



ADDRESS ELEMENT CORRECTION

**A
ECC**

Technical Guide

October 1998

ADDRESS MANAGEMENT
NATIONAL CUSTOMER SUPPORT CENTER
UNITED STATES POSTAL SERVICE
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MEMPHIS TN 38188-0001

Contents

The Importance of Accurate Addresses in Your List	1
AEC Overview	1
Part One: Bytes 1—450	2
Part Two: Bytes 451—900	2
AEC vs. CASS	2
The Application Process	3
For Files Transmitted via NCSC BBS	4
For Magnetic Tape or Cartridge	4
For Diskettes	5
Items Received Following AEC Processing	5
Limitation of Liability	7
Each Record is Returned In Two Parts	7
AEC Order Form	9
Appendix A: Resolved Addresses: Elements Returned	11
Appendix B: Unresolved Return Codes	13
Appendix C: Opinion Codes	17
Appendix D: How Codes	19

Address Element Correction: An Address Quality Improvement Tool

The Importance Of Accurate Addresses In Your List

Cost-effective, consistent, and timely delivery of every mailpiece depends on its address. An accurate address contains only elements that are complete and correct. When you send mailpieces with accurate addresses, you are supporting the mutual goal of the US Postal Service (USPS) and mailers to achieve the lowest combined cost for providing and receiving mail service. You also ensure that your mail is compatible with the USPS automation process and, thus, is on the fast track for delivery.

When a mailpiece is missing address elements or contains incorrect address elements, it requires additional handling, including manual processing. This can delay delivery or even make delivery impossible.

Address Element Correction (AEC) is a quality process developed by the USPS with industry support. AEC focuses on inaccurate addresses, specifically those deliverable

Recent surveys indicate that over 33% of all mailpieces contain deficient address elements that could cause them to be delayed or undelivered.

addresses that cannot be matched to a USPS ZIP+4 code using commercially available, Coding Accuracy Support System (CASS) -certified address-matching software. If an address is missing an element, CASS-certified address-matching software may lack sufficient information to determine the correct or most accurate match to ZIP+4

Product and, therefore, may not provide a ZIP+4 code. After an address goes through this process and is not resolved, it becomes a candidate for AEC.

By correcting or providing missing elements, AEC turns problem addresses into accurate addresses or identifies them as potentially undeliverable. The result is a complete and standardized address that can be matched to a 5-digit ZIP Code and ZIP+4 code. This greatly improves your efforts to have the mail reach your customers in a timely and consistent manner by allowing the corrected addresses to take full advantage of USPS automation.

AEC Overview

First, AEC separates each line of the address block into logical elements. Then, it determines if there is a complete address on a line or if the address is split between lines and processes the lines accordingly. Next, AEC determines whether the city, state, and 5-digit ZIP Code are valid and corrects them if they are not. It then uses specialized, USPS-controlled address element programs to perform a series of evaluations and comparisons.

Unambiguous addresses are supplied with missing or corrected address elements, and these addresses are standardized and ZIP+4 coded, resulting in USPS automation-compatible records.

For each address processed, the customer receives a two-part record containing the following elements:

Part One: Bytes 1—450

Resolved Addresses:

1. The standardized address.
2. An element resolution flag that identifies the address resolved and indicates whether it resolved to a specific or default address.
3. The urbanization name for Puerto Rican addresses (if present in ZIP+4 Product).
4. Nine-digit ZIP Code.
5. Delivery point code and check digit.
6. Carrier route ID.
7. The standardized address parsed (separated) into identified components (i.e., pre-directional, street name, suffix, post-directional, secondary unit designator, and secondary number).
8. A code that describes specifically what was changed in the address to match ZIP+4 Product.

Unresolved Addresses:

1. The original address parsed into logical components.
2. A code for each component specifying what it was interpreted as (e.g., primary number, street name, suffix, etc.) and whether it matched anything in ZIP+4 Product. An attempt is made to match each component of the address individually to a special ZIP+4 Product that has been parsed into logical components.
3. A code that gives an opinion (based on the codes described in number two) as to why the address could not be matched to ZIP+4 Product.

Part Two: Bytes 451—900

The original address, unchanged.

AEC vs. CASS

What does AEC do for addresses that commercially-available Coding Accuracy Support System (CASS) -certified software doesn't do?

