



INTERNAL SERVICE PERFORMANCE MEASUREMENT PLAN UPDATE

PRC Technical Conference

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August 26, 2016





Background

Internal SPM Milestones

Barcoded and Non-Barcoded Mail

First Mile Measurement

Processing Duration

Last Mile Measurement

Overall Service Performance Calculation

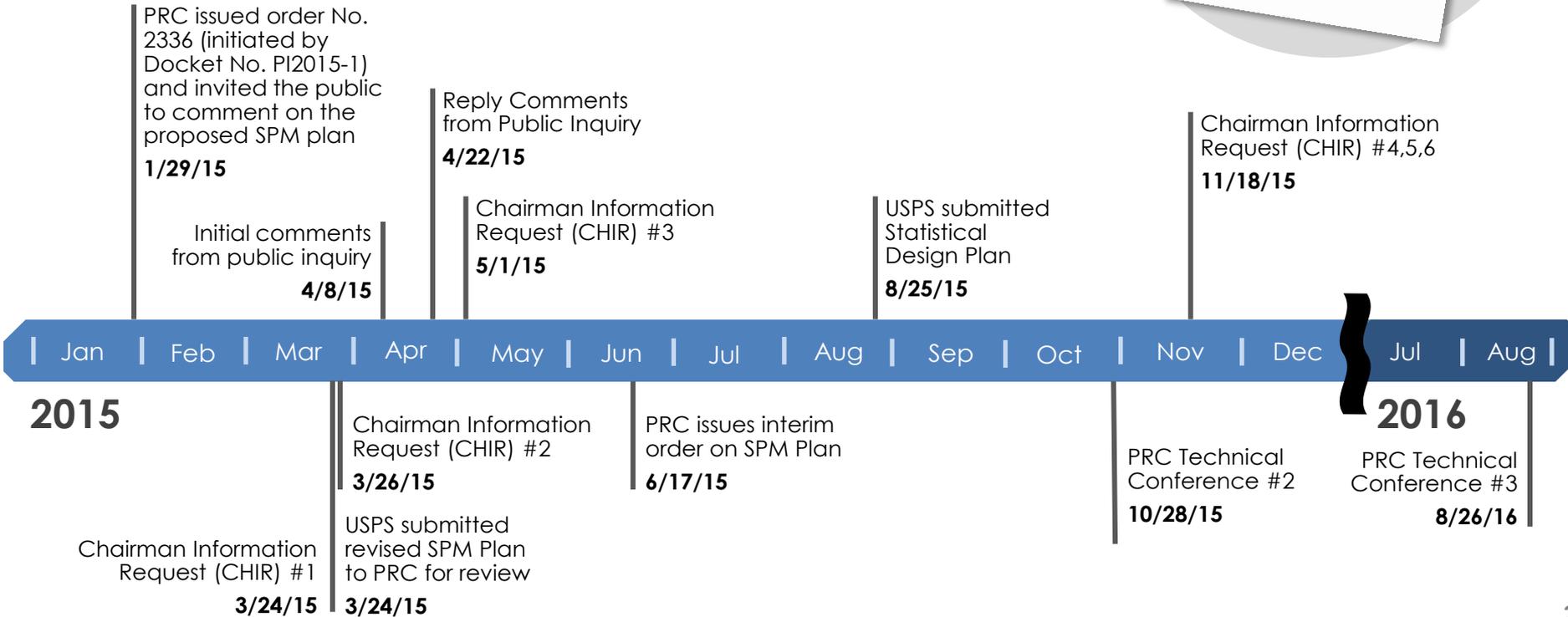
Statistical Validity

Service Performance Report Comparison

Planned Improvements

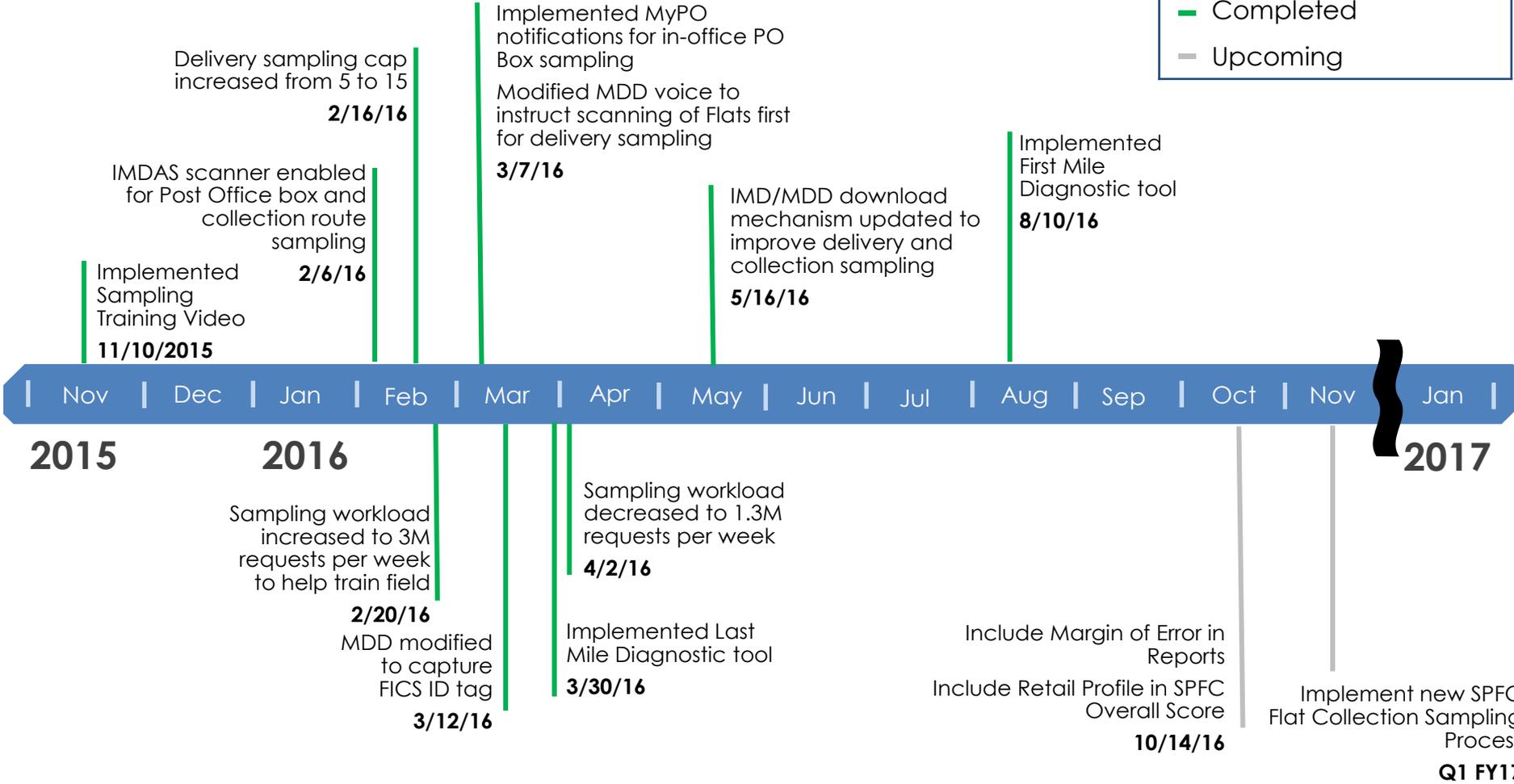
Internal Measurement through Informed Visibility

On January 29, 2015, the Service Performance Measurement (SPM) Plan was published through the Postal Regulatory Commission (PRC) for public comment



Legend

- Completed
- Upcoming



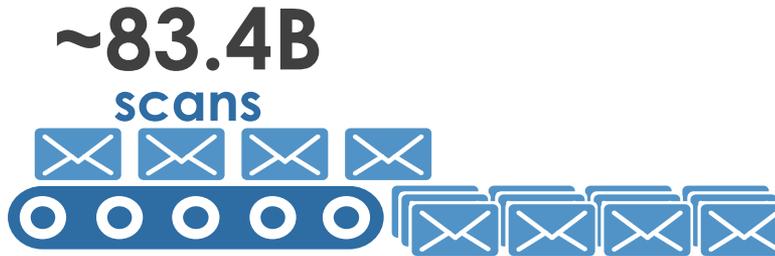

~3.5M
collection samples



~75K
clerks trained

400k Employees
Trained on
Scanning and
Sampling

from 11.5K
automation equipment



~325K
carriers trained





Single-Piece First Class[®] Mail Flow Barcoded and Non-Barcoded Mail

Collection points
receive both Barcoded
and Non-Barcoded
Single Piece First-Class
mailpieces

