

U.S. Election Assistance Commission

Uniformed and Overseas Citizens Absentee Voting Act Registration and Voting Processes

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The workproduct that follows represents the work of the EAC staff and does not represent a policy decision by the Commission.

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1. Purpose

The Military and Overseas Voter Empowerment Act (MOVE) cites the following Congressional findings:

1. The right to vote is a fundamental right.
2. Due to logistical, geographical, operational and environmental barriers, military and overseas voters are burdened by many obstacles that impact their right to vote and register to vote, the most critical of which include problems transmitting balloting materials and not having enough time to vote.

To help overcome these barriers, Section 584 of the MOVE Act requires states to provide military and overseas voters at least one electronic method for requesting and receiving voter registration applications, absentee ballot requests and related election information. Also, section 585 requires states to provide an electronic transmission method for delivering blank ballots. Section 596 requires the Election Assistance Commission (EAC) to provide a timeline for completing the development of the electronic absentee voting guidelines required by Section 567 of the FY2005 National Defense Authorization Act. The EAC tasked its Technical Guidelines Development Committee (TGDC) to develop recommendations for these guidelines. The purpose of these guidelines is to assist the Department of Defense in conducting pilot projects to examine the potential of remote electronic voting methods for overcoming some of the barriers cited above.

The introduction or modification of information technology (IT) tools in any work process will change how the process is performed. To assess the nature and impact of this change, common IT industry practice is to begin with a baseline description of the work process as currently performed (sometimes called the “as is” model). Then the future work process is described reflecting the changes occasioned by introducing new IT tools (called the “to be” model). Comparison of these models will indicate potential implications for implementation factors such as capital investment for new equipment and software, maintenance costs, work load impact, different staff skills, training requirements, and facility upgrade or expansion needs. There may also be requirements for certifying new IT tools, which implies the need for testing procedures and standards.

The purpose of this white paper is to provide a framework to assist federal and state policy makers, state and local election officials, the TGDC, and other stakeholders engaged in making decisions about the use of electronic technology for voting or creating standards for testing voting systems. This framework consists of a set of functional descriptions of the election administration and voter processes associated with absentee voting as prescribed by the Uniformed and Overseas Citizens Absentee Voting Act (UOCAVA) and other federal and state laws related to this Act.

These descriptions are distilled from UOCAVA practices implemented in a number of states and consequently are generic in nature. There is a great deal of variability

in election administration practices from state to state, so these descriptions will not be entirely accurate for every jurisdiction. They provide a starting place that is easily modified to capture specific practices and electronic methods in use or considered by any jurisdiction.

2. Scope

This paper begins with a summary of the salient features of UOCAVA voting (3.0 Overview of UOCAVA Voting) and a comparison of UOCAVA voting and polling place voting (4.0 What's Different About UOCAVA Voting).

Section 5.0 UOCAVA Process Descriptions provides functional level descriptions of the five processes directly associated with UOCAVA voting:

1. Prepare and submit voter registration application and/or absentee ballot request
2. Prepare and process voter registration applications and/or absentee ballot requests
3. Prepare and deliver absentee ballots
4. Receive, mark and return absentee ballot
5. Receive and process absentee ballot

Each is briefly described and accompanied by one or more flow diagrams. If reading the document electronically, adjust the view to enlarge the diagram. Additionally, larger diagrams can be found in Appendix A. The diagrams illustrate how process steps are affected when various electronic methods are employed for communicating between voters and election officials, e.g., email, fax and web servers. The paper ballot by mail method is presented as the baseline since it is employed nationwide.

Section 6.0 Remote Electronic Voting discusses how process steps are affected when remote voting system technology is employed. In contrast to the relatively minor procedural adjustments associated with the introduction of email, fax and web servers, this technology has a more significant impact because it automates many of the steps currently performed manually by Local Election Officials (LEOs) and voters.

Section 7.0 Conclusion summarizes the document and draws comparisons between electronic document delivery technology and remote electronic voting systems.

3. Overview of UOCAVA Voting

The Uniformed and Overseas Citizens Absentee Voting Act (UOCAVA) protects the right to vote for federal offices by active duty members of the U.S. uniformed services and the merchant marine; their spouses or dependents; and U.S. citizens residing outside of the United States. The Act requires states allow these citizens to register

and vote absentee in federal elections. The Secretary of Defense is the executive agent for this Act, and the Federal Voting Assistance Program (FVAP) administers the law on behalf of the Secretary.

One defining characteristic of UOCAVA absentee voters is that they reside somewhere other than the jurisdiction where they are eligible to vote. This Act requires the states to permit these voters to use absentee registration procedures and to vote by absentee ballot in federal elections for the duration of their absence from their voting jurisdictions, which could be for extended periods. UOCAVA prescribes a standard federal form, the Federal Post Card Application (FPCA), for use by these citizens to register to vote and/or request an absentee ballot. Additionally, each state has its own voter registration and absentee ballot request forms that any of their citizens can use. States are required to accept the federal form from UOCAVA citizens when the citizen is absent from their voting jurisdiction. The Act also provides for a standard fail-safe ballot, the Federal Write-in Absentee Ballot (FWAB), in the event the state absentee ballot does not reach the voter in time. States are required to accept and count these ballots in appropriate circumstances. Several states also accept the FWAB as a voter registration application.

There are two categories of UOCAVA voters:

1. Uniformed services members, including their spouses or dependents; and
2. Civilians who reside outside of the U.S and its territories.

There is an eligibility distinction between these categories that is often overlooked. Members of the uniformed services may utilize the UOCAVA process from wherever they are stationed – including locations in the U.S. In contrast, civilian voters must reside outside of the country to be eligible to use the UOCAVA process. Some states have established procedural variations for these two categories. For example, several states waive voter registration for uniformed service members, but not for overseas citizens.

There is a practical reason for these two categories. In the United States, citizens vote in the jurisdiction where they are legally considered a resident. Each state defines its own requirements for determining legal residency. The most common criterion used is the place where the citizen maintains his or her principal residence. If a civilian chooses to move to another location in the U.S., they can establish legal residency there and vote in that jurisdiction. If a citizen's principal residence is not in the U.S., some other criterion is needed to determine where they are eligible to vote. Under UOCAVA provisions, overseas civilians are eligible to vote in the jurisdiction where they resided immediately prior to departing the U.S., even if many years have passed and they have not maintained a residence there.

Unlike civilians, uniformed services members are ordered by the government to move to specified locations and relocate as often as required. UOCAVA defines uniformed services to include not only military personnel but also those serving

in the Public Health Service, the merchant marine and the uniformed corps of the National Oceanic and Atmospheric Administration. Military Service members in particular may move frequently. If their duty station is in the U.S., uniformed services personnel may decide to change their legal residence to their new location, just as civilian voters do; however, they are not required to do so in order to remain eligible to vote. Whether their new duty station is in the U.S. or overseas, they can continue voting throughout their service career in the same jurisdiction where they were first qualified to vote.

4. What's Different About UOCAVA Voting?

4.1 UOCAVA voters must make considerable effort to be able to vote.

Being absent from their voting residence and not having access to a polling place means UOCAVA voters may be required to exercise significantly more responsibility than non-UOCAVA voters to ensure they are able to vote. After a non-UOCAVA voter is registered, the only action they must take is showing up at their assigned polling location on Election Day to cast their ballot. The local election office provides the location, the voting system, the ballots, and the poll workers. Many voters register through a Department of Motor Vehicles or other social services agency transaction, so registration can be very easy and convenient. Through the media, candidate campaign publicity and election office voter outreach efforts, non-UOCAVA voters have ample notice of an upcoming election. If some eventuality arises preventing them from going to the polls on Election Day, many states provide the option of early voting or voting absentee. Typically this can be completed up to a few days before Election Day. In general, non-UOCAVA voters have considerable notice, ample time and several available alternatives to facilitate their ability to vote.

UOCAVA voters do not have the benefit of easily available resources. Often they must make considerable effort to get information about where and how to vote. Knowing the date of the next election is critical for these voters as it determines the voter registration and ballot request deadlines they must meet. Under the provisions of the MOVE Act, absentee ballots are required to be sent out 45 days before Election Day. For this deadline to be effective, absentee ballot requests should be received by local election jurisdictions prior to that time. To allow adequate mail transit time for receipt by the date ballots are available, UOCAVA voters may have to send their request at least eight weeks before Election Day. For example, FVAP's 2010 - 2011 Voting Assistance Guide recommends that absentee ballot requests be mailed by August 15 for the November 2, 2010 General Election. The advisable return date could be late September or early October for states where FPCAs can be returned electronically or submitted on-line.

Many UOCAVA citizens were already registered voters and may have voted in person before becoming UOCAVA absentee voters. Because they are already on the voter rolls, registered voters will likely be notified of an upcoming election by

their local election office, if they have kept their mailing address current. UOCAVA citizens who are not registered lack this connection to the process. All UOCAVA citizens need to know they are still eligible to vote in federal elections while absent from their home jurisdiction; how to get a voter registration application and/or an absentee ballot request form; and where and when to send these forms. Voter registration applications and updates to voter information can be submitted at any time. Under the MOVE Act, ballot requests must be submitted every federal election year. MOVE also requires states to provide at least one electronic method, in addition to postal delivery, for receiving these submissions.

There are several ways for UOCAVA citizens to get assistance. Voting Assistance Officers are assigned within the Department of Defense and Department of State to promote voting awareness and assist citizens. Voters may also consult their state or county elections webpage for information. FVAP; the U.S. State Department; state and local election offices; and numerous military and overseas citizen organizations have active voter outreach and information programs. Because the UOCAVA population is widely dispersed and not easy to reach, the MOVE Act requires additional outreach efforts by FVAP and military departments to bridge the communication gaps.

4.2 UOCAVA voters must keep their mailing address current.

UOCAVA voters tend to move frequently. Federal elections are scheduled once every two years, although there may be additional special elections during that interval. UOCAVA voters must remember to inform their local election office whenever they move to keep their current mailing address on file. Absentee balloting materials are not eligible for forwarding by the U.S. Postal Service and will be returned as undeliverable to the local election office. Under National Voter Registration Act (NVRA) provisions, LEO are required to attempt to contact these voters to determine if there has been a change of address. Failure to respond to these inquiries is cause for being removed from the voter list. While overseas ballots are permitted to be forwarded, this adds to the delivery time, which could prevent timely receipt by the voter. As a result, failure to keep his mailing address current will very likely result in a UOCAVA voter being unable to vote.

Non-UOCAVA voters are expected to keep their voting residence address current, as it determines which precinct they are eligible to vote in. Under NVRA provisions, a voter may update their voter registration address when changing the address on their driver's license. Election offices utilize change of address information supplied by the U.S. Postal Service to identify potential voter moves. The election office must confirm that the voter has changed his residence, but the voter typically does not have to do anything except respond to the LEO inquiry. NVRA requires election officials to maintain current and accurate voter lists, so the principal burden falls on LEOs to keep voting residence address information up-to-date.

4.3 Election officials have less control over the UOCAVA voting process.

Voting in polling places is a highly controlled and supervised process. The local election office provides the location, the voting system, the ballots, and the poll workers. Well-defined operating procedures, chain of custody requirements, and other measures protect the privacy of the voter, the secrecy of the ballot, and the integrity of the ballot box. In contrast, UOCAVA voting is a remote voting process taking place somewhere other than a polling place. Consequently, far fewer institutional protections exist. When an absentee ballot leaves the local election office, the election official no longer has control over what happens to it until it is returned to the election office. Mail delivery is provided by third parties not subject to management control or oversight by the election official. The U.S. Postal and Military Mail Services have procedures to discourage tampering with in-transit mail and are fairly reliable insofar as eventually getting mail delivered to the intended recipient; however, it is not uncommon for mail to be delivered to a wrong address or get lost.

4.4 The risk of ballot delivery by mail falls on the voter.

After the ballot is placed in the mail by an election official, UOCAVA voters must rely on the timeliness and reliability of some combination of the U.S. domestic postal service, the Military Mail Service, and foreign postal services for its delivery. Multiple post election surveys indicate mail delivery is ineffective for a large percentage of UOCAVA voters.

There are two aspects associated with delivery of a physical object, such as a ballot, to a specific individual. The first is the transit time of transporting the object over long distances with potentially multiple handoffs within, and between, postal services. The second is whether the addressee is available to take possession of the object when it arrives. Often, Military Service members are temporarily away from their home base for a period of time, frequently without advance notice. Change of duty station may occur at inconvenient times in the election schedule. The required 45 day ballot transit time assumes the voter will vote and return their ballot essentially as soon as it reaches their mailbox. If the voter is elsewhere there will be a delay in the receipt of the ballot, which may delay its return. The MOVE Act requirement for special collection procedures for military voted ballots, which will expedite ballot return for those eligible to use it, may help to remedy this situation.

