**11 Tips For Planning A Green Screen Video Production**

**1. Get everyone on board with the background BEFORE shooting** - This can actually be quite tricky, but it's super… no… uber-important to get your client (and yourself) squared away with what the background will look like. And get feedback from ALL decision makers involved. This should limit a constantly changing background during post-production. Don't waste time rendering, file writing, and uploading… and downloading… and re-uploading…

**2. Request branding guidelines early** - Find out what you can and cannot do with an organization’s branding designs and logo. Determine what colors you can and cannot use, etc. Get those guidelines in front of your designers (or yourself) so you can give everyone enough time to work their design magic.

**3. Send Storyboards** - Make sure everyone knows what the background is going to look like. People do not enjoy surprises, so create storyboards to demonstrate how the subject will appear on the background. Include a variety of samples to give everyone an idea of what a person will look like in the frame.

**4. Consider perspectives when designing a background** - If you're using more than one camera, make sure that the background perspective changes to match the camera angle change. If the camera angle and/or framing on the person changes, but the background doesn't, your video's going to look like a cheap local cable spot. Think about each camera's focal length. Make sure the close-up shot is more out of focus than the wide and that the angle of the background matches the camera's angle change.

**5. Light to your background**- The main reason you want your background finalized before shooting is so you can incorporate your lighting to match the lighting motivation of your background. You want to sell to the viewer that this person belongs in this environment and they don't look out of place. If the light spills off to the right, make sure you place the key light on your subject appropriately. The background will also determine the placement of a hair light, or a scrape… or whether or not you even need them.

**6. Scout your location** - Whenever possible, scout the place you plan to shoot. If you have a choice, do not shoot a green screen interview in a room with 8' ceilings… with white ceiling tiles. You need to be careful with the spill light off the ceiling. That will cause plenty of issues in post production. And be sure to find a room that has depth. You want to keep your subject away from the backdrop so you avoid the spill there too.

**7. Find a good Make-up Artist** - (if your budget allows) Find a make-up artist that has done green screen before. They know what to look for. Let them worry about walking up to interviewees and patting their hair down. That's the last thing you want to keep doing as you’re trying to get an interviewee to open up to you.

**8. Get a monitor with waveform display** - You want to get your background as evenly lit as possible. While you can develop an eye for that after a while, it's always good to have a monitor that has a waveform display so you can see your levels (we typically like to have our green screen at a level between 55 and 65 IRE). Get it so you have flat levels - you want to see a relatively straight line running across your screen.

**9. Choose your camera wisely** - This is a decision in pre-production that has a direct impact on post. Not all cameras shoot the same. Not all cameras collect the same color information. It is important to know what information your camera records, and get an understanding of the output signal. The more color information your camera collects, the more room you have to play with in post. Another good idea is to turn off your cameraʼs sharpening option if it has it (the sharpening feature adds a thin black line around your subject that can be difficult to deal with in post).

**10. Get comfortable with your keying software** - Make sure you know your software’s limitations ahead of time. That way you know how crazy you have to go trying to keep everyone's hair in order. Generally speaking, the better the software, the easier the key (but that's a big generalization).

**11. Remind your interviewees NOT to wear green** - Yes. A very simple step. So simple, it's easy to forget.

Well, hopefully this provides you with a nice basic understanding of things to consider when shooting green screen. There are certainly many more things to consider... but Iʼll save those for another entry. Just remember green screen can provide you with a ton of creative options… and headaches. Just keep in mind that you can avoid most of them!