- Expands certain initials to the full spelling of the words and standard and non-standard abbreviations to their full spelling
- Contracts a full spelling to abbreviations or initials (if necessary)
- Corrects misspellings, fractional primary number variations (e.g., 123 1/2 becomes 123 1/2), and road designator spellings (e.g., HGY becomes HIGHWAY)
- Connects two components to form one or separates one component into two (when necessary)

-
- Converts digits to alphabetic characters (e.g., 21 becomes twenty-one) or vice versa (e.g., twenty-one becomes 21), addresses to locatable addresses (e.g., Locatable Address Conversion (LACS), and state names to abbreviations or names (e.g., VA becomes Virginia or Virginia becomes VA)
 - Standardizes school and firm name component spellings and overseas military addresses
 - Compresses or expands coordinate-type addresses (e.g., W 300 S 125 to W300S125)
 - Determines and codes unique ZIP Codes
 - Provides the correct city/state name when the names given do not match the ZIP Code or provides the correct ZIP Code when the one given does not match the city/state name
 - Properly processes comma- and period-delimited data within fields

AEC programs use ZIP+4 Product, which is updated weekly, and the Delivery Sequence File (DSF) to resolve addresses, and AEC resolves an average of 40 percent of the addresses it processes by completing the following steps.

Step I: Computer Logic Resolution. Step I is a computer-based program that uses a variety of USPS programs and products to perform a series of evaluations and comparisons in an attempt to correct insufficient addresses. When address analysis yields an unambiguous address, the missing elements are provided and/or the incorrect address elements are corrected. The address is then standardized and ZIP+4 coded. Those addresses that cannot be resolved are flagged as potentially undeliverable.

Step I of AEC focuses on the following addressing issues:

- Incomplete address
- Incorrect street name
- Missing or incorrect directional
- Missing or incorrect suffix
- Incorrect city name
- Incomplete building name
- Rural conversion to city

Step II. Step II processing, which involves carrier analysis and resolution, has been suspended until further notice. The US Postal Service is currently evaluating alternative methods for Step II services.

The Application Process

1. Submit only original, non-foreign, deliverable addresses that could not be matched to a USPS ZIP+4 code using commercially-available CASS-certified address-matching software.
2. Restrictions: Do not submit packed or software-compressed data or records with comma-delimited fields. AEC can process comma- and period-delimited data within fields but cannot process records with delimited fields.
3. Submit payment, a completed application, and a PS Form 3553 verifying that your addresses were processed using CASS-certified address-matching software.
4. Submit addresses on PC diskette, magnetic tape, cartridge, or via data transmission.

For Files Transmitted via NCSC BBS

AEC files may be transmitted to the NCSC electronically via the NCSC Bulletin Board System (BBS). Files submitted electronically are treated the same as any file submitted to AEC; however, electronic transmission allows faster processing, cutting four days off the mail-in process.

There is no limit to the number of files that may be transmitted electronically, but you must fax a completed AEC application that includes a credit card number and PS Form 3553 to 901-681-4440 at the time of transmission for each file transmitted.

File Requirements for BBS Transmission

Records within electronically submitted file(s) must be separated by carriage return/line feed, and the file name must be written on your AEC application. The file name must 1) begin with the three characters assigned by AEC following initial AEC registration for the service, 2) be followed by four characters of your choice, and 3) end with the extension .TXT. For example, if your three characters are YYY, YYY0925.TXT would be a valid file name.

Files must be compressed with the PKZip compression utility and must include the .ZIP file extension. The first seven characters of the Zip file name must be the same as the first seven characters of the text file name, e.g., if your text file name is YYY0925.TXT, the Zip file name must be YYY0925.ZIP. When we post your processed file to the BBS, the file name will be the same as the Zip file name with the addition of an "R" before the extension, e.g., YYY0925R.ZIP.

Electronic Transmission Procedures

1. Logon to the NCSC BBS at 901-681-4534.
2. If you do not already have an account or if it has been over 60 days since you transmitted a file, follow the on-screen instructions to create an account on the BBS.
3. After you have created your account, call 901-681-4589 to register with the AEC Department.

Note: You will be unable to transmit files until you call the AEC Department. In addition, if you have difficulty using the BBS, call the RIBBS Department at 901-681-4459.

4. To send (upload) or receive (download) your files, choose option **3, AEC File Transfers** from the File menu.

5. To send a file, select option **U, Upload Files for AEC Processing**.

Note: You must fax an AEC application and PS Form 3553 to 901-767-8853 for each file that you plan to upload before file transmission.

6. To receive an AEC-processed file, select option **3** to check for completed files. If processed files are listed, select option **D** and enter the number of the file you wish to download.
7. When you are finished, logoff the BBS.

For Magnetic Tape or Cartridge

Submit addresses written in ASCII or EBCDIC on 1600/6250 BPI 9-track magnetic tape or high-/low-density cartridge. The tapes or cartridges will be returned along with the tapes or cartridges generated by AEC at a cost of \$.015 per address. Files can contain up to three million addresses, and there is no limit to the number of files you can send.

Do not submit a file having a block size that is not a multiple of its record size. When multiple files are submitted, the first one receives priority handling in the processing queue. Others are processed as processing time becomes available.