Barcoded
mailpieces
are sampled for
'Start-the-Clock' in
First Mile

barcoded

not barcoded



Both Barcoded and
Non-Barcoded pieces
are consolidated into
the same containers for
efficient transport

not barcoded

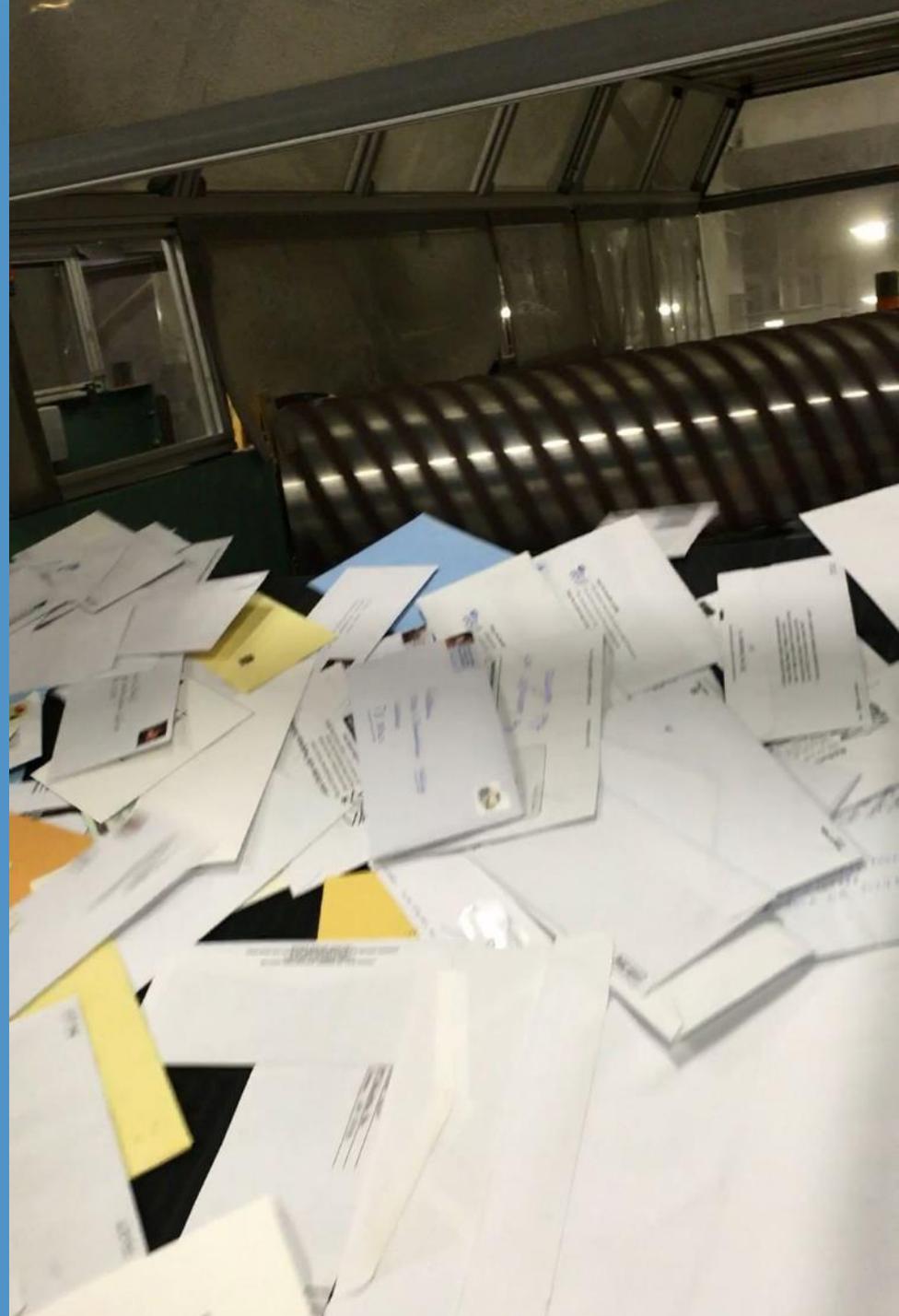
barcoded



Containers with both
Barcoded and
Non-Barcoded pieces
are loaded onto the
same equipment for
cancellation



Cancellation equipment culls and faces Barcoded and Non-Barcoded mailpieces



Processing equipment
applies a USPS barcode
on Non-Barcoded Mail

The equipment scan event
'Stop-the-Clock' for First
Mile samples and
'Start-the-Clock' for
Processing Duration on
barcoded mail