The MOVE Act requires that UOCAVA voters have the ability to track whether their voted ballot was received by their election office. In addition to providing confirmation of receipt, this tracking could provide voters with more control over the ballot return process. For example, if receipt of a voted ballot is not confirmed and the cutoff date is only a few days away, it could alert a voter to contact the election office for a replacement ballot or give the voter time to submit a Federal Write-in Absentee Ballot. MOVE also requires FVAP to develop a system to identify all federal office candidates which will make it easier for voters to use the Federal Write-in Absentee Ballot.

The MOVE requirement for states to designate an electronic method for delivering blank ballots has the potential to provide voters increased control over when they receive the ballot. The voter can choose electronic or postal delivery. Electronic delivery will significantly reduce ballot delivery time. If the electronic method pushes the ballot to the voter, the election official decides when to send it. If the electronic method allows the voter to pull the ballot or cue the system when they are ready to receive the ballot, the voter can control the timing. Depending on the electronic transmission method used, this could enable receipt of the ballot at a time and place convenient for the voter.

4.5 The voter is responsible for ensuring their ballot selections are made privately and independently.

By definition, absentee voting occurs someplace other than a supervised polling place. Consequently, since the ballot is solely under the control of the voter, it becomes the voters responsibility to mark ballot selections privately and independently. This is true for all absentee voters, not just UOCAVA voters. The voting instructions provided in absentee ballot packets typically advise voters to protect the privacy of ballot selections. Other than this advice, an election official has no means to shield voters from undue influence unless some type of supervised remote voting is implemented. Some states allow voters to submit a replacement ballot if the voter attests they were under duress when voting the original ballot. The typical circumstances and time constraints associated with postal mail UOCAVA voting prevent replacement ballots from being an effective remedy. For jurisdictions where the voter and LEO can communicate by email and the replacement ballot can be delivered and/or returned electronically, the remedy becomes a more viable solution.

4.6 The voter provides their own voting device.

Whether marking a paper ballot with a #2 pencil or selecting ballot choices on a computer screen, the remote voter currently provides their own voting 'device.' Paper ballot voting instructions specify the marking device and how the voter should designate their selections. Using the wrong color or type of marker or improperly designating choices, e.g., by making a check mark beside the oval instead of filling the oval, could invalidate the ballot. Alternatively, state law may allow an improperly executed paper ballot to be transcribed to a replacement ballot which can be read by the tabulation device.

If the voter is using a personal computer for some aspect of the voting process, e.g., to download a ballot file or make selections using an electronic voting application, the computer must meet device specifications. The specifications could be hardware related, such as requiring a certain amount of available memory or a printer; software related, such as recommending the use of some type of malware protection; or both. Some specifications are self-enforcing. For example, if the voter's computer does not have sufficient memory it will not be capable of launching the voting application. Other specifications may not be self-enforcing, even though

failure to comply could affect the voter's ballot. For example, failure to use virus protection software would not prevent a voter from using the computer, but it might put the integrity of his ballot at risk.

4.7 The remote voter does not have poll worker assistance or the ability to easily acquire a replacement ballot.

The remote voter must be able to understand and follow voting instructions without assistance. With paper ballots in particular, there are many opportunities for making mistakes in the marking process. The voter must mark ballot selections in the prescribed manner. For example, using colored ink or not completely filling in the oval might cause the tabulation scanner to miss candidate selections or entire races. The voter must take care to avoid making extraneous marks on the ballot which can cause the entire ballot to be rejected. Trying to correct an erroneously marked selection will often cause a race or selection to be excluded from the count because the canvass board may not be able to tell which mark indicates the voter's intent. All of these errors would be caught in a polling place using optical scanners and a pollworker could provide a replacement ballot. If voting by mail, the only choice remote voters have is to return the ballot they received.

Following procedures is important. Many jurisdictions require the voter to place the paper ballot in a secrecy envelope without any identifying marks, such as the voter's name or voter ID number. The voter's affidavit must be signed, but not placed in the secrecy envelope. The secrecy envelope containing the ballot and the affidavit are both placed in the return mailing envelope. The mailing envelope must be signed and dated or the ballot may be rejected. Portions of the ballot might be missed while the voter is scanning it to return as an email attachment or by fax. Some of these errors could be corrected if the voter notices them in time, but most likely these types of errors will go undetected until the ballot is processed by an election official.

If the remote voter is returning the ballot electronically, it may be possible to correct errors or request a replacement ballot. The voter has to waive his right to a secret ballot in order to use an electronic return method. This enables the LEO to contact the voter if something is wrong with the ballot packet, such as missing or cutoff ballot pages or lack of a signed affidavit. If there is sufficient time before the ballot return deadline, the voter could correct these errors.

4.8 Remote voting requires a means to verify the identity of voters returning ballots with a high level of assurance.

Many jurisdictions require a voter to present some form of identification when checking in at a polling place to vote. A poll worker verifies the name and address are on the voter's list which indicates eligibility to vote in the election. In some locations, the voter is required to sign the poll book. Then the voter receives a ballot to mark or a poll worker activates a voting machine for voting.

A UOCAVA voter's eligibility in a particular election is similarly determined by an election official checking the UOCAVA absentee voter list. Ballots are sent to all eligible voters; however, the election official uses signature review to authenticate the validity of the voter. The comparison of the voter's signature on the return mailing envelope with the signature on file in the Voter Registration Database (VRDB) is the authentication method used for absentee paper ballots. If the two signatures do not appear to match or if a name variation is used on the mailing envelope differs from the signature on file, the canvassing board will determine whether or not to accept the ballot. When a remote electronic voting method is used, a comparable voter authentication method is needed to provide a high level of assurance that a valid voter returned the ballot.

4.9 The UOCAVA voting period is 45 days.

The extended UOCAVA voting period means the UOCAVA system will be operated and protected for a significantly longer period than the voting system used in a polling place or early voting. This applies to all types of UOCAVA voting methods, but is of particular significance for remote electronic voting systems. The UOCAVA system begins operation approximately six weeks before polling place voting begins. It may be required to be available 24 hours a day during the voting period since UOCAVA voters are located in time zones all around the world. Protections must be in place to preserve the integrity of the voting system and of the voted ballots cast during this period. Most, if not all, jurisdictions do not permit the final processing of absentee ballots to begin until a few days before Election Day.

4.10 There is an adjudication process that determines whether a ballot will be counted.

Most frequently, after a non-UOCAVA voter is checked in by a poll worker, they proceed to a voting booth to mark and cast a ballot anonymously. There is no association made between the voter's identity and the ballot. In the exceptional case, if a question is raised about the voter's eligibility to vote, the pollwork provides a provisional ballot which remains linked to the voter's identity. If the eligibility question is not resolved within the prescribed time period, the ballot will not be counted.

In contrast, all UOCAVA ballots are subject to an adjudication process. There are three threshold criteria that must be met: 1) the return mailing envelope must be signed by a valid voter, 2) the ballot must be received by the specified deadline, and 3) the voter has not voted by another means. If these criteria are met, the mailing envelope is removed and the ballot is now anonymous. The next level screening criteria are whether there are identifying marks on the ballot and if the ballot has been properly marked so it can be read by the tabulation device. How these matters are resolved is a matter of state law and/or administrative rule. If the voter has written their name on the ballot, for instance, some jurisdictions will allow the ballot selections to be transcribed to a replacement ballot which will be counted.

4.11 The identity of the voter remains associated with the ballot until the adjudication process occurs.

Since it is possible that a ballot will not be accepted for tabulation, the voter's identity must remain associated with the ballot until the first level screening is completed. If the ballot was received after the deadline or there is not a valid signature, the ballot is rejected. If the voter has voted multiple times, each state has a decision rule for determining which ballot to include in the count. The election official must have a procedure for tracking all ballots returned by every possible voting channel to ensure that only one is counted.

There are several situations where an absentee voter could return multiple ballots without intentionally engaging in fraudulent behavior. Here are some examples:

- There are occasions when early ballots are sent out in advance of the final ballot being ready. For example, there might be a legal challenge to a candidate which is not resolved before the deadline for mailing UOCAVA ballots. UOCAVA voters could vote and return both the early (sometimes called advance) ballot and the final ballot and both could be received before the deadline.
- Another instance occurs when a voter cannot find their name on the election office ballot return list a few days before the cutoff date. In this case, the voter could obtain a FWAB and submit it by fax or email. The by mail ballot could also be received.
- Another case occurs when a voter returns to the jurisdiction shortly before election day and votes at an early voting location or at a polling place after previously voting and mailing an absentee ballot.

5. UOCAVA Process Descriptions

This section provides step by step functional descriptions of the five UOCAVA registration and voting processes. These are derived from examining the election administration practices of several states. Consequently these are generic descriptions that may not correspond in all particulars with actual practices in other jurisdictions. It is understood that there is considerable variability in election administration practices from state to state.

The descriptions are accompanied by flow diagrams illustrating how the steps in each process are affected when electronic technologies are introduced to expedite communication between LEOs and voters. The by mail process is the baseline example since it is used in all jurisdictions. The technologies depicted are those currently employed by many jurisdictions nationwide: email, fax and web servers. The diagrams are generic by technology type and do not reflect any specific system in use. They are presented at a high level. For example, a communications link is shown as a dashed line between the devices used by LEOs and voters, such as computers or fax machines. Intervening telecommunications network devices, such as servers

and routers, are not shown, since system configurations will vary from jurisdiction to jurisdiction.

The process descriptions and the diagrams can be used as a point of departure to develop more detailed descriptions using actual data from any jurisdiction. On a functional level, the voter and LEO activities performed for any given process are fairly similar across jurisdictions. Typically the variation exist in how these activities are carried out. To take voter registration as an example: In most states a voter is required to submit certain information to become registered to vote. The specific information required is determined by state law. A UOCAVA voter can submit this information using one of several documents, e.g., an FPCA, a state registration form, a letter. Each state prescribes what documents it will accept as well as how these documents may be delivered, e.g., by mail, email, or fax. Each state also specifies the application deadline for a voter to be qualified to vote in the next election. So the basic activities in the process are the same, but the details of how they are carried out can vary considerably.

5.1 Prepare & Submit Voter Registration Application &/Or Absentee Ballot Request - Voter

In those states where voter registration is required, UOCAVA citizens must obtain, complete and submit an application form such as the FPCA or a state voter registration application. Several states accept the FWAB as a voter registration request. Some states offer on-line voter registration for all voters, and this practice is expected to become more widespread. Several states also accept a letter if it contains all the information needed to determine if the applicant is qualified to vote. Forms and instructions can be obtained in person, by mail, telephone, email, or fax request and downloaded from the Internet. There are multiple sources for obtaining this information including Voting Assistance Officers; FVAP; U.S. Department of State Consular Officers; state and local election offices; military and overseas citizen advocacy groups; and a variety of websites. With so many different sources available, it is incumbent on the voter to ensure that they obtains the correct forms and instructions.

The FPCA is universally accepted as an absentee voter registration application for UOCAVA voters. While the form is standard, the requirements for filling it out and submitting it are specified by each state. Over the past few years federal legislation has constrained some of the resulting variability to simplify the process. Among other changes, a standard federal oath was developed for use by all the states and the requirement for notarization of the form was eliminated.

If the form is not completely or legibly filled out, the local election official may contact the applicant for clarification or more information. If the application is approved, the citizen will receive a confirmation notice, such as a voter registration card. If denied, this will be communicated to the applicant by letter or email with an opportunity to contest this decision, if desired.

Under NVRA provisions, an approved voter registration remains in force until one of several specified conditions occurs:

- The voter notifies the LEO of a change in voting residence outside of the LEO's jurisdiction;
- The LEO ascertains through an address verification process that the voter has moved outside of the jurisdiction; or
- The voter does not choose to vote in two or more consecutive general elections for federal office.

A voter does not have to vote to maintain an active status in the VRDB. Any contact with the voter indicating their desire to remain a voter in a particular jurisdiction is sufficient. Voter information may be updated over time, such as a change in mailing address, which frequently happens for UOCAVA voters.

The FPCA serves the dual purpose of being a voter registration application and an absentee ballot request form. Voter registration applications can be submitted at any time; however, if the applicant wishes to vote in a particular election, there is usually a deadline by which the application must be received so it can be processed in time for the election. If it is received after the deadline, an applicant who meets the qualifications will be added to the voter roll for future elections. State voter registration applications can be used by both UOCAVA and non-UOCAVA voters. In some states this application serves the single purpose of voter registration. Other states have a combined form that serves both purposes. Consequently, if a UOCAVA voter uses a state form to register, in some cases a separate absentee ballot request may be required.

