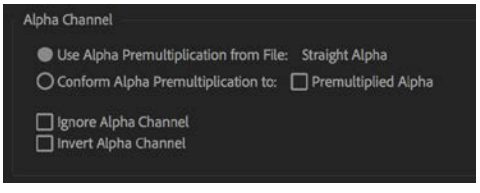
Working with alpha-channel transparencies

Many types of media will already have varying alpha channel levels for pixels. A title graphic is an obvious example: Where text exists, pixels have 100% opacity, and where there is no text, pixels usually have 0% opacity. Elements such as drop shadows behind text typically have a value somewhere in between. Keeping some transparency in a drop shadow helps it look a bit more realistic.

Premiere Pro sees pixels with higher values in the alpha channel as being more visible. This is the most common way to interpret alpha channels, but occasionally you might come across media that is configured in the opposite way. You will immediately recognize the problem because you'll see a cutout in an otherwise black image. This is easy to address because, just as Premiere Pro can interpret the audio channels on a clip, it's also possible to choose a different interpretation of an alpha channel.

You can see the results using a title in the Theft Unexpected sequence.



1 Locate Theft_Unexpected_Layered.psd in your project.

2 Right-click the clip and choose Modify > Interpret Footage. In the lower half of the Modify Clip dialog, you'll find the Alpha Channel interpretation options.

The Alpha Channel Premultiplication options relate to the way semitransparent areas are interpreted. If you find that soft semitransparent image areas are blocky or poorly rendered, try selecting Premultiplied Alpha and view the results.

Note: Blend modes still apply when changing the interpretation of the alpha channel. If you invert the alpha channel and use a blend mode like Lighten, the black background won't be visible.

3 Try selecting Ignore Alpha Channel; then try selecting Invert Alpha Channel. Observe the results in the Program Monitor (you will need to click OK before the display will update.)

- **Ignore Alpha Channel:** Treats all pixels as having 100% alpha. This can be useful if you don't intend to use a background clip in your sequence and would prefer black pixels.
- **Invert Alpha Channel:** Reverses the alpha channel for every pixel in the clip. This means that pixels that were fully opaque will become fully transparent, and pixels that were transparent will become opaque.

It's easy to spot when there's an issue with the alpha channel.

Color keying a greenscreen shot

When you change the opacity level of a clip using the rubber band or the Effect Controls panel, you adjust the alpha for every pixel in the image by the same amount. There are also ways to selectively adjust the alpha for pixels, based on their position on the screen, their brightness, or their color.

Chromakey effects adjust the opacity for a range of pixels based on their specific luminance, hue, and saturation values. The principle is quite simple: You select a color or range of colors, and the more similar a pixel is to the selection, the more transparent it becomes. The more closely a pixel matches the selection, the more its alpha channel value is lowered, until it becomes fully transparent.

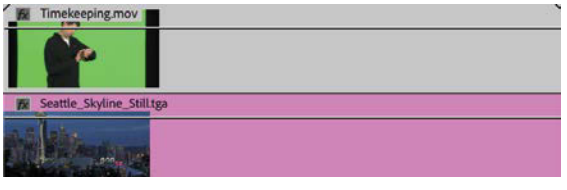
Note: Highly compressed media files (such as H.264 4:2:0) will generally not give the same result as a RAW or lightly compressed file (such as ProRes 4:4:4:4) captured using a high-end camera.

Let's set up a chromakey composition.

1. Drag the clip Timekeeping.mov, in the Greenscreen bin, onto the New Item button menu in the Project panel. This creates a sequence that matches the media perfectly, with the clip on Video 1.
2. In the sequence, drag the Timekeeping.mov clip up to Video 2—this will be the foreground.

3. Drag the clip Seattle_Skyline_Still.tga from the Shots bin to track Video 1, under the Timekeeping.mov clip on the Timeline.

   Because this is a single-frame graphic, its default duration is too short.
4. Trim the Seattle_Skyline_Still.tga clip so that it's long enough to be a background for the full duration of the foreground clip on Video 2.



Note: There's no special secret to creating multilayered compositions in Premiere Pro. Place clips on multiple tracks, knowing that clips on upper tracks will appear in front of clips on lower tracks.

