The Social Network

The new Broadway musical *Dear Evan Hansen* uses a tightly integrated production to render the world of cyberspace

By: David Barbour

Dear Evan Hansen may be the first musical to take place inside the Internet. That's an exaggeration, but only slightly so. Many playwrights have grappled with the implications of life in the digital era—this season, James Graham and Josie Rourke's *Privacy* considered the disappearance of secrets in a world shaped by Wikileaks and the NSA's PRISM program, and Jenny Rachel Weiner's *Kingdom Come* dealt with the phenomenon of catfishing—but *Dear Evan Hansen*, which opened at Broadway's Music Box Theatre in December, takes a hard

Below and opposite: Scenery, projection, and lighting (and also sound) combine to create a sense of the omnipresence of digital media in the characters' lives.

All Photos: Matthew Murphy

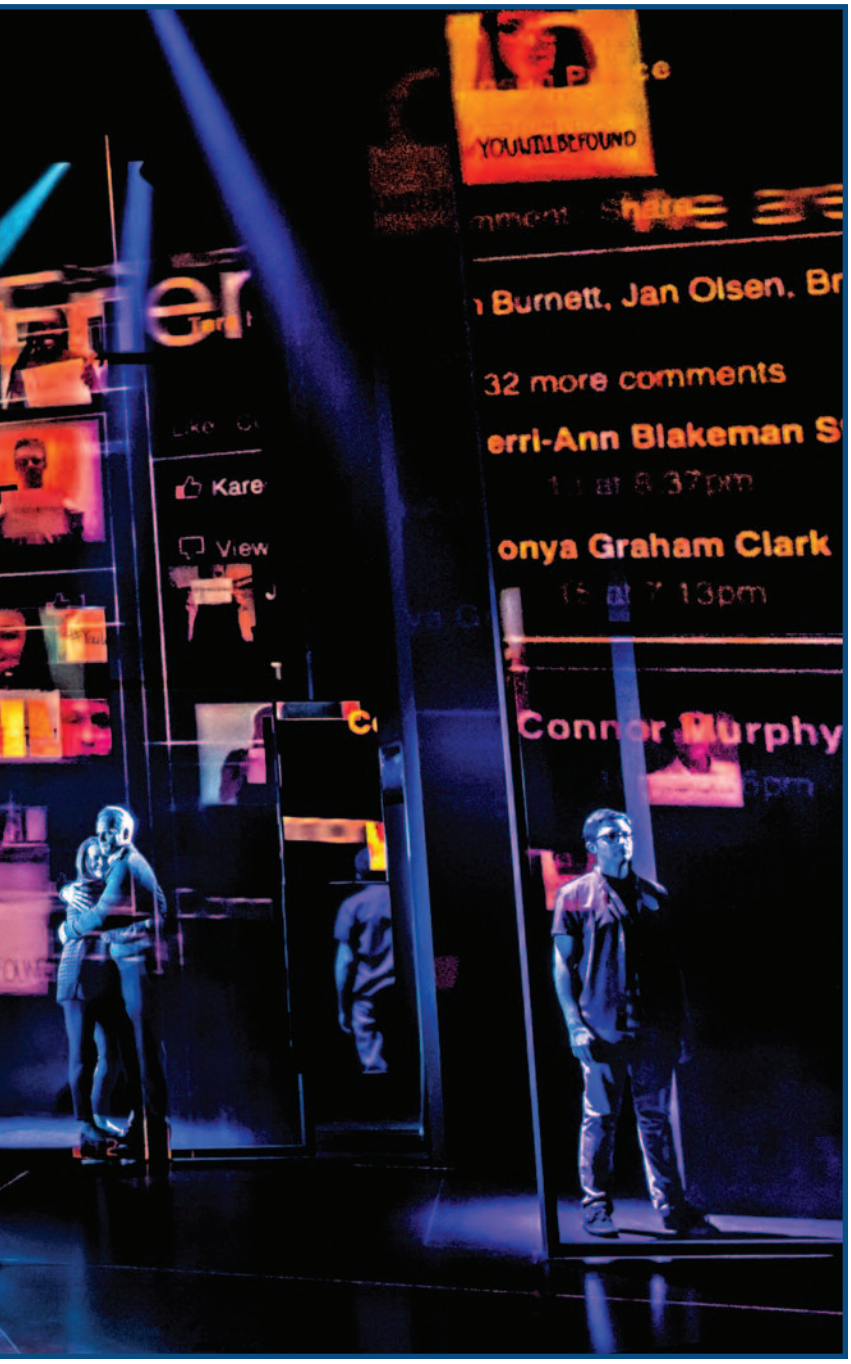
look at how contemporary lives, especially those of emotionally vulnerable young people, are affected by the likes of Facebook, Snapchat, and Pinterest. As the recent "fake news" phenomenon has revealed, social media, a space designed for the expression of emotions and ideas, is also a place where feelings and facts can be manufactured, without regard to reality.

