



**VALLEY**  
**PRINT LOGISTICS**

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**GRAPHICS**  
**GUIDELINES**

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**IMAGE FORMATS . . . . . PAGE 1**

**IMAGE RESOLUTION . . . . . PAGE 2**

**IMAGE BACKGROUNDS . . . . . PAGE 2**

**COLOR FORMATS . . . . . PAGE 3**

**ART BLEED . . . . . PAGE 4**

**PRINT-READY PDF FILES . . . . . PAGE 5**

**SUPPORTED SOFTWARE . . . . . PAGE 5**

**FILE FORMATS . . . . . PAGE 6**

**SENDING US A FILE . . . . . PAGE 7**

**LIVE FILE JOB CHECKLIST . . . . . PAGE 7**

**ZIP+4 AND NCOA RETURN CODES . . . . . PAGE 8**

# IMAGE FORMATS

## Raster Format

Most images you see on your computer are composed of bitmaps. A bitmap is a map of dots, or bits (hence the name), that look like a picture as long as you are sitting a reasonable distance away from the screen. Common raster/bitmap file types include TIFF, JPEG, GIF, PICT, PCX, and BMP (the raw bitmap format). Because raster images are made up of a bunch of dots, if you zoom in on a raster, it appears to be very blocky. Vector graphics (see below) can enlarge without getting blocky.

**Raster images cannot be broken out into spot colors for printing. They can be separated for offset printing only as CMYK, or run as simple grayscale.**

**File extension:** .tif, .jpg, .gif, .pict, .png, .bmp, .pdf\*, .eps\*

## Vector Format

Unlike TIFs, JPEGs, GIFs, and BMP images, vector graphics are not made of pixels. Instead, vector graphics are comprised of paths, which are defined by a start and end point, along with other points, curves, and angles along the way. A path can be a line, square, triangle, curved shape, etc. These paths can be used to create drawings, diagrams, and even to define the characters of typefaces.

Because vector-based images are not made up of a specific number of dots, they can be scaled to a larger size and not lose any image quality. If you enlarge a raster graphic, it will look blocky, or "pixelated." When you enlarge a vector graphic, the edges of each object within the graphic stay smooth and clean. This makes vector graphics ideal for logos, which can be small enough to appear on a business card, but can also be scaled to fill a billboard. Product and apparel imprints generally utilize vector graphics. Common program for creating vector graphics include Adobe Illustrator and Macromedia Freehand.

**Unlike Raster images, Vector images may be separated for printing as specific spot colors, as well as CMYK.**

**File extensions:** .ai, .eps\*, .pdf\*, .svg

**\*.eps and .pdf files can be VECTOR and/or RASTER, depending on how they were created, the program they were created in, etc.**