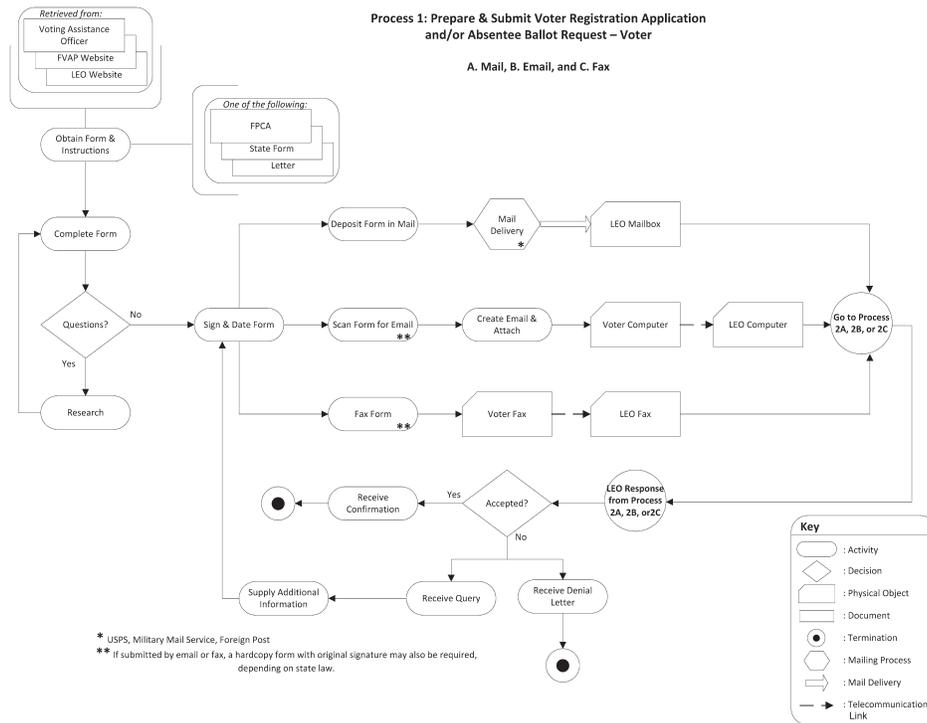
A single voter registration is valid indefinitely, as long as the voter does not change legal residence to another state, has not lost the right to vote and has voted in a recent election. In contrast, an absentee ballot request must be submitted for each federal election year. This serves to notify the election official that the voter still has UOCAVA status and to update their mailing address, if necessary. Each state determines how long prior to a federal election an absentee ballot request will be accepted. If an FPCA is submitted any time within a federal election year, it most likely will be accepted for both registration and ballot request purposes. If it is submitted in an off year, it may be treated only as a voter registration application and the voter may be required to submit another FPCA the following year as an absentee ballot request.

In addition to accepting the FPCA, each state has a state absentee ballot request form. Some states will accept a letter from the voter if it contains all the required information. A number of states permit an immediate family member to make an absentee ballot request on behalf of a UOCAVA voter. These proxy requests can be made in writing, by email, through the use of on-line forms or in person. The MOVE Act requires each state to provide at least one electronic method for receiving voter

registration applications and absentee ballot requests to expedite the transmission of these transactions.

Figure 1 illustrates the major steps voters perform to prepare and submit a voter registration application or ballot request. First, they obtain an appropriate form and the associated instructions, which vary somewhat from state to state. Questions may arise requiring some research to answer, such as where to submit the form. If the form is completed on-line it may need to be printed, signed and dated. The voter can submit the form by mail, email, fax and on-line, depending on the rules and capabilities of the state. As noted above, if the ballot is returned electronically, several states require the voter to also return a hardcopy with an original signature by mail before the LEO can approve the request. A growing number of states obtain the voter's signature by matching voter registration data with data in the motor vehicle database. The voter may have to submit a revised application if the LEO requires further information.

Figure 1



5.2 Receive & Process Voter Registration Applications &/Or Absentee Ballot Requests - LEO

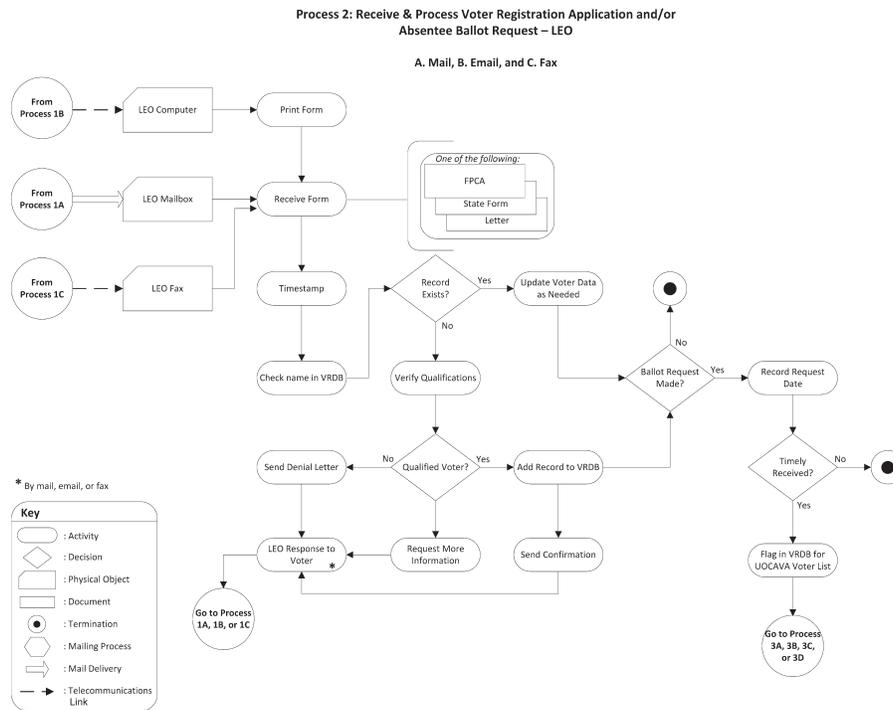
The LEO receives a voter registration application as an FPCA, state form or letter via postal mail. The document is time-stamped to record the date and time of receipt to allow for accurate verification that submission deadlines were met. The name is checked against the Voter Registration Database (VRDB) to see if the person is already registered. If a record exists and the signatures match, the voter's record is updated with any changed information. If the form is received within the specified timeframe, the voter's record is flagged for the voter list for the next election.

If no record exists, the information in the application is verified to determine if the applicant qualifies to vote in the jurisdiction. In particular, HAVA requires the driver's license number and/or the last four digits of the social security number are validated against the databases of the state motor vehicle authority and/or the Social Security Administration. If the applicant meets the qualification requirements, a voter record is added to the VRDB. A confirmation notice, typically a voter registration card, is sent to the voter to indicate that the application was approved. If the application is denied, a letter is sent giving the reason for the denial.

The LEO receives a ballot request as an FPCA, state form or letter via the postal service. Proxy requests may be made in person or in writing. The request is time-stamped and the voter's record is retrieved from the VRDB. This is generally a straightforward process unless the voter uses a different form of his name than the one previously given on the voter registration application. It may appear that no record matches or that there are several possible matches. This may require clarification with the voter. The date of the ballot request is recorded. If the request was received within the timeframe for the next election, the record is flagged for the UOCAVA voter list for the upcoming election.

Figure 2 illustrates the major steps LEOs perform to receive and process voter registration applications and absentee ballot requests. The requests can be transmitted from the voter by mail, email or fax. Although electronic means can be used to transmit the forms, the LEO prints the documents and keeps a hardcopy. In many jurisdictions, if the voter's request is submitted by fax or email, the LEO must also receive a hardcopy request by mail with an original signature to complete the process. It is important to have a good quality signature on file if signature comparison is the method used to authenticate voted ballots. In these jurisdictions, the LEOs hold the application in pending status until the paper version is received. The LEO may use postal mail, email or fax to communicate with the applicant if further information is needed. Confirmation of voter registration is usually done by postal mail as it often takes the form of a voter ID card.

Figure 2



5.3 Prepare & Deliver Absentee Ballots - LEO

The absentee process operates as an adjunct to the polling place voting process. The paper ballots mailed to absentee voters are identical to those used for in-person voting in optical scan and hand marked ballot jurisdictions. The use of the Election Management System (EMS) to create ballot definitions is not described here because it occurs in the polling place process model. Some states use candidate filing data from the VRDB to create absentee ballots.

The assembly of ballot packets is a key element of the absentee process. These packets include the ballot, voter instructions, a voter affidavit, a secrecy envelope (in many jurisdictions), and a return mail envelope.

The flagged records in the VRDB are pulled to generate mailing labels or to address the outgoing envelopes. For a jurisdiction with a large population of military voters, the mobility of this group can make the creation of a complete voter list challenging. Due to the increased use of temporary duty assignments. Without a permanent change in duty station, the voter’s mailing address remains unchanged even though they may physically be stationed elsewhere for extended periods. In addition, military personnel who had an expectation of voting at the polls might be deployed with minimal notice.

The matching of ballot styles and voters is also a VRDB function. For ballot accounting purposes, a tracking code based on voter ID and ballot style may be printed on the ballot, the outgoing mailing envelope and the return mailing envelope. Voter records in the VRDB are annotated with the date when the ballot

packets are delivered to the U.S. Postal Service (USPS). At this point the LEO gives up physical control of the ballots and has limited means to track the status until the ballot is returned to the election office. USPS ballot tracking can be used within the U.S., but it is expensive and does not extend to overseas locations. The MOVE Act requires the Department of Defense (DoD) to provide expedited mail delivery and tracking for overseas military voters, in cooperation with the USPS.

Figure 3 illustrates the steps performed by the LEO to prepare and deliver paper ballots by postal mail. Figure 4 provides examples for delivering ballots by email and fax. While third party communication networks are outside the LEO’s control, they have the advantage of speeding delivery and can provide nearly instantaneous confirmation that the ballot reached its destination. Confirmation of delivery does not necessarily mean the intended voter has personally received the ballot. Fax machines and email accounts can be shared or accessible to individuals other than the voter.

Figure 3

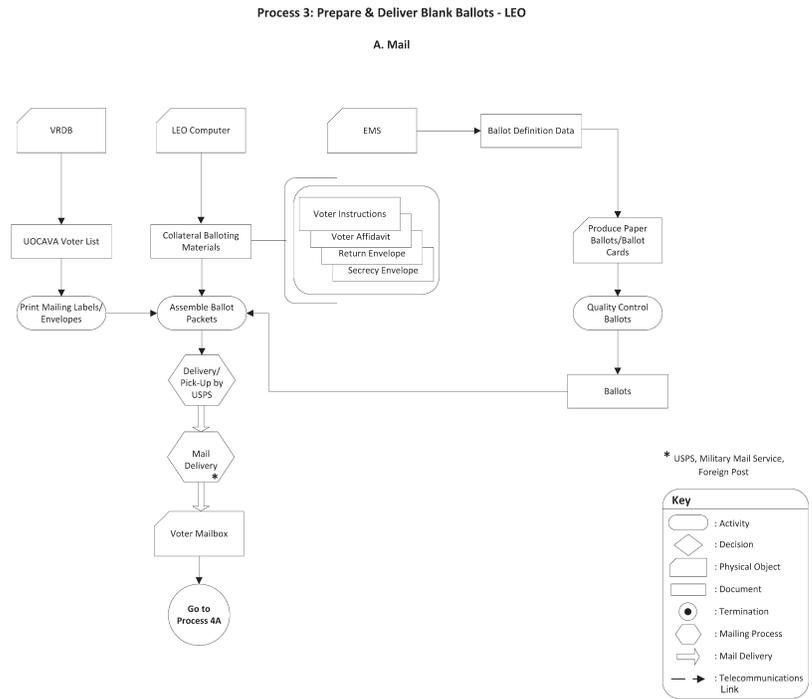
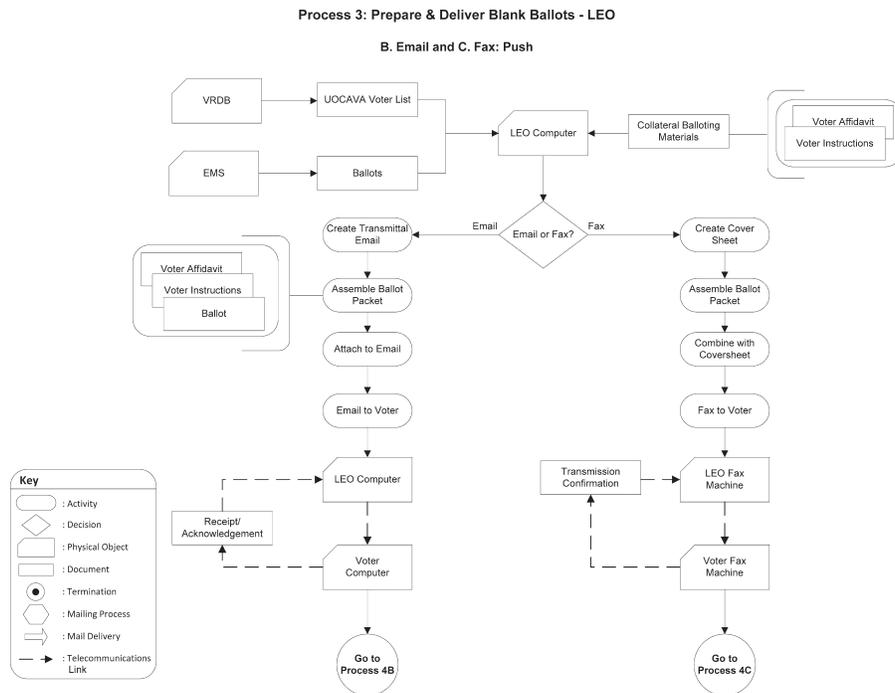
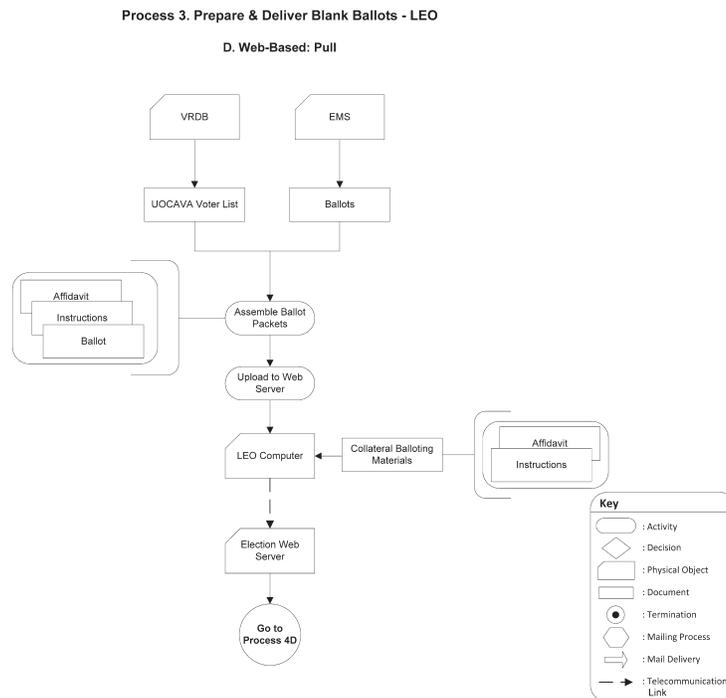


