Election Assistance Commission
2017 “Clearies” Award

Category: Outstanding Innovations

Batch Tracker Manager

Pierce County Auditor’s Office

2401 South 35th Street, Room 200

Tacoma WA 98409-7483

1-253-798-3188

Julie.Anderson@co.pierce.wa.us

Pierce County, Washington

Pierce County, with nearly 500,000 active registered voters, is the second largest county in the State of Washington.

Washington State elections are conducted via Vote-by-Mail during an 18-day voting period. Ballots are returned to central count for tabulation.

Abstract

In 2016, Pierce County upgraded from a legacy optical scan system to a modern, digital scan system. This transition provided an opportunity to completely re-think our intake, verification, opening, and scanning processes.

This re-engineering resulted in an important innovation: A ballot batch processing and tracking system called, "Batch Tracker Manager."

The Batch Tracker Manager (BTM) is a SQL database with a Microsoft Access interface. The BTM is used in conjunction with unique barcoded target cards that cover batches of 250 ballots. Off-the-shelf handheld scanners "touch" each target card as a batch moves through various work stations. The BTM logs the location and time of each batch.

The BTM benefits include:

- Elections that reconcile to zero, due to the extremely accurate tracking of ballot batches.
- Reduced paper and printing.
- Faster process.
- A system of measurement that helps us quantify work flow refinements.
- Active management of volume and necessary staffing.

The Challenge *(past state)*

During the 2016 Presidential Election, Pierce County labored with an outdated optical scan system (Dominion, 400C tabulators). The greatest challenge was manual duplication of paper ballots prior to scanning. Hesitation marks, corrections, and even the slightest smudges and stains required a laborious remake. See Attachment A. On top of that, the old optical scanners would tear and rip ballots during tabulation, requiring *additional* remakes.

During that election, Pierce County manually duplicated over 58,000 ballots (15% of ballots received). These ballots had to be pulled out of batches. Removing ballots from a batch required a complex system a paper (triplicate forms), a manually keyed excel spreadsheet, and a complex process to track down any discrepancies. See Attachment B.

The Innovation *(current state)*

Our new digital scan system (Clear Ballot) virtually eliminated the need to manually duplicate "problem ballots." This freed our team to streamline ballot processing and batch tracking. This resulted in the invention of the Batch Tracker Manager (BTM).

The Batch Tracker Manager (BTM) is a SQL database with a Microsoft Access interface. The BTM is used in conjunction with unique barcoded target cards that cover batches of 250 ballots. Off-the-shelf handheld scanners "touch" each target card as a batch moves through various work stations. The BTM logs the location and time of each batch.

Our Clear Ballot digital scan system uses a tracking card for each tabulator batch. We leveraged the fact that this target card had a unique bar code for each batch and also had customizable free space. In this free space, we added all the tracking information that was formerly included on the old triplicate form. See Attachment C.

Now, batches are generated by our mail sorting equipment and given a batch number accordingly. This batch number is matched to the target card number. All batch quantity information from the sorter is automatically uploaded into the BTM at the beginning of the process.

Every batch originates on the mail sorter and receives a unique batch number that follows each batch from ballot opening through ballot tabulation.

The bar code on the target card can now be used as a time and custody control. At each stage of the process the target card is scanned with a hand barcode scanner and time/location stamped automatically into our tracking database. The only need to hand key information is if there is a discrepancy in the opening process (rare instances where a voter returns a non-ballot that is not identified by the sorting equipment).

Batches are brought to the opening room floor and issued to teams. Again, the target card is scanned, time/location stamped automatically in the system and opened. If any duplication is needed (very rarely due to the efficiency of our digital scan system) they are made on the spot. This way all ballots in that batch stay together through the entire process, both reducing the risk of mishandling and improving accountability. After they are opened and accounted for the teams sign the target card and the opened ballots are transferred to the tabulation department (again scanned and time/location stamped via the barcode).