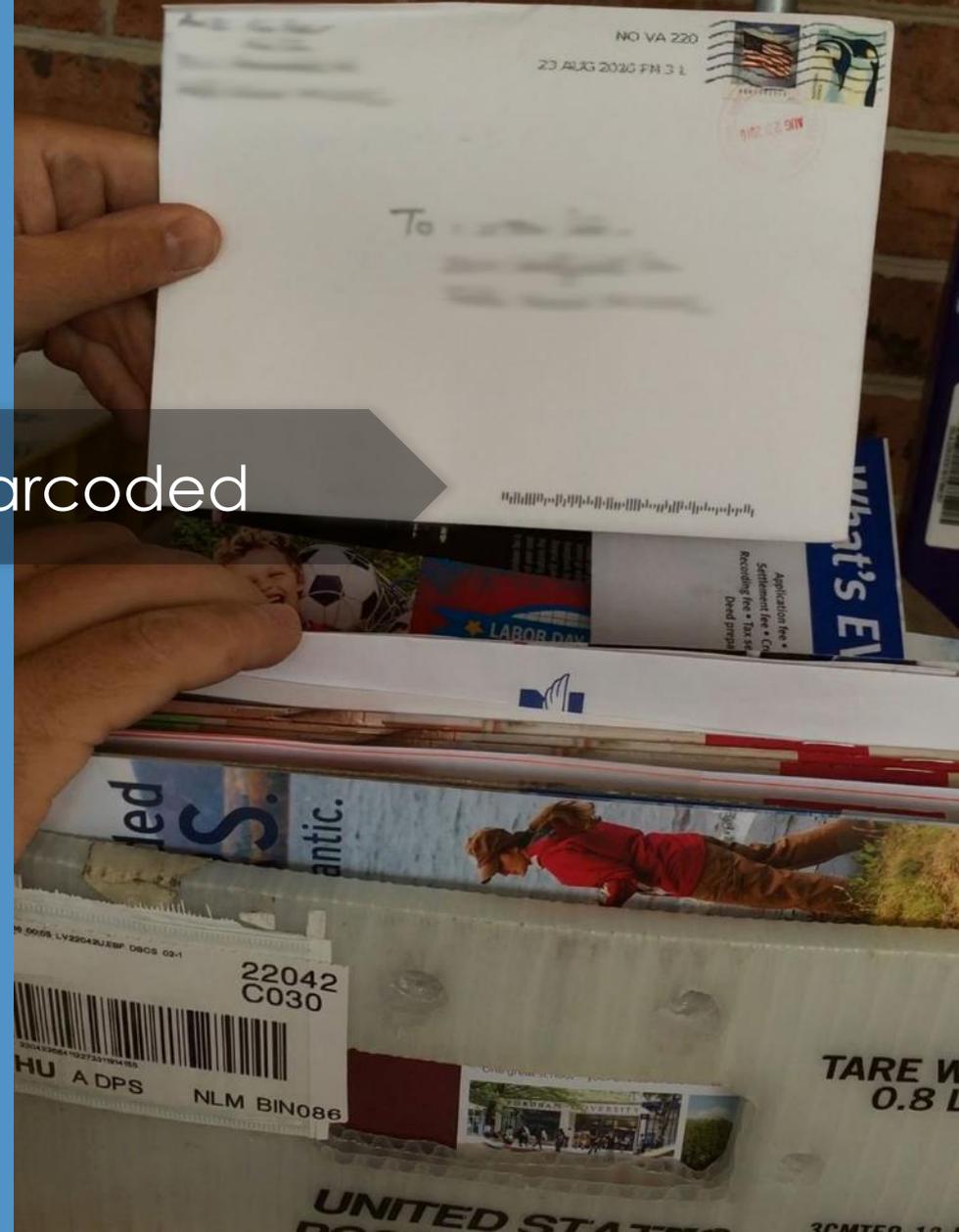


Processing equipment
sorts barcoded mail for
further downstream
processing

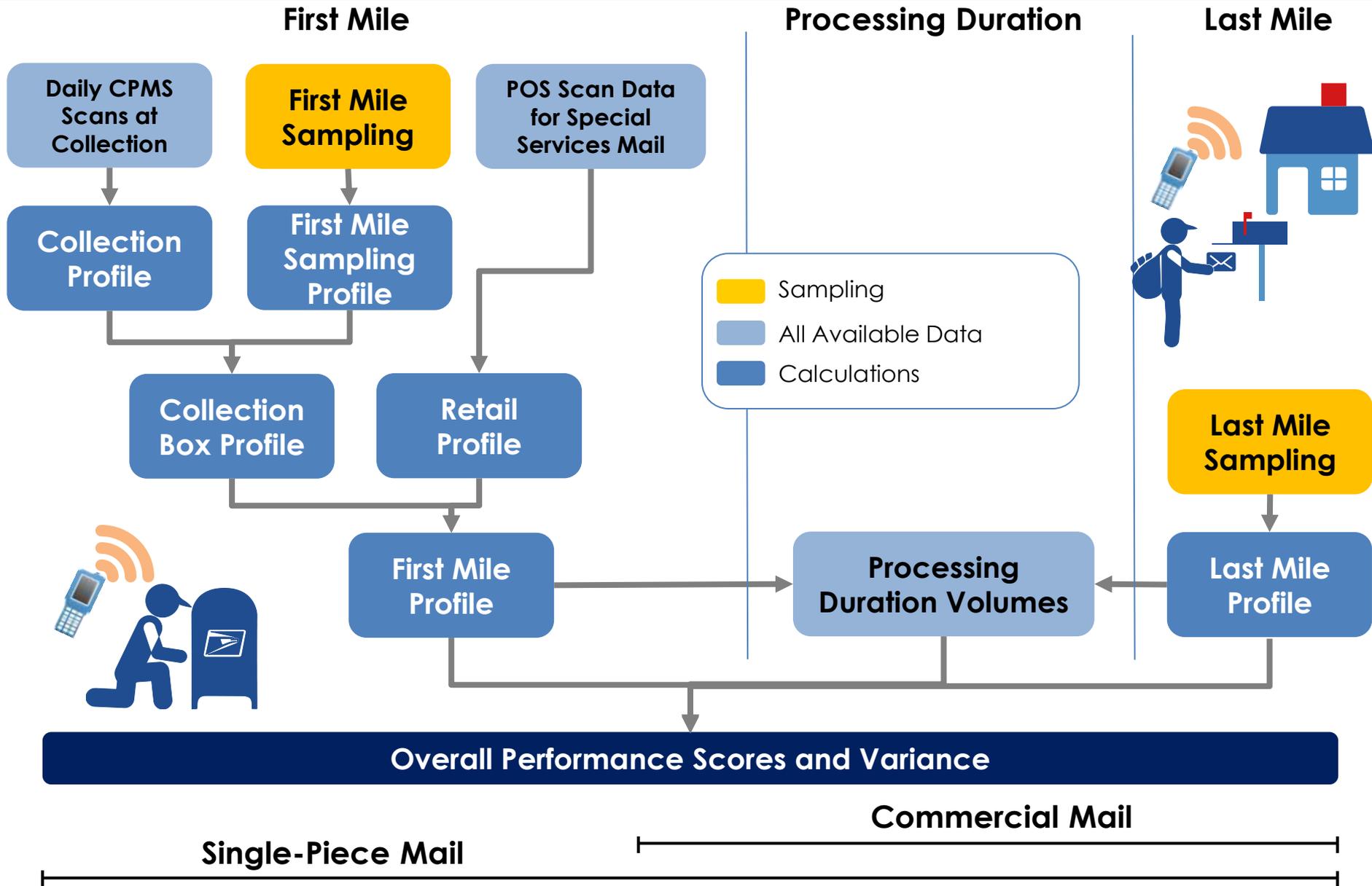


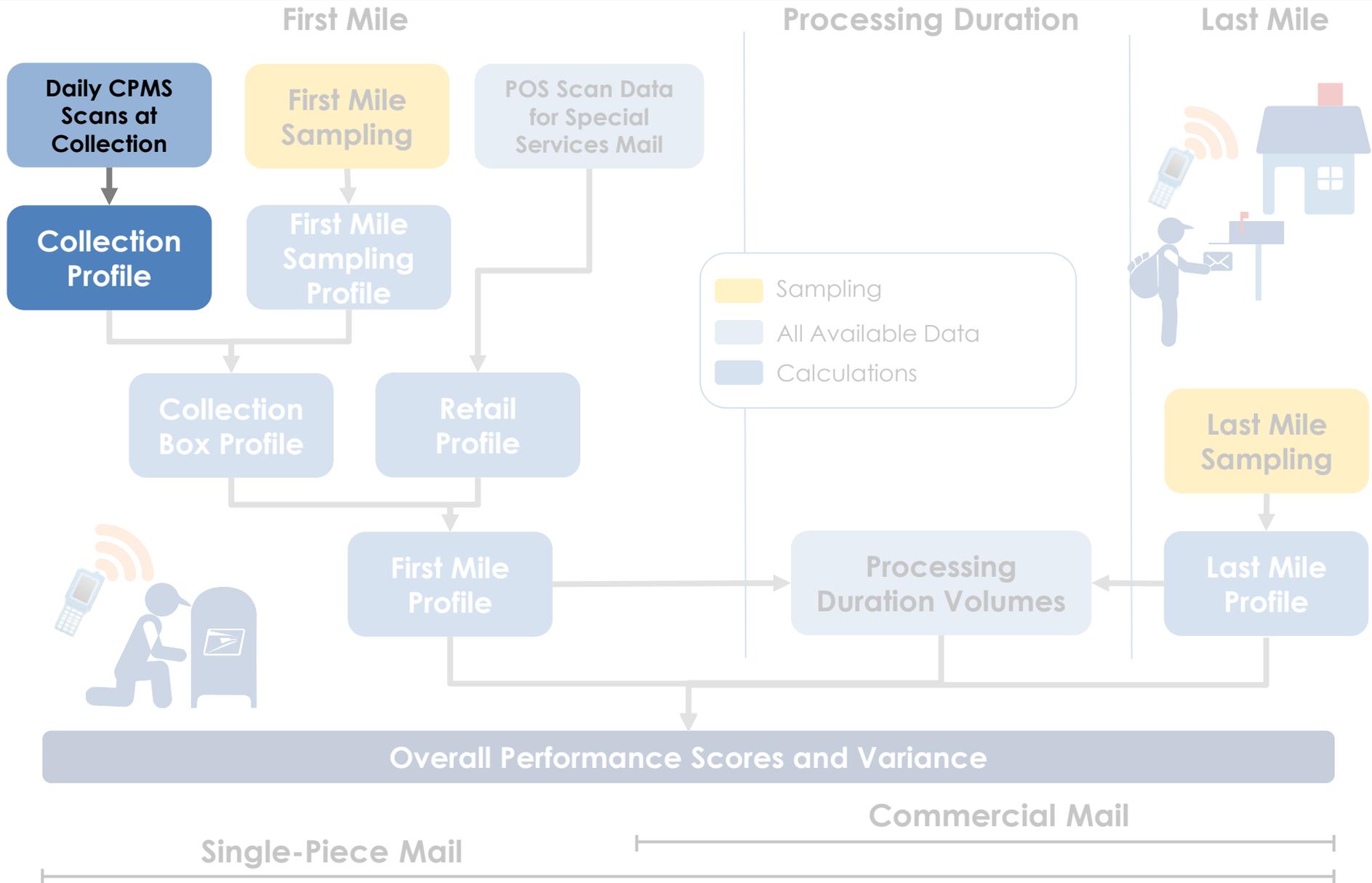
Originally Non-Barcoded pieces entered at collection points now have USPS barcode for Last Mile Sampling

barcoded



Internal SPM - Q2 and Q3





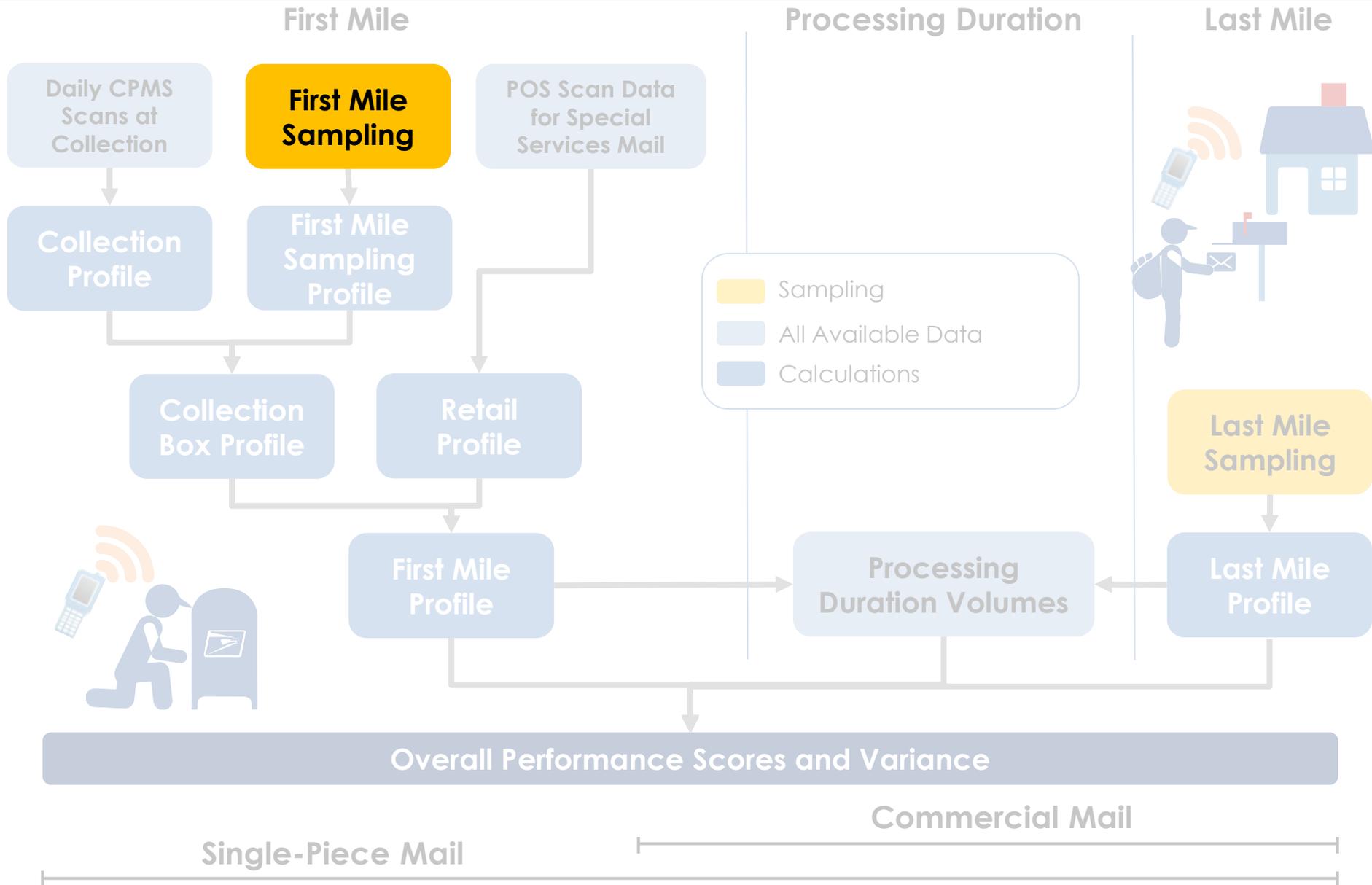
Daily CPMS
Scans at
Collection

Collection Point Scanning (Triggered by CPMS Barcode) is used to create First Mile Collection Profile