The title character, played by Ben Platt in a star-making performance, is a painfully shy, socially awkward 17-year-old; haunted by the father who abandoned him, stifled by a mother who, with all the best intentions, tries too hard, he leads a friendless existence. He is also luckless; when we first meet him, his left arm is in a cast, the result, he says, from falling out of a tree during a summer internship at a local park. Evan's therapist has encouraged him to write letters to himself, spiritual pep talks designed to boost his self-confidence. One such missive falls into the hands of Connor Murphy—like Evan, an adolescent outcast, but one who faces the world in a far more hostile manner; when Connor kills himself, Evan's letter, found among his things,

The above image shows the integration of the design's visual elements. A wagon at stage center suggests a bedroom. Surrounding it are tracking panels and LCD panels loaded with content. Lighting picks out the characters, allowing them to stand out.

is widely misinterpreted. The idea gets around that Connor and Evan were, secretly, friends, a fact that causes Evan to be seen in an entirely new light by his peers. He goes along with the idea, partly to console Connor's grief-stricken parents and partly to spend more time with their daughter, Zoe, long the object of his affection.

At first, the situation seems manageable; Evan imagines it will soon fade away and be forgotten. But along comes the alarmingly organized Alana, a fellow student, who starts The Connor Murphy Project, with a mission to help troubled teens, getting Evan to sign on as co-director. When Evan's speech, at a school memorial for Connor, goes viral, he becomes famous—for a friendship that never was. Connor's parents begin treating Evan as a replacement son, Zoe starts to fall for him, and the Connor Murphy Project becomes a national sensation, inspiring a flood of posts, tweets, and financial donations—trapping Evan in a false reality he has helped to create.



Steven Levenson's book achieves a remarkable kind of double vision, revealing the pain and fear that drive Evan's actions even as they become more and more reprehensible; the songs, by Benj Pasek and Justin Paul—especially the heart-piercing "Waving Through a Window"—deepen the emotional stakes with each downbeat; we are made to care terribly about Evan as he rockets toward a reckoning that can't be avoided. And Michael Greif's production, which was honed at Arena Stage in Washington, DC, and New York's Second Stage, is tightly integrated, as scenery, lighting, projection, and sound vividly evoke that ephemeral no-man's-land of ones and zeroes where so many of us seem to live these days. In "Waving Through a Window" and other numbers, moving scenery and projections—showing posts, videos, and tweets—accompanied by automated lighting and a soundscape of voices offering running commentary, all combine to make a powerful audio-visual representation of our modern digital reality, which becomes Evan's place of purgatory.

Scenery and projection

David Korins, the production's scenic designer, says the depiction of the social network, as described above, "is in the show's DNA. We wanted to show the Internet in all its good and evil. You can't be a designer these days and not grapple with how to show iChat or direct messaging or Facebook." He adds that he was brought to the project by Stacey Mindich, the lead producer, who wanted to ensure that, despite the script's often chilling depiction of technology in action, a sense of the warmth of family life—even deeply troubled family life—would be retained.