At tabulation, the target card is scanned along with the ballots, and a digital image is saved with that batch. At any time, we can call up the image of that target card along with all signatures, numbers, notes, and names of who worked on that batch without digging through stacks of triplicate forms. Also after all ballots are scanned a batch scanned quantities report is generated and uploaded into our tracking database. This automatically reconciles batch origination quantities (uploaded from our sorting equipment) with batch tabulation quantities (uploaded from our tabulation system). Any discrepancies are highlighted on a dashboard, and can be tracked down or explained via a comments section.

Once batches are tabulated they are placed into clear, sealed bags. The target card becomes the control copy of the seal oath, and our system produces a tamper evident seal identical to the target card. The target card, with all information and seal oath and ballots are placed in secure storage until the election is certified. If a batch needs to be physically examined (post-election audit, canvassing board needs to see physical ballot) they can be found quickly via the clear bag and label. (See attachment D)

The underlying idea to scan and track batches throughout the process was based on best practices used at hospitals where a patient's bracelet is scanned during any treatments or events.

Efficacy

The BTM has reduced ballot handling time, improved reconciliation, and eliminated multiple layers of paperwork, resulting in efficiencies and cost savings.

Innovation

This is a home-grown product, resulting from an off-hand comment made by a Pierce County staff person.

> *"Why do we need these old manual batch logs to track ballots? When a baby is born in the hospital, they get a barcoded bracelet that gets scanned every time a nurse visits or the baby is moved. Everything is uploaded to a medical record."*

Our vendor, Clear Ballot, reports that they have never seen a "widget" like our BTM. Clear Ballot will promote the BTM as a best practice for its digital scan solution.

Sustainability

The BTM contributes to Pierce County's environment sustainability initiative by eliminating paper waste. It also supports our fiscal sustainability with the elimination of printing triple carbon copy forms.

Outreach efforts

The BTM process was incorporated into our Political Party Observer training. It's crucial that observers understand ballot flow, accountability, and tracking. For observers, the BTM has demystified what is happening moment-to-moment on the ballot processing floor.

Cost-effectiveness

The BTM was implemented at no cost, using handheld scanners and laptops already on hand in the Election Center.

Replicability

The program was created in-house by Mike Fitta, IT Systems Engineer, using SQL and Microsoft Access, and commercial off-the-shelf equipment. Pierce County is happy to share information that will assist other jurisdictions in their own development.

