

# Road to Nowhere

ARTICLE BY JOE FORDHAM



**C**ormac McCarthy's post-apocalyptic novel, *The Road*, had been regarded as un-filmable by many Hollywood studios. Its terse and poetic prose was far removed from *Mad Max* visions of the future, but the book went on to win the hearts of genre fans and mainstream critics, and won the 2007 Pulitzer Prize. When 2929 Productions and Dimension Films announced their upcoming adaptation, all scrutiny was on director John Hillcoat and screen- >>>

writer Joe Penhall.

The resultant film emerged as an uncompromising and faithful take on McCarthy's narrative, which follows an unnamed father (Viggo Mortensen) and his unnamed son (Kodi Smit-McPhee) who are refugees of an unspecified cataclysm that has reduced America to ashes. The boy's long-vanished mother (Charlize Theron) is seen only in flashbacks punctuating the father's and son's trek across a scorched and barren landscape sparsely populated by starving survivors reduced to cannibalism. Man and boy struggle to survive with only two bullets in a pistol, heading for an uncertain future on the coast, where they hope to find salvation.

**H**illcoat's team discovered a valuable resource for re-creating McCarthy's devastated world in a 13-mile stretch of abandoned highway in rural Pennsylvania. The old turnpike, opened in 1940 and bypassed in 1968, had since become a popular biking trail, partially reclaimed by Mother Nature, and offered the production an ideal stretch of overgrown macadam and forbidding tunnels as its primary location.

After the filmmakers settled on Pennsylvania as their production base, a referral from the Greater Philadelphia Film Office led them to Dive, a visual effects studio owned by parent company Shooters Post & Transfer. "John Hillcoat initially admitted he did not like visual effects," related senior visual effects supervisor Mark Forker, who had recently relocated to the East Coast after 13 years in California at Digital Domain. "He wanted to avoid flashy effects that took the viewer away from the story. We talked about the work of still photographers such as Robert Polidori, who shot at the Chernobyl nuclear disaster site, and Edward Burtynsky, who shoots in devastated areas where oil has riddled shipyards, or in mining communities where the land has been stripped bare. We also talked about William Eggleston's photography, which is full of bright and saturated colors, for flashbacks and dream sequences. John wanted the environment to illustrate the characters' states of mind, keeping characters as the focus."

The emphasis on real-world photographic imagery extended to production designer Chris Kennedy, who created conceptual art based on the location scouts. Forker also prepared Photoshop mockups of scenes utilizing scouting photos, stock images and his own photography. Hillcoat and director of photography Javier Aguirresarobe then used locations in Pennsylvania, Oregon, Washington and Louisiana, favoring overcast wintertime skies and dead trees, and avoid-

ing direct sunlight and hard shadows. "We prayed for bad weather," said Forker. "If we woke up in the morning and it was a beautiful day, we were miserable. One of the most important things was to avoid the color green — on clothing, on the ground, in the trees. We ended up doing a lot of digital green removal, because spring came a little earlier than we had hoped."

Special effects coordinator David Fletcher provided practical environmental effects on set including smoke, rain, ash, snow and fire, all of which the digital effects team supplemented or enhanced. Physical deteriorations, depicting characters near starvation, were also shot in-camera with cosmetic looks designed by makeup department head Toni G and hair department head Georgie Sheffer. "Viggo starved himself," remarked Forker. "He was so into the character, there came a point at which John Hillcoat insisted that he stop it, because it was difficult for him to think clearly while being hungry all the time. As we moved toward the scenes where Viggo's character was supposed to look more emaciated, Viggo was at his thinnest. The rest was achieved with makeup; and then, in shots where the characters took off their shirts, there was a lot of sucking in."

**F**orker accompanied the film shoot as a one-man visual effects unit, placing tracking markers as needed, recording camera measurements and shooting still images with a Canon EOS 5D. Working from the production base at Dive, Forker apportioned additional visual effects to vendors in Los Angeles, Toronto and New York. Crazy Horse Effects handled the lion's share of matte paintings. Invisible Pictures, Eden FX and Brainstorm Digital provided further environment work and enhancements. Boutique effects facilities Space Monkey and Liquid Ink, along with a number of local Pittsburgh studios, handled supplemental effects.