Collection
Profile

- CPMS Scans are used to calculate whether the full expected density was collected
 - Scan Time compared to Scheduled Pick-up Time
 - Density volumes from annual density tests
- Accounts for early and missed collections
- Methodology has remained as designed





First Mile Sampling

Postal employees scan flats and letters at randomly selected collection points

- Collection boxes and Postal Lobby Chutes are randomly selected for sampling
- Two sampling groups have been defined for First Mile sampling:



Letters/cards

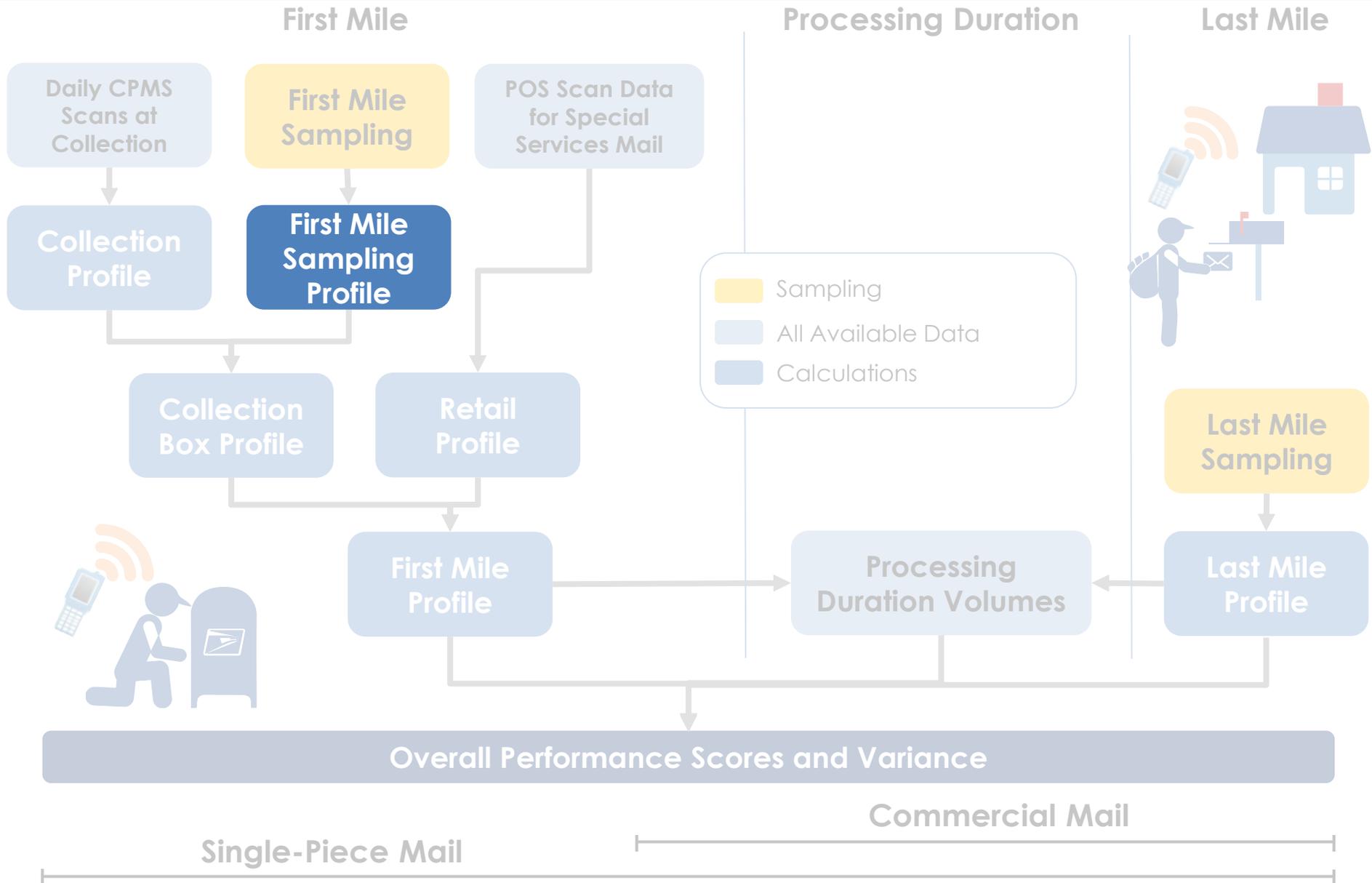


Flats

**First Mile
Sampling**

Lessons Learned

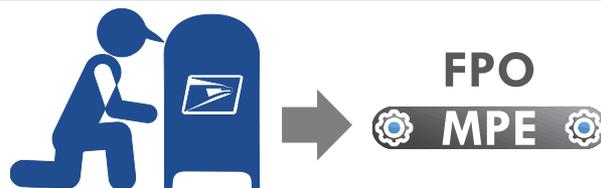
- Office scanners (IMDAS) needed software enhancements to ensure full coverage of collection sampling
- Initial design for load of sampling work orders on devices impacted sampling capture rate
- Strobe scanning is needed to capture red colored barcodes
- Field Training is critical to capture license plate barcodes and achieve sampling targets
- SPFC Flats volume in blue collection boxes are scarce. Alternative methodology needed to capture samples



First Mile
Sampling
Profile

First Mile Sampling Profile based on:

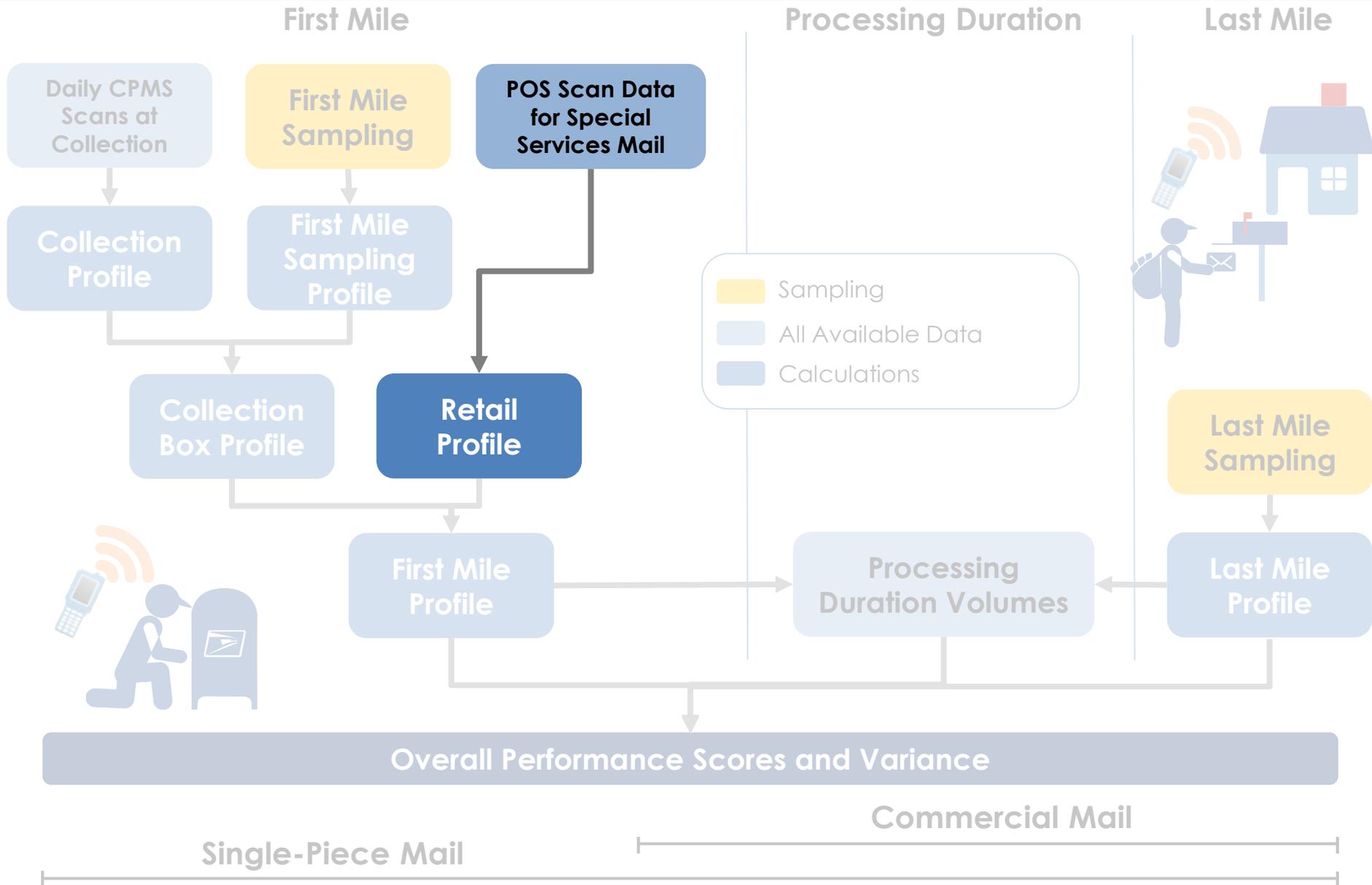
anticipated induction date minus date of sampling