**Rules to Shoot By**

1. **Make sure that your background is opaque and without wrinkles.** While this can be a permanent enclosure in a permanent greenscreen studio, it can also be a temporary setup. We’ve included an article on making a great greenscreen backdrop that’s opaque and wrinkle free for about $50 in this issue, [which you can read here](http://www.microfilmmaker.com/tipstrick/Issue22/buildgrn.html). (Plus, it includes a good paint color choice you can pick up at Lowe’s or Home Depot.)
2. **Keep at least 6’ between your actor and the greenscreen and 6’ between the camera and the actor.** This prevents shadows from hitting the background and lowers the amount of “spill”—reflected green that washes over your actor.
3. **Use soft boxes or some sort of diffuse light to light your greenscreen.** We’ve used the twin 500W Smith Victor Economy softboxes that make up their [KSB-1000](http://www.microfilmmaker.com/reviews/Issue19/KSB1000.html) to good result. With a little creativity and some heat-proof diffusion, you can also use three 500W 3200K flood bulbs in three Home Depot clamp scoops (the ones that have porcelain fittings) for about $40 for all three. (However, you really have to pay attention to rule #4 if you do this.)
4. **Use a light meter to test that you have even lighting across the background and make sure you have no more than a 10% variance in illumination in any part that will be filmed.** While you can use a handheld light meter, my recommendation is that you plug your camera into a laptop that has some sort of lightmeter software in it. Adobe’s *OnLocation CS3* (which was Serious Magic’s *DVRack 2*) is an excellent example of this. (Also, if you have a software package like Adobe *Ultra CS3,* you can actually do test keys to see how well you’ve lit things. Folks who buy the PC version of Adobe’s *CS3: Production Premium* will have both of these helpful packages included in the bundle.)  *[If you don't have a lightmeter or a laptop with the necessary software, you can make a cheap lightmeter by adjusting the two zebra levels on your camcorder and zooming in on different parts of your screen with the auto-iris turned on.  If you adjust the zebra levels close enough to one another, you'll be able to make sure that you're within a 10% illumination variance throughout your screen.]*
5. **Don’t overlight your greenscreen.** You want the background to be as close to pure green as possible. If you overlight the background, you will wash out the green color and you will have difficulty keying the background properly.  Additionally, there is a greater chance that green light will spill on your subject if the screen is overlit.
6. **Light your main actors dynamically and with separate lighting than your greenscreen.** The lighting is designed to look like the lighting in the background you will be adding in post, and is usually three-point light—which is made of a key light, a fill light, and a kicker. (This is another great thing about having a laptop with you, as you can see the background image as you are setting up the lighting. Plus, even if you don’t have Ultra, you can record a few seconds of footage, digitize it real quickly, composite it in your favorite keyer, and make sure your lighting will blend with the background.) The most realistic keys match this perfectly. (Just make sure that you spread your key and fill lights a bit wider than normal to prevent their light getting on the greenscreen, or you could screw up #4, #5, or both.)
7. **Turn off all the lights which are illuminating the greenscreen before white balancing.** This is a very helpful fact that Tom Stern brought up in his MFM article on shooting DVX/HVX greenscreen footage. As this tip applies to all greenscreen shoots, I repeat it here. If you white balance with the greenscreen illuminated, it screws up your white balance and basically causes the green to become washed out. (Which basically leads you back to issue #5) Just don’t forget to turn back on the greenscreen lights before you shoot your sequences!
8. **Experiment with the camera until you get the settings that yield the most difference between your actor and the green background.** Each camera is different, but the more true green you can record the background in your camera, the easier it will be. (If you have the DVX100 or HVX200, check out [the aforementioned article by Tom Stern on its presets for greenscreen](http://www.microfilmmaker.com/tipstrick/Issue22/DVXHVX1.html).)
9. **If you have a camera that shoots progressive footage, shoot progressive.** Interlacing makes it harder to get a clean key, and will therefore have to be removed in post, anyway.
10. **If you have a camera that shoots 24 fps, shoot with that.** Cameras that shoot true 24 fps usually have their shutter open 20% longer per frame, which means that more light data is being recorded. As many of the keyers designed for DV/HDV/HD footage combine luma and chroma data, the more data you can record on both levels, the better the key they can produce.
11. **If you can shoot at a higher resolution than what your project demands, do so.** Obviously, the greater the resolution your camera can record, the more data for the keyer to work with afterwards.  The huge benefit in shooting at a higher resolution than what you will output at is that you can key at the higher resolution and then shrink the image to fit the output resolution.  This will give you much more precision and make minor keying artifacts virtually unnoticeable.
12. **Don't shoot greenscreen with a 35mm adapter.** If you've read any of the articles, critiques, or reviews in this magazine, you're probably aware that we love the film look a 35mm adapter can provide.  However, for greenscreen work, you want your subject to have sharp, clean, in-focus edges.  Once you've keyed your subject cleanly, then you can create the look of shallow depth of field in post with out of focus backgrounds and feathered focus edges on your subject.