For Diskettes

Submit a maximum of 15,000 addresses per file on DOS-compatible 3.5" or 5.25" ASCII high-density diskettes. Include a carriage return/line feed at the end of each record. The diskettes will be returned along with the diskettes generated by AEC. There is no limit to the number of files you can send; however, please do not send more than one file per diskette.

Diskette customers must adhere to the following guidelines:

- a. The file must be a fixed-length FLAT (non-indexed) file.
- b. The file cannot be a dBase file or a backup of a dBase file.
- c. The file must not be compressed.
- d. The diskette must not contain any executable programs.
- e. The file must not contain comma-delimited fields.
- f. There must be a carriage return AND line feed after each record.
- g. You may put as many records as possible on each diskette.
- h. Each diskette must be labeled.
- i. One application and one check are all that are needed for multiple diskette shipments.

Call your software company if you have concerns about producing diskettes and/or integrating AEC-standardized records into your database.

5. Allow one to three business days for Step I processing. You will be notified if the NCSC is experiencing a backlog of orders that might delay the processing of your address list.
6. Make all payments to the United States Postal Service by check, money order, credit card, or CAPS. Each batch submitted requires a separate application and fee.
7. Processing will be delayed if payment or PS Form 3553 are not included with the file.

Items Received Following AEC Processing

After processing your addresses through AEC, the USPS's National Customer Support Center will return the following via certified mail:

1. The original address file in the same medium that you provided.
Note: Do not return diskette, tapes, or cartridges received from the USPS.
2. A summary data report that lists the number of addresses processed and elements corrected.
3. A diagnostic report that lists information about the content of your original mailing file.
4. A PS Form 3553 that documents the processing of your file through CASS-certified, address-matching software.

Table 1: File Format for Returned Records

Field Contents	Beginning Byte	Length
AEC-Assigned Customer Number	01	05
AEC-Assigned Sequence Number	06	07
Resolution Flag	13	01
Standardized Firm Name	14	40
Standardized Delivery Address	54	50
Standardized City	104	28
Standardized State	132	02
9-digit ZIP Code	134	09
Delivery Point Code	143	02
Check Digit for 9-digit + DPC	145	01
Carrier Route ID	146	04
Lookup Type Code	150	01
Puerto Rican Urbanization Name	151	28
Filler	179	14
Standardized Address DSF Confirm	193	01
Filler	194	143
PARSED STANDARDIZED ADDRESS <i>IF RESOLVED</i> : 108 Bytes		
Primary Number	337	10
Pre-Directional	347	02
Street Name	349	28
Suffix	377	04
Post-Directional	381	02
Secondary Designator	383	04
Secondary Number	387	08
Filler	395	50
PARSED ORIGINAL ADDRESS IF UNRESOLVED: Same 108 Bytes Reused		
Unresolved Component 1	337	10
Unresolved Code 1	347	01
Unresolved Component 2	348	10
Unresolved Code 2	358	01
Unresolved Component 3	359	10
Unresolved Code 3	369	01
Unresolved Component 4	370	10
Unresolved Code 4	380	01
Unresolved Component 5	381	10
Unresolved Code 5	391	01
Unresolved Component 6	392	10
Unresolved Code 6	402	01
Unresolved Component 7	403	10
Unresolved Code 7	413	01
Unresolved Component 8	414	10
Unresolved Code 8	424	01

(Continued)

Field Contents	Beginning Byte	Length
Unresolved Component 9	425	10
Unresolved Code 9	435	01
Unresolved City Flag	436	01
Unresolved State Flag	437	01
Unresolved ZIP+5 Flag	438	01
Unresolved Opinion Code	439	02
Filler	440	04
How the Address Was Resolved Flag	445	02
Other Descriptive Flag	447	02
Filler	449	02
Customer Original Data (Unaltered)	451	450

Limitation of Liability

The Postal Service makes no warranty or representation, express or implied, with respect to the returned AEC file, nor will the Postal Service be liable for direct, indirect, special, incidental, consequential, or other similar damages arising out of use or inability to use the AEC return media, even if advised of the possibility of such damages.

Each Record is Returned In Two Parts

1. If resolved, you will receive the standardized delivery address and other data; otherwise, it is blank.
2. Delivery addresses returned are parsed into individual address elements; however, addresses with military, unique, or general delivery ZIP Codes will not be parsed because AEC does not produce or return standardized addresses for addresses having these types of ZIP Codes. For rural routes, the term "RR #" will appear in the Street Name field, the word "Box" will appear in the Suffix field, and the box number will appear in the Primary Name field. For PO box addresses, the words "PO Box" will appear in the Street Name field, and the box number will be listed in the Primary Number field. Elements for all other addresses will be entered into the field reflected in Table 1 on page 6.
3. You will receive your original, unaltered record. Records returned on diskette will contain a carriage return and line feed at the end of each record (bytes 901 and 902).