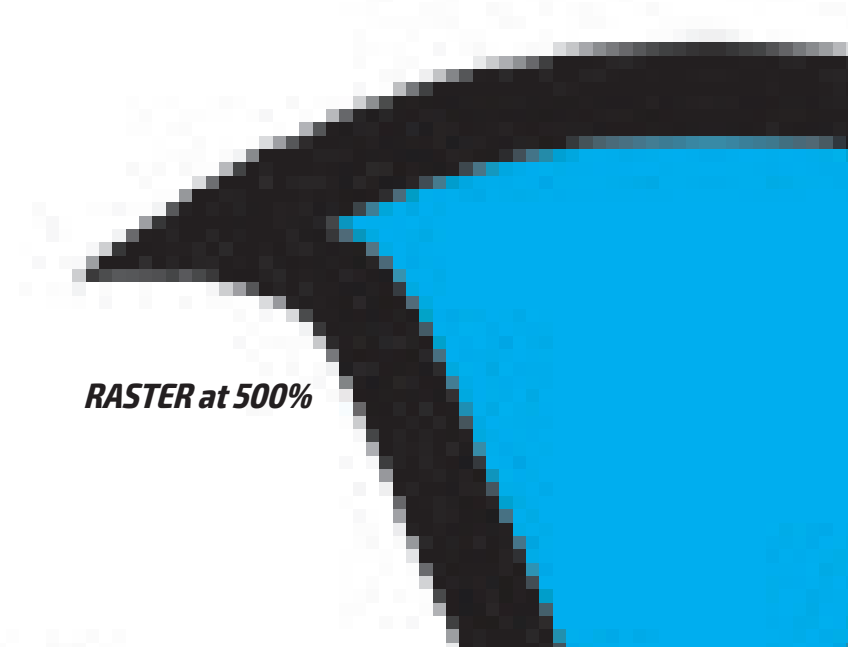
**RASTER at 100%**



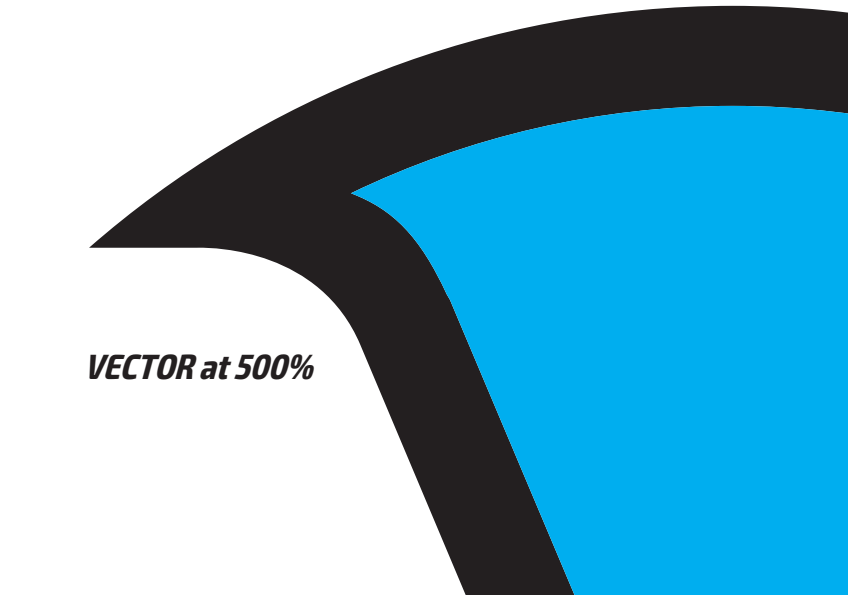
**VECTOR at 100%**



**RASTER at 500%**



**VECTOR at 500%**



## IMAGE RESOLUTION

**LPI (Lines per Inch)** is a measurement of printing resolution in systems that use a Raster halftone screen. Specifically, it is a measure of how close together the lines in a halftone grid are. Higher LPI indicates greater detail and sharpness.

Jobs printed on uncoated paper or newspaper typically require a coarse line screen (85 LPI) because these papers absorb a lot of ink and the dots spread out (dot gain). High quality commercial printing is usually done on high quality coated paper, on which a much sharper dot can be produced (150-200 LPI).

**DPI (Dots per Inch)** is a measurement of the resolution of an image both on screen and in print. DPI measures how many dots/pixels can be placed in a line within the span of 1 inch. In order to effectively utilize the entire range of available LPI in a halftone system, an image selected for printing generally must have 1.5 to 2 times as many Dots per Inch (DPI). For instance, if the target output device is capable of printing at 150 LPI, an optimal range for a source image would be 200 to 300 DPI. Using fewer DPI than this would not make full use of the printer's available LPI; using more DPI than this could exceed the capability of the printer, and would be effectively lost. An image with a high DPI is considered "high-res" or "high-resolution", while one with a low DPI is called "low-res" or "low-resolution".

When scanning or creating images for Line Art, the ideal resolution is 1200 DPI.

**IMAGES PULLED FROM THE INTERNET ARE OFTEN 72 DPI, SO ARE GENERALLY UNSUITED FOR PRINTING PURPOSES.**

**For purposes of offset printing, Raster images should ideally be 300 DPI at full size, as we print at 150 LPI. Enlarging a Raster Image will lower it's quality, though one may be enlarged 25-50% without too much degradation of the image, so long as it is a high-resolution file to begin with. For digital printing, 200 DPI is sufficient.**

***RASTER IMAGE, 300 DPI***



***RASTER IMAGE, 72 DPI***



## IMAGE BACKGROUNDS

When a Raster/Bitmap image is placed or imported into another file, it will typically appear with a white background if placed on top of another image or background. The exception to this are PNGs, GIFs, or specially prepared TIF images.

Vector images, on the other hand, may generally be placed in another file without obscuring the background.

***RASTER IMAGE***



***VECTOR IMAGE***



## COLOR FORMATS

### CMYK Color

CMYK—short for Cyan, Magenta, Yellow, and Key (Black)—often referred to as “process color” or “four color”, is a color model used in printing, and also describes the printing process itself.