- First Mile Sampling Profile is aggregated based on origin district, collection date, mail shape, and first processing operation (FPO) type.
 - FPO1 – outgoing processing operations (the expected initial processing)
 - FPO2 – all other processing operations
- First Mile Sampling Profile is calculated as the weighted average proportion of pieces having k days prior to first processing, with k ranging from -1 to 30

Lessons Learned

- Proxy data is needed when technical issues impact sampling requests being sent to devices
- Need to improve accuracy of First Processing Operation (FPO) assignment



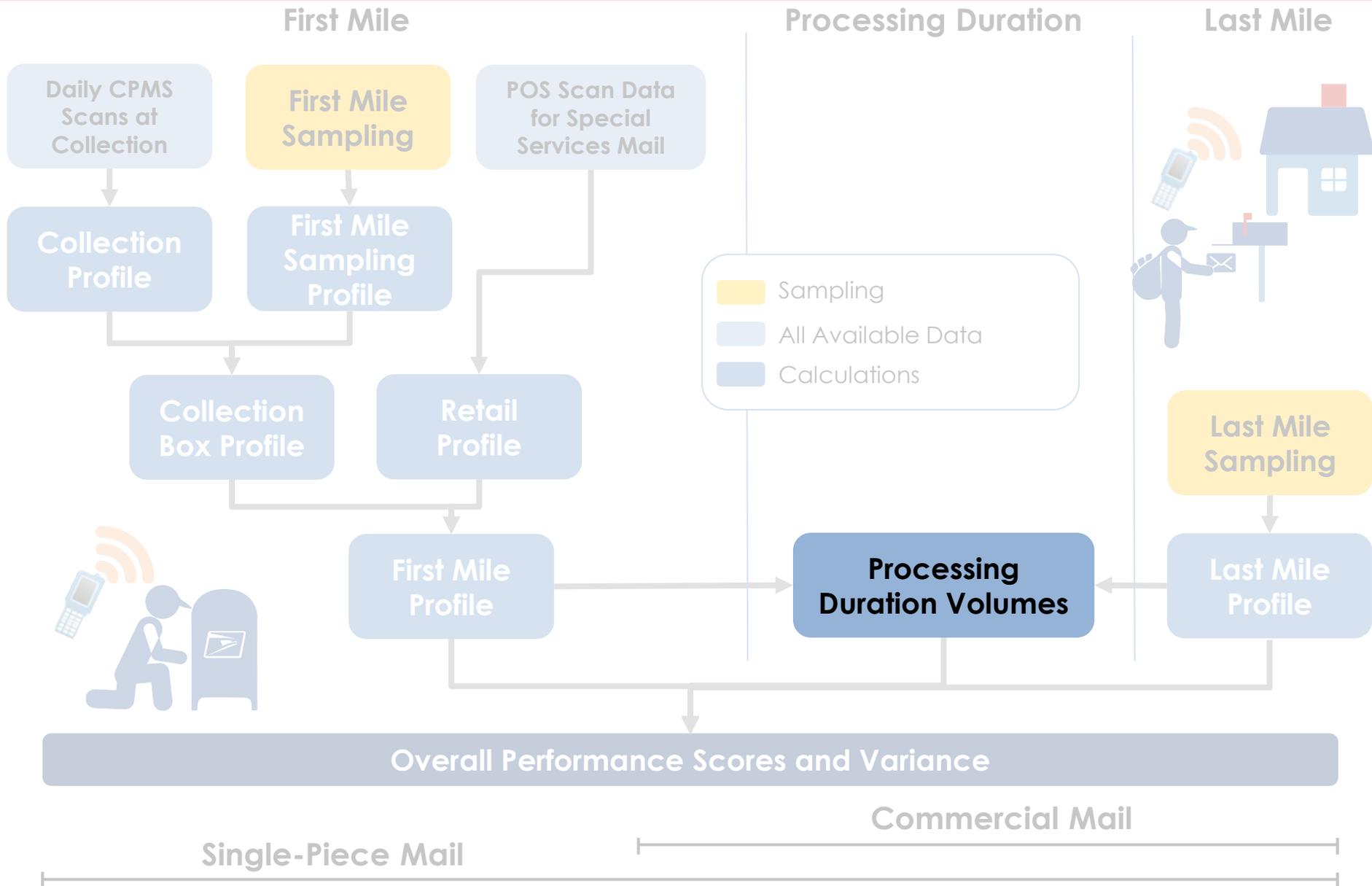
POS Scan Data
for Special
Services Mail

Retail
Profile

Point of Sale (POS) scan data will be matched with scans from first processing operation

- POS scan data for mail with Special Services (e.g., Certified Mail) will be used to measure the First Mile for retail channel
- Retail Profile will be calculated for each origin district, anticipated induction date, FPO grouping for letters/cards and flats as the proportion of retail mail with k days in First Mile, where k ranges from -1 to 30
- Software development will be completed in Q4 FY16





Processing Duration Volumes

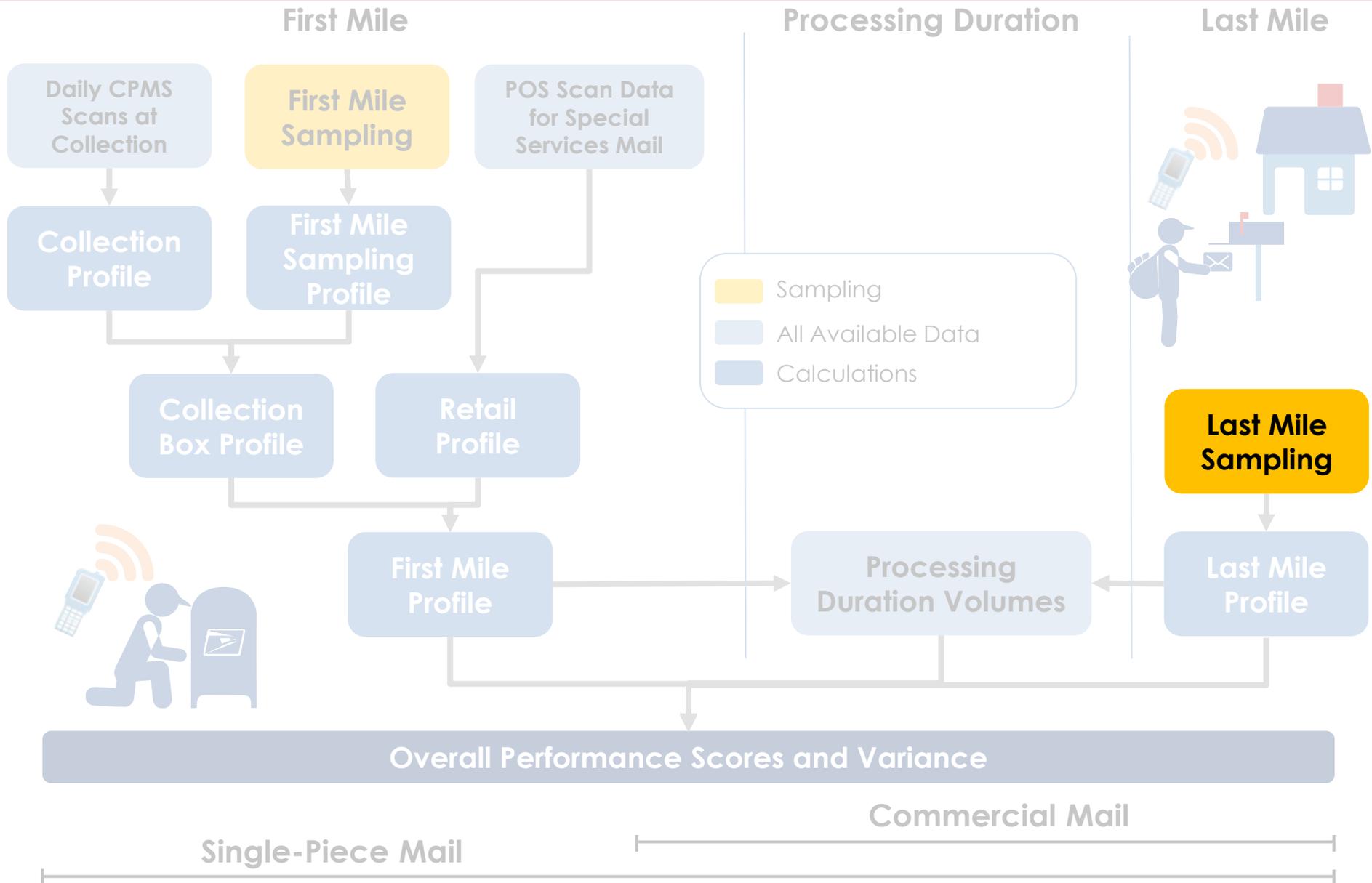
Processing Duration is measured from first processing operation or Start-the-Clock to last processing operation