Table 2: Diagnostic Return Codes

Code	Resolved Addresses ZIP+4 Record Type
F	Firm
G	General Delivery
H	Highrise
M	Military
P	PO Box
R	Rural/Highway Contract Route
S	Street
U	Unique
HD	Highrise Default
L	LACS
<	Rural Route/Highway Contract Default

Address Element Correction Application

Customer Information

Your Address (Please print or type)			Shipping Address (If different)		
Contact Name _____			Contact Name _____		
Company _____			Company _____		
Address _____		Ste _____	Address _____		Ste _____
City _____	ST _____	ZIP+4 _____	City _____	ST _____	ZIP+4 _____
(_____)			(_____)		
Phone _____		Ext. _____	Phone _____		Ext. _____

AEC Pricing

No. of Records

x \$0.015/record
\$15.00 minimum

Purchase Amt.

Method of Payment: Check Money Order Credit Card CAPS

Make check or money order payable to **United States Postal Service**.

CAPS Number _____

Credit Card Information

MasterCard Visa American Express Discover

Contact Name

Company

Address _____ Ste _____

City _____ ST _____ ZIP+4 _____

(_____)

Phone _____ Ext _____

Card Number

Expiration Date

Signature

The signature above accepts total responsibility governing the use of this card and agrees to comply with the terms of the issuer.

CASS Certification Information

Only addresses that have been processed through CASS-certified, address-matching software that could not be ZIP+4 coded are eligible for AEC. **A copy of the completed Form 3553 pertaining to this list must be submitted with this application.**

Software Product _____ Version _____

Customer Signature _____ Date _____

Note: All address lists submitted for AEC processing are considered confidential between the United States Postal Service and the list owner.

INPUT LAYOUT

(Please read and answer all questions carefully.)

Input Media/Information

Media

- IBM 3480
- IBM 3490/3490E
- 6250 BPI
- 1600 BPI
- 3 1/2" HD Diskette
- 5 1/4" HD Diskette
- Transmitted File via RIBBS

Character Set

- EBCDIC
- ASCII

File Information

1. Number of records: _____
Diskettes—max.: 15,000
2. Record length: _____
Characters per record—max.: 450
3. Diskettes only:
File Name: _____
Number of diskettes: _____
4. NCSC BBS File Name: _____

For best results, the following data must be located in the specified positions in every record. When answering questions regarding position, the first byte in a record is always position 1. Also, keep in mind:

- AEC cannot process packed data or foreign addresses.
- A separate application and fee are required for each tape/file submitted.
- For diskettes, AEC provides a carriage return and line feed after each record.
- When submitting diskettes, each should be labeled.
- Submit only records with fixed-length fields. Do not submit records with comma-delimited fields.

1. Does file contain Personal Name field(s)? Yes No
If yes, location(s) of Personal Name field: Position _____ Length _____
2. Company Name field(s)? Yes No
If yes, location(s) of Company Nam field: Position _____ Length _____
3. Location of Delivery Address field: Position _____ Length _____
4. Does file contain Secondary Address field? (care of, bldg., secondary address, etc.) Yes No
If yes, location of Secondary Address field: Position _____ Length _____
5. Location of City field: Position _____ Length _____
(This field may also contain the state or the state and ZIP Code.)
6. Location of State field: Position _____ Length _____
7. Location of ZIP Code/ZIP+4 Code field: (up to 10 char.) Position _____ Length _____

Submit your tape and this form to

ADDRESS ELEMENT CORRECTION
NATIONAL CUSTOMER SUPPORT CENTER
UNITED STATES POSTAL SERVICE
6060 PRIMACY PKWY STE 201
MEMPHIS TN 38188-0001

Appendix A: Resolved Addresses: Elements Returned

In AEC, when an address is resolved, the following is returned:

1. Standardized delivery address line (byte 54 for 50 bytes)
2. Standardized city spelling (byte 104 for 28 bytes)
3. Two-character state abbreviation (byte 132 for two bytes)
4. Standardized firm name if the match is made using the firm name in the address (byte 14 for 40 bytes)
5. Nine-digit ZIP Code (byte 134 for nine bytes)
6. Delivery point code (byte 143 for two bytes)
7. Check digit for the 9-digit ZIP Code plus the delivery point code (byte 145 for one byte)
8. Carrier route ID (byte 146 for four bytes)
9. Urbanization name if the address is Puerto Rican and ZIP+4 Product contains an urbanization name (byte 151 for 28 bytes)
10. A resolution flag containing either “Y,” indicating that the address resolved to a specific point, or “1,” indicating that it resolved to the default highrise or rural route address (byte 13 for one byte)
11. The standardized delivery address parsed into its specific components, i.e., pre-directional, street name, suffix, post-directional, secondary unit designator, and secondary number, if present (byte 337 for 108 bytes)
12. A flag that describes which specific elements were changed in the input delivery address to make a match to ZIP+4 Product (byte 445 for two bytes)