At an early reading of the script, Korins says, "I took the printout with the names of the cast, folded it into sixteenths and did 16 tiny thumbnail sketches of my emotional response to the show. In my first meeting with Michael Greif, I showed him the paper and asked, 'Do any of these strike a chord with you?' He pointed to a circular disk with a bed on it and also a kind of wind-chime arrangement of monitors; it was, if you will, a floating tectonic plate of warmth in a huge void with cyber screens flying overhead. Three-and-a-half years later, that's the show."

Creating the sense of the digital world, Korins says, are nine video monitors that are rigged to fly, along with five tracking panels, covered with scrim, which serve as projection surfaces; one of the tracking panels is also rigged to fly. "Also," he says, "there's a top-and-bottom iris all the

way upstage, which can open to reveal two horizontal banks of monitors." An innovation for Broadway was the decision to wrap the proscenium in Rose Brand Black Front-190 front-projection screen to provide an additional projection surface. This was part of a strategy—which included raking the stage—of creating additional intimacy in the Music Box, the largest venue the show has played. (Images can also be seen on the set's portals, also covered with Black Front-190, adding to the sense of the characters being inside a digital vortex.)

At the same time, in order to represent such locations as Evan and Connor's bedrooms and the Hansen and Murphy families' living rooms, Korins implemented a pair of wagons on curved tracks. "One of them is a turtle," he says, "which you see when Zoe is sitting on Connor's bed, which rotates into place and the movement of the projections counters that. One wagon stores at stage left and the other at stage right." The wagons are refitted with different furniture arrangements as needed; in keeping with the show's aesthetic, the minimum number of pieces is used to suggest each location. Scenery for the production was built by PRG, using the company's StageCommand automation system. Additional scenery was built by Daedalus Productions.

Korins says that he and Peter Nigrini, the show's projection designer, began working early on to define the look of the social media imagery that is central to the show: "Peter had to figure out how to depict Internet tropes like the Facebook moment, the Twitter moment, and the Kickstarter campaign [the latter to raise money for the Connor Murphy Project]. We acquired various icons, chyrons, and app sources; after that, I got out of his way. In DC, I did a model storyboard in Photoshop, showing where the screens would be and how they would move. Once that was done, Peter started laying in content on the storyboard. When we got into the theatre, he took over."

Nigrini says, "There was a great value in starting the conversation in tandem. Michael, David, and I could speak without preconceptions about what we needed to achieve onstage. We came up with a list of what we needed, the speed it needed to move at, and the way we wanted to represent time and place, as well as the feelings we wanted to evoke. David was producing sketches and I was producing content; we could see where we were both headed. Then David could figure out how to get things on and offstage.

"Basically, David designed a toolbox for me to work with. He would say, 'Wouldn't it be great if there was a narrow band of monitors upstage?' and I would see how that would work, compositionally. He designed a kinetic mobile of components and I would rearrange them in response; there was no way for us to decide in a vacuum where the screens should be at any point until we knew what was being shown on them; otherwise, we were just rearranging black squares."

In terms of developing content, Nigrini says he and his team dealt with "an incredible amount of source material and how that needed to evolve into a design. There was a period of time when a lot of the content had specific details that weren't germane to the show—for example storyboards that included my friend's Facebook posts"—which were essentially used as placeholders. "Once we knew what we wanted it to look like, then we decided what each image should say, what the photos should be, and what platform it should allude to. One of the show's producers, an executive at Mashable, became my social media tutor, explaining, for example, the nuances of Snapchat. It's the same kind of research that actors do. We're putting on stage the social media life of a 17-year-old; I could make it up, and you and I would believe it—but would another 17-year-old?"

Another challenge involved creating imagery that alluded to the "real" locations, without resulting in what the designer calls "a projected monstrosity," meaning a large-scale image that would overwhelm the actors. "If you have the right set designer, your job is much easier," he notes. "When there isn't the possibility of making a big, horrible picture, it removes the expectation from the audience." Instead, each scene is surrounded by screens on which the designer places close-ups of fragments—throw pillows, tree branches, and the like—that help to identify each location.

