (Pilot)
  - 5 Batch Comparison
  - 18 Ballot Polling Audits

"Two approaches, same statistical confidence."

- **More Ballots**
- **Easy to Explain**
- **Requires Method to Batch**
- **Ballots can be reviewed faster**
- **Requires Candidate by Total File**

Batch Comparison

- **Paper Ballots**
- **Random Samples**
- **Public Mtg.**
- **Hand Counts**
- **No CVR**
- **Arlo**
- **Ballot Manifest**

- **Less Ballots**
- **More Efficient**
- **Harder to understand**
- **Require little from Voting System.**

Ballot Polling

Real Life Examples

Contest	Margin	Batch Comparison	Ballot Polling
Chesapeake 2021 Commonwealth Attorney	15%	17 Batches/22,100 Ballots	570 Ballots
Prince Edward 2023 Sheriff	27.3%	10 Batches/13,000 Ballots	150 Ballots
Henrico 2023 Va. Senate District 16	9.6%	27 Batches/35,100 Ballots	1,568 Ballots

- Contests with smaller margins will require more ballots to be sampled.
- Batches are defined as precincts. The average size of a precinct is approximately 1,300 voters.
- Using ballot polling, audit review boards can pull anywhere from 20-25 ballots per hour for ballot polling.
- Using batch comparison, audit review boards can pull anywhere from 200-250 ballots per hour.

Localities DEPEND on each other for success

"Unless you're auditing a contest wholly contained within your jurisdiction, other localities must work together to conduct an audit."

- Every locality must upload a ballot manifest, before the official audit may begin.
- It is critical that every locality start at the same time, so they can finish at approximately the same time.
- The way you choose to resource will impact other localities.
- At least *one* member of the electoral board representing each political party must be present at the RLA.
- Accurate data entry is important in configuring results.

"Organized ballot storage is critical to identifying ballots."

- Build the ballot manifest throughout the start of early voting.
- RLAs are a good opportunity to review chain of custody and ballot storage practices.
- The Central Absentee Precinct may skew RLA results.
  - Batch method has illustrated that it tends to pick the largest precincts.
  - Not every ballot that is selected may contain the race being audited.

"Pre-Election Planning is Critical."

- Recruit Audit Review Boards
  – Aim for bipartisan representation
- Adjust and Mark calendars
  – Plan for additional days
- Consult with the Clerk of Court
- Notify other key-stakeholders
  – Parties
  – Candidates
  – Local Government
  – News
  – Social Media
- Identify the location
  – Consider the room layout, flow of the RLA

Additional Resources

- VIRGINIA DEPARTMENT OF ELECTIONS RISK-LIMITING AUDIT REPORTS
  - REPORTS 2020-Present
  - RLA MANUAL

- MIT Election Data + Science Lab
  - Post-Election Audits | MIT Election Lab

- POST-ELECTION AUDIT VOTING WORKS
  - AUDIT PLANNER
  - RESOURCES