When an address cannot be resolved, it is parsed and returned in a nine-item table. Each item contains the following:

- The first ten characters of the component. If the component is longer than ten characters, the rightmost characters are lost (byte 337 for 108 bytes)
- A code identifying what the component was interpreted as and whether or not it matched ZIP+4 Product (byte 337 for 108 bytes; see Table 1)
- A code that offers an opinion as to why the address could not be matched to ZIP+4 Product is also returned (byte 439 for two bytes).

Appendix B: Unresolved Return Codes

The following unresolved records codes represent a fairly accurate analysis of the individual address elements. The codes are in the following positions:

- #1 - Byte 347 for one byte
- #2 - Byte 358 for one byte
- #3 - Byte 369 for one byte
- #4 - Byte 380 for one byte
- #5 - Byte 391 for one byte
- #6 - Byte 402 for one byte
- #7 - Byte 413 for one byte
- #8 - Byte 424 for one byte
- #9 - Byte 435 for one byte

Code	Description
A	<p>This component, which was interpreted as part of the street name, matched one of the following in ZIP+4 Product:</p> <ol style="list-style-type: none">1. Exact match to a street name component.2. Abbreviation match type 1 (e.g., JACK to JACKSON)3. Abbreviation match type 2 (e.g., LNCLN to LINCOLN)4. Spelling correction (e.g., CARLINGTON to ARLINGTON)5. Matched to two words (e.g., KNOLLCREST to KNOLL CREST)6. This component plus the adjacent component matched to one component in ZIP+4 Product (e.g., KNOLL CREST to KNOLLCREST)7. Matched to a suffix in ZIP+4 Product (e.g., SQUARE to SQ)8. Matched to a directional in ZIP+4 Product (e.g., SOUTHWEST to SW)
B	<p>This component, interpreted as a pre-directional, matched to one of the following in ZIP+4 Product (there must also be a street name match):</p> <ol style="list-style-type: none">1. Pre-directional to pre-directional (e.g., N MAIN ST to N MAIN ST)2. Pre-directional to post-directional (e.g., N MAIN ST to MAIN ST N)3. Pre-directional to street name (e.g., NORTH HAMPTON ST TO NORTHHAMPTON ST or N HAMPTON ST to NORTHHAMPTON ST)
C	<p>This component, interpreted as a post-directional, matched to one of the following in ZIP+4 Product (there must also be a street name match):</p> <ol style="list-style-type: none">1. Post-directional to post-directional (e.g., MAIN ST N to MAIN ST N)2. Post-directional to pre-directional (e.g., MAIN ST N to N MAIN ST)3. Post-directional to street name (e.g., BAY NORTH to BAYNORTH or BAY N to BAYNORTH)
D	<p>This component, interpreted as a suffix, matched to one of the following in ZIP+4 Product (there must also be a street name match):</p> <ol style="list-style-type: none">1. Suffix to suffix (e.g., MAIN ST to MAIN ST)

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2. Suffix to street name (e.g., HERO BLVD to HERO BOULEVARD)
- E This component, interpreted as a road number, matched to a road number in ZIP+4 Product (e.g., 123 RT 75 to 123 US HIGHWAY 75)
- F This component was interpreted as a part of a PO box address.
- 1 This component was interpreted as the PO box number in a PO box address.
- G This component was interpreted as the box number in a highway contract (HC), rural route (RR), or military address.
- H This component was interpreted as the box element of an HC, RR, or military address.
- I This component was interpreted as the HC, RR, PSC, CMR, or unit element of an HC, RR, or military address.
- J This component was interpreted as the route number in an HC, RR, or military address
- K This component immediately follows what was interpreted as the primary number and contains digits. Possible fragmented primary number or misplaced secondary number.
- L This component, which was interpreted as part of the street name, did not match any component in any ZIP+4 record to which a match was attempted.
- M This component, which was interpreted as a suffix, did not match any component of any ZIP+4 record to which a match was attempted.
- N This component, which was interpreted as a pre-directional, did not match any component of any ZIP+4 record to which a match was attempted.
- O This component, which was interpreted as a post-directional, did not match any component of any ZIP+4 record to which a match was attempted.
- P This component, which was interpreted as a road designator, did not match any component of any ZIP+4 record to which a match was attempted.
- Q This component, which was interpreted as a secondary designator, did not match any component of any ZIP+4 record to which a match was attempted.
- R This component, which was interpreted as a secondary number, did not match any component of any ZIP+4 record to which a match was attempted.
- S This component, which was interpreted as the primary number, did not match any range of numbers in any ZIP+4 record to which a match was attempted.
- T This component, which was interpreted as a PO box number, did not match any PO box number range in any ZIP+4 record to which a match was attempted.
- U This component, which was interpreted as a road number, did not match any component of any ZIP+4 record to which a match was attempted.
- V This component, which was interpreted as a Puerto Rican urbanization code, did not match any urbanization code of any ZIP+4 record to which a match was attempted.