Figure 4



Posting ballot packets on a web server is another method for delivering blank ballots. This is illustrated in Figure 5.

Figure 5



This method enables the voter to pull down the ballot when the voter is ready to receive it. This allows the voter to retrieve the ballot wherever they are located, since ballot delivery is not tied to a pre-specified physical or electronic address. This delivery method provides more control and flexibility for the voter than the methods shown in Figures 3 and 4 where the LEO pushes the ballots out according to a set schedule and to a pre-specified voter location.

5.4 Receive, Mark, & Return Absentee Ballot - Voter

For the paper ballot by postal mail method, the ballot packet is delivered to the voter by the USPS, the Military Mail Service (MMS), or a foreign postal service. The voter marks selections on the ballot in accordance with the instructions provided. In addition to marking the ballot, the voter must also sign the voter affidavit. In many jurisdictions the marked ballot is placed in a secrecy envelope. This envelope and the affidavit are put inside the mailing envelope. Typically, the voter must sign and date the oath printed across the mailing envelope flap as evidence that the contents have not been tampered with. Failure to sign will invalidate the ballot. Also, failure to date the affidavit may result in invalidation if the ballot is received after the deadline and the envelope does not have a postmark to use for verification.

Unless the voter chooses to pay for a traceable return mail or delivery service, there are limited options for tracking the ballot after it is placed in the mail. The Overseas Vote Foundation (OVF), in partnership with Federal Express has offered a trackable ballot return service for overseas voters in nearly 100 countries for the last two federal elections. This service was provided free of charge or at a significantly reduced rate depending on location. OVF expects to continue this service for future elections. As noted above, the MOVE Act requires DoD to provide expedited ballot delivery and tracking for overseas military personnel. The MOVE Act requires LEOs to provide a means for voters to confirm receipt of their ballot. This might give the voter an opportunity to submit a FWAB if it appears the regular ballot is not going to arrive prior to the deadline. Due to long postal delivery times, it may be necessary to use an electronic transmission method to return this fail-safe ballot by the deadline.

The following diagrams illustrate the major steps the voter performs to receive, mark and return the voted ballot. Figure 6 depicts the postal mail, email and fax methods in a single diagram because the differences are primarily related to conversions between hardcopy and electronic formats. For these methods, the LEO determines when the ballots are sent to voters. After the voter submits an absentee ballot request and indicates their preferred method of delivery they do not have to take any further action to receive a ballot. The use of email or fax provides the ability for the voter to receive confirmation that the voted ballot was received by the LEO.

Figure 6

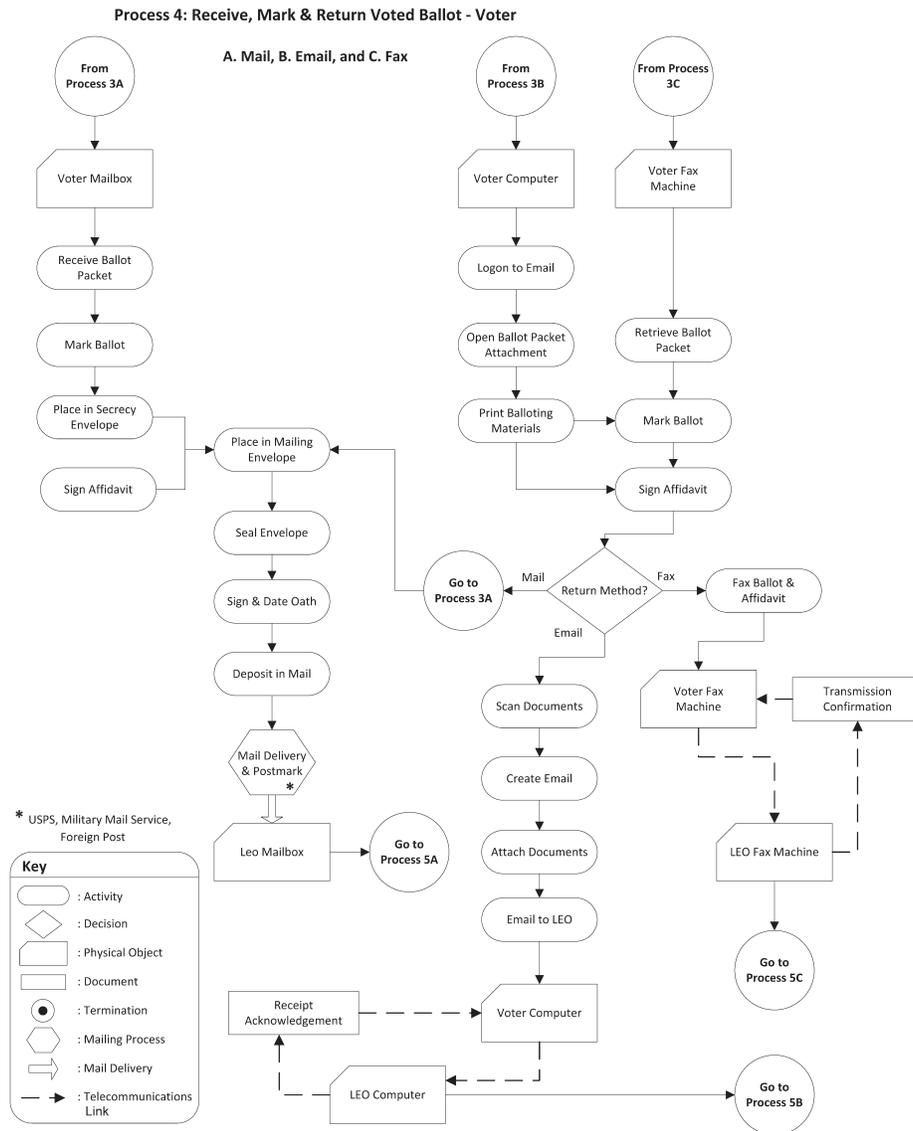
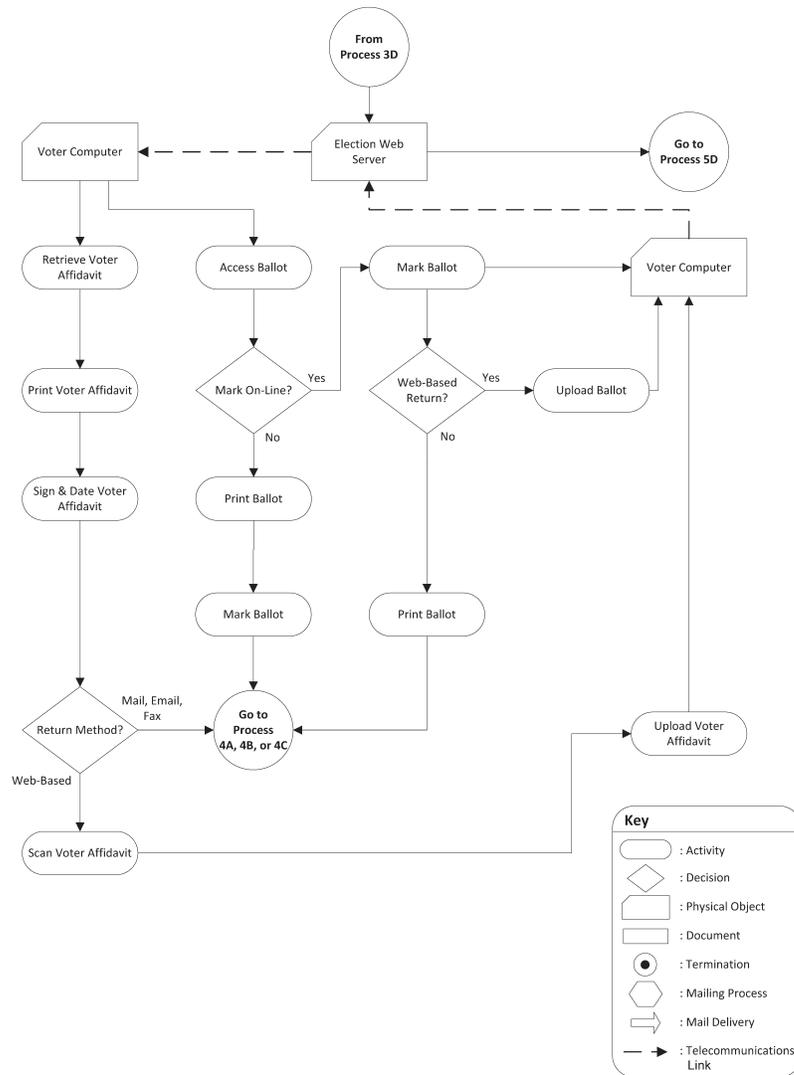


Figure 7 illustrates the steps the voter takes to receive a ballot by downloading it from a web server combined with four return methods: postal mail, email, fax, and upload to a web server. A significant procedural difference with this approach is the voter is required to take the action to obtain a ballot. This could be triggered by email, or other communication, from the LEO to inform voters that ballots are available. At this point it becomes the voter’s responsibility to retrieve a ballot. This provides flexibility for the voter to obtain a ballot wherever and whenever they may have access to a computer and does not tie ballot delivery to a particular physical or electronic address. Depending on state law, the voted ballot may also be returned by uploading it to the LEO’s election web server. Alternatively, this ballot delivery method can be paired with any of the previously described return methods.

Figure 7

Process 4: Receive, Mark & Return Voted Ballot - Voter

D. Web-Based: Pull



5.5 Receive & Process Absentee Ballots -LEO

In the baseline UOCAVA voting method, paper ballots are delivered to the LEO by the U.S. Postal Service. The envelopes are time-stamped bringing the voted ballots under the LEO’s control. The unopened mailing envelopes are given a visual validity check. During validation check, ballots are examined to see if they are signed and if each signature matches the one on file. The voter history record is updated in the VRDB to reflect a returned ballot. At this point the LEO can post the voter’s name to the received ballot list for voter verification. Unsigned ballots are invalidated. If the signature does not match, the ballot is held, unopened, for an adjudication of whether or not the signature will be accepted. If the answer is yes, the ballot is accepted for counting. If the answer is no, the ballot is invalidated.

The LEO must also determine if the ballot was received by the deadline. This process varies from state to state. Typically, if the ballot was received or postmarked on or before Election Day it can be counted. In some jurisdictions, only federal races are counted if an overseas ballot is received after Election Day but bears an appropriate postmark date. The process for accepting ballots received after Election Day varies from state to state.