Speaking of the decision to go with a combination of projection screens and video monitors, Nigrini says, "The monitors—those glowing, emissive surfaces—have a nice resonance with the show's presentation of social media; the visceral experience that one has from a Facebook account is from screens like that. Also, they are ten times brighter than the fabric screens and that's handy at times. The LCD panels helps to ground the less-solid projection; it also creates a good balance between the diaphanous environment in which the show takes place and the more solid scenery that shows up." Overall, 34 Samsung DB40D video monitors are built into the set: six projectors—four Panasonic PT-DZ21Ks (two on the rail and two on the overhead truss), and another two PT-RZ12Ks also on the balcony rail—deliver images to the screens, legs, masking, and proscenium. Video gear was supplied by WorldStage.

Nigrini says he chose the Panasonic PT-RZ12K units partly for their bright laser light sources—"a must at the Music Box"—and partly because "one of the many technical challenges was noise. There's a lot of gear in the show and we needed to be quiet as possible. The units on the balcony rail are in custom-designed sound baffles built for us by PRG." He adds, "The two workhorse units on the balcony rail are sitting in portrait orientation; they're pointed at house left and house right, and they bounce off of mirrors that sit right on the rail. They bend the beam 90° and send it to the stage. This arrangement was driven by a

Korins uses the minimum number of scenic elements to suggest each location.

number of factors, including noise reduction." The Samsung monitors, he adds, "are prosumer products. The really beautiful high-end video wall monitors don't come small enough; they are 60" when we're at 42" and 32".

The translucent tracking panel material is painted, Korins says: "My associate, Amanda Stephens, and Peter and his associate, David Bengali, and I went through 30 different paint samples. Some were too splotchy, and some were too opaque; we were looking for the sweet spot between silk organza and scrim. It became clear early on that transparency was the way to go; we want the images to be vivid but want you to see through them."

Nigrini says, "The tracking panels are made of a monofilament polyester mesh that I found years ago for another design. It's strong and can be stretched incredibly tight. We did tests with ten different thread counts of the fabric to determine how translucent or opaque we wanted it to be. The downside is that it comes only in white and is undyeable—but we discovered that it is paintable, so we have a white silk mesh painted a very dark gray. It takes lighting like magic."

Nigrini chose the d3 Technologies v2.6 server running r14 software, chosen presumably because of its feature-rich offerings, to facilitate the delivery of still images, videos, and text to surfaces that are frequently in movement. "We got d3 to rebuild the software to communicate with PRG's StageCommand system," the designer says. "They've completely recoded the way that the StageCommand system shares automation data. The d3 system takes in information as to where every automated piece of scenery is at all times; the design is reliant on that. When the video monitors fly, sometimes they appear to fly right through content and the tracking panels often move through an image as well The d3 needs to render changes to the content in response to the position of the scenery; very few media platforms can do that." In terms of cueing, he says, "Eighty percent is linked to the lighting board, but a substantial amount of time code from Ableton Live in the pit, triggered by the music director."

For all the show's technical innovations, Nigrini says that one challenge remains constant. "It's an endless process of subjugating projection to the performer—making it present and creative, and taking focus when it should and then receding. It's what I always worry about with a design of this scale: Does it overwhelm the performers? If it does, why am I there? We have to keep our eyes on Evan right down to the moment when he admits that he lied. If you're looking at projections during that moment,

then we've failed. It's a delicate thing, but I feel that projections in motion are less distracting than those only occasionally in motion. If the movement is completely organic, you develop a language of how it should move, and it doesn't jar the audience out of paying attention."

Nigrini says his favorite moment is the collapsing progression of images leading to the final scene, set at an orchard; the stage grows darker as the design grows increasingly spare, eventually disappearing, as the cyc is revealed and seedlings sprout from the stage, lit by a bright sunlight wash. The designer says he was more than happy to cede the stage to Evan, who has a climactic encounter with Zoe, as well as a reprise of the number "For Forever." A key lyric is "all I see is sky," and that's just what the design team provides.