- Single-Piece First-Class Mail
 - Anticipated Induction Date through Anticipated Delivery Date
- Commercial mail
 - Start-the-Clock to Anticipated Delivery Date
- Processing Duration is measured for all mail for which we have the required information to measure performance accurately
- More than 22 billion pieces were measured for both Q2 and Q3

Processing
Duration Volumes

Lessons Learned

- Leveraging all barcodes captured through automation improves the identification of unique SPFC mail pieces



Last Mile Sampling

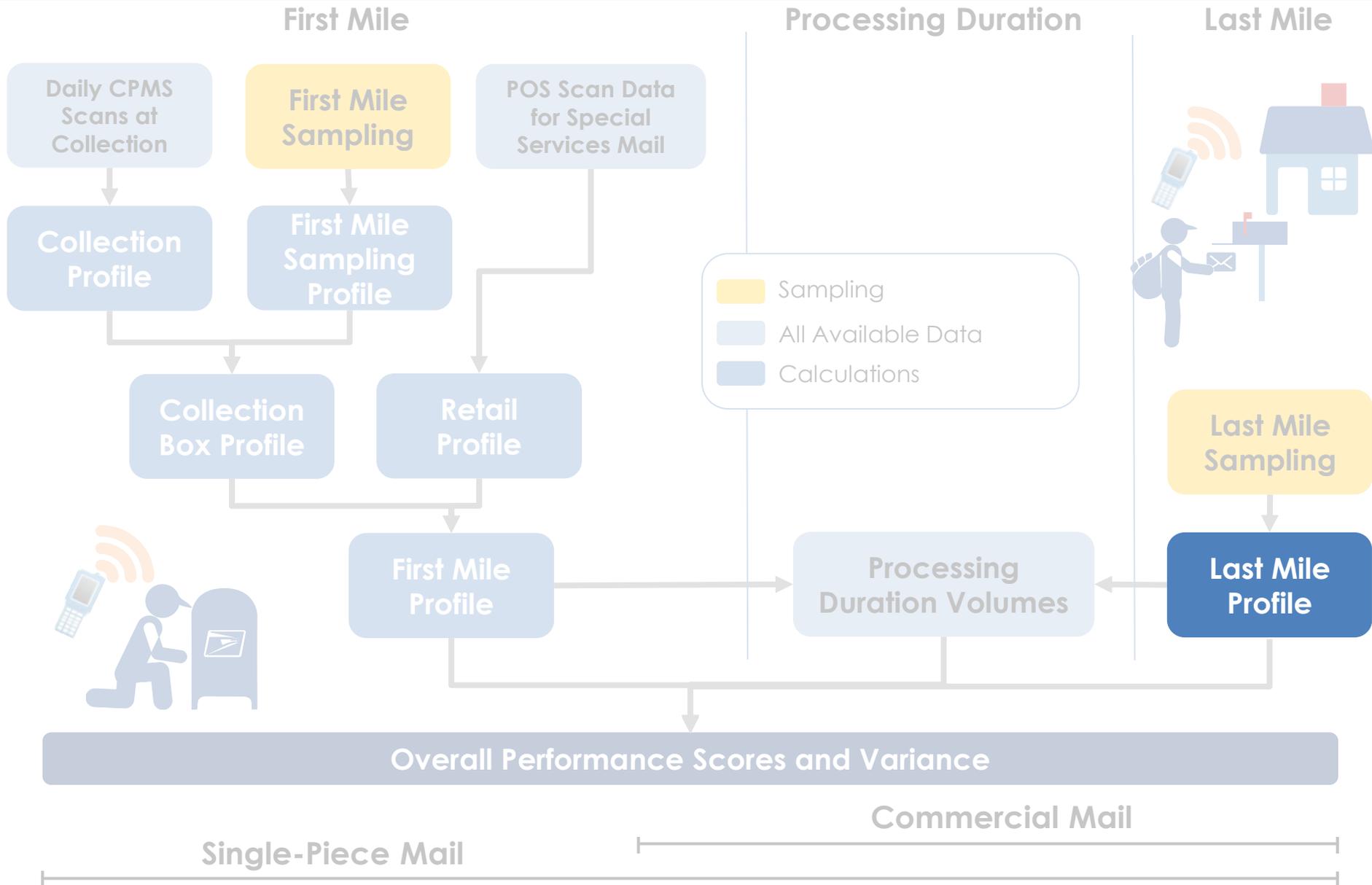
Postal employees scan flats and letters at randomly selected delivery points

- Delivery points are randomly selected
 - All delivery points have a probability of being selected
 - Delivery points with higher expected volumes have proportionally greater chances of selection
 - There is a configurable maximum number of pieces to scan at a delivery point
 - Seven sampling groups have been defined for Last Mile measurement



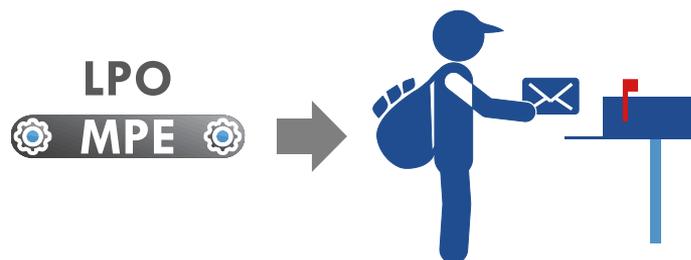
Lessons Learned

- Sampling model is impacted if Mail inventory data is not current
- More Training on Standard Operating Procedures needed to ensure sampling at PO box addresses is completed during distribution and does not include previously delivered pieces
- Procedures are needed to improve sampling yield for SPFC Remittance mail
- Initial design for load of sampling work orders on devices impacted sampling capture rate
- Accuracy of address geo-coordinates impacts success rate of sampling triggers
- Improvements to scanner software are needed to improve trigger and capture rates
- Field training is critical to achieving sampling targets and capturing usable sample data across all product types for internal SPM



Last Mile
Profile

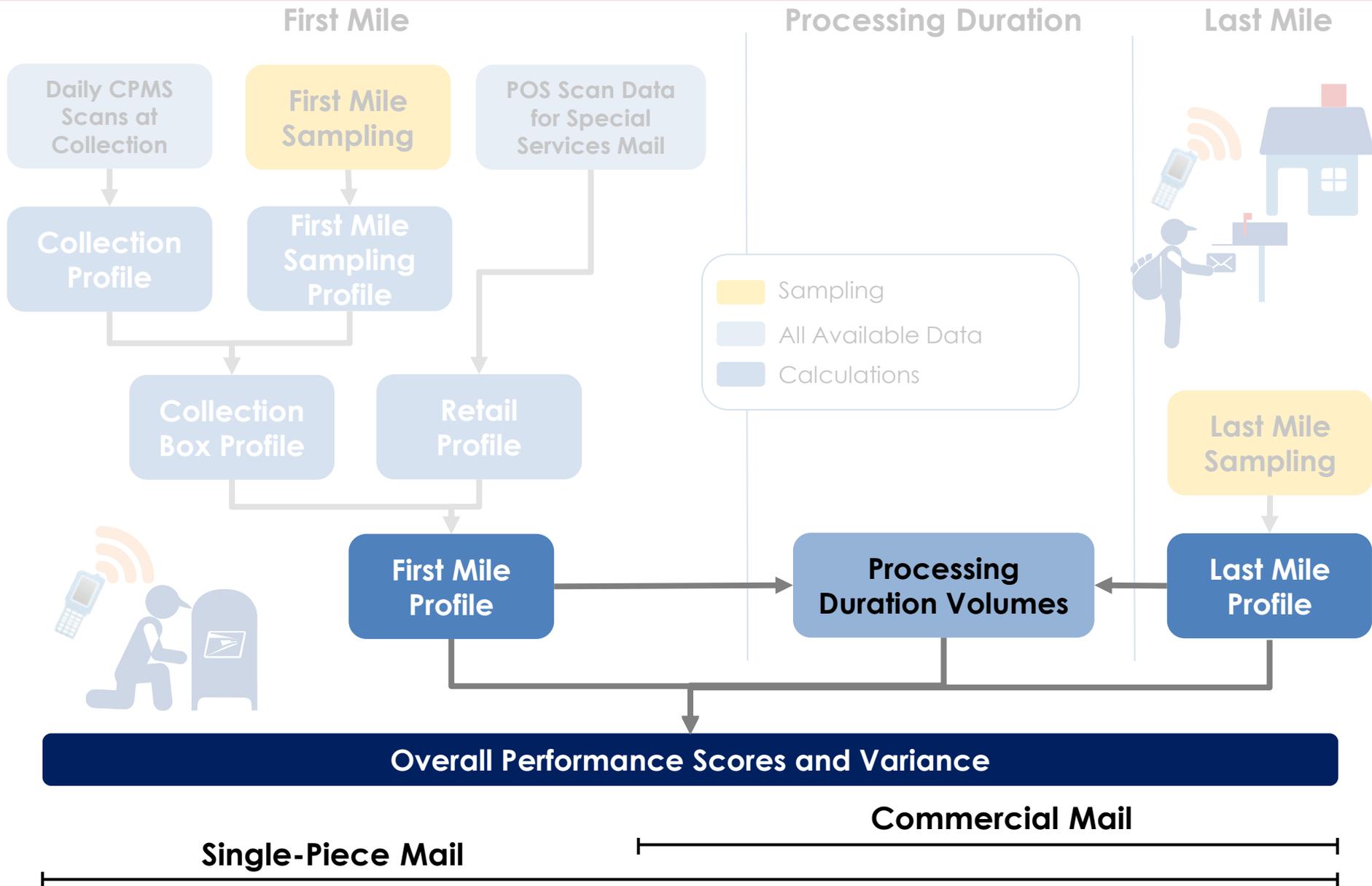
Last Mile Profile based on: sample date *minus* anticipated date of delivery *minus* # of non-delivery days (Sunday)