After these checks are conducted, the accepted ballots are removed from the mailing envelopes for counting. Any invalid ballots will remain unopened. The ballots are typically commingled with other absentee ballots and all absentee ballots are tabulated together. The anonymous ballots are examined for extraneous marks. Another determination is made to determine if any of these will be accepted and transcribed to replacement ballots for tabulation. When this review is complete the ballots are tabulated by whatever method the jurisdiction uses and the absentee results are added to the tabulation report.

Figure 8 illustrates the major steps the LEO performs to receive and process paper ballots returned by postal mail.

Figure 8

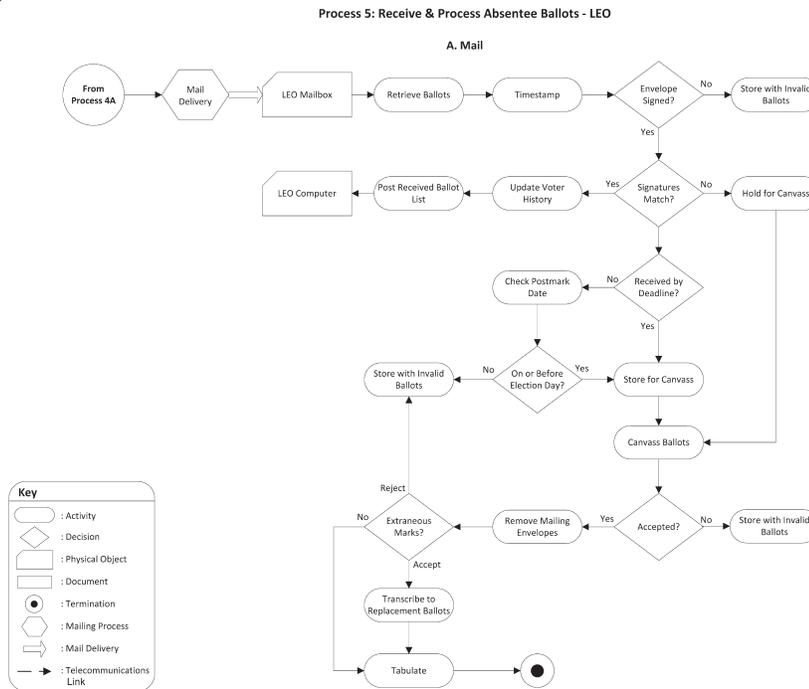
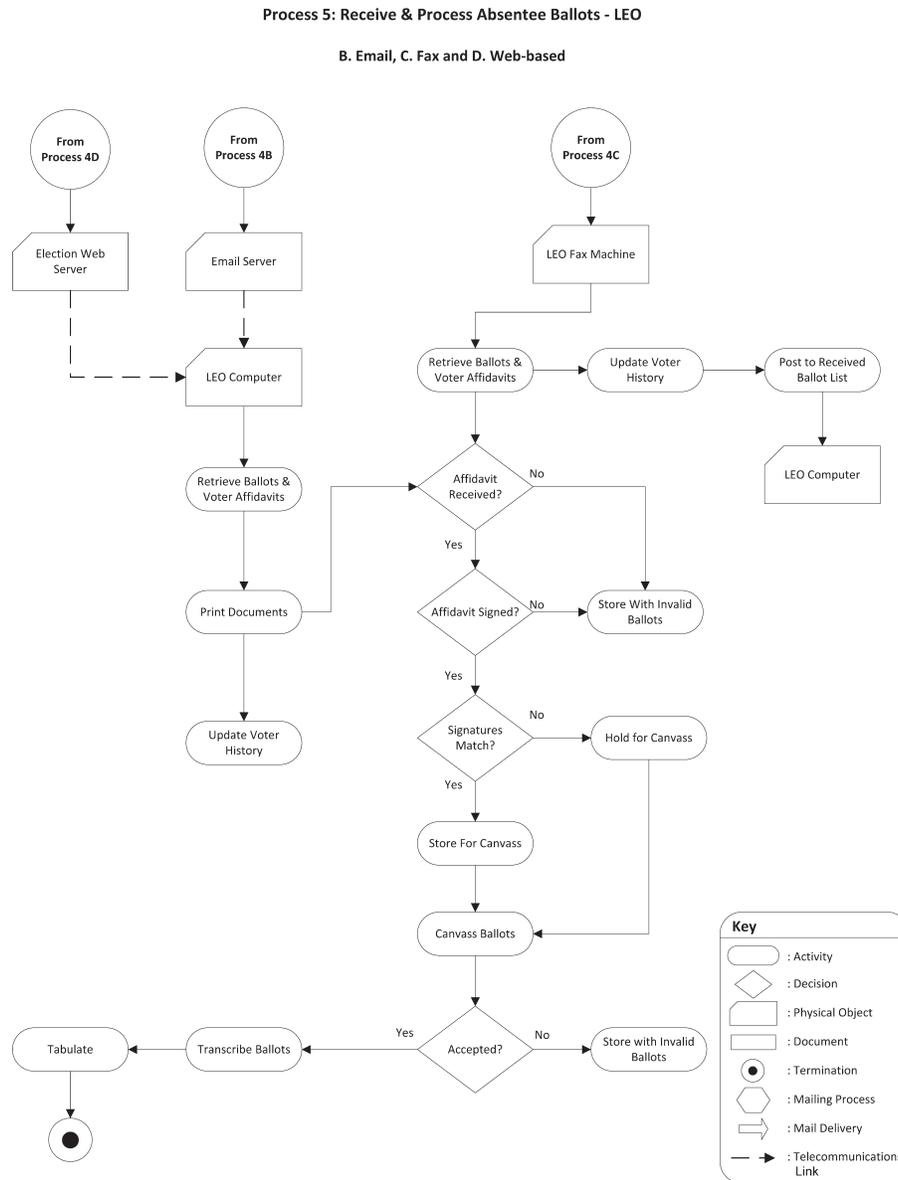


Figure 9 shows the variations in document handling activities if email, fax or web-based methods are used for ballot return. All these methods of submission require conversion between electronic and paper document formats. The LEO must confirm both the voter affidavit and ballot are returned, all pages of a multi-page ballot have been received, and the pages are complete and legible, e.g., no portions have been cut off and the print quality is acceptable. If an error is noted in the returned ballot packet, the LEO may be able to contact the voter electronically and provide an opportunity for the voter to remedy the problem.

Figure 9



6. Remote Electronic Voting

Email, fax and web-based methods have been widely implemented to expedite the delivery of UOCAVA-related forms and ballots. These are commonly available and accepted electronic tools that are relatively easy to implement without making a significant investment in new equipment. Since these methods do not incorporate the functions of ballot definition, tabulation and results reporting, they do not qualify as voting systems and therefore do not require certification. While there are differing operational advantages and disadvantages associated with each of these technologies, any one of them can significantly reduce document transit time compared with mail delivery.

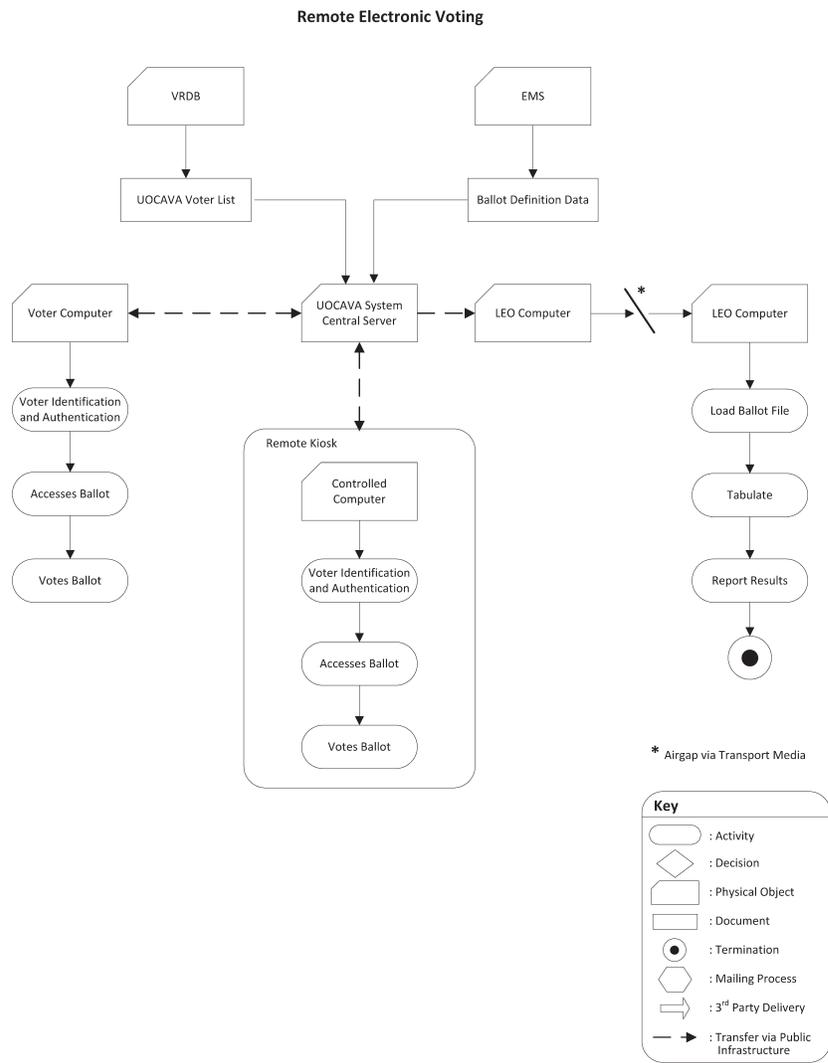
These methods typically provide very little communications security. Security protection is largely accomplished through procedural means. In addition, the voter must waive the right to a secret ballot because the returned voted ballot will be viewed by election staff and could be associated with the voter's name. These technologies introduce additional manual steps for the LEO and the voter to convert documents between electronic and paper formats. This includes transcribing electronically-returned ballots to replacement ballots that can be read by the local tabulation device. This increases LEO workload as well as introducing the potential for error.

Since it is difficult to discuss the process of remote voting without a hypothetical framework in mind, the following discussion is based around previous implementations of remote voting systems in the United States. Remote electronic voting systems automate the steps of the voting process for LEOs and voters. Multiple processes can be integrated and executed using software applications in place of manual manipulation of documents and conversion between hardcopy and electronic formats. In addition many of the procedural checks performed by LEO inspection can be built into the operation of the system. For example, since the system can only be accessed by voters during the prescribed voting period and voted ballots are received in near real time after they are cast, it is not possible for a ballot to arrive after the deadline. So the LEO no longer has to track when ballots are received or to inspect postmark dates.

Also, electronic systems can prevent common voter mistakes. For example, often ballots are returned by mail without a signature, thus the ballot does not get counted. This could be prevented in several different ways with a remote electronic system. One method is for the voting application to prevent the casting of a ballot until proper voter authentication is made. Alternatively, the system could deny access to a ballot until the voter is authenticated. In another example, the voting application prevents over-voting and all selections are electronically recorded so there is no ambiguity about voter intent. Canvassing is reduced to reviewing the list of voters who cast electronic ballots (produced by the system) to determine if a voter could have submitted a ballot by another voting method. If the voter cast a ballot by another method, the LEO will apply the state rule for which ballot will count.

The systems are software-based, so there are many possible implementation designs. Figure 10 illustrates a notional system configuration integrating all the functions associated with voting, including those performed manually by LEOs for other UOCAVA voting methods: ballot definition, voter identification and authentication, presentation of correct ballot style for each voter, vote capture and recording, voter affirmation of choices, voted ballot receipt verification, cast vote storage, tabulation, and results reporting. The submission and processing of voter registration applications and ballot requests are not included because these transactions can occur any time during the year. The remote electronic voting system is expected to be on-line and available to voters only during the UOCAVA 45 day primary and general election voting periods in federal election years.

Figure 10



Since UOCAVA voters are distributed all over the world, the system would operate 24 hours a day, 7 days a week. The system would typically reside on a central server to manage interactive sessions and system communications as well as provide a robust level of physical and electronic security. The central server should be housed in a secure data center and operated under the state or LEO's administrative control.

The voter list is obtained from the VRDB and ballot definition data from the local EMS and imported to configure the UOCAVA voting system for operation. To protect the integrity of the VRDB and the EMS, data transfer from these systems should be performed as a manual process, not through a direct electronic connection. After the election definition is loaded and verified, the system is ready for use. After the system is initialized, the only required LEO activity during the voting period is the administrative monitoring of system performance.