Lighting

Japhy Weideman, the production's lighting designer, says he came on board about six months before the initial production, at Arena Stage. "The environment had been mostly thought out, but it was all up for grabs," he says. "David knew that the bedroom scenes would be on one disk and the Murphy kitchen and dining room would be on another, but the screen position and the iris were very much under discussion and in process in each venue. It has been a ping-pong match between Michael and Peter and David and myself. That's what's great about the set; it's a toolbox that you can modify in terms of shape and depth.

"We were originally going to go into the Belasco Theatre. I was concerned about that, because I needed a

Weideman says that one of his primary goals was to ensure that the characters' faces were visible in an environment loaded with visual information.

front-of-house truss. Because of the historic quality of the Belasco, the theatre's owners were unsure about letting us add points for a truss. In a lot of shows, I don't rely on this position; I'm more about high crosslight, toplight, and sidelight, but, in order to really pop the actors' faces and to balance the lighting with the video, I needed that front position. The whole creative team felt that keeping the faces bright was super-important. The Music Box has a truss, so there was nothing to install, although we did end up building towers for the followspots in two boxes."

Finding the right followspot positions was an ongoing challenge for Weideman as the production moved from venue to venue. "Arena Stage is a proscenium house with a big thrust," he says. "We had three followspots at a steep angle that kept the light off the projection panels. At Second Stage, there was no position for followspots, so I had some built around the proscenium. I loved them, but they didn't address concerns about having Ben Platt's face look nice and bright. The Music Box is a nice compromise between the beauty of the high side angle at Second Stage and the more frontal angle at Arena. We're using PRG Bad Boys, mainly for their brightness and also to make custom colors for each person's skin. We've used CTO and sometimes a little magenta to get each skin tone right; it took a little extra programming, but maybe only 30 seconds per actors."

In terms of figuring how to best light each scene, given all the design's moving parts, Weideman says he worked out on paper the best arrangement of lights for each scene. However, he adds, "I had to be prepared to change it, because the position of panels had changed or because the director might want to take a different approach to get across a piece of text. We worked a lot of it out at Arena and kept working at Second Stage. By the time we got to the Music Box, we had solved so many story issues that we knew what we needed to do."

The rig makes use of a variety of units old and new. "I fall back a lot on [Philips Vari-Lite] VL3500 Washes," Weideman says. "They've got 1,500W lamps and if you spot them all the way down, they're the punchiest things I can get my hands on. Michael Grief loves them; he calls them 'the fatties.' When Ben sings the orchard song ["For Forever"], one VL3500 from up left slowly builds over the course of a minute and you see this incredible, divine beam of light hitting him." Another major workhorse is the Martin by Harman MAC Viper Performance. "They have great CTO if I need to warm the faces up," he says, "and they have great color-shift ability and a super-sharp edge." The Vipers are used in the highly dramatic first-act climax, when Evan, speaking at Connor's memorial, drops his notecards and falls to the floor to retrieve them; when he stands up again, he is a changed person, having committed to stand by the lie about him and Connor.

As always, noise is an issue. The VL3500s are kept upstage for this reason, with seven Vipers, which are quieter, on the front-of-house truss. "We're getting to the point where there's only a certain threshold that we can accept," Weideman says. Sharing space with the Vipers is a City Theatrical AutoYoke, "just to have an incandescent lamp in that position. There's still nothing like incandescent light on the skin. Even with arc sources and CTO, sometimes having that little bit of tungsten cleans it up.

"For specialty moments, I use Claypaky Sharpys. They are powerful lights; you can't turn them on too often, but they can really help the audience connect to certain moments in a visceral way. And then there are [Martin MAC] Auras on the sides; in the online scenes, where Peter is feeding lots of information in the projections, I can turn on the Auras for a 5,000 Kelvin look that is nice on skin, to make the bodies float in a dark space. When Cynthia and Larry [Connor's parents] are at the table, looking at Connor's computer, I can use the Auras to float them in a different way, with a tungsten quality that doesn't hurt the video."