With CMYK printing, half-toning (also called screening) allows for less than full saturation of the colors; tiny dots of each color are printed in a pattern small enough that the human eye perceives a single color. In this way, a wide variety of colors can be produced.

Comparisons between RGB displays and CMYK prints can be difficult, since the color reproduction technologies and properties are so different. A laser or ink-jet printer prints in dots per inch (DPI) which is very different from a computer screen, which displays graphics in pixels per inch (PPI). A computer screen mixes shades of red, green, and blue to create color pictures.

**Multi-color Raster Images cannot generally be run as multiple spot colors, but must run as 4-color Process (CMYK) or simple Grayscale.**

**RGB files will be converted to CMYK to print correctly on offset presses.**

### Spot Color

In offset printing, a spot color is any color generated by an ink (pure or mixed) that is printed using a single run. When making a multi-color print with spot color, every spot color used needs its own lithographic plate.

**The standard spot colors we use are PMS COLORS (Pantone Matching System) and include metallic, specialty, pre-mixed, and custom-mixed inks.**

**Vector-based images can typically be output to run as either Spot Colors or CMYK.**

### Grayscale

Grayscale is a range of monochromatic shades from black to white. Therefore, a grayscale image contains only shades of gray and no color.

**When printed offset, Grayscale Art can print as a spot color.**

### Line Art

Line Art is a created (vector or raster) or scanned (raster) image that is solid black & white without any shades of gray.

**When printed offset, Line Art can print as a spot color.**

**If your preferred print color is a CMYK or RGB color, please specify what the closest PMS color would be, or provide a previously-printed sample of the correct color. We cannot match color based strictly on CMYK or RGB color values.**

### CMYK SEPERATION

CYAN

MAGENTA

YELLOW

BLACK



### SPOT COLOR SEPERATION

PMS PROCESS BLUE

PMS BLACK



### GRAYSCALE GRAPHIC



### LINE ART GRAPHIC



## ART BLEED

### What is Bleed?

Bleed is an area of extra ink that crosses the trim line. When an image or graphic is meant to go to the edge of a printed piece, that art must extend past where the final piece will trim, as designated by trim marks.

Standard Bleed is 1/8th of an inch (0.125"). Without this extra art, the final piece may have paper (white) showing at the edge once trimmed, where the printing doesn't hit absolutely perfectly.



### CORRECT BLEED:

Printed and trimmed with full bleed.

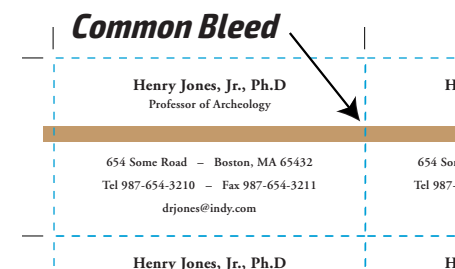


### INCORRECT BLEED:

Printed (with slight shift) and trimmed with no bleed.

### Common Bleed

When artwork is set up multiple times on one sheet, such as on Business Cards, if the artwork that bleeds is "common", such as a solid background or a bar going across the middle of the card, artwork can butt against each other at the trim line.



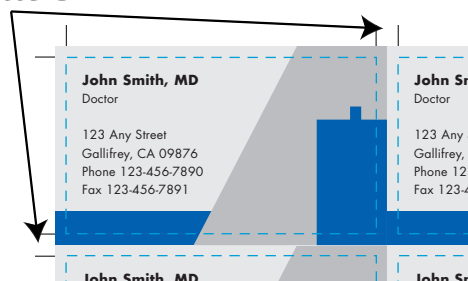
### COMMON BLEED:

Common bleeds on both sides do not require gutters.

### Full Bleed with Gutters

Again using Business Cards as an example, if the artwork has bleed on only some edges, or the art that bleeds is a photo or graphic, then the set-up requires "gutters" between the individual art. Standard gutters are 1/4th of an inch (0.25"). This allows the 0.125" bleed of one card to butt against the bleed of another.

### Gutters



### FULL BLEED:

Different bleeds on all edges make gutters necessary.



## PRINT READY PDF FILES

The preferred format for submitted files is as print-ready PDF files (**Portable Document Format**). This helps avoid common pre-press problems, and speed the processing time of your printing project. It is important, however, to create them correctly.

**NOTE:** To make a proper print-ready PDF, the art must have correct bleed, margin and the document size set to the final trim dimensions of the printed piece. All professional design programs should provide some built-in method to convert your art to a PDF file, as do Microsoft applications.