Dive compositing supervisor and digital effects supervisor Ed Mendez, recently arrived from CafeFX, helped to equip Dive for its biggest feature to date. "We built our visual effects pipeline from scratch," observed Mendez. "We established our file-sharing network using digital picture exchange files, which retained all the original color and contrast values of the plates. We set up our color pipeline using DaVinci Resolve and a compositing pipeline geared around The Foundry's Nuke." Color and imaging consultant David Franks worked with Dive producer and technical supervisor John-Michael Trojan and head engineer Robert Pyle to create a color workflow that gave artists access to the full range of color space in production

*A father (Viggo Mortensen) and his son (Kodi Smit-McPhee) traverse a derelict highway, following an unspecified global cataclysm in The Road. Working from a screenplay based on the Pulitzer Prize-winning novel by Cormac McCarthy, director John Hillcoat remained faithful to the source, grounding the film, both visually and thematically, in a dark and gritty reality. Visual effects supervisor Mark Forker, visual effects studio Dive and a handful of other vendors assisted in the creation of post-apocalyptic environments, many of which were filmed in rural Pennsylvania. Dive added sky enhancements and billboard signage to an abandoned turnpike using photographic elements and limited 3D.*

*The man and boy pass a desolate railroad crossing. Hillcoat filmed the scene in New Orleans, using a location that had been ravaged by Hurricane Katrina. Crazy Horse Effects, handling the majority of the film's digital matte painting, enhanced the scene in consultation with master matte artist Robert Stromberg. Stromberg reworked natural features in the live-action plate, adding a dramatic sky replacement, multiplying fallen telephone poles, draping sagging cables between them, and selectively applying painted grime and weathering to road surfaces and buildings. Heavy palls of clouds and pollution added to the sense of doom.*





plates with calibrated 'look-up' tables. "What we saw on our monitors matched the look-up table images in our theater where we did our daily 2K reviews. That was important because John Hillcoat was right there in our studio for his editorial; and so, when he'd stop to take a look at somebody's shot, he had a good idea as to how it was going to look on film. John had an amazing eye for detail. He'd often comment in reviews on matching film grain, black levels and edges, which a lot of directors don't appreciate."

**T**o establish principal performers in scorched-earth vistas, Hillcoat shot early scenes on Mount St. Helens, the stratovolcano in Washington that erupted in 1980. "There was nothing like Mount St. Helens for completely dead wide shots," said Mark Forker. "We had access to a section that was closed to the public and filled with scientists studying the area. We shot there for three days with Viggo and Kodi in huge landscapes of ash and dead wood stretching out to the horizon."

A sequence containing one of the film's few greenscreens had the man and boy taking shelter in a cave and experiencing an earthquake, shot on location in Pennsylvania. Forker positioned a greenscreen outside the cave mouth and then Dive digital artist Tim

Bowman used scenic imagery of Mount St. Helens to create a matte painting of the terrain outside.

For establishing shots of the man and boy on the road, Hillcoat and his crew dressed the Pennsylvania turnpike with practical ash, detritus and abandoned vehicles. Dive added elements of skeletal remains supplied by No Joke FX, filmed in Dive's New Jersey studio, and 3D road signs. "John Hillcoat was very keen to add one particular billboard mentioned in the book," noted Forker. "The man and boy pass by a sign that has been painted over with a passage from the Bible: 'Behold the Valley of Slaughter.' There were no billboards along the turnpike, so we had to build that in 3D. Our artists at Dive tried painting the graffiti, but it wasn't giving us the look of real street art. So I brought in my 13-year-old son, gave him a can of spray paint and let him go at it on some big pieces of board." Dive 3D artist Kevin Fanning tracked digital photographs of the art to the 3D billboard, degrading the graphics to suggest years of erosion, and composited elements in Nuke.