Also used are Chroma-Q Color Force 72 striplights to light the cyc, plus Philips Vari-Lite VL6C+ units, additional AutoYokes, Mac Viper Wash units, ETC Sour Four Lekos, and Source Four PARs. Control is via an ETC Eos Ti console. Wireless control of certain effects is provided by City Theatrical's SHoW DMX Neo system plus SHoW DMX D3 and D4 dimmers. Lighting gear was supplied by PRG.

Weideman notes that the job of picking people out and highlighting their faces was sometimes difficult amid so much activity. "In the first pass, the challenge was the complexity of the music itself, especially for a song like 'Waving Through a Window.' But some other, simpler songs, like "Only Us," with Ben and Laura [Dreyfuss, who plays Zoe] in the bedroom, have slow cues that definitely took up rehearsal time to get right. I have a theory about lighting: If you just listen and watch and allow yourself to open up to what the song is or isn't, that's what guides you. You know if something builds too slowly or too fast, or if it feels too green. 'Good for You' [a hard-driving number] was really satisfying in terms of the rock-and-roll quality we were all looking for, once we had a base structure to build from, but building that took time. It's like standing at the bottom of a mountain saying, 'Wow, how are we going to get up there?' But once you're there, that's when the fun part begins layering in hits, beats, and accents that work with what Peter is doing."

Sound and show control

Nevin Steinberg, who joined the production when it moved to Second Stage, took on a double task: In addition to providing audio reinforcement, he also created the cascade of voices that accompany much of the social media video and projections. All the lines are scripted, he notes, and a team of voice actors was hired to record them. "Steven wrote all the material, with Benj and Justin," he

adds. “Some of it had been explored at Arena, but when we got to Second Stage, we dismantled it and put it back together on a time line. We took the music and laid it out in Pro Tools, then started laying in the spoken words into the music in rhythm, leaving space for the principals and background vocals. It was me, Steven, Justin, Benj, Michael, and Alex Lacamoire [the show’s orchestrator] sitting around a Pro Tools computer, going through it bit-by-bit, trying to create the best possible version.”

Steinberg adds that this process helped him with his overall sound design. “It was time well-spent. Those conversations, that everyone has together, are useful in ways that are unquantifiable. Hearing the people who wrote the show talking about what they were trying to accomplish, is incredibly valuable.” Like the rest of the team, he notes that the linking of lighting, sound, video, and scenic automation is often remarkably intricate, but, he adds, “That’s one of Michael’s greatest skills. He’s a genius when it comes to stage pictures and movement and automation. There was a tremendous amount of time spent on the numbers when all the media is in play.”

He notes that, in terms of reinforcement, “it’s not a heavy hang, as it is a small theatre and we were challenged in terms of real estate, given the height of the header and the false proscenium. We have [Meyer Sound] UPQ-1P [wide coverage loudspeakers] up and down on the proscenium and some [Meyer] Leopard arrays for the far throw from the proscenium to the mezzanine. We also have Meyer UPA-2P [compact narrow coverage boxes] for delays on the mezzanine and, downstairs, Alcons Audio VR8 [ultra-compact multi-purpose speakers] for underbalcony delays and d&b audiotechnik E8s [two-way multipurpose speakers] and E4s [two-way passive speakers] spread around the theatres. There are more E8s for box fills and EAW-JF60s for the surround system.” The most novel feature of the rig is the Alcons product, which Steinberg says he first used on the smash hit *Hamilton*, then more extensively on last season’s *Bright Star*, which featured a country-style score by Edie Brickell and Steve Martin.

Many of the more complex cue sequences are trigged via Ableton Live.

