# THIRD LAW

US



**LUMIX PRO Case Study**

# Shooting Cinema with LUMIX BGH1

Dating back to the days of silent film, productions have used backgrounds (called "plates") in studios to better tell the story. Fixed backgrounds help filmmakers gain more control over lighting and environmental challenges, ultimately lowering production costs and providing consistency in the look and feel of the resulting art. Today, plates are still an invaluable element in the Visual Effects (VFX) process, though they're created quite differently—added using a greenscreen, in post-production, or in real time with the actors (using LED walls or projection).

When it comes to designing and engineering camera solutions for VFX elements and filming plates for motion picture, television and commercial work, David C. Smith, founder of Third Law Productions and their sister company DrivingPlates.com have become the masters, delivering high-quality plates in many challenging productions. Whether the plate is of a city street for vehicle motion, the background for a boxing film, or a complex multi-angle plate in a bus, there isn't much that David and his team can't deliver.

"Our camera system needed to be able to handle both high dynamic lighting of daylight shooting in New York as we move from full shade to full sun as well as be able to handle very low light shooting once we moved underground. All while minimizing rolling shutter artifacts as we would be shooting from a train at high speeds. We needed to be able to quickly switch all the cameras between our exterior daylight setting and our interior high ISO setting since we couldn't stop the train in-between environments. Controlling all three cameras simultaneously was crucial. So size, weight, image quality, and the ability to control all cameras as one were our primary criteria."

## A FIVE-HOUR SUBWAY SHOOT
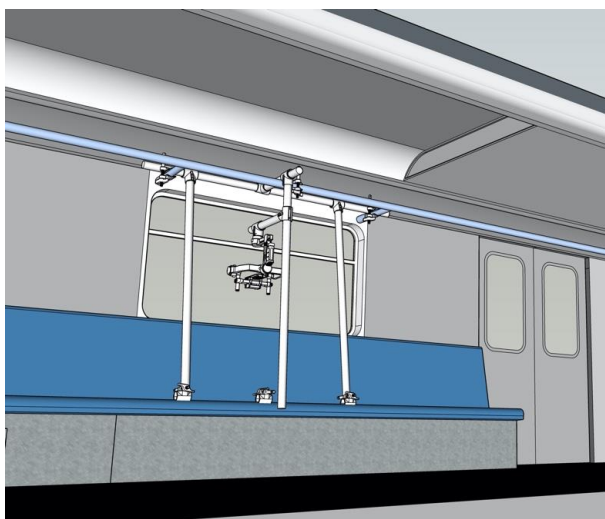


Recently, Third Law Productions was contracted to produce backgrounds for a scene that will take place in a train car traveling through the heart of New York City. Gaining access to an unused train and line of track in NYC can be a difficult and expensive proposition, but David and his team managed to gain exclusive access for five hours of production. And while five hours may seem like a long time, the installation of three cameras to provide the correct amount of coverage, using a custom mounting solution that would need to be easily installed and removed, and could be universally stabilized, proved to be quite the engineering feat. In addition, Third Law needed to do it twice—capturing the view from both sides of the train. This gave Third Law one hour for setup, one hour for the first trip, one hour to move the rig, one hour to film the second angle, and one hour for teardown. With such a tight schedule, there's no time for mistakes!

## A LIGHTWEIGHT CAMERA WITH MAXIMUM CONTROL

To keep this pace of shooting, David needed cameras with a lightweight design that could be universally controlled from a single interface. Additionally, they needed to deliver enough dynamic range and 4K, 10-bit Log quality to match the best cinema cameras in the industry. David had had lots of experience with LUMIX cameras— DrivingPlates.com has used them since 2011 for most of their mobile plates—but the GH5S was bigger and heavier than they wanted, and didn't offer the level of control David needed. The BGH1 gave David the control and weight savings he needed, not just because the camera is small and light, but because when you use an ethernet switch with PoE+ to control the camera, it is also powered by the switch. This saves substantial weight. Some additional features that are the icing on the cake for the BGH1, Time Code and Genlock for camera sync, and SDI output for monitoring each camera, proved useful. So too did the ability to save the camera settings and populate them to all cameras simultaneously, thanks to the LUMIX Tether for Multicam App.

"The BGH1 was perfectly suited to the requirements of this shoot. The light weight of the body along with its ability to be powered over POE meant that we could achieve the necessary stabilization with only a light weight DJI Ronin 2 gimbal rather than a large heavy Libra-style head. This lighter rig meant that we could build a lighter and faster rig with only a crew of three: DP, AC, and Grip. The simultaneous control of all cameras in the array allowed us to make setting changes in real time. As the train descended into the tunnels, we had to switch the array from our daylight exterior settings to interior underground settings. Setting up various user setting pre-set files allowed us to switch back and forth within seconds."