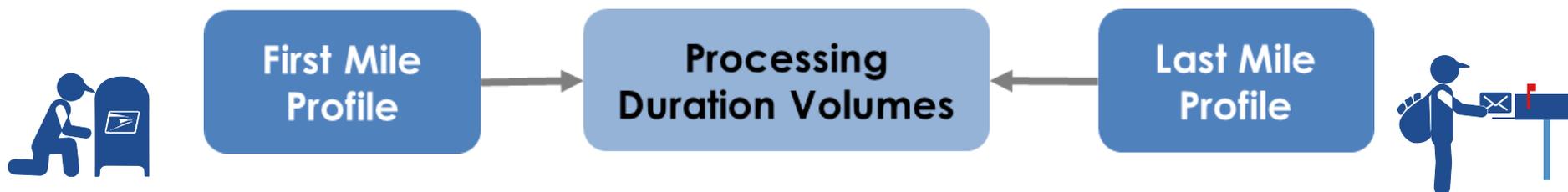
- Last Mile Profile is aggregated based on destination district, Anticipated Delivery Date, Days Left to meet service standard, and Sampling Group
- Last Mile Profile is calculated as the weighted average proportion of pieces with k days in Last Mile, with k ranging from -1 to 30

Lessons Learned

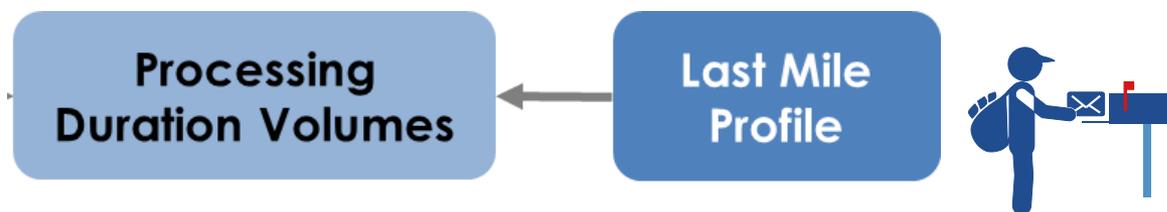
- Proxy data is needed when technical issues impact sampling requests being sent to devices



Single-Piece First-Class Mail performance scores combine data from 3 segments:



Commercial Mail performance scores combine data from 2 segments:



- Approach includes calculations for
 - On-time service performance
 - Service variance (+1, +2, +3 Days)
 - Margins of error for 95% confidence intervals

Internal SPM Sampling and Statistics

- “When evaluating a model, at least two broad standards are relevant. One is whether the model is consistent with the data. The other is whether the model is consistent with the ‘real world’.”

~Kenneth A. Bollen – Fellow of the American Statistical Assn

- Key metrics identified to assess validity of the service performance scores
 - **Response rates and coverage metrics** – used to determine if there are potential measurement accuracy issues resulting from under/over coverage of population characteristics
 - **Success rates in meeting sampling targets and statistical precision targets**
 - **Relative comparisons**– comparing component and overall scores between internal SPM and legacy systems
- Different survey/sampling methods produce different results

- Scores in legacy systems and Internal SPM will not be identical
 - Methodologies differ substantively
 - All of the measurement methodologies are based on samples to some extent
 - All are subject to sampling and non-sampling errors
- Goals of comparisons
 - Understand how the internal SPM system is working relative to the design
 - Verify that the differences observed are not a result of a internal SPM software defects or measurement methodology requirements
 - Confirm that statistically significant differences can be explained through analysis, and/or that issues identified are resolved

First Mile Metrics for FY16 Q3 – Single-Piece First-Class Letters

First Mile Metrics	Internal SPM	Legacy
Measured Pieces in First Mile	1,477,006	401,836
Unique Collection Boxes Used	95,714	18,307
Unique 5-Digit ZIP Codes Used	24,565	7,980
Sampling Target Compliance Rate	99.8%	100.0%
Sampling Response Rate	64.0%	93.1%
Coverage Rate of Included 3-Digit ZIP Codes	99.9%	100.0%
Coverage Rate of Major Box Locations (Business, PO Lobby, PO Outside, Residential)	100.0%	82.1%
Coverage Rate for Valid Samples in First Mile for Every District and Every Collection Date	97.2%	98.4%
Collection On-Time Score	99.8%	Not Applicable
First Mile Impact Score	-1.3%	-0.4%

Last Mile Metrics for FY16 Q3 – Single-Piece First-Class Letters

Last Mile Metrics	Internal SPM	Legacy
Measured Pieces in Last Mile	2,944,182	401,836
Unique Delivery Points Sampled*	5,289,910	16,596
5-Digit ZIP Codes Sampled	27,588	8,814
Sampling Target Compliance Rate	98.4%	100.0%
Sampling Response Rate	66.6%**	96.1%
Coverage Rate of Included 3-Digit ZIP Codes	99.6%	100.0%
Coverage Rate for Valid Samples for every district and every delivery date	97.7%	100.0%
Last Mile Impact Score	-3.4%	-1.9%

*Unique Delivery Points Sampled represents the total number of delivery points from which a valid piece from any sampling group was obtained.

**Does not include sampling requests that were not triggered or carrier was already past the delivery address



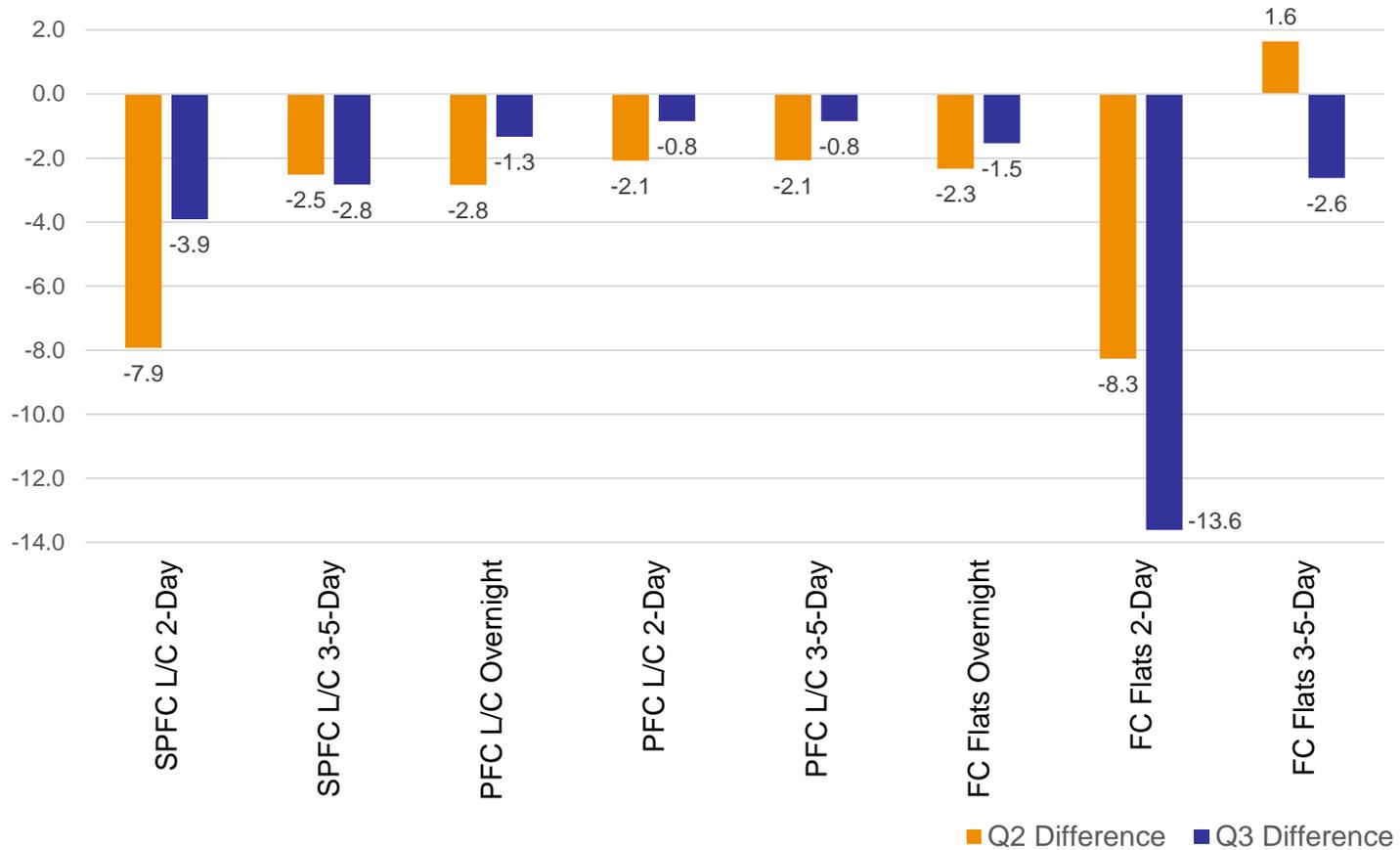
PRC Service Performance Report Comparison Internal SPM vs. Legacy Q2 and Q3 FY16