The road leads the man and boy past smoldering cities on the horizon. The production filmed many city scenes in Pennsylvania using dilapidated areas of mining towns, and in areas of New Orleans in the aftermath of Hurricane Katrina. Crazy Horse created en-

*Continuing their trek through the eerily empty city, the man and boy pass an office building where mysterious figures watch them from a shattered upper-story window. The production filmed the scene in front of a glass-fronted building in Pittsburgh, and shot a closeup element of figures at a broken window in another location. Crazy Horse digital matte artist Chris Evans matted the window element into the plate, added fractured windows, fire damage and exposed denuded girders in the façade. Environment tweaks included reflections of smoke in the glass, the addition of distant buildings and charred background foliage.*



# THE ROAD

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While camping on a rural road, the man and boy wake in the middle of the night to see a forest fire raging. Special effects supervisor David Fletcher rigged a controlled burn on a night location in Pennsylvania, and Mark Forker shot elements of burning trees. Crazy Horse then used those elements to extend the blaze, elongating the inferno either side of the man and boy. Crazy Horse generated wider panoramas by replicating burning trees and using still photos of flames treated with warping and 2D effects.

hancements for shots of Mortensen and Smit-McPhee walking down a road beside a New Orleans railroad track. The scene became a key image that determined the style of matte paintings in the film, developed with Robert Stromberg, a long time collaborator and friend of the studio, who acted as consultant on the project. "Robert is one of the most talented matte painters alive," stated Paul Graff. "He is an expert at determining the center of gravity of a shot, where the viewer's eye is drawn, and articulating its meaning in between surrounding shots. The photography was very wide in scope, with vast images almost like a dark, inverse version of *Lawrence of Arabia* — instead of being all sunshine and colorful, it had a gloomy poetry and beauty."

Crazy Horse and Stromberg developed a large matte-painted vista to cover wide and closer views of the railroad environment and reworked natural features in the plate to enhance rows of weather-damaged telephone poles extending to the horizon. "The poles looked like the crosses on Golgotha," said Graff. "There was a very clear horizontal composition with a super-wide horizon that cut through the center of frame. The dark, heavy sky getting brighter at the horizon became a theme of the film, and we emphasized that by eliminating other details to help bring

the shot closer to its essence."

The natural sky served as a base layer for a sky replacement using mostly photographic elements to create a cloudscape choked by the pollution of distant burning buildings. "We made it seem like the world was on fire," stated Graff. "There were ashes and fires everywhere, and pillars of smoke on the horizon." Stromberg replicated telephone poles, manipulated the tilt of poles in the plate and added digital downed cables. Texture enhancements included Photoshop grime applied to a power station and streaks of rust and filth on roadside barriers. Color grading and compositing then removed all greenery and created an oppressive sense of desolation.

The man and boy come to a stop in front of a gold-glass-fronted office building where shadowy figures spy on them from a shattered upper-story window. Forker shot an intact building exterior at the WDV radio station building in Pittsburgh, and then filmed a closeup element of two figures backlit by firelight at a broken window in another location. Crazy Horse matte artist Chris Evans matted the figures into the gold-glass structure and created extensive matte-painted damage. "The gold building was much more severely damaged in an earlier version of the shot," said Forker. "We had two gaping holes in the front



of the building, but we decided they took the viewers' eye away from Viggo and Kodi." Evans stripped out heavier damage and dressed the frame with burned trees, fallen telephone poles, denuded girders at the top corners of the building and animated elements suggesting reflections in the filthy glass façade.