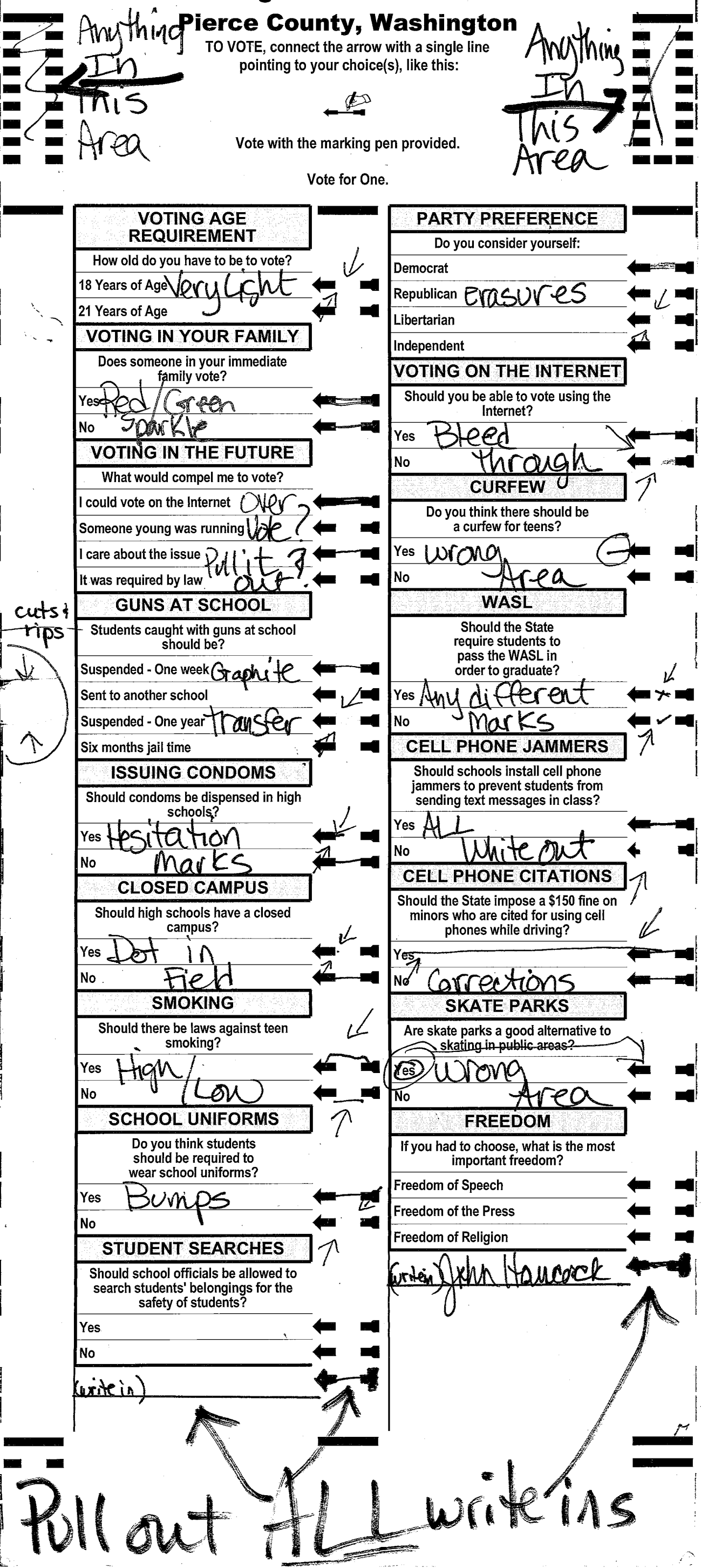
Discussion and Conclusion

This new batch tracking tool has added greater visibility and accountability to our ballot processing system. We know at any time where a batch is, what state it is in, and who worked/is working on it. We have incorporated automatic system input, eliminating the potential for keying errors. Also, using two independent systems (our sorter and tabulation system) we have a method to reconcile our inputs to our outputs without hand keying. The process between the input and output is verified by hand counts.

We eliminated multiple pages of hand filled forms (batch log, remake log, seal oaths) by combining them all on one sheet that follows the batch from beginning to end, and is visible digitally available as a scanned image.. This process and system have improved accountability, efficacy, reduced costs, and

eliminated much of the physical paperwork (sustainability). This process flow could easily be replicated in other election offices that use a central count system.

Remake Examples



This is an example of Pierce County's legacy system ballot. The opening teams needed to look for all the identified potential issues. If any of these issues were found that ballot would need to be re-made (duplicated) by a team of two workers onto a new, blank ballot. Then the re-made ballot would be double checked by another team to confirm it was marked correctly. This also required tracking and paperwork to account for the removal of the 'bad' ballot from its batch, and its incorporation into a re-make batch, followed by its consolidation back into a tabulation batch.

This form was used to track batches. The all fields were hand written, then keyed into the tracking database. Each form was in quadruplicate, so a copy of the data could follow the ballot batches.

Ballot Log

#_____

Opening

	Pitney Bowes Total =		
Notes:	Final	Added back	Preliminary
1. Declaration Envelopes (Should equal Pitney Bowes Total)			
2. Remakes			
3. Ballots Ready for Tabulation (Lines 2 + 3 should equal Line 1)			

Print Name: _____ **Date:** _____

Remakes

Notes:

4. Ballots Received for Remake (Should equal Line 2)			
5. Ballots Not Requiring Remake			
6. Ballots To Canvass			
7. Ballots To Remake			

Print Name: _____ **Date:** _____

400C Processing

Date:_____ **Run #:** _____ **Machine** _____ **Batch** _____

Notes:	Final	Preliminary	Preliminary
8. Ballots Scanned			
9. Ballots Not Scanned			
10. Total (Should equal Line 3)			
Operator Print Name:		**Recount required**	**Yes** **No**
Recount Operator Name / Date / Run #:		**Machine #** **Batch #**	

White *- To be keyed* ***Yellow*** *- 400-C Remakes* ***Pink*** *- Ballot Box* ***Gold*** *- Ballot Room*

This form was used when a remake batch was created. It tracked the stamp number, what team remade the batch and what team checked the batch. Once a group of 20 was completed the were consolidated back into a tabulation batch and issued a new batch number for counting.