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- W This component was interpreted as part of a firm name.
 - X This component was interpreted as part of a school name.
 - Y This component was interpreted as part of a building name.
 - Z This component could not be defined.

Appendix C: Opinion Codes

These codes offer the most accurate indication as to why the address did not match ZIP+4 Product (byte 439 for two bytes)

Code	Description
PA	The post office matching the 5-digit ZIP Code only has PO box and general delivery.
PB	Matching the address to ZIP+4 Product produced a multiple response that could not be resolved.
PC	The address matched to ZIP+4 Product but appears in more than one urbanization code. We could not determine the correct address based on the address given.
PD	The address matched to ZIP+4 Product but is a non-delivery point. The 4-digit add-on returned contains "ND."
PE	Some parts of the address matched some parts of one or more addresses in ZIP+4 Product but none of the ZIP+4 addresses coded using what was interpreted as the primary number.
PF	No element of the street name matched any street name in ZIP+4 Product.
PG	All components of the input address matched exact components in ZIP+4 Product except what was interpreted as the primary number.
PH	The PO box address given does not match any in ZIP+4 Product.
PI	The rural route or military address given does not match any in ZIP+4 Product.
PJ	The address contains no digits.
PK	The city/state/ZIP Code was invalid.
PL	No opinion could be formed from the data in the address.



Appendix D: How Codes

These codes provide a fairly accurate description of what was done to the address to enable a match to ZIP+4 Product. The address is parsed into individual components before a match to ZIP+4 Product is attempted, and identification of the individual components is attempted. The address is then submitted unaltered to the USPS Coding Accuracy Support System (CASS) -certified address-matching engine. If it does not match, the following action codes produce a match to ZIP+4 Product (byte 445 for two bytes)

CODE	DESCRIPTION
A	No changes were made to the address to produce a match to ZIP+4 Product, because our files were more current than those of the CASS-certified address-matching engine through which you passed the addresses before sending them to AEC, or a problem exists with the CASS-certified address-matching engine through which the addresses were passed.
B	Matched the address not using the input 5-digit ZIP Code, which is invalid.
C	Matched the address not using the input city/state, which is invalid.
D	Compressed dash (–) from a Puerto Rican primary number.
E	Inserted dash (–) in a Puerto Rican primary number.
F	Fabricated the primary number in a Puerto Rican address from fragments found.
G	Separated the pre-directional from the primary number in a Puerto Rican address.
H	Added secondary designator and secondary number from an address other than the delivery address line.
I	Removed dash (–) from a Puerto Rican PO box or rural route address.
J	Removed undefined data to the left of the Puerto Rican address.
K	Compressed a coordinate-type address (W 300 S 125 to W300S125)
L	Reversed a coordinate-type address (W300S125 to S125W300)
M	Expanded a coordinate-type address (W300S125 to W 300 S 125)
N	Converted an Illinois-type address (0W125 to 0W125)
O	Converted an abbreviation to a full spelling.
P	Joined secondary address to delivery address to form the address matched to ZIP+4 Product.
Q	Joined delivery address to secondary address to form the address matched to ZIP+4 Product.
R	Converted alphabetic to numeric look-alikes in the primary number (e.g., b to 8, o to zero, etc.)
S	Combined adjacent numbers to form the primary number.
T	Removed “#” symbol attached to the left of primary number.