Note: Legacy SPM is the Official source of USPS Service Performance scores

- PRC Reports were generated for FY16 Q2 and Q3 by:
 - Legacy systems:
 - BIDS/IMAPS for Commercial Mail
 - EXFC for Single-Piece First-Class Mail
 - Internal Service Performance Measurement (SPM) through the Informed Visibility™ system

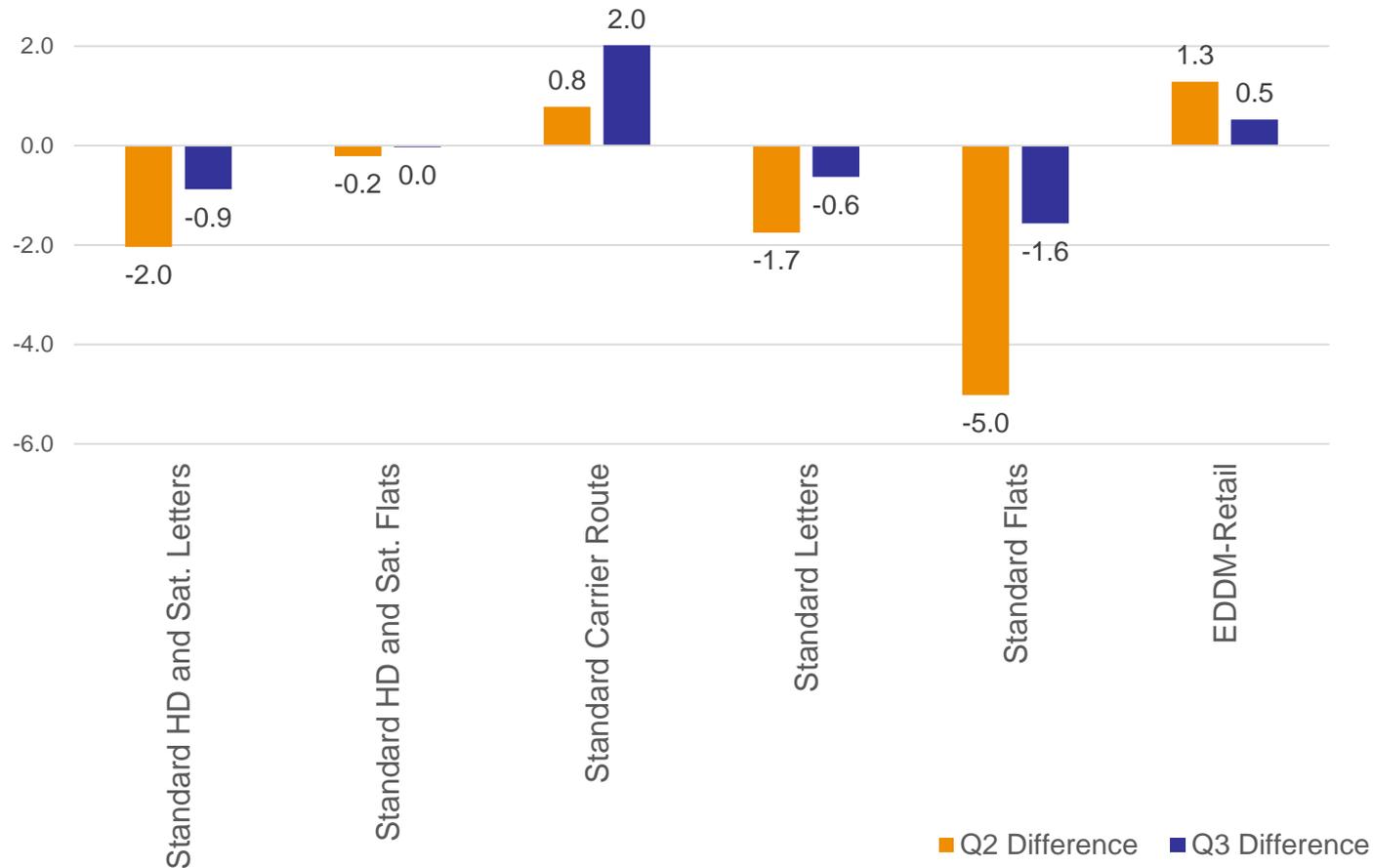
Note: Legacy SPM is the Official source of USPS Service Performance scores

FY16 Q2 and Q3 National First-Class Mail Score Difference between Internal SPM and Legacy SPM



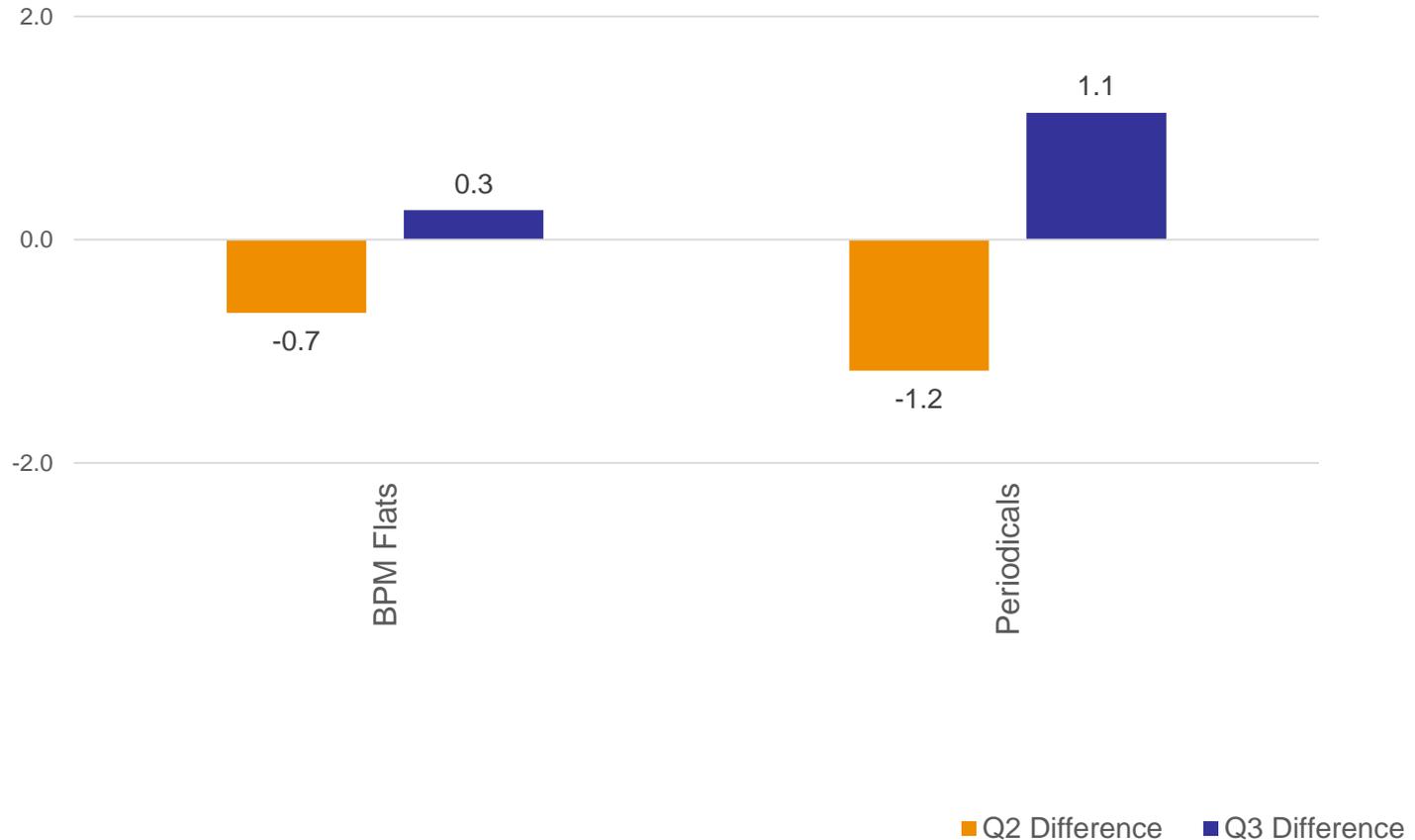
Note: Negative differences occur when Internal SPM results are lower than Legacy SPM results
Legacy SPM is the Official source of USPS Service Performance scores

FY16 Q2 and Q3 National Standard Mail Score Difference between Internal SPM and Legacy SPM



Note: Negative differences occur when Internal SPM results are lower than Legacy SPM results
Legacy SPM is the Official source of USPS Service Performance scores

FY16 Q2 and Q3 National Periodicals and Bound Printed Matter Flats Score Difference between Internal SPM and Legacy SPM



Note: Negative differences occur when Internal SPM results are lower than Legacy SPM results
Legacy SPM is the Official source of USPS Service Performance scores

Internal SPM Planned Improvements

- Provide margin-of-error for all products measured with internal SPM (10/14/16)
- Enhance First Mile measurement of SPFC by including pieces inducted at retail locations (10/14/16)
- Enable Mobile Delivery Device (MDD) scanners to capture red colored barcodes (Q1 FY17)
- Implement new SPFC Flats collection sampling process (Q1 FY17)
- Expand Last Mile sampling to include caller service remittance mail pieces (Q2 FY17)

Questions