5 In the Project panel, your sequence is still named after Timekeeping.mov, and it's stored in the same Greenscreen bin. Rename the sequence Seattle Skyline, and drag it into the Sequences bin.

This kind of on-the-fly organization is worth the extra effort, as it helps you stay in control of your project.

You now have foreground and background clips. All that remains is to make the green pixels transparent.

Preprocessing the footage

In a perfect world, every greenscreen clip you work with would have a flawless green background and nice, clean edges on your foreground elements. In reality, there are lots of reasons why you might be faced with less-than perfect material.

There are always potential problems caused by poor lighting when the video is created. However, there's a further problem caused by the way many video cameras store image information.

Because your eyes do not register color as accurately as they do brightness information, it's common for cameras to reduce the amount of color information stored.

Camera systems achieve reductions in file size using this system of reduced color capture, and the approach varies from system to system. Sometimes color information is stored for every other pixel; other times it might be recorded for every other pixel on every second line. This type of file-size reduction is usually a good idea because otherwise the storage required would be *huge*. However, this kind of visual compression can make keying more difficult because there simply isn't as much color detail as you'd like.

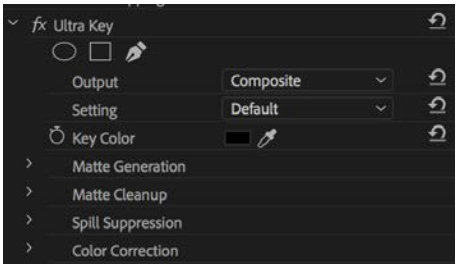
If you find that your footage is not keying well, try the following:

- Consider applying a light blur effect before keying. This blends pixel detail, softening the edges and often giving a smoother-looking result. If the amount of blur is light, it should not dramatically reduce the quality of your image. You can simply apply a blur effect to the clip, adjust the settings, and then apply a chromakey effect on top. The chromakey effect will be applied after the blur because it appears next on the list in the Effect Controls panel.
- Consider color correcting your shot before you key it. If your shot lacks good contrast between your foreground and background, you can sometimes help the key by adjusting the picture first using the Lumetri Color panel.

Using the Ultra Key effect

Premiere Pro has a powerful, fast, and intuitive chromakey effect called Ultra Key. The workflow is simple: Choose a color you want to become transparent and then adjust settings to suit. The Ultra Key effect, like every greenscreen keyer, dynamically generates a matte (defining which pixels should be transparent) based on the color selection. The matte is adjustable using the detailed settings of the Ultra Key effect.

1 Apply the Ultra Key effect to the Timekeeping.mov clip in the new Seattle Skyline sequence. You can find the effect easily by typing **Ultra** in the Effects panel search box.



The Key Color can be set by clicking the color swatch and using the color picker or by clicking in the picture using the eyedropper.

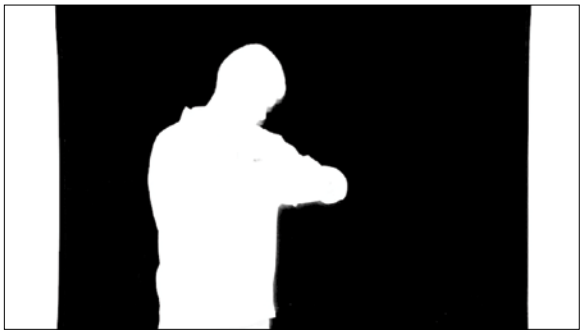
2 In the Effect Controls panel, select the Key Color eyedropper.

3 Holding the Ctrl key (Windows) or Command key (macOS), use the eyedropper to click a green area in the Program Monitor. This clip has a consistent green background, so it's not too important where you click. With other footage, you may need to experiment to find the right spot.

Tip: If you hold Ctrl (Windows) or Command (macOS) when you click with the eyedropper, Premiere Pro takes a 5×5 pixel sample average, rather than a single-pixel selection. This often captures a better color for keying.

The Ultra Key effect identifies all pixels that have the green you selected and sets their alpha to 0%.

4 In the Effect Controls panel, change the Output setting for the Ultra Key effect to Alpha Channel. In this mode, the Ultra Key effect displays the alpha channel as a grayscale image, where dark pixels will be transparent and light pixels will be opaque.