U	Converted primary number fractions (e.g., 12312 to 123 1/2, 1231 2 to 123 1/2, 123 12 to 123 1/2)
V	Moved secondary number to the right of address (e.g., 123 45 MAIN ST to 123 MAIN ST # 45)
W	Converted joined alpha/numeric to numeric/alpha (e.g., M123 to 123M)
X	Removed ordinal abbreviation (i.e., “st” “nd” “rd” “th”) from primary number (e.g., 123 rd MAIN ST to 123 MAIN ST)
Y	Separated possible secondary number from primary number (e.g., 1234 to 123 4)
Z	Separated primary number and street name (e.g., 123MAIN to 123 MAIN)
0	Converted numbers separated by a dash (–) (e.g., 123-456 to 123 456)
1	Combined primary number and adjacent single alpha character (e.g., 123 A to 123A)
2	Separated pre-directional from street name (e.g., SMAIN to S MAIN)
3	Rearranged misplaced components (e.g., MAIN 123 ST to 123 MAIN ST)
4	Separated numeric street name from primary number (e.g., 123-7 MILE RD to 123 7 MILE RD)
5	Connected single alpha character immediately preceding what was interpreted as the street name (e.g., A SPEN to ASPEN)
6	Separated single alpha character from what was interpreted as the street name (e.g., JMAIN to J MAIN)
7	Connected apparent primary number and the single number immediately to its right (e.g., 123 4 to 1234)
8	Separated and attached to the primary number a single number from the apparent street name (e.g., 123 4MAIN to 1234 MAIN)
9	Combined possible secondary number with apparent primary number to form the primary number (e.g., 123 MAIN ST 45 to 45-123 MAIN ST)
!	Combined possible primary number with apparent secondary number to form the primary number (e.g., 123 MAIN ST 45 to 123-45 MAIN ST)
@	Separated pre-directional “S” from the primary number (e.g., 123S to 123 S) or separated “5” from the primary number and convert it to its alpha look alike “S” (e.g., 1235 to 123 S)
#	Reversed the apparent primary and secondary numbers (e.g., 123 MAIN ST 45 to 45 MAIN ST 123)
\$	Separated the possible secondary number from the address and moved it to the right of the address (e.g., 123A MAIN ST to 123 MAIN ST A)
%	Removed alpha character from the right of the primary address (e.g., 123A MAIN ST to 123 MAIN ST)
&	Converted alpha/numeric look-alikes in the primary number (e.g., IZSGB to 12568)

*	Separated a single alpha character from the right of the primary number (e.g., 123A to 123 A).
(Converted numeric/alpha look-alikes in street name (e.g., 12568 to IZSGB)
)	Connected single alpha character and number to form the primary number (e.g., A 123 to A-123)
-	Converted last digit of apparent primary number to its alphabetic equivalent (1236 FLAGS ST to 123 SIX FLAGS ST).
_	Removed alpha from the box number in PO box or rural route addresses (e.g., PO BOX 123CLYDE to PO BOX 123)
=	Separated highway contract or rural route designator from the route number (e.g., RR5 to RR 5)
+	Standardized a rural route address (e.g., RT1 BOX 123 to RR 1 BOX 123 or 123 MAIN ST RR 1 BOX 123 to RR 1 BOX 123)
	Connected rural route box elements (e.g., RR 1 BOX 123 AB to RR 1 BOX 123AB)
\	Expanded the PO box number to 5-digits using the last two digits of the 5-digit ZIP Code with zeros as filler (e.g., PO BOX 1 to PO BOX 85001 where the ZIP Code is 12385)
:	Expanded the PO box number to six digits using the last two digits of the 5-digit ZIP Code and zeros as filler (e.g., PO BOX 1 to PO BOX 85001 where the ZIP Code is 12385)
;	Converted BOX 123 to 123 BOX.
“	Rearranged a PO box address (e.g., 12 PO BOX to PO BOX 12)
<	Converted addresses like HWY 45 & 37 to HWY 45/37, HWY 45.37 to HWY 45/37, HWY 45.37 to HWY 45-37, etc.
>	In an address containing a road designator and road number, tried different highway designators. If only one matched ZIP+4 Product, resolved it (e.g., 123 HWY 61 to 123 HIGHWAY 61; 123 HWY 61 to 123 US HIGHWAY 61; 123 HWY 61 to 123 COUNTY ROAD 61; 123 HWY 61 to 123 STATE ROUTE 61)
?	Not used.
/	Converted TR to Township Road.
.	Converted TH to Township Highway.
,	If an address contained an apparent primary number as the first component of the address and the last two components were both numeric, combined the longer of the two with the primary number (e.g., 123 HWY 61 567 to 123 567 HWY 61)
AA	Corrected misspellings of “highway” (e.g., HGY to HWY, HIGHWAY)
AB	Corrected misspellings of “county” (e.g., COUNTRY to COUNTY)
AC	For Texas addresses, changed FM to FARM MARKET.
AD	Converted abbreviations RR, RD, RT in a highway address to HIGHWAY.