- Choose “**Press Quality**” in the Adobe pdf preset. **This should embed fonts and images as well as keep your high-resolution images at 300 dpi.** Change “Downsampling” to “Do not Downsample”.
- If your file needs to include Bleed, click “**Marks & Bleeds**” to enter a value of 0.125” for Bleed on all sides. Also, under “Marks” choose “Crop Marks” and enter 0.175” as the offset.

## SUPPORTED SOFTWARE

### Graphic Design Applications:

The following Graphic Design programs are specifically created for the purpose of professional design, layout and printing. Fonts and linked graphics need to be included with jobs submitted in these programs.



#### 1. Adobe Illustrator

A drawing program for creating two-dimensional vector graphics.



#### 2. Adobe InDesign

For creating and editing complex page layouts.



#### 3. Adobe PhotoShop

Allows for complex raster/bitmap, photo and image manipulation.



#### 4. Adobe Acrobat Pro/Pitstop Pro

For viewing, manipulation and management of files in PDF file format.



#### 5. Quark XPress

For creating and editing complex page layouts.

### Office Productivity Applications:

A popular set of interrelated desktop applications, generally for home or office work. Fonts and linked graphics need to be included with jobs submitted in these programs. RGB is often the standard color setting in Microsoft applications, color may shift when printing to CMYK.

**PLEASE NOTE:** While we can usually produce excellent results from Microsoft files, please remember that these programs have not been created for professional Spot or 4-Color Process printing, but rather for home or office use. Embedded graphics may print at a lower resolution and color may shift. Text may re-flow when files are viewed on different computers.

A Print-Ready PDF can be created from Microsoft applications for submission.



#### 1. Microsoft Word

A word processing program for text composition and layout.



#### 2. Microsoft Excel

A spreadsheet-creation application, for data visualization and analysis.



#### 3. Microsoft Powerpoint

A presentation program widely used by businesses, educators, students & trainers.



#### 4. Microsoft Publisher

A desktop publishing application for simple page layout and design.

### ONLINE SOFTWARE

Online design sites such as Canva or PicMonkey can produce good designs, but are not always suited to high-quality printing. We will work with them to the best of our ability.

# FILE FORMATS

## Vector AND/OR Raster/Bitmap

### PDF (Portable Document Format)

PDF is a multi-platform file format developed by Adobe Systems. A PDF file captures document text, fonts, images, and even formatting of documents from a variety of applications. You can e-mail a PDF document to your vendor and it ought to look the same way on their screen as it looks on yours, even if they have a Mac and you have a PC. To view a PDF file, you need Adobe Reader, a free application program distributed by Adobe Systems.

**PDF FILES ARE THE PREFERRED FILE FORMAT FOR SUBMITTING PRINT-READY FILES TO VALLEY PRINT LOGISTICS.**

*File extension: .pdf Image Format: Vector AND/OR Raster/Bitmap*

**While PDFs are an excellent format to receive print files in, not all PDFs are created equal. Despite the “universal” qualities of PDF files, color can change or shift, particularly if the original file was Word or another PC-based program. Live fonts should always be “embedded” when saving to this format. Also, depending on how the file was saved, PDFs can be low or high quality.**

### EPS (Encapsulated PostScript)

An EPS is a DSC-conforming PostScript document with additional restrictions intended to make EPS files usable as a graphics file format. In other words, EPS files are more-or-less self-contained, reasonably predictable PostScript documents that describe an image or drawing, that can be placed within another PostScript document.

*File extension: .eps Image Format: Vector AND/OR Raster/Bitmap*

**EPS is the standard graphic format for vector images. However, raster/bitmap images can also be saved as or in EPS files. Keep in mind that such files remain rasters despite the file format. EPS files can also include both vector and raster images within them – but the original raster file should be included along with the EPS.**

### SVG (Scalable Vector Graphic)

SVG is a family of specifications of XML-based file format for describing two-dimensional vector graphics, both static and dynamic (interactive or animated). SVG allows three types of graphic objects: vector graphics, raster images, and text. While being primarily designated as a vector graphics markup language for the web, the specification is also designed with the basic capabilities of a page description language, like Adobe's PDF.

*File extension: .svg Image Format: Vector AND/OR Raster/Bitmap*

**Generally used for web design; rarely used for printing purposes.**

## Raster/Bitmap

### TIFF (Tagged Image File Format)

TIFF is a graphics file format created in the 1980's to be the standard image format across multiple computer platforms. The TIFF format can handle color depths ranging from 1-bit to 24-bit.