*After narrowly escaping a group of scavengers harvesting travelers for food, the man and boy seek temporary refuge in a suburban ghost town. The production chose an abandoned residential area in a partially constructed New Orleans housing development—post Hurricane Katrina—for the shooting location. Production designer Chris Kennedy, the set dressing department and special effects teams added wrecked cars, debris and ash, and then director of photography Javier Aguirresarobe filmed Mortensen and Smit-McPhee walking down the road under a bleak winter sky.*

*Mark Forker and team at Dive digitally removed all living vegetation and extended the decaying neighborhood by taking footage of alternate angles of structures on the New Orleans street, flipping the image and using inverted buildings to replace the open area and freeway in the principal live-action plate. Dive then created a sky replacement as a brooding lid of cloud fading brighter to the horizon. No Joke FX supplied elements of carnage and mummified remains that Forker and Dive photographed on a New Jersey soundstage during postproduction and layered into shots during the composite.*

**S**teering clear of the city, the man and boy take refuge in a forest, then wake in the middle of the night to see a forest fire. David Fletcher's special effects team created controlled pyrotechnic effects on a night location in Pennsylvania, but damp conditions limited the burn. Forker shot elements of burning trees, which Crazy Horse then replicated and composited into a wider inferno. "We used a technique that we had developed on the miniseries *John Adams*," said Paul Graff. "We took still photographs of fire and, with warping and 2D tricks, turned those textures into believable distant fire. For wide shots, we replicated alternate takes of burning trees along the horizon."

The next day, the man and boy encounter a barn containing suicide victims. To add to the foreboding mood, Dive matchmover Nick Jushchysyn tracked smoke elements into the plate sampled from footage of the 2001 World Trade Center terrorist attacks. "It was very important to John that the elements that we brought into the show came from real life," observed Mark Forker. "We worked hard to find the cleanest video footage of the Trade Center fires, and put that way in the distance, pluming up behind the tree line."

Tension mounts when the man and boy run into a gang of scavengers, one of whom the man shoots when he threatens the boy. Dive applied subtle blood effects to the victim (Garret Dillahunt) and generated an effect to help clarify the gang's intentions, which become apparent when Mortensen's character returns to the scene and discovers the slain gang member's now-cannibalized remains. "In the initial test screenings," recalled Ed Mendez, "the audience wasn't buying that the remains were that of the man Viggo had shot. We came up with a way to create a digital projection of the guy's head." Digital effects artist Jeremy Fernsler created a 3D likeness of Dillahunt from takes of the actor's earlier scenes. "We built a model of his head in 3D, projected the textures onto that, and then tracked it into where pieces of the body were lying underneath a car."

Surviving the encounter, the man and boy hide out in a jack-knifed truck on an elevated highway that curves above a forest. The production staged the sequence with a full-scale derelict truck on a stretch of Pennsylvania's Mon/Fayette Expressway. Crazy Horse

enhanced two wide shots for the scene, aging the road surface and barriers, leeching color from vegetation and transforming a stream below the highway into a trickle of yellow effluent. "John loved the dead chemical look of the river," said Graff. "We did very little else to that scene, but sometimes adding the simplest detail had the most powerful effect."

In another town, the man and boy hunt for supplies in a wrecked supermarket, filmed at a closed-up movie theater in New Orleans. "The theater was in the middle of a parking lot that looked pretty rough and tumble," remarked Mark Forker. "Crazy Horse did a set extension with matte paintings and some foreground details to give the illusion that the characters were going through a huge mall." Forker filmed the performers crossing frame in a locked-off shot on one of the production's rare sunlit days. Chris Evans created a sky replacement and painted synthetic textures to soften shadows in the shot. Extensions included a wrecked movie theater sign and a nodal pan to some storefronts.

**T**he search for food leads the man and boy to a tumbledown mansion where they discover a locked cellar that conceals the captive victims of a cannibal community, kept alive as a source of sustenance. Hillcoat filmed the sequence at Fanker Mansion, north of Pittsburgh. Dive compositor Ryan Leonard enhanced establishing shots, replacing the house façade with photographic textures of a more dilapidated building. For the cellar scene, Toni G's team created makeup effects on skinny performers cast as emaciated captives. Mark Forker then photographed still images of meat, which Dive applied to the stumps of amputee performers playing dismembered victims with limbs already harvested and eaten by the cannibals.

The man and boy escape the cannibal house and take refuge in a residential area, filmed in a post-Katrina New Orleans housing development that was enhanced at Dive. "The whole left side of the scene was a freeway," related Ed Mendez. "We had a series of shots looking down various sections of the same road. We flipped those and placed them on the other side of the street so it looked as if Viggo and Kodi were in the middle of a destroyed neighborhood." Digital artist Anton Moss added live-action elements that Mark Forker shot on location, as well as elements of debris, garbage, smoke and skeletal remains shot in postproduction.