## BUILDING THE RIG

During their time designing and testing the BGH1 in the home base of Third Law Productions in Burbank California, David and his team determined they could use three BGH1 cameras, three LUMIX G X VARIO 12-35mm / F2.8 II ASPH. / POWER O.I.S. (H-HSA12035) lenses, a Trendnet 4 Port PoE+ ethernet switch, and an Acer Aspire Laptop. For delivery of GenLock signals, the AJA GEN10 Tri Level Sync Generator was used and all three cameras and associated equipment were mounted to a DJI Ronin 2 with the FlowCine Tranquilizer to provide additional stability for the train movement. A custom engineered mounting system allowed the cameras and all the support electronics to be self-powered and self-contained and—most important—able to balance on the gimbal.
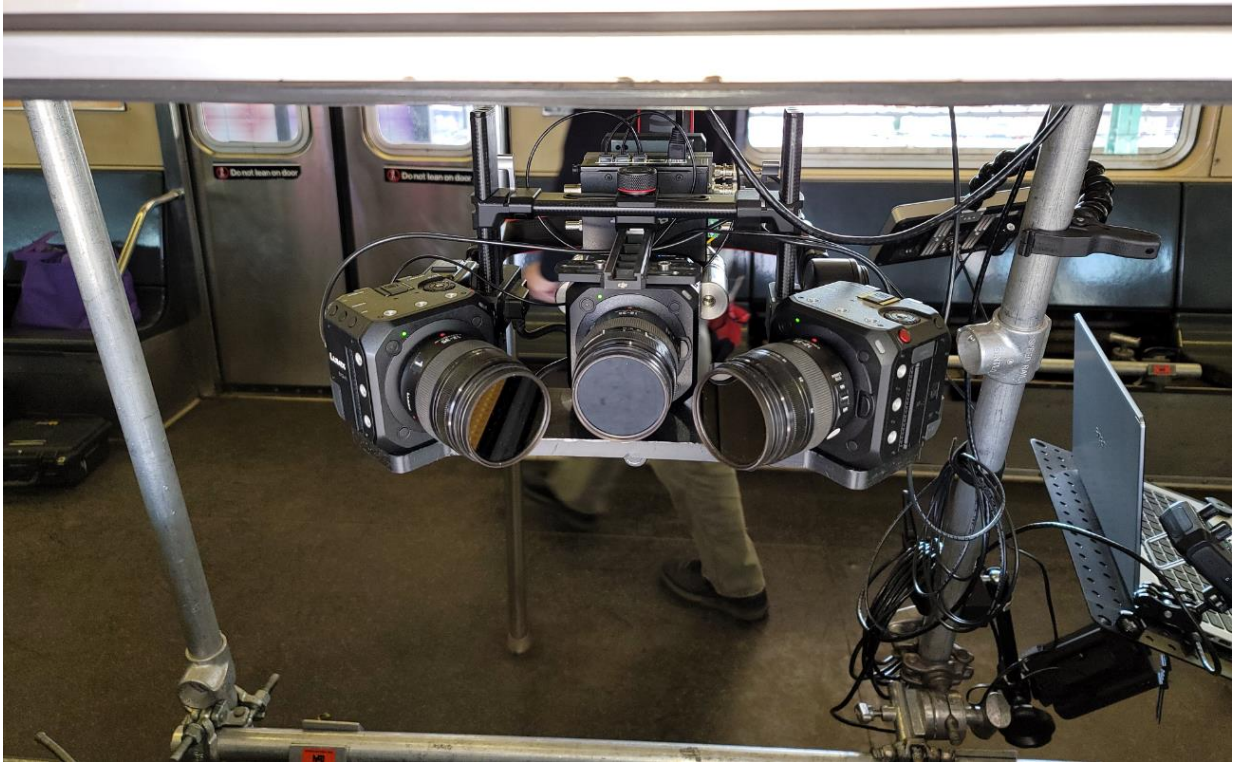
When all was said and done, the whole camera rig, not including the laptop, took up little space and made the setup of the cameras very easy to execute on set. The BGH1 delivered as expected and provided David and Third Law with the quality their client needed, with the features Third Law needed to simplify the production and assembly of their footage. David sees a bright future for the BGH1 and Third Law Productions and is looking at ways to take advantage of the extensive streaming options the camera provides for remote productions. Keep checking back with Panasonic for more updates on future Third Law projects, and if you have production needs check out thirdlawproductions.com. If you need stock plates for automotive applications, DrivingPlates.com has an extensive library of plates, covering over 12,000 locations from the US and over 25 other countries around the world.