*File Extensions: .tif, .tiff Image Format: Raster/Bitmap*

**TIF files are preferred for highest-quality Raster images, as quality does not degrade when the file is re-saved, as can happen with JPEGs.**

### JPEG (Joint Photographic Experts Group)

A JPEG is a compressed image file format. JPEG images are not limited to a certain amount of color, like GIF images are. Therefore, the JPEG format is best for compressing photographic images. So if you see a large, colorful image on the Web, it is most likely a JPEG file.

While JPEG images can contain colorful, high-resolution image data, it is a lossy format, which means some quality is lost when the image is compressed, or saved at less than highest quality. If the image is compressed too much, the graphics become noticeably “blocky” and some of the detail is lost. Like GIFs, JPEGs are cross platform.

*File Extensions: .jpg, .jpeg Image Format: Raster/Bitmap*

**While JPEGs make smaller file sizes, this compression can cause the image to lose quality, so TIFs are a preferred format for printing purposes.**

### GIF (Graphics Interchange Format)

A GIF is a compressed image file format. GIFs are based on indexed colors, which is a palette of at most 256 colors. This helps greatly reduce their file size. These compressed image files can be quickly transmitted over a network or the Internet, which is why you often see them on Web pages. GIFs also retain transparent backgrounds.

*File Extension: .gif Image Format: Raster/Bitmap*

**GIFs make for smaller files, but they do this by using a small color palette, possibly causing colors to change.**

### PNG (Portable Network Graphic)

This format was designed as an alternative to the GIF. Like GIFs, PNG files are lossless, meaning they don't lose any detail when they are compressed. They support up to 48-bit color or 16-bit grayscale and compress better than GIF files. PNGs also retain transparent backgrounds.

*File extension: .png Image Format: Raster/Bitmap*

**Not a common format for printing purposes, but it is occasionally seen. Generally used for web design.**



## SENDING US A FILE

Digital files can be sent to us using CD or USB Flash Drive (AKA: Thumb Drive, Jump Drive). Files can also be sent via email or through our FTP site (for files too large to email).

### Steps for uploading files via FTP

1. Go to: [www.valleypl.com](http://www.valleypl.com)
2. Click on "UPLOAD" located in the top menu bar.
3. Type in required information.
4. Click on "ADD YOUR FILES" to attach files located on your computer.
5. Click "SUBMIT" to send files and information to Valley Print Logistics.

## LIVE FILE JOB CHECKLIST

If submitting live files for production, rather than PDF's, there are various things that should be included in order for a job to print correctly:

1. **Application Information:** Specify what application, version, and platform (Mac or PC) were used to create your finished files.
2. **Graphic Files:** Include all image and graphic files placed or imported into your document.
3. **Font Files:** If there are live fonts in your art, be certain to provide these, or convert the fonts in your document to paths (i.e. vector art); this can be done in programs like Illustrator and InDesign.
4. **Image Resolution:** Resolution of raster images and scans should be a minimum of 300 DPI at the final print size. This is not an issue with vector files. 200 DPI is adequate for Digital Printing.
5. **Page Bleed and Crops:** Make sure all bleeds extend 1/8" beyond the edge of the finished document, and if including crop marks indicate where that edge is, position them at least 1/8" from the art.
6. **Correct Color:** If you have a vector file that has been set up as CMYK or RGB and needs to run as spot colors, or if a raster image must match specific colors, please specify what those colors are. A Pantone Color Book is the best thing to refer to, and we have these on-hand.

**If your preferred color is a CMYK or RGB color, please specify what the closest PMS color would be, or provide a previously-printed sample of the correct color. We cannot match color strictly based on CMYK or RGB color values.**

## Will my file look the way it does on my screen? Yes, but...

Monitors use emissive RGB — red, green and blue phosphors to emit light that creates a screen image — and is used in TV sets and computer monitors. Most monitors have not been calibrated, so color may differ not just from screen to paper but also from computer to computer.

Due to RGB color, computer screens sometimes render colors brighter than on a printed piece. Photographic images may come close but colors in custom logos and illustrations may print darker.

Printing presses and digital printers use 4-color process — cyan, magenta, yellow and black inks to create color images. Spot or PMS color inks are simulated in RGB on screen and CMYK on laser prints, so neither medium accurately portrays a solid ink color.

Remember that the paper you select may also alter color. Coated paper will print brighter than uncoated; colored stocks are duller than white.