As discussed in 5.3 Prepare & Deliver Absentee Ballots, the creation of a voter list for military voters has become challenging with the increased use of temporary duty assignments instead of permanent change of duty station assignments. Depending on how the remote electronic voting system is designed, updating the voter list could have significant system implications. If the list is stored internally to the system, it must be "frozen" at the time the system is initialized for operation. At this point, the election definition data are validated, the operation of the system is verified through Logic and Accuracy testing, and the system is "sealed." If the voter list is updated after the system is on-line and open for voting, it could cause the entire system to move offline. If a new voter list is created and the system is taken offline to load it, another end-to-end system verification must be performed.

Voters connect to the system via a telecommunications link either from a voter provided computer, e.g., their home or work computer, or from a computer provided and controlled by the LEO (designated as "Remote Kiosk" in the diagram). While the voting functionality of both methods is the same, there are significant differences in the level of security provided and the manner in which system administration is performed. When the voter provides the computer, it is his responsibility to ensure it meets the prescribed technical specifications and has appropriate security protection. When the voter uses a LEO controlled computer, the LEO assumes this responsibility. Providing a controlled computer also entails a controlled physical space to house it. When the voter provides the computer, there is flexibility in voting from a variety of locations at a time convenient for the voter. When the LEO provides the computer, the voter must come to a designated location.

All the voted ballots are stored as electronic cast vote records on the central server. When the voting period is closed, the system provides a list of the voters who cast ballots for the canvass board to review. After the canvass board approves the list of accepted ballots, the LEO can retrieve the cast vote records. Each is stored in encrypted form. The entire file of records should be encrypted and digitally signed to protect its integrity and confidentiality during the data transfer. For security purposes, the tabulation application is implemented on a standalone, air-gapped

computer under the direct physical control of the LEO or state government. After the ballot file is downloaded and integrity checks performed, the encrypted ballot file is transported manually via physical media to the tabulation computer. At this point the records are decrypted, randomized and tabulated. A results report is run to complete the process. All the records are available for post-election audits and/or recounts, if required.

As detailed above, remote electronic voting systems provide many attractive capabilities for LEOs and voters. However, there are several security concerns associated with this technology. Many of the security concerns fall into the following categories:

- Authentication of the voter
- Auditability of the voting system
- Ability to secure the central server
- Ability to secure the voting station

In addition, the physical security of the voting system hardware and software should not be overlooked. It is vital to the successful operation of the voting system that physical security of the voting system be maintained.

7. Conclusion

This paper presents high level functional descriptions of the election official and voter processes associated with UOCAVA voter registration and voting. Its purpose is to provide a framework for requirements analysis to specify, develop and test electronic methods to support these functions. For each process described there are flow diagrams illustrating how they can be implemented using mail, email, fax, or web-based technologies. There is a high level overview of how an integrated remote electronic voting system could implement voting processes. The descriptions are distilled from examining the election administration practices in a number of states, so elements of these procedures in any given jurisdiction may be somewhat different. However, these process descriptions capture the basic activities that LEOs and voters perform and can easily be modified to reflect actual practices in any jurisdiction. The flow diagrams can be modified to reflect the specific technology method that a jurisdiction is using or is considering.

The development of process diagrams is especially helpful in understanding how a particular technology affects LEO workflow and the resulting implications for workload. A LEO could make level of effort estimates for the process steps involved with their current technology and see what might change with a different system. The analysis involved in diagramming the process often indicates where supporting activities may require modification. For example, accounting practices used for paper ballots, e.g., ballot stub numbers, are not effective for electronic document delivery

systems. Comparisons across different technologies can reveal where workload might be reduced.

The technologies discussed fall into two classes:

- Electronic document delivery systems, and
- Remote electronic voting systems.

Examples of electronic document delivery systems are email, fax and web-based systems. These methods replace postal mail delivery of documents with electronic delivery. Registration forms, ballot request forms and ballots are turned into softcopy documents for transmission between the LEO and the voter. Upon receipt by either party, the softcopy document is printed for processing. This point is illustrated in Figures 4, 5 and 9 for LEO processes. The complementary voter processes are shown in Figures 6 and 7. The LEO attaches the ballot packet to an email, or transmits via fax machine, or uploads it to a web server. The voter receives the packet via one of these methods and prints it. When the ballot is marked and affidavit signed, the voter scans the paper documents and returns them electronically. When the LEO receives the electronically returned ballot, it gets printed again and transcribed to a replacement ballot that can be read by the tabulation device.

Typically, signature comparison is used to authenticate a ballot was returned by a valid voter using these systems, as is the case with paper ballots returned by mail. When the voter's signature is used as the authentication mechanism, it is essential for the LEO to have a good quality signature on file for comparison. Several states require that when email or fax methods are used to submit voter registration applications or return voted ballots these documents must also be returned by mail with an original signature before the application can be approved or the ballot accepted. Other states obtain a signature by matching voter registration data with data in the state's motor vehicle database.

Electronic document transfer systems provide a significant benefit for UOCAVA voting because they can reduce ballot delivery and return time from weeks to close to real time. In addition, email and fax systems provide the sender with a confirmation receipt. These systems employ common forms of off-the-shelf technology that can be operated and maintained with minimal training. However, they require significant manual intervention, which adds complexity to the process. These additional steps could increase the workload for jurisdictions with large numbers of UOCAVA voters. On the other hand, there may be material cost and processing time savings by replacing mailed paper ballots with electronically delivered ones.

Because of the similarities in the way electronic document delivery systems operate, it may be possible to develop a common set of security criteria and testing requirements for the entire class. These criteria can be supplemented with

technology specific requirements where necessary. Formal certification is not required because these systems do not incorporate tabulation.

Remote electronic voting systems are a separate class of systems which operate differently from electronic document delivery systems. One aspect that electronic document delivery and remote electronic voting systems have in common is the use of commercial off-the-shelf hardware. However, remote electronic voting systems have the potential to be entirely software and firmware-based systems. As described above, when the voting system is set up for an election, the system does not require manual processing for the LEO, except for the transfer of the voted ballot file from the system server to a standalone computer for tabulation. Additionally, manual processing is not required by the voter, who can access the voting system by personal or work computer, or by a computer provided by the LEO. The 'ballot' is ephemeral and only exists as a software generated electronic display when a voting session is activated. This display enables the voter to indicate selections via a touchscreen or other input device. After the voter has finished voting, only the selections are captured and stored. When the electronic data is received by the LEO, the conversion to paper for tabulation is unnecessary. The tabulation function is provided by a software application integrated into the system.

The use of remote electronic voting systems entails significant modification to LEO procedures. While these systems may simplify many aspects of a LEO's work, this technology is complex and will require new system management and administration methods and supporting personnel with a information technology training. Process descriptions and flow diagrams are very useful analysis tools to aid in redefining LEO procedures to work effectively with new voting technologies.

Appendix A - Process Diagrams

Figure 1

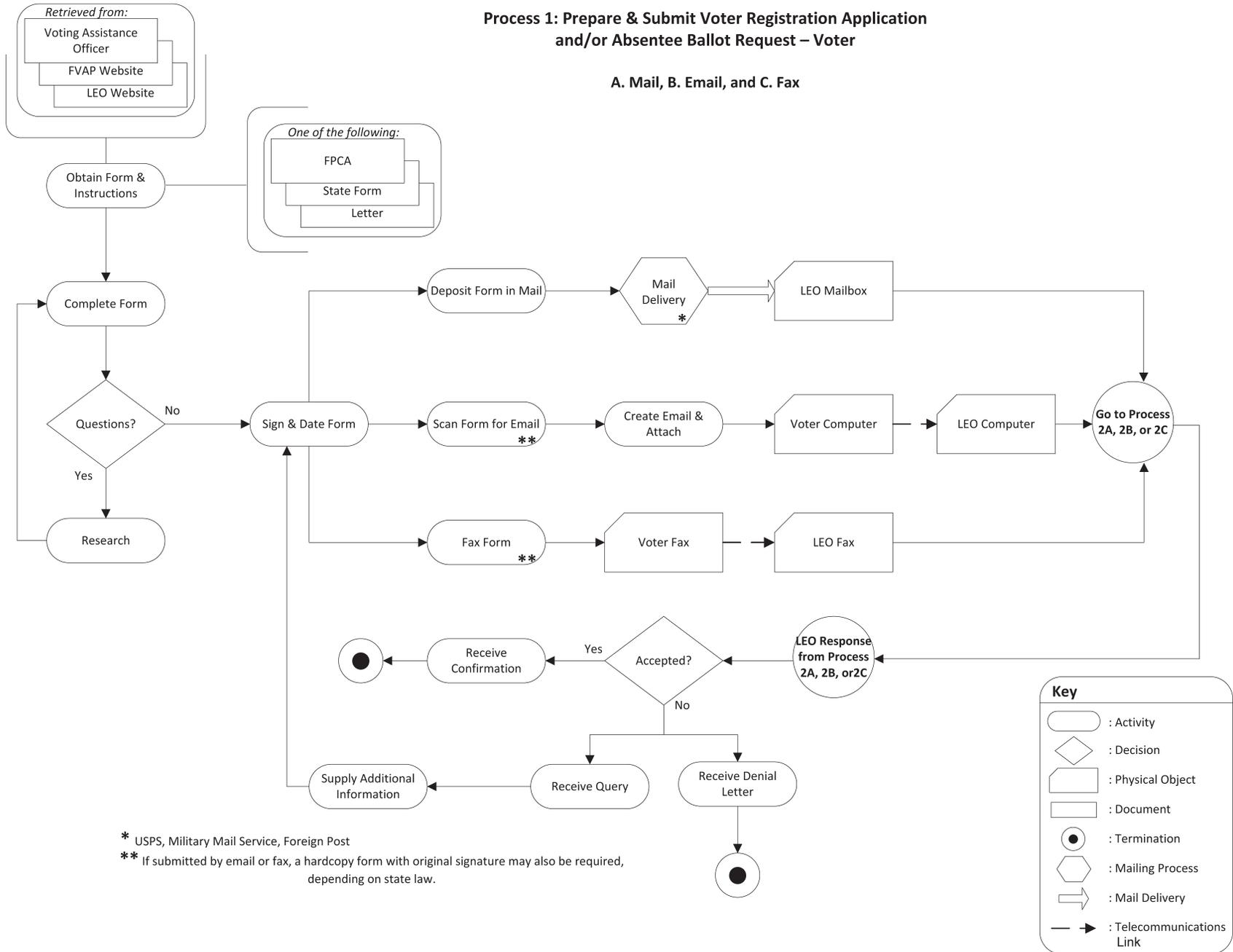


Figure 2

Process 2: Receive & Process Voter Registration Application and/or Absentee Ballot Request – LEO