AE	Converted abbreviations RR, RD, RT in a highway address to COUNTY.
AF	Separated US designator from the highway number (e.g., US12 to US 12)
AG	Rearranged misplaced highway designator and highway number (123 HIGHWAY to HIGHWAY 123)
AH	Corrected school abbreviations to full spellings (e.g., SCH to SCHOOL, UNIVER to UNIVERSITY, etc.)
AI	Removed elements to the right of school names (e.g., NEW YORK UNIVERSITY - LIBRARY to NEW YORK UNIVERSITY)
AJ	Removed elements to the right of school name and deleted the secondary address (e.g., NEW YORK UNIVERSITY - LIBRARY, PROFESSOR CLYDE BARROW to NEW YORK UNIVERSITY)
AK	Removed secondary address on a school-name only address (e.g., NEW YORK UNIVERSITY, PROFESSOR CLYDE BARROW to NEW YORK UNIVERSITY)
AL	On an indicated multiple response in which the number of responses was only one, resolved the address.
AM	Removed the delivery address when a school name is in the Secondary Address field (same as AK above in reverse)
AN	Separated suffix and secondary designator (e.g., BLVDSTE 12 to BLVD STE 12)
AO	Combined two adjacent street name elements into one name (e.g., VALLEY VIEW to VALLEYVIEW)
AP	Separated post-directional from last street name element (e.g., MAINSOUTH to MAIN S or MAIN SOUTH)
AQ	Removed dashes (-) , slashes (/) , and periods (.) from the address.
AR	The delivery address line had a suffix, and an unsuccessful attempt has been made to match the address on that line to ZIP+4 Product. The secondary address also contained a suffix, and the attempt to match to ZIP+4 Product using only the secondary address resolved it.
AS	An unsuccessful attempt to match to ZIP+4 Product with an address line containing a pound sign (#) had been made. Removing the pound sign resolved it.
AT	Moved an embedded suffix to the right address (123 ST MAIN to 123 MAIN ST)
AU	Connected the apparent last piece of the street name and the apparent post-directional (e.g., 123 DUE SOUTH to 123 DUESOUTH)
AV	Separated suffix from the last piece of the street name (e.g., 123 MAINST to 123 MAIN ST)
AW	Converted a directional abbreviation to its full spelling (e.g., 123 W BEND to 123 WESTBEND)
AX	Corrected non-standard abbreviations to their correct full spellings (e.g., CTH to COUNTY ROAD, COUNTY ROUTE, etc.)

AY	Separated a pre-directional from the first element of a street name (e.g., NORTHHAMPTON to NHAMPTON)
AZ	Converted divided numbers to equivalents (e.g., HWY 22.5 to 22/5,22-5 etc.)
BA	In Texas addresses, converted FM to HIGHWAY.
BB	In Texas addresses, converted CR to FM.
BC	Rearranged address components (e.g., 123 RED ST BUD to 123 RED BUD ST)
BD	Converted US to United States.
BE	Added HIGHWAY after US in an address in which it was not present.
BF	Separated secondary unit designator from the secondary number (e.g., APT12 to APT 12)
BG	Converted firm name abbreviations to the full spellings.
BH	The address produced a multiple response and was resolved using DSF confirmation (or the urbanization code in Puerto Rican address)
BI	Standardized a PO box address (e.g., POBOX 123 to PO BOX 123, PO BX 123 to PO BOX 123, etc.)
BJ	Removed elements to the right of the suffix because the elements were not a secondary designator or secondary number (e.g., 6060 PRIMACY PKWY LAKECREST CENTER)
BK	Removed elements to the left of the primary number (C/O ACLU 123 MAIN ST to 123 MAIN ST)
BL	Not used.
BM	Used only the first number in an apparent range of numbers because it is the apparent primary number (e.g., 25-27 MAIN ST to 25 MAIN ST)
BN	Corrected the street name spellings (e.g., DARLINGTON to ARLINGTON)
BO	Swapped delivery and secondary address positions (e.g., HUDSUCKER INDUSTRIES 123 MAIN ST to 123 MAIN ST, HUDSUCKER INDUSTRIES)
BP	The input city/state was invalid for the 5-digit ZIP Code. Corrected city/state and address resolved.
BQ	Combined multiple single alpha characters (probable initials) immediately following the primary number (e.g., 123 J F K PKWY to 123 JFK PKWY)
BR	The input 5-digit ZIP Code was a unique ZIP Code. The information in the Delivery Address field was returned unaltered as the resolved address.
BS	The address was a non-domestic military address (e.g., APO to FPO)
BT	The post office represented by the input 5-digit ZIP Code only has general delivery.

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- BU Removed undefined alphabetic characters attached to the left of the apparent primary number (e.g., XYZ123 MAIN ST to 123 MAIN ST)
- BV Where the apparent primary number was numeric/alpha, used the numeric as the primary number and the entire apparent primary number as the secondary number (e.g., 15A3 SPA CREEK LANDING to 15 SPA CREEK LANDING 15A3)
- BW Split one street name element into two (e.g., VALLEYVIEW to VALLEY VIEW)
- BX What was interpreted as the delivery address was parsed and EACH element of the street name was matched to a special file containing the parsed street names in ZIP+4 Product. This facilitated location of street names in which parts of the name, pre-directional, suffix, or post-directional had been omitted from the input address.
- BY The correct address was found using the process in BX. It was then determined that the address has been LACS converted. The converted address was returned as the resolved address.