As the characters near the ocean, they discover the coastal region to be equally devastated. To establish the locale, the production acquired aerial footage

of fishing boats stranded on a Louisiana highway, licensed from an Imax production about Hurricane Katrina. Crazy Horse then transformed the footage into an even more apocalyptic image. "I made a mock-up overnight of the first sample we received of the Imax plate," said Paul Graff. "I rearranged the boats and slowed the shot down to match the style of the photography in *The Road*. We planned to add a burning city in the distance and make the lighting much more overcast." Months later, the production supplied Crazy Horse with an alternative take of the shot. "The approved footage was very different. The helicopter started its move further from frame left, and it had a different motion, not flying in so close to the boats. We created options of how we could modify the plate, and our first test was very close to the final image in the movie."

**T**he filmmakers cropped into the Imax frame to create a triangular composition between the stranded boats and a tangle of other wreckage. Graff slowed the frame-rate to about half-speed and created an extensive sky replacement. "We first had to color-correct the shot, and then create separations between the sky and the very complicated midground objects," said Graff. "We rotoscoped the midground, made a 3D track of the shot, then made 3D matte objects to create hold-outs between the foreground and background, and color-correction mattes so we could modify the color in areas of the shot."

The track consisted of an overlay of translucent black-and-white checkered cards, planted around the terrain in NewTek LightWave 3D, onto which objects could be anchored through the camera move. Crazy Horse matte artist Dylan Cole built a matte painting of the distant city using photographic elements projected onto cards and layers of cloud that shifted in perspective during the move. Graff composited elements with foreground details including a painted oil spill, scatterings of debris and weathering on the ships. "We gave the ships new names," noted Graff. "We added fishing lines, rigging and rust, and we changed the tone of the color of the hulls which were much more vivid blue in the plate. We tried to keep it simple, which allowed us to tweak little details until they looked right. Then it became much more about the poetry of the matte work than about the difficulty of the render."

After leaving the ruined city, the man and boy traverse a forest and experience an earthquake that causes rotting trees to fall around them. Invisible Pictures visual effects supervisor Noel Hooper created falling tree effects using practical elements shot

on location combined with 3D trees and greenscreen elements of dust and falling ash.

**T**he characters finally reach the coast. Hillcoat filmed beach scenes in Oregon, with limited set dressing debris. Crazy Horse added digital extensions, including a whale carcass that matte artist Brian Flora built as a miniature element roughly 20 inches long. For scenes revealing a ship run aground offshore, Crazy Horse used photographic research to fashion a hybrid matte painting element of a large rusted fishing vessel half buried in the sand. Compositors then layered the scene in fog by building up perspective layers of painted mist and haze.

For nighttime shots of the man and boy beside a campfire on a stormy beach, Hillcoat filmed Mortensen and Smit-McPhee on a small sand dune set backed by greenscreen and lit by intermittent flashes representing lightning. Crazy Horse extended the environment for a wide view of the storm using a day-lit plate of the empty beach, digital still images of the location and photographic elements from the studio's library. "We used a thunderstorm cloud element in Texas that we shot while we were on location for *There Will Be Blood*," related Graff. "When we revealed that in the sky for a tiny moment it added all the horsepower, although it only flashed for a few frames."

While the man and boy are distracted on the beach, a lone thief (Michael Williams) with mutilated hands tries to steal their belongings, causing the father to lose his temper and attack the pitiful vagabond. To create the illusion of the thief's thumbless hands, Williams wore greenscreen thumb masks for the scene, and then Space Monkey visual effects supervisor Joe DiValerio created 25 visual effects shots, digitally removing and rebuilding 3D thumb stumps, body parts and clothing in constantly moving handheld shots.