A. Mail, B. Email, and C. Fax

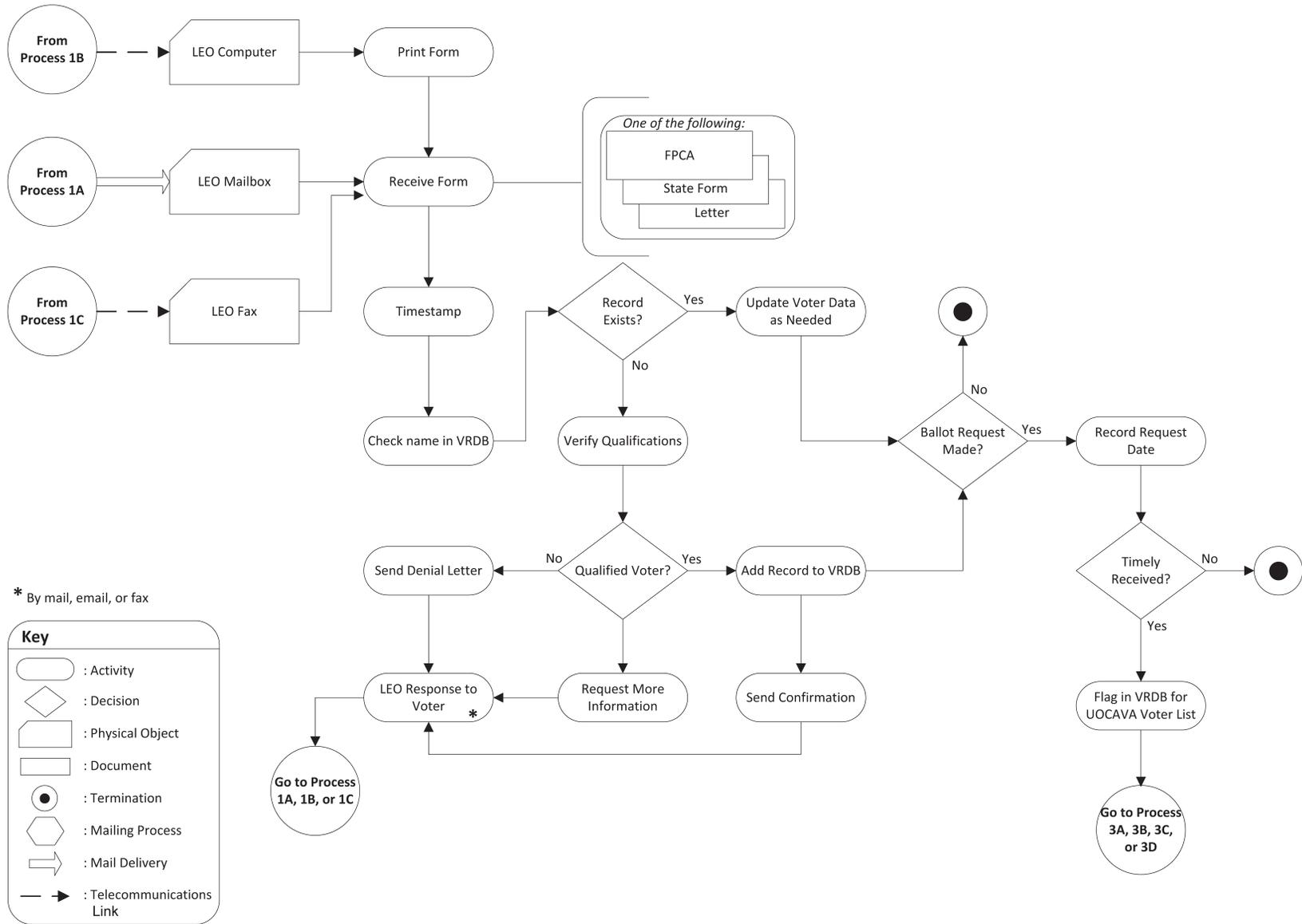


Figure 3

Process 3: Prepare & Deliver Blank Ballots - LEO

A. Mail

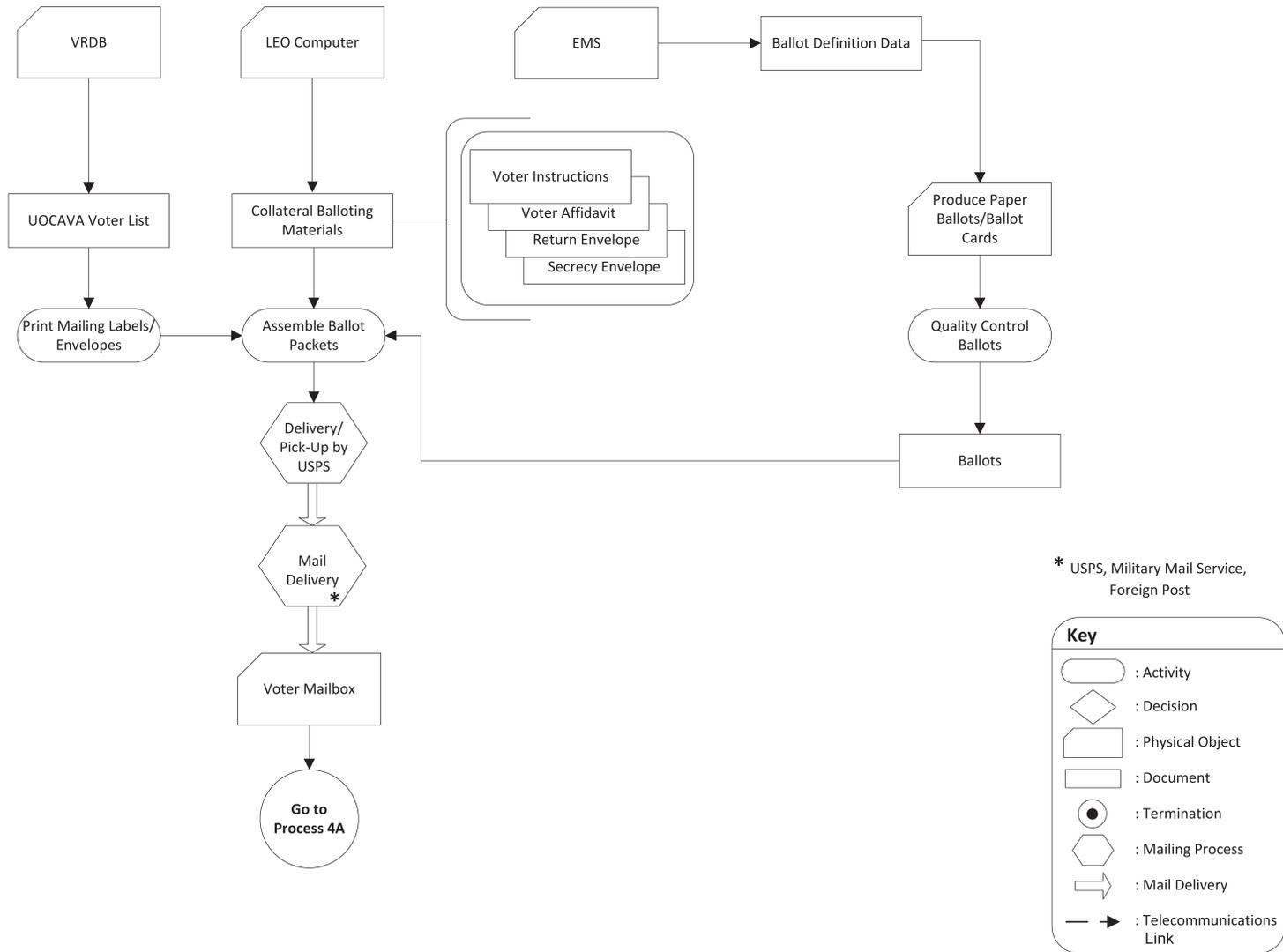


Figure 4

Process 3: Prepare & Deliver Blank Ballots - LEO

B. Email and C. Fax: Push



Figure 5

Process 3. Prepare & Deliver Blank Ballots - LEO

D. Web-Based: Pull

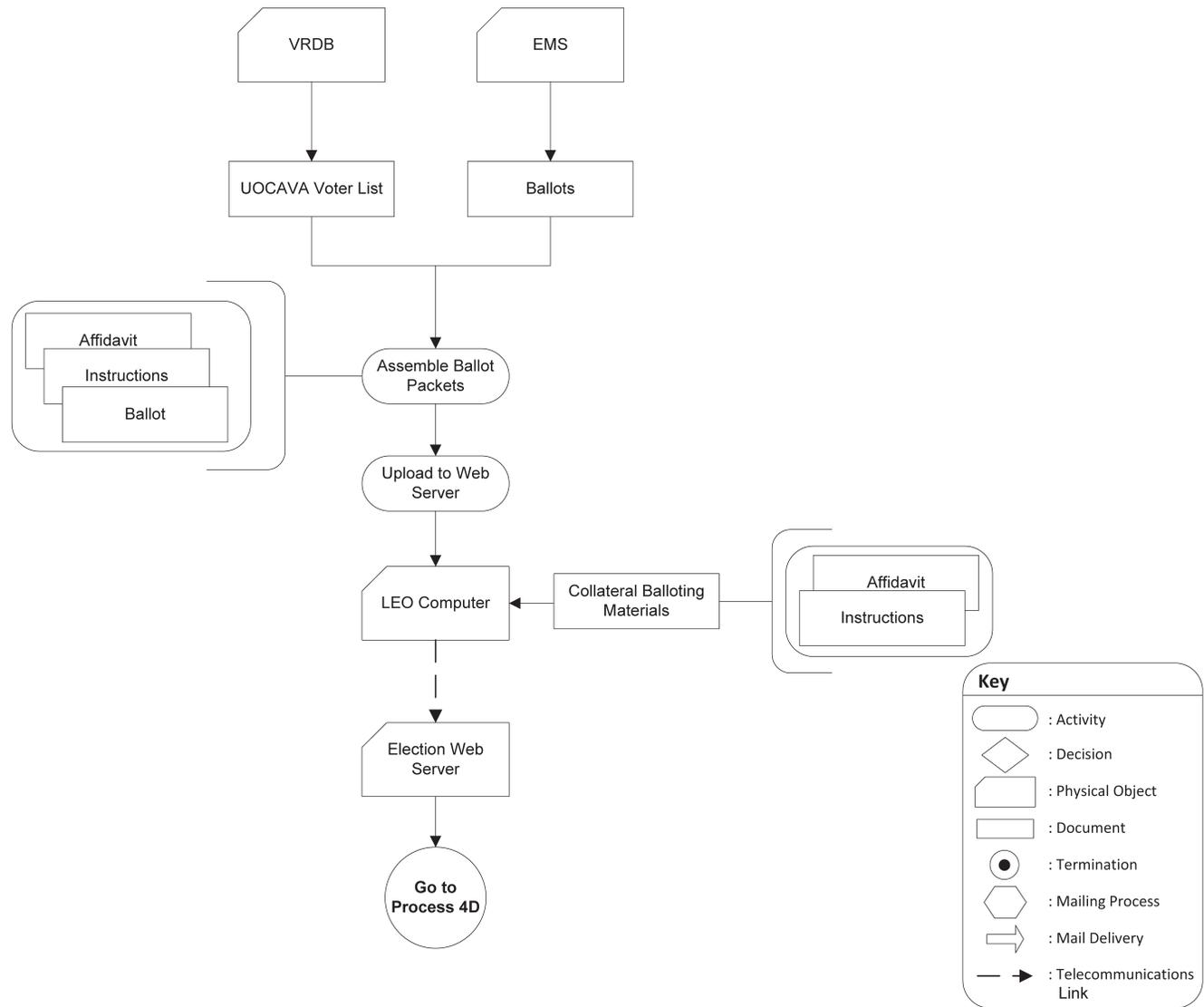


Figure 6

Process 4: Receive, Mark & Return Voted Ballot - Voter

A. Mail, B. Email, and C. Fax

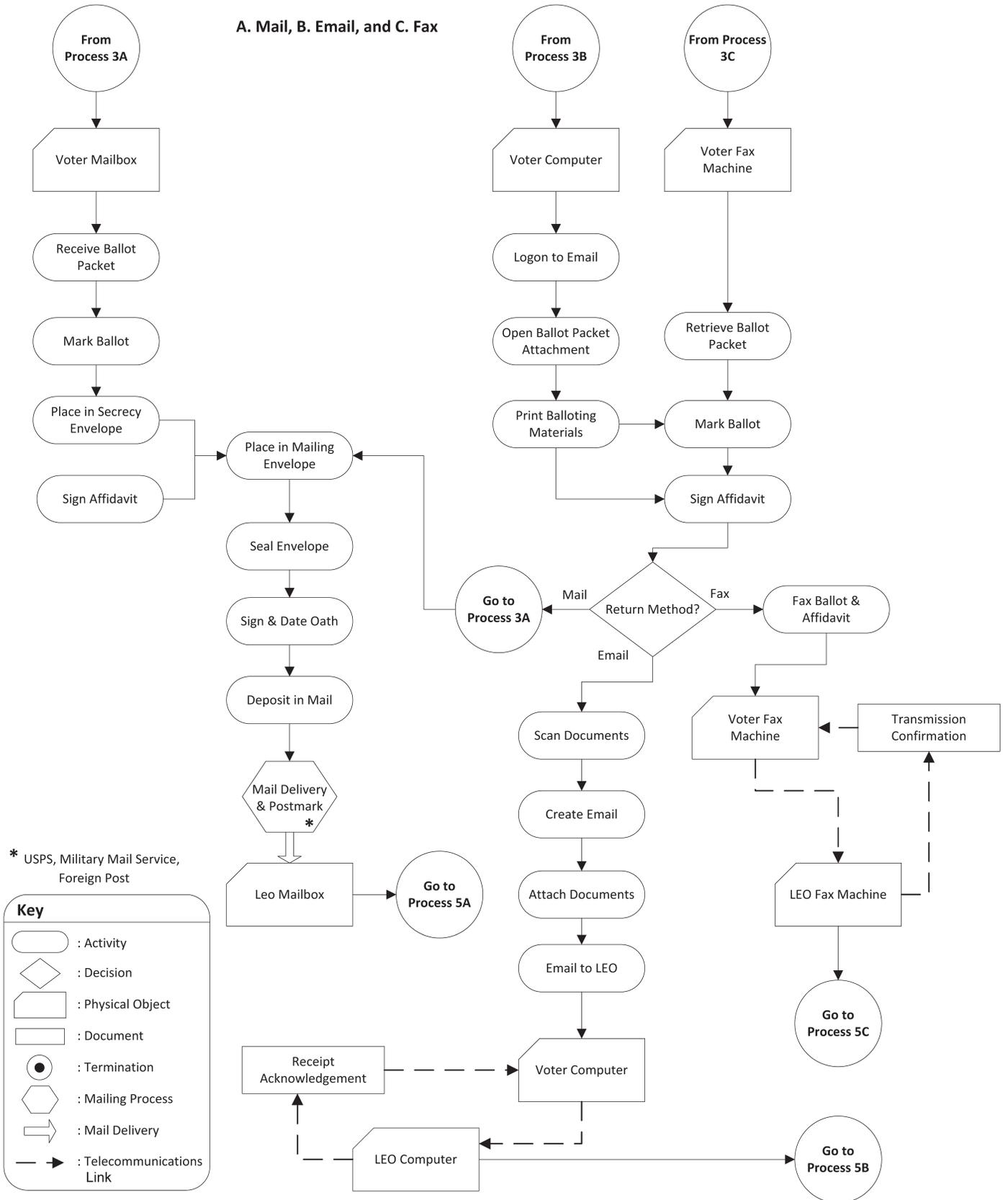


Figure 7

Process 4: Receive, Mark & Return Voted Ballot - Voter