Foldback is provided by a number of d&b E4s and E5s scattered around the stage. The performers are miked with DPA d:screet 4061 mics paired with Sennheiser SK 5212 body-pack transmitters. Sound effects are delivered by QLab. The audio is controlled by a DiGiCo SD10T console. Sound gear was supplied by PRG.

Steinberg adds that the overall linkage of the production’s various design aspects is a complex affair, thanks to the use of previously mentioned Ableton Live. Scott Wasserman, one of the production’s Ableton programmers (along with Enrico de Trizio), says, “Ableton is primarily a DJing software that we’re repurposing for use in the theatre. The main reason we started using it was to provide a click track to the orchestra, to keep the musicians together and to play back electronic music and atmospheric sound content. With all of that linked up on Ableton, it was an opportunity to include lighting, projections, and sound effects. Ableton outputs SMPTE time code that lighting, sound, and projections receive as the band is playing along with the click track. We can tell those departments specifically which part of the music and which second, or frame, of time code is connected to a certain moment in the show. If the plan is to flash the lighting on a certain word, we can pinpoint exactly where that is, and it doesn’t have to be a separate call from the stage manager.”

Certain cues in the show are controlled via MIDI. Wasserman adds, “Ableton can also output MIDI notes and control changes, but really for one punctuated moment rather than tracking through time code. A cue that is a single flash of light is better with MIDI, so the lighting department isn’t receiving a ton of data they don’t need.”

The conductor, Ben Cohn, drives Ableton via a foot pedal. Individual cues can still be triggered from the lighting console. Also, Wasserman notes, “Nevin and his team use QLab to play back traditional sound effects; we also trigger some sounds from QLab through Ableton. For example, there’s a moment when Ben Platt steps forward off of his bed and we launch into a transitional scene; the moment the conductor sees Ben move, he sends a cue that triggers a MIDI note to lighting and sound that starts the transition.”

In terms of making it all happen, Wasserman says, “The click track for the orchestra is created first throughout the rehearsal process, so that when the band joins us, we have those sounds in place. Once in the theatre, in tech,

Steinberg notes that a major challenge involved honoring the score's indie-pop style while ensuring the intelligibility of the lyrics.

that's when we integrate the time code and MIDI so that all the other departments are brought together in synch. Once in place, everything stays synched up, creating an improved experience for the audience." He adds that the technology is especially useful for a show like *Dear Evan Hansen*. "It allows you the opportunity to be more aggressive with what you're trying to accomplish. You might shy away from making so many cues if you couldn't make sure that they would happen the same way every day."

As Steinberg notes, that sense of integration is the key to the show: "The music and lyrics are tightly woven together; the challenge is keeping that fabric tightly woven, honoring the music's indie-pop style while the characters are telling you important information. These guys write beautiful lyrics, and Alex Lacamoire does such amazing work. Audiences are so grateful for the opportunity to see into this kid's psyche through these songs." As is typical of the designer's work, the show is thoroughly intelligible, even in the chorus numbers.

Additional personnel on *Dear Evan Hansen* includes Judith Schoenfeld (production stage manager), Michael McGoff (stage manager), Danielle Buccino (assistant stage manager), Ken White (associate lighting designer), Jessica Paz (associate sound designer), Adam Quinn (creative assistant), Jessica Creager (assistant lighting designer), Nick Borisjuk (production sound), Jarrett Kraus (sound engineer), Greg Peeler (assistant sound engineer), Chad Woerner (production carpenter), Alex Brandywine (head carpenter), Jeremy Wahlers (production electrician), Jon Ramage (head electrician), Marc Polimeni (lighting programmer), Andrew Bauer (lead video/projections editor), Dan Vatsky (video/projection engineer), Ben Keightly (video programmer), Asher Robinson (video/projection engineer), Robert Figueira (additional video editing), Buist Bickley (production props), Chris Deluise and John Paull (props), Hugh Hardyman (advance flyman), and Nick Graci (video intern).

Having earned rave reviews, *Dear Evan Hansen* has become a sellout hit. Look for it to be very much in the mix when the spring awards season arrives.