If precise color matching is critical, we recommend that you use PMS (Pantone) ink colors or request an Epson proof to check color.

## JPG, GIF, PDF, EPS?

### Choosing the Proper Graphic File Formats for Printing

Using the proper graphic file format and resolution for a print job can mean the difference between a professional-looking document and one that looks blurry or is missing graphics. Graphic file formats for the Internet and offset printing are totally different animals. Do not interchange them!

### PDF FILES ARE THE PREFERRED FILE FORMAT FOR SUBMITTING PRINT-READY FILES TO VALLEY PRINT LOGISTICS.

### Graphics File Formats for Offset Printing

Graphics for offset printing require much higher resolution than for websites. If you use a low-resolution graphic (i.e., a logo copied from a website) on an offset printing job, a poor-quality "bitmapped" image can result.

Offset printed graphics can be one of two types: Vector-based or high-resolution raster. Raster images (which are color or grayscale digital photos and scans) should be at least 300 DPI (dots per inch). Scans of black and white line art (images that do not contain any shades of gray) should be at least 1200 LPI. Be careful not to enlarge your raster graphics, because the pixels will also enlarge and become more noticeable.

Vector-based graphics are made of mathematically defined lines and curves. Because they are not made of pixels, these unique files can be scaled to any size without losing their crisp, smooth edges. Use professional drawing programs such as Adobe Illustrator create these types of graphics for printing, saving them in the PDF or EPS format.

### Graphics File Formats for the Internet

Low-resolution raster graphics are used on the Internet. These graphics are made up of thousands of pixels (squares of color). Internet browsers will read JPG, GIF, PNG and SVG graphics, which are best scanned or sized at 72 LPI (lines per inch). Because of the limits of screen resolution, anything greater will result in larger file sizes and longer download times than necessary. All Internet graphics are limited to a special palette of 256 colors.

Scan your photos using RGB colors to the JPG file format. JPG file sizes are very small and compatible with nearly every graphical browser. This format is best suited for photographs and any image that contains a complex mixture of colors.

The GIF format is best suited for images with a limited number of distinct colors and graphics that have sharp, distinct edges (most logos, menus and buttons). A special GIF89a file format gives you the option to make the background transparent so you don't get a white rectangle behind the graphic.



**VALLEY**  
PRINT LOGISTICS  
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## ZIP+4 and NCOA<sup>Link</sup> Return Codes

These are general guidelines based on the defined meaning of each combination of return codes and BCC Software's decades of experience. Final decision on mailing to a specific return code is at the discretion of the mailer.

| ZIP+4 Return Codes | NCOA <sup>Link</sup> Return Codes | Mail Deliverable          | Summary  |
|--------------------|-----------------------------------|---------------------------|--|
| 10-13, 17          |                                   | No                        | May be undeliverable (poor address quality).   |
| 21, 22             |                                   | At mailer's discretion    | Mail at your discretion. Address didn't match an address range in the ZIP + 4 database (21) or it matched multiple ranges (22)                 |
| 23*                | 05, 14                            | No                        | New address could not be provided. Addressee has moved.  |
| 23*                | 19                                | At mailer's discretion*** | New address could not be provided. Addressee has moved. (Temporary move, NCOA <sup>Link</sup> FSP only)  |
| 23*                | 00                                | At mailer's discretion    | No Match - The input record could not be matched to a record in the master file. A new address could not be furnished. (LACS <sup>Link</sup> ) |
| 26*                | 03                                | No                        | Recipient moved without providing a forwarding address to the USPS.  |
| 27*                | 02                                |                           |  |
| 28*                | 01                                |                           |  |
| 31, 32             | 04, 06-13, 15-18, 20              | At mailer's discretion    | Difference between COA and your data prevent new address from being returned.  |
| 31, 32             | 66                                | Yes                       | COA Canceled by Addressee  |
| 31, 32             | 00                                | Yes                       | Likely Deliverable   |
| 31, 32             |                                   | No                        | Address is not likely deliverable.   |
| 33                 |                                   | No                        | Address is non-deliverable.  |
| 36                 | A, 91, 92                         | Yes                       | New address information is provided.   |
| 37                 |                                   | Yes                       |  |
| 38                 |                                   | Yes                       |  |
| 39                 | 00                                | Yes                       | LACSLink processing provided new address data, related to a local 911 system change.   |
| 98                 |                                   | No                        | Non-USPS ZIP Code. Address is not likely deliverable.  |
| 99                 |                                   | No                        | Unexpected result. Contact support.  |