Remake Type_____ **# 9**

Remake Log for the April 25, 2017 Special Election

	Control Stamp #	Ballot Type	Remake Needed
1	161		
2	162		
3	163		
4	164		
5	165		
6	166		
7	167		
8	168		
9	169		
10	170		
11	171		
12	172		
13	173		
14	174		
15	175		
16	176		
17	177		
18	178		
19	179		
20	180		

Remade By

Print Name:_____

Print Name:_____

Date:_____

Checked By

Print Name:_____

Print Name:_____

Date:_____

This is a screen-shot from the tracking database. All fields were hand keyed from the batch forms. This resulted in numerous keying errors that took time to track down and made it difficult to identify true reconciliation issues.

Batch Log Totals Report

Log Number	PB Total	Envelopes	Remakes	Ready to Scan	Remake Received	Remake Not Required	Canvass	Duplicated	Scanned	Not Scanned To Remake	Not Scanned to Canvass	Scanned Total
1	250	250	2	248	2	0	0	2	248	0	0	248
2	250	250	3	247	3	0	1	2	247	0	0	247
3	250	250	1	249	1	0	0	1	249	0	0	249
4	250	250	1	249	1	0	0	1	249	0	0	249
5	250	250	1	249	1	0	0	1	249	0	0	249
6	250	250	3	247	3	0	0	3	247	0	0	247
7	250	250	4	246	4	0	0	4	245	1	0	246
8	250	250	0	250	0	0	0	0	249	1	0	250
9	250	250	2	248	2	1	0	1	248	0	0	248
10	250	250	2	248	2	0	0	2	247	1	0	248
11	250	250	1	249	1	0	0	1	249	0	0	249
12	12	12	0	12	0	0	0	0	12	0	0	12
13	250	250	3	247	3	2	0	1	247	0	0	247
14	250	250	3	247	3	0	0	3	247	0	0	247
15	250	250	5	245	5	0	0	5	245	0	0	245
16	250	250	1	249	1	0	0	1	249	0	0	249
17	250	250	2	248	2	0	1	1	247	1	0	248
18	250	250	12	238	12	0	0	12	238	0	0	238
19	46	46	1	44	1	0	0	1	44	0	0	44
20	250	250	1	249	1	0	0	1	249	0	0	249
21	250	250	1	249	1	0	0	1	249	0	0	249
22	250	250	2	248	2	0	0	2	248	0	0	248
23	96	96	2	94	2	0	0	2	94	0	0	94
24	250	250	1	249	1	0	0	1	249	0	0	249
25	250	250	13	237	13	0	0	13	237	0	0	237
26	250	250	0	250	0	0	0	0	250	0	0	250
27	250	250	1	249	1	0	0	1	249	0	0	249

This is a second screen-shot of the old tracking database related to remakes and other manual credit batches. Remakes were handled outside the normal stream of batches and required their own tracking forms.

Remake and Other Batch Log Totals Report

Type:	Log Number	Envelopes	Remakes	Ready to Scan	Remake Received	Remake Not Required	Canvass	Duplicated	Scanned	Not Scanned to Remake	Not Scanned to Canvass
Canvass Rema	7008			3					3	0	0
SubTotal by Type:				**3**					**3**	**0**	0
eBallot	7004	20	20	0	20	0	0	20			
SubTotal by Type:		**20**	**20**	**0**	**20**	**0**	**0**	**20**			
Manual	7007	2	0	2	0	0	0	0	2	0	0
Manual	7009	5	0	5					5	0	0
Manual	7010	2	0	2					2	0	0
SubTotal by Type:		**9**	**0**	**9**	**0**	**0**	**0**	**0**	**9**	**0**	0
Remake	7001			47					47	0	0
Remake	7003			1					1	0	0
Remake	7005			39					39	0	0
Remake	7006			1					1	0	0
SubTotal by Type:				88					88	**0**	0
Remake Not R	7002			3					3	0	0
SubTotal by Type:				**3**					**3**	**0**	0
GrandTotal:		**29**	**20**	**103**	**20**	**0**	**0**	**20**	**103**	**0**	**0**

This is an example of a seal oath. These are still used in many aspects of our election process, but have been eliminated thanks to the conversion to the new target cards. This is provided as an example of paperwork reduction.