While these are the main rules to shoot by, I wouldn’t be very helpful if I didn’t also leave you with some information about what to watch out for with your talent. You can do all these twelve things perfectly, and talent can cause problems if you’re not careful.

1. **Don’t have your talent show up until you have most of the greenscreen set up.** Unless you have built a greenscreen studio and will be shooting in there, then you should plan on at least two to four hours to set up a greenscreen and light it properly for the first time. You don’t want your talent hanging around getting bored, tired, and cranky. (And you don’t want them to get hot and sweaty, as we cover in #4.)
2. **Make sure that your talent wears nothing green--or that is largely green derivative.** There are lots of things like teal and aqua that are a perfect blend of blue and green which are bad choices for your talent to wear, but which many people wouldn’t realize because they get tunnel vision on avoiding just green.
3. **Make sure you have nothing shiny on your actors or as part of the physical set.** Shiny things reflect green and therefore will become transparent. Matte clothes are best for actors and matte finishes on pieces of furniture you may use. As even glossy wood furniture can reflect green, you can imagine what happens with stainless steel furniture and glass table tops.  Same thing goes for props like water bottles, crystal balls, and reading glasses.
4. **Make sure you have fresh make up on your actors at all times.** While makeup is necessary for any film endeavor to get the look you want, it’s extremely important for greenscreen as it prevents your actors from becoming shiny and reflecting greenscreen light. With your actor(s) standing in front of one set of lights and right near another bank of lights, you can be sure that the makeup will melt off at a faster rate than in other types of shoots. As such, plan on having the makeup refreshed regularly.
5. **Color Correct**  
   I think this should be done on all video no matter what. First, get all the shots in a scene to look the same. If the white balance was wrong, the color tone may have to be adjusted. Otherwise, fine-tune the exposure on each individual shot. Now, develop a look for the scene. Nest the entire scene into one clip and experiment with filters to see what looks good. This stage is another license to get creative. It doesn’t have to look exactly how it was shot. For example, add some green to give the scene a sickly, institutional look. Experiment with “curves” or “gamma.” The advanced will adjust the color channels separately. For a more in depth article of color correcting using FCP, Andrew Balis wrote [this excellent article](http://www.kenstone.net/fcp_homepage/cc_legal_fcp3.html).
6. **Desaturate Colors**   
   Some people think reducing the color intensity makes video look more like film. It is a look. I have used it before, but I don’t use it in every situation. Many video editing applications have a “desaturate” filter. Experiment de- and over-saturating the image. Again, the more advanced colorist will adjust each color separately.
7. **Crush Blacks**  
   For whatever reason, video cameras don’t record the dark areas as black as they should (a contrast problem). Nest the scene and make the blacks blacker. This is done in the color corrector (Final Cut Pro and Avid) by reducing the lows or with a filter called “Levels” by increasing the black input. Experiment with settings until happy.
8. **Blur the Highlights**  
   This is a trait of some films. The very bright areas of the frame are blurry and almost bleed into the areas directly surrounding them. Duplicate the nested scene and put it on an upper video layer, perfectly aligned with the original. Add a small Gaussian blur (2-5), reduce the opacity to 3-10%, and change the composite mode to Screen.
9. **Add Grain**  
   Most video editors have a “noise generator” of sorts. Generate some noise that is colored and randomly changing (under it’s settings). Put this in the timeline above the scene. Reduce opacity and experiment with composite mode (multiply might be good for this). Keep the opacity low–a little goes a long way. I should note that I almost never use this anymore because I don’t like film grain anymore than I like a video look.
10. **Widescreen**  
    Dramatic media, whether on TV or in a movie theater, is often presented in widescreen. This is another thing that helps convince an audience that your movie is more than just a home video. On video, add those annoying black bars on the top and bottom of the screen by putting a black color slug on an upper video layer and add an inverted 4-point garbage matte filter. This is better than applying the "widescreen" filter because this way you can adjust headroom on the clips. If you plan on doing this, shoot accordingly–try taping black bars onto the on set video monitor.
11. **De-Interlace**  
    The above 6 suggestions dealt with the look of film. This attempts to make the motion more cinematic. Video is 60 interlaced fields. Film is 24 frames per second. We can take video to 30 frames progressive (sort of). Most video editing software has a de-interlace filter. Unfortunately, it cuts the vertical resolution in half. Here’s how you can maintain more of the resolution. Duplicate a nested scene onto an upper video layer perfectly aligned with the original. On the lower layer, apply the “de-interlace” filter with even fields. On the upper layer, apply the “de-interlace” filter with odd fields and reduce the opacity to 50%. If you notice jagged edges, you may consider reducing the opacity to 30-50%. If you shot with the camera in 'movie mode' this step is not needed.
12. **Other Options**  
    There are tons! You can buy plug-ins or just experiment on your own. Do a google search for “video look like film.” Just remember it’ll never really look like film and be careful not to degrade the image too far with all the ‘improvements’ you made–video doesn't have the latitude of film either.