The characters enter a coastal town, filmed in Pennsylvania at Conneaut Lake Park, a lakeside vacation lodge left partially derelict after a major fire. "The lodge was intact inside, but it was deserted," observed Mark Forker. "It was freezing cold and all the beds were made, which was part of its eeriness. The amusement park had burned down and was full of melted metal. Space Monkey added billboards and did sky replacements along the boardwalk, and Liquid Ink did some matte painting to redress the devastation — but it was mainly just another great location."

The boy discovers a tobacco tin containing a bug that startles him when it flies away. Dive digital effects artist Kevin Fanning generated a digital bug for the scene, matching a practical prop, in the film's only use of character animation. An attacker then surprises the

*To establish the landscape as the man and boy near the coast, the production acquired Imax post-Katrina helicopter footage showing a cluster of boats and debris washed up on a Louisiana highway. The filmmakers cropped into the large-format film frame, creating a triangular composition that matched the production's widescreen aspect ratio and focused attention on a pair of beached fishing vessels. Crazy Horse then slowed the frame-rate to roughly half speed and created digital enhancements to transform the brightly lit landscape into a post-apocalyptic vista.*

*The Imax plate required extensive color correction, rotoscoping and 3D motion tracking to separate foreground, midground and background elements. Crazy Horse matte artist Dylan Cole created a distant burning city from photographic components, which Crazy Horse visual effects supervisor Paul Graff layered behind midground and foreground details. Graff then composited elements to markers on the terrain, so as the camera moved left to right, objects moved in proper parallax. Enhancements included layers of clouds, distant columns of burning smoke, rust and grime, and a tonal shift that transformed the mood while preserving the photographic integrity of the plate.*





Arriving at the coast, the man and boy discover that the ocean is as polluted and desolate as the inland territories, its shores littered with debris and the rusted hulk of a fishing vessel stranded in the surf. The production filmed beach scenes on a winter coastline in Oregon, making use of the natural omnipresent fog and bleak lighting. John Hillcoat's editorial team generated a rough Avid composite to simulate placement of the beached ship. Crazy Horse then generated a hybrid matte painting built from photographic textures of derelict ships, and layered the scene with mist and haze.

characters and wounds the man with an arrow. David Fletcher's team provided practical effects of a wire-flown arrow and a live pyrotechnic effect as Viggo Mortensen's character retaliates, firing a flare gun into a window at his assailant. Brainstorm performed digital wire removal and added rainfall, and Dive added subtle trail enhancements to Mortensen's in-camera flare blast. Prosthetic artist Kevin Haney supplied a dummy leg for closeups of the man tending his leg wound.

Weakened by his injury, the man's health fails and, in a heartbreaking scene, he urges his son to continue their quest for civilization alone as he lies down to die. Hillcoat filmed the scene on the shore of Lake Erie, which doubled for the ocean. Crazy Horse then created subtle scenic enhancements and green-screen removals as the boy encounters other weary travelers, a woman (Molly Parker) and her husband (Guy Pearce). "John wanted the environment to be completely devoid of anything but water, fog and sand," noted Forker. "We grayed out or eliminated every other part of the environment to create a completely sparse landscape. It represented either hope or death, depending on your interpretation. John did not want it to be obvious if the boy was going to survive. He wanted that to be a mystery."

**A** crucial part of setting the highly charged emotional mood of *The Road* was the digital intermediate. "Every vendor did its effects work onto the original plate without any color correction," said Forker. "When we brought all the work back into Dive, John went through the film and adjusted every scene — not only visual effects — so he knew the direction he was going to go in the final grade. He had a very strong vision about that and he did the final DI at EFilm, in Los Angeles, where they used a proprietary version of Autodesk Lustre, which allowed John to matte and colorize areas of the frame. He touched every frame of the film in multiple ways."

The delicate, but full palette of visual effects in the film gained the director's trust and ultimately his confidence. "John completely embraced the process," asserted Forker. "He was very much into our organic way of working, using a minimal amount of 3D. In the beginning he thought that 3D was the devil. But he went from someone who was almost hesitant to put 60 visual effects in the show to someone who ended up using 220. He's a changed man!"

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