D. Web-Based: Pull

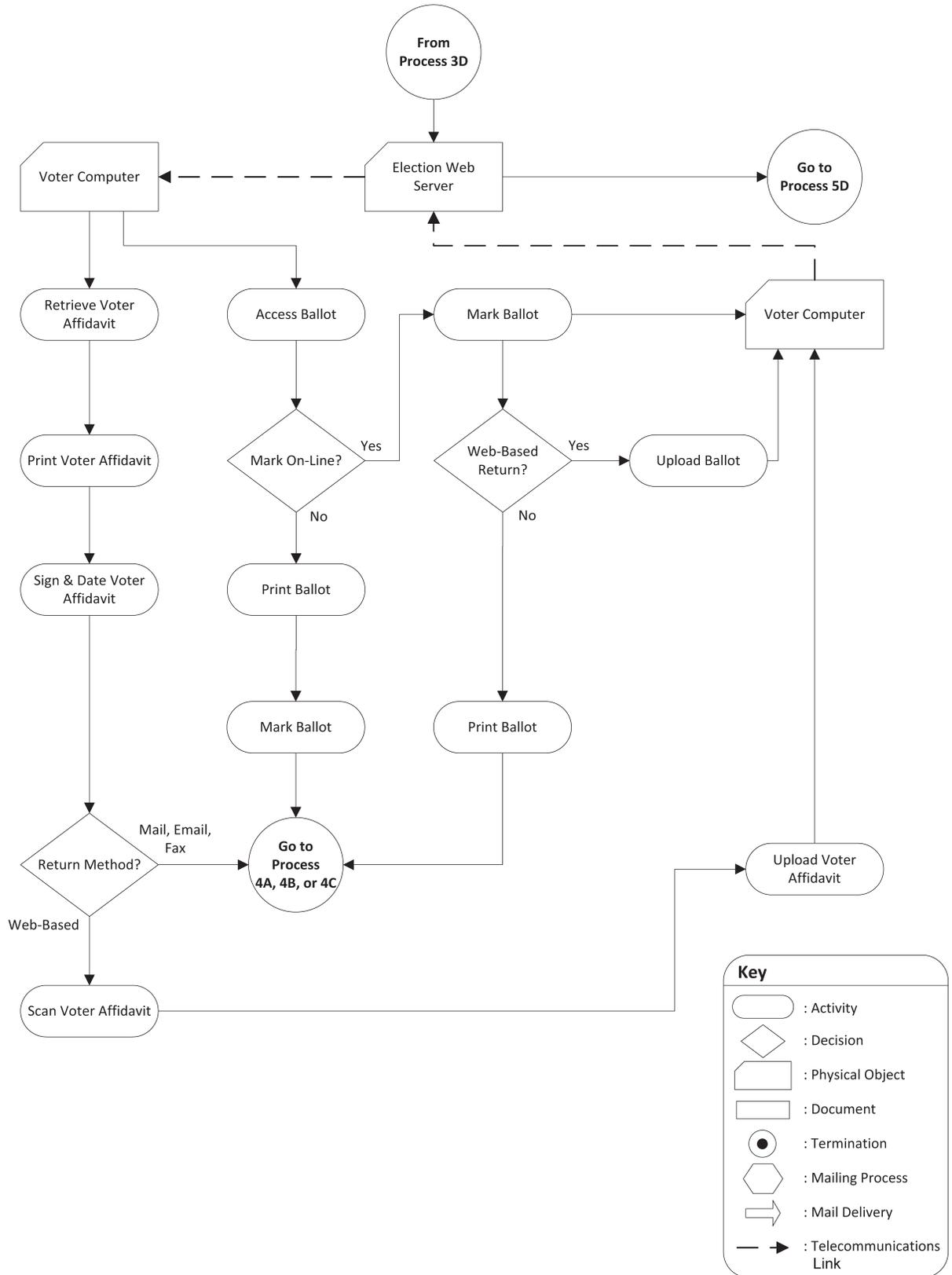


Figure 8

Process 5: Receive & Process Absentee Ballots - LEO

A. Mail



Figure 9

Process 5: Receive & Process Absentee Ballots - LEO

B. Email, C. Fax and D. Web-based

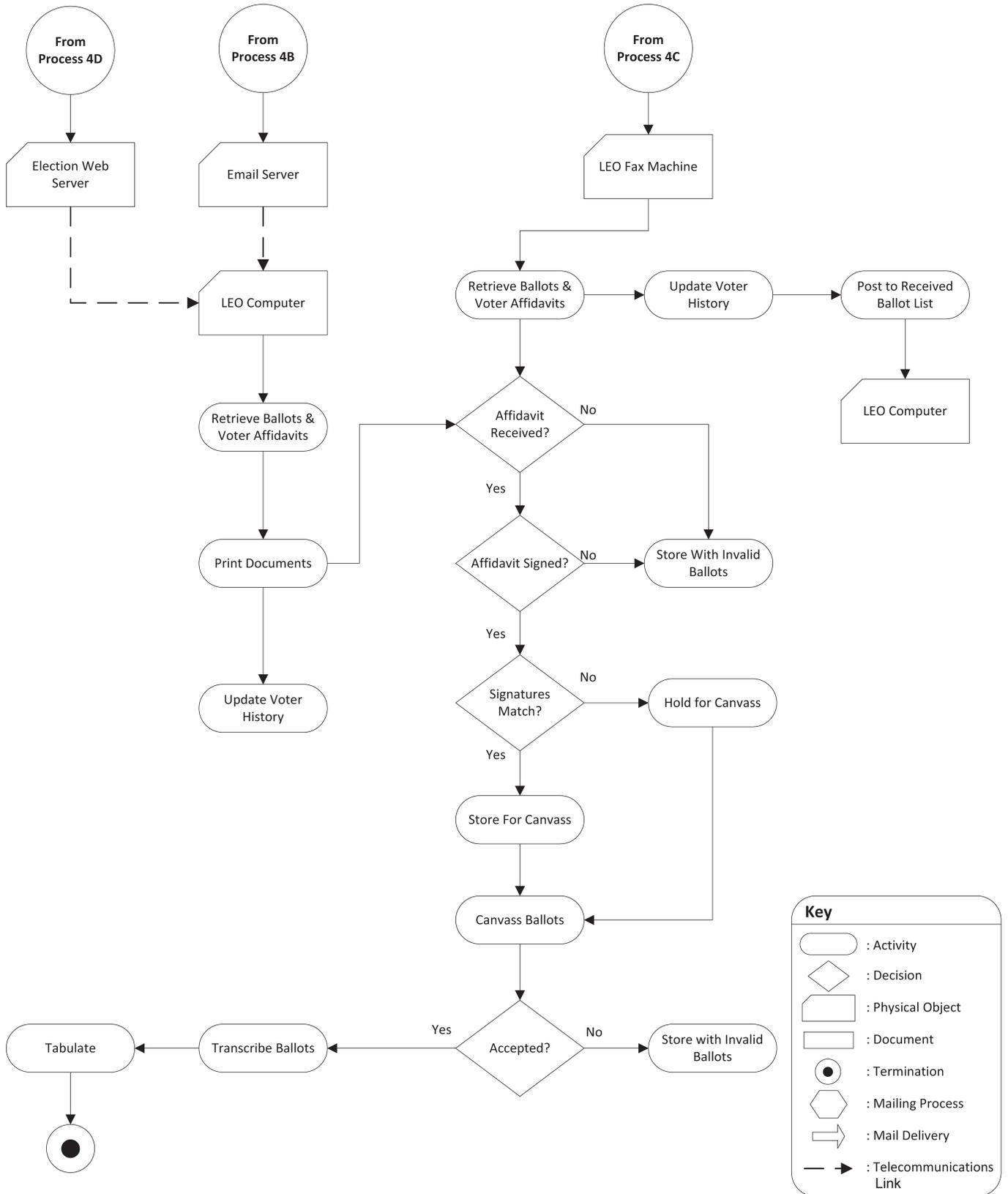
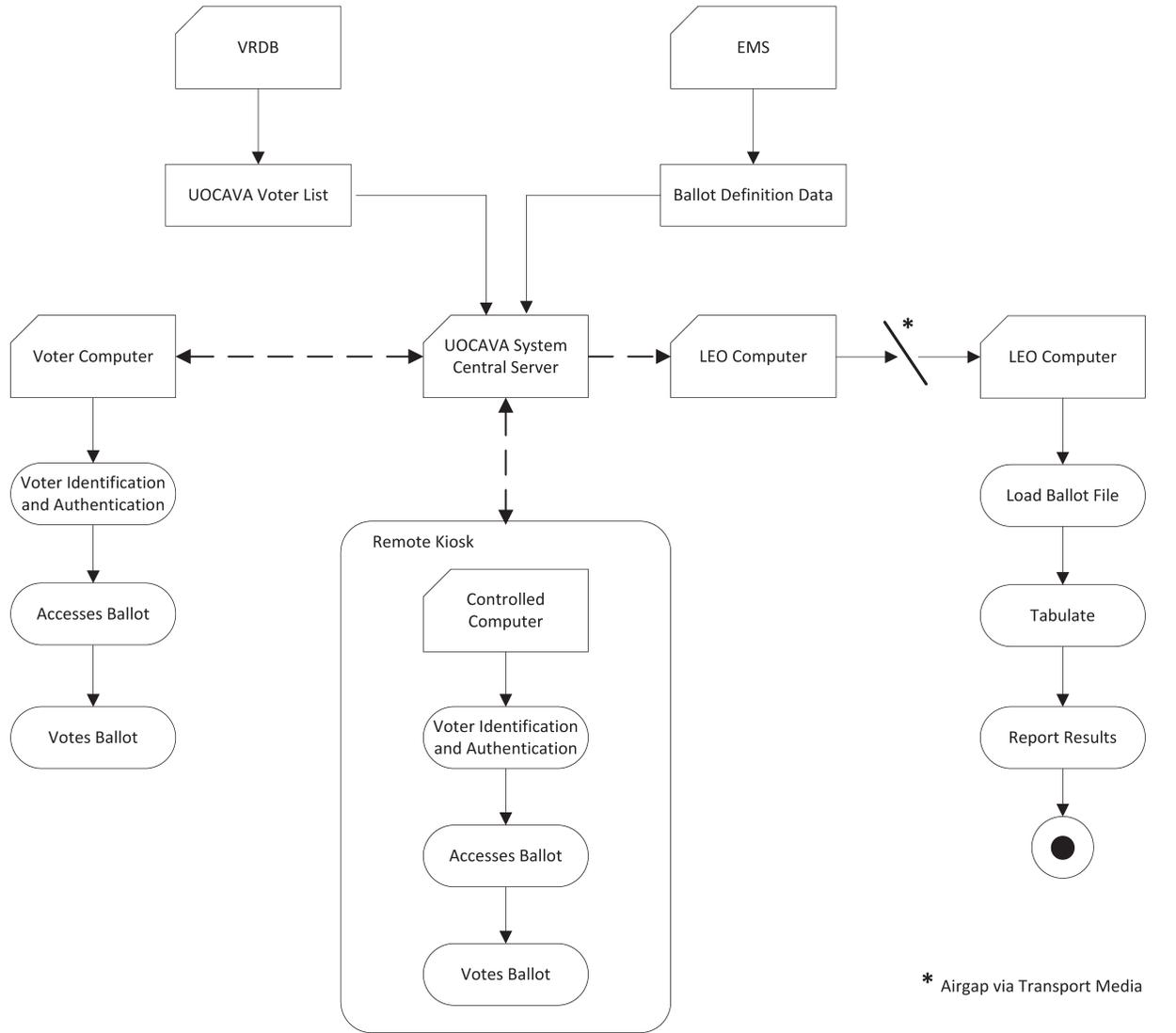


Figure 10

Remote Electronic Voting



* Airgap via Transport Media

Key

- : Activity
- : Decision
- : Physical Object
- : Document
- : Termination
- : Mailing Process
- : 3rd Party Delivery
- : Transfer via Public Infrastructure