Seal Oath

Seal number _____

Date sealed _____

Sealed by:

1. _____

2. _____

Transported by:

1. _____

2. _____

Date seal broken _____

Seal broken by:

1. _____

2. _____

Contents

Drop Box

Location: _____

Tub/ballot count: _____

Voting Centers

- ☐ Touch screen tape
- ☐ Unused/defaced ballots

Election Center

- ☐ Tabulated ballots
- ☐ Ballots in process
- ☐ Machine #_____
- ☐ Roll down
- ☐ Voted ballots

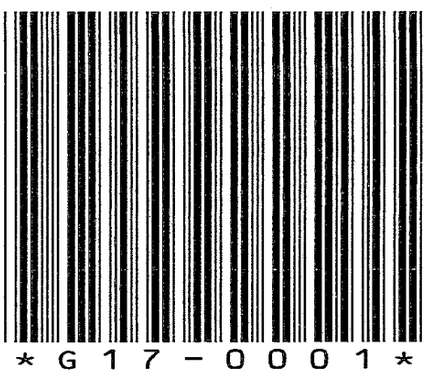
Other

☐ _____

White - inside container Yellow - attach to container Pink - file

This is a scan of our new target cards. They pull quadruple duty, as a header card for our tabulation system, as a batch tracker for our database, as a work/ time log, and as a seal oath. The batch quantities are added by our sorting equipment, opening workers verify envelope quantity and ballot quantity by hand, and the scanned quantity is captured by the tabulator.

2017 GENERAL



G17-0001

Target Card

Batch Quantity	250	Print Name: Prepared By	CC
Hand Count of Envelopes	250	Print Name: Opened By	REBECCA BRAUHN
Hand Count of Ballots	250		
Ballots Scanned	250	Print Name: Scanned By	DAMON TOWNSEND
Notes: Another Perfect Batch ☺			

Keep Ballots in Order
Do Not Remove This Page

The purpose of the Target Card is to automatically add the BoxID to to each ballot's sequence number to enable Image-to-Ballot Traceability.

The tabulation system produces the target cards as well as these labels. Each label matches a target card and acts as the outside seal oath. When used on our plastic batch bags they act as the outside seal oath.

AVERY 5163®

TrueBlock® Shipping Labels
Completely covers everything underneath

Go to avery.com/templates
Use Avery Template 5163

Sealed By: _____ _____ Date: _____ G17-0001 *G17-0001* www.ClearBallot.com	Sealed By: _____ _____ Date: _____ G17-0002 *G17-0002* www.ClearBallot.com
Sealed By: _____ _____ Date: _____ G17-0003 *G17-0003* www.ClearBallot.com	Sealed By: _____ _____ Date: _____ G17-0004 *G17-0004* www.ClearBallot.com
Sealed By: _____ _____ Date: _____ G17-0005 *G17-0005* www.ClearBallot.com	Sealed By: _____ _____ Date: _____ G17-0006 *G17-0006* www.ClearBallot.com
Sealed By: _____ _____ Date: _____ G17-0007 *G17-0007* www.ClearBallot.com	Sealed By: _____ _____ Date: _____ G17-0008 *G17-0008* www.ClearBallot.com
Sealed By: _____ _____ Date: _____ G17-0009 *G17-0009* www.ClearBallot.com	Sealed By: _____ _____ Date: _____ G17-0010 *G17-0010* www.ClearBallot.com

Pat: avery.com/patents

Trueblock® Étiquettes d'expédition
Masque tout

Allez à avery.ca/gabarits
Utilisez le Gabarit Avery 5163