It's a pretty good key, but there are a few areas of gray where the pixels will be partially transparent, which you don't want. Where there's naturally semi-transparent detail, like hair or the soft edges of clothing, there should be some gray, and the right and left sides don't have any green, so none of those pixels can be keyed. You'll fix that later. Still, in the main areas of the alpha channel should be solid black or white.

5 In the Effect Controls panel, open the Setting menu for the Ultra Key effect and choose Aggressive. This cleans up the selection a little. Scrub through the shot to see whether it has clean black areas and white areas. If you see gray pixels in this view where there should not be, the result will be partially transparent parts in the picture.

6 Switch the Output setting back to Composite to see the result.

The Aggressive mode works better for this clip. The Default, Relaxed, and Aggressive modes modify the Matte Generation, Matte Cleanup, and Spill Suppression settings. You can also modify manually to get a better key with more challenging footage.

Here's an overview of the settings:

- **Matte Generation:** Once you've chosen your key color, the Matte Generation category of controls change the way it's interpreted. You'll often get positive results with more challenging footage just by adjusting these settings.
- **Matte Cleanup:** Once your matte is defined, you can use these controls to adjust it:
  - Choke shrinks the matte, which is helpful if your key selection misses some edges. Be careful not to choke the matte too much because you'll begin to lose edge detail in the foreground image, often supplying a *digital haircut* in the vernacular of the visual-effects industry.
  - Soften applies a blur to the matte, which often improves the apparent "blending" of the foreground and background images for a more convincing composite.
  - Contrast increases the contrast of the alpha channel, making that black-and-white image a stronger black-and-white version and more clearly defining the key. You will often get cleaner keys by increasing the contrast.
- **Spill Suppression:** Spill Suppression compensates for color that bounces from the green background onto the subject. When this happens, the combination of the green background and the subject's own colors are usually different enough that it does not cause parts of the subject to be keyed transparent. However, it does not look good when the edges of your subject are green. Spill suppression automatically compensates by adding color to the foreground element edges that are positioned opposite, on a color wheel, to the key color. For example, magenta is added when greenscreen keying, or yellow is added when blue-screen keying. This neutralizes the color "spill" in the same way that you'd fix a color cast.

Note: In this example, you're using footage with a green background. It is also possible you'll have footage with a blue background for keying. The workflow is the same.

The built-in Color Correction controls give you a quick and easy way to adjust the appearance of your foreground video to help it blend in with your background.

Often, these three controls are enough to make a more natural match. Note that these adjustments are applied after the key, so you won't cause problems for your key by adjusting the colors with these controls. You can use any color adjustment tools in Premiere Pro, including the Lumetri Color panel.

Masking clips

The Ultra Key effect generates a matte dynamically, based on the colors in your shot. You can also create your own custom matte or use another clip as the basis for a matte.

When you create your own matte, you'll use the mask feature applied to the Opacity settings for your clip. Let's create a matte to remove the edges from the Timekeeping.mov clip.

1 Return to the Seattle Skyline sequence.

As you discovered earlier, the foreground clip has an actor standing in front of a greenscreen, but the screen does not reach the edge of the picture. It's common to shoot greenscreen footage this way, particularly when filming on location where full studio facilities may not be available.

2 Disable the Ultra Key effect, without removing it, by clicking the Toggle Effect button fx in the Effect Controls panel. This allows you to clearly see the green areas of the picture again.

3 Still in the Effect Controls panel, expand the Opacity controls and click the Create 4-point Polygon Mask button just under that heading.

A mask is applied to the clip, making most of the image transparent.

4 Resize the mask so that it reveals the central area of the shot but hides the black edges. You will almost certainly need to reduce the Program Monitor zoom to 50% or 25% to see beyond the edges of the image.

As long as you have the mask selected in the Effect Controls panel, you can click directly in the Program Monitor to reposition the corner control points for the mask.

▶ **Tip:** If you deselect the mask, the control points displayed in the Program Monitor will disappear. Select the mask in the Effect Controls panel to reactivate them.

This mask extends beyond the edge of the image. This is fine—the main goal is to choose what you will exclude. In this case, the curtain is successfully excluded.