1. B-Roll

B-roll refers to video footage that sets the scene, reveals details, or generally enhances the story. For example, at a school play, besides shooting the play, you could get b-roll of the outside of the school, the program, faces of audience members, cast members hiding in the wings, or costume details.

These clips can be used to cover any cuts, or smooth trasitions from one scene to another.

2. Don't Jump

A jump cut occurs when you have two consecutive shots with the exact same camera set up, but a difference in the subject. It happens most often when editing interviews, and you want to cut out some words or phrases that the subject says.

If you leave the remaining shots side-by-side, the audience will be jarred by the slight repositioning of the subject. Instead, cover the cut with some b-roll, or use a fade.

3. Stay on Your Plane

When shooting, imagine that there is a horizontal line between you and your subjects. Now, stay on your side of the line. By observing a 180-degree plane, you keep a perspective that is more natural for the audience.

If you’re editing footage that disobeys this rule, try using b-roll between cuts. This way, the change in perspective won’t be as abrupt, if it’s noticeable at all. More »

4. 45 Degrees

When editing together a scene shot from multiple camera angles, always try to use shots that are looking at the subject from at least a difference of 45 degrees. Otherwise, the shots are too similar and appear almost like a jump cut to the audience.

5. Cut on Motion

Motion distracts the eye from noticing editing cuts. So, when cutting from one image to another, always try to do it when the subject is in motion. For example, cutting from a turning head to an opening door, is much smoother than cutting from a still head to a door about to be opened.

6. Change Focal Lengths

When you have two shots of the same subject, it’s easy to cut between close and wide angles. So, when shooting an interview, or a lengthy event such as a wedding, it’s a good idea to occasionally change focal lengths. A wide shot and a medium close up can be cut together, allowing you to edit parts out and change the order of shots without obvious jump cuts.

7. Cut on Similar Elements

There’s a cut in Apocalypse Now from a rotating ceiling fan to a helicopter. The scenes change dramatically, but the visually similar elements make for a smooth, creative cut.

You can do the same thing in your videos. Cut from a flower on a wedding cake to the groom’s boutenier, or tilt up to the blue sky from one scene and then down from the sky to a different scene.

8. Wipe

At weddings, I love it when people walk in front of the camera. They are apologetic, but unless it happened during the vows or the first dance, I am grateful for the wipe they gave me to use during editing.

When the frame fills up with one element (such as the back of a black suit jacket), it makes it easy to cut to a completely different scene without jarring the audience. You can set wipes up yourself during shooting, or just take advantage when they happen naturally.

9. Match the Scene

The beauty of editing is that you can take footage shots out of order or at separate times, and cut them together so that they appear as one continuous scene. To do this effectively, though, the elements in the shots should match up.

For example, a subject who exits frame right should enter the next shot frame left. Otherwise, it appears they turned around and are walking in the other direction. Or, if the subject is holding something in one shot, don't cut directly to a shot of them empty-handed.

If you don't have the right shots to make matched edits, insert some b-roll in between.

10. Motivate Yourself

Ultimately, every cut should be motivated. There should be a reason that you want to switch from one shot or camera angle to another. Sometimes that motivation is a simple as, “the camera shook,” or “someone walked in front of the camera.”

Ideally, though, your motivations for cutting should be to advance the narrative storytelling of your video.