▶ **Tip:** A rough mask of this kind, used to remove unwanted image elements, is often referred to as a *garbage matte*.

5 Set the Program Monitor zoom option to Fit.

6 Toggle the Ultra Key effect back on in the Effect Controls panel, and deselect the clip to remove the visible mask handles.

The result is a clean key.

Using mattes that use graphics or other clips

Adding a mask to the Opacity settings in the Effect Controls panel sets user-defined regions that should be visible or transparent. Premiere Pro can also use another clip as a reference for a matte.

The Track Matte Key effect uses the luminance information or alpha channel information from any clips on a track to define a transparency matte for a selected clip on another track. With a little planning and preparation, this simple effect can produce powerful results because you can use any clips as a reference and even apply effects to them, changing the resulting matte.

Using the Track Matte Key effect

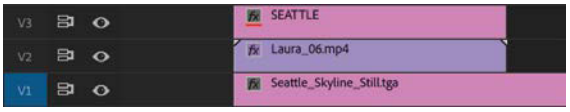
Let's use the Track Matte Key effect to add a layered title to the Seattle Skyline sequence.

1 Select and delete the Timekeeping.mov clip on the Video 2 track.

2 Edit the clip Laura_06.mp4, from the Shots bin, onto the V2 track, at the beginning of the sequence.

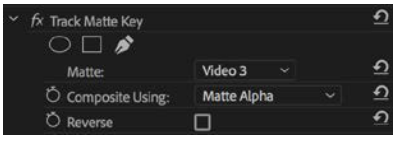
3 Drag the graphic clip SEATTLE from the Graphics bin onto the Timeline V3 track, directly above the Laura_06.mp4 clip.

4 Trim the SEATTLE graphic clip to match the duration of the Laura_06.mp4 clip.



5 Find the Track Matte Key effect in the Effects panel, and apply it to the Laura_06.mp4 clip on the V2 track.

6 In the Effect Controls panel, set the Track Matte Key Matte menu to Video 3.



7 Scrub through the sequence to see the result. The top clip is no longer visible. It's being used as a guide to define the visible and transparent regions of the clip on V3.

By default, the Track Matte Key effect uses the alpha channel from clips on the selected track to generate a key. If your reference clips don't use an alpha channel, change the Composite Using menu to Matte Luma, and the brightness of the reference clips will be used instead.

Tip: In this example, you're using a still image as a reference for the Track Matte Key effect. You can use any clip, though, including other video clips.

The Track Matte Key effect is an unusual effect because most other effects exclusively change the clip they are applied to. The Track Matte Key effect changes both the clip it's applied to *and* the clip used as a reference.

The colors in the Laura_06.mp4 clip work well against the blue in the background clip, but they could be more vivid. You might want to experiment with color correction tools to make the red stronger and brighter so it's a more compelling composition.

You could also add a blur effect to the Laura_06.mp4 clip and change the playback speed to create a softer, slower-moving texture.

Review questions

1. What is the difference between the RGB channels and the alpha channel?
2. How do you apply a blend mode to a clip?
3. How do you keyframe clip opacity?
4. How do you change the way a media file's alpha channel is interpreted?
5. What does it mean to key a clip?
6. Are there any limits to the kinds of clips you can use as a reference for the Track Matte Key effect?

Review answers

1. The difference is that the RGB channels describe color information, whereas the alpha channel describes opacity.
2. Blend modes are in the Opacity category in the Effect Controls panel.
3. You adjust clip opacity in the same way you adjust clip volume, on the Timeline or in the Effect Controls panel. To make an adjustment on the Timeline, make sure you're viewing the rubber band for the clip you want to adjust and then drag with the Selection tool. If you hold Ctrl (Windows) or Command (macOS) while clicking, you'll add keyframes. You can also work with keyframes using the Pen tool.
4. Right-click the file and choose Modify > Interpret Footage.
5. A key is usually a special effect where the color or brightness of pixels is used to define which part of the image should be transparent and which part should be visible.
6. You can use just about anything to create your key with the Track Matte Key effect, as long as it is positioned on a track above the clip you apply the effect to. You can even apply special effects to the reference clip, and the results of those effects will be reflected in the matte. You can even use multiple clips, because the setting is based on the track